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

**Product**

AlphaSeal 5200 Two-Part Polyurethane Structural Adhesive

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.

<table>
<thead>
<tr>
<th>Ceiling Diaphragm Tests</th>
<th>Ceiling Dead Load Tests</th>
<th>Small Scale Tests</th>
<th>Pei Standard No. 93-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL-1715 Tests</td>
<td>Report No. RCB 0307</td>
<td>Report No. RCB 0308</td>
<td></td>
</tr>
</tbody>
</table>

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

Table 1: Wall Shear Designs with Gypsum Board

<table>
<thead>
<tr>
<th>Top Plate</th>
<th>Bott. Plate</th>
<th>Studs</th>
<th>Stud Spacing</th>
<th>Gypsum Orientation</th>
<th>Gypsum Brand</th>
<th>Single or Double Sided</th>
<th>Ultimate Load PLF</th>
<th>Test Report #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x3</td>
<td>1x3</td>
<td>2x3</td>
<td>16&quot; o.c.</td>
<td>5/16&quot; Vertical</td>
<td>Georgia Pacific</td>
<td>Single</td>
<td>737.5</td>
<td>1998-2966A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USG Gypsum</td>
<td>Single</td>
<td>704.7</td>
<td>1998-2966B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gold Bond</td>
<td>Single</td>
<td>665.6</td>
<td>1998-2966C</td>
</tr>
<tr>
<td>1/2&quot; Horizontal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USG Gypsum</td>
<td>Single</td>
<td>750.9</td>
<td>1998-3236A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Gold Bond</td>
<td>Single</td>
<td>727.4</td>
<td>1998-3236B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Georgia Pacific</td>
<td>Single</td>
<td>590.4</td>
<td>1998-3236C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USG MH UltraLight</td>
<td>Single</td>
<td>675.0</td>
<td>2012-1569M</td>
</tr>
<tr>
<td>2x3</td>
<td>2x3</td>
<td>2x3</td>
<td>16&quot; o.c.</td>
<td>1/2&quot; Horizontal</td>
<td>USG MH UltraLight</td>
<td>Single</td>
<td>760.0</td>
<td>2012-1569O</td>
</tr>
<tr>
<td>2x3</td>
<td>2x3</td>
<td>2x3</td>
<td>16&quot; o.c.</td>
<td>1/2&quot; Horizontal</td>
<td>USG MH UltraLight</td>
<td>Single</td>
<td>641.0</td>
<td>2012-1569N</td>
</tr>
</tbody>
</table>

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

![Diagram of ceiling bead sizes]

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

![Pei ES logos]

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.

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