Evaluation Service

PER-05006

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 and this product has a Follow-up Service / Inspection Agreement. This Product Evaluation Report in no way implies warranty for this product or relieves Alpha Systems, 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	Re-Approved
September, 2000	April, 2016

See all Pei ES Listings at: www.p-e-i.com

Report Owner

Alpha Systems, Inc.
5120 Beck Drive
Elkhart, IN 46516

Product

AlphaSeal 5200 Two-Part Polyurethane Structural Adhesive

Approved Manufacturing Location

Alpha Systems, Inc.
5120 Beck Drive
Elkhart, IN 46516

For Evaluation Report Questions

www.alphasystemsinc.com
Alpha Contact: Joe Merryman - Director of R&D
Phone: 574-295-5206

General Details

AlphaSeal 5200 adhesive is used to attach gypsum board to wood lumber framing in walls and ceilings without the use of mechanical fasteners.

Product Description

AlphaSeal 5200 is a two-part polyurethane structural 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 an "A ISO" and a "B Resin". The A ISO is a purchased material and the B Resin is manufactured by Alpha Systems, Inc. The AlphaSeal 5200 adhesive does not off-gas Formaldehyde into the air.

Containers and Storage

The A & B components are shipped in 330 gallon caged totes or in 55 gallon steel drums. Storage of these containers should be in an indoor dry place between 40°F. and 110°F. Unopened containers will have a storage life of up to six months in these conditions.

General Product Use

The gypsum board being used shall meet ASTM C 1396. The lumber is to be kiln dried and graded. For proper application, both substrate surfaces shall be between a temperature of 50°F. and 105°F. Surfaces shall be clean and dry, free of dust, ice and loose particles. AlphaSeal 5200 adhesive shall be applied in an ambient temperature range of 50°F. to 105°F. The adhesive is applied along the intersection of the gypsum and the lumber according to Alpha Systems Application Instructions. The adhesive temperature at the heater block shall be between 100°F. and 110°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.

AlphaSeal 5200 adhesive can be used on 24" and 16"o.c. framing in the walls and ceiling. The adhesive beads are applied along one side of field framing and along both sides at gypsum seams. Beads produced shall be sized per Figure 1, on page three (3) and Note 1 under Table 1 for wall shear design values. A bead should never be greater than 3" in size.

Evaluation Criteria

1. The AlphaSeal 5200 adhesive shall be applied according to Alpha Systems Application Instructions. A copy of these instructions must be made easily available at the assembly areas.
2. This Evaluation is for AlphaSeal 5200 to be applied in an indoor manufacturing facility and is not meant to be applied in an outdoor uncontrolled environment.
3. AlphaSeal 5200 adhesive is to be manufactured at the Alpha Systems plant in Elkhart, Indiana following their approved Q.C. Program with unannounced Inspections by *Progressive Engineering Inc.*
4. The use of AlphaSeal 5200 adhesive in a fire rated assembly is not addressed in this Evaluation.
5. A vapor barrier cannot be used between the adhesive and the substrates.
6. AlphaSeal 5200 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.
7. Construction of assemblies using AlphaSeal 5200 and their design values shall be as described in the following test reports on page two (2).

Building Code Compliance

2003 IBC	2006 IBC	2009 IBC	2012 IBC - Section 2603.4 and 104.11	2015 IBC - Section 2603.4 and 104.11
2003 IRC	2006 IRC	2009 IRC	2012 IRC - Section R316.4	2015 IRC - Section R316.4 and R316.6

November 2015, Texas Industrialized Housing and Buildings Administrative Rules - Section: 70.103. (c) (2)
NC Residential Code, 2012 Edition - Section R316.6

Test Standards

Pei Standard No. 89-1	*Pei* Standard No. 93-9	ASTM C 557	ASTM E 72	UL 1715
Pei Standard No. 93-7	*Pei* Standard No. 94-9	ASTM D 5582	ASTM E 84	

The following is a categorized list of Test Reports for AlphaSeal 5200 Adhesive.

Ceiling Diaphragm Tests		Ceiling Dead Load Tests	Small Scale Tests	*Pei* Standard No. 93-7
1998-1028	1998-1558	1998-0998	1999-1208	2011-0675
1998-1030	2004-0607	2000-0326	2004-1834	
1998-1032		2002-0358A		
		2002-0358B	Ceiling Sag Test	ASTM D 5582
Wall and Ceiling Finishes Stability at 200°F		2013-0272	2001-0955	2008-1748
2012-1394				
		UL-1715 Tests		
		Report No. RCB 0307		
		Report No. RCB 0308		

Design Values

Ceiling Diaphragm Design Load = 203 plf (11'-9" minimum width x 48ft. Maximum diaphragm span)
Ceiling Dead Load Resistance = 15.3 psf

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
1/2" Georgia-Pacific Gypsum Board
5/16" Gold Bond Gypsum Board
5/16" James Hardie Gypsum Board
1/2" Temple Inland MH Ceiling Board
1/2" USG FibeRock Brand MH Gypsum Fiber Board
1/2" USG SHEETROCK® Brand MH UltraLight Ceiling Panels ULTRA-BASE™
1/2" USG ULTRA-BASE™ Ceiling Board

Table 1: Wall Shear Designs with Gypsum Board

Framing				Gypsum Orientation	Gypsum Brand	Single or Double Sided	Ultimate Load PLF	Test Report #
Top Plate	Bott. Plate	Studs	Stud Spacing					
1x3	1x3	2x3	16" o.c.	5/16" Vertical	Georgia Pacific	Single	737.5	1998-2966A
					USG Gypsum	Single	707.4	1998-2966B
					Gold Bond	Single	656.6	1998-2966C
				1/2" Horizontal	USG Gypsum	Single	750.9	1998-3236A
					Gold Bond	Single	727.4	1998-3236B
					Georgia Pacific	Single	590.4	1998-3236C
					USG MH UltraLight	Single	675.0	2012-1569M
					USG MH UltraLight	Single	760.0	2012-1569O
2x3	2x3	2x3	16" o.c.	1/2" Horizontal	USG MH UltraLight	Single	641.0	2012-1569N

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

Adhesive Application

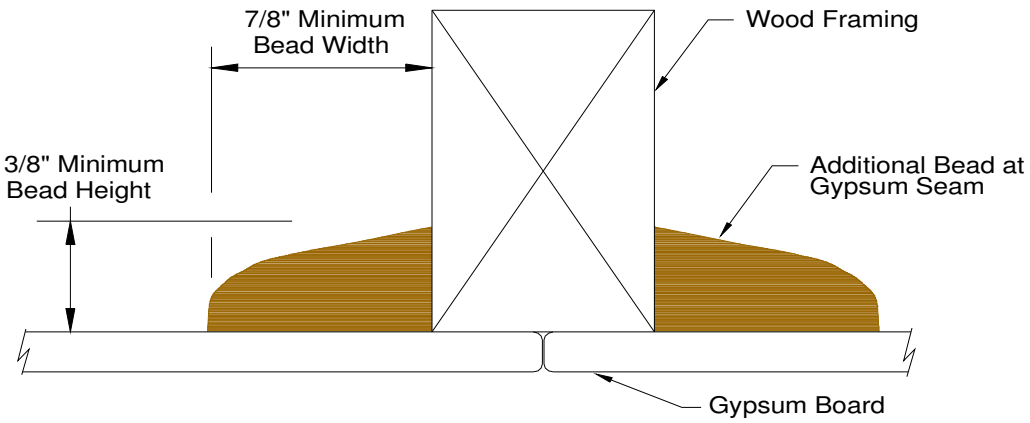

Figure 1 - Ceiling use bead sizes

Product Labeling

Each container shipped of AlphaSeal 5200, that is covered by this PER, must have a label attached with at least the following information:

1. Alpha Systems, Inc. Name and Address.
2. Date of manufacture
3. Shelf life information
4. This PER Number & *Pei* ES Logo
5. Smoke and Flame Spread Ratings
6. Component name

Acceptable Evaluation Marks

Product Documentation

A MSDS sheet - Dated: March 10, 2010
A signed Quality Control Manual - Dated: April 26, 2006
AlphaSeal 5200 Technical Data Sheet - Dated: December 10, 2012
An Evaluation and Follow-up Service Agreement between *Pei* Evaluation Service and Alpha Systems, Inc.
An Inspection Agreement between *Progressive Engineering Inc.* and Alpha Systems, Inc.

Opinion Letters Dated: 8/17/2000 11/15/2001 10/17/2001 1/5/2012 1/20/2014

Product Pictures

Figure 2 - Alpha Systems, Inc. Labeling

Figure 3 - Typical Spray Application

Figure 4 - AlphaSeal 5200 330 Gallon Caged Totes

Figure 5 - AlphaSeal 5200 55 Gallon Steel Drums