DIVISION: 09—FINISHES
Section: 09270—Gypsum Board Accessories

REPORT HOLDER:
ALPHA SYSTEMS, INC.
5120 BECK DRIVE
ELKHART, INDIANA 46516
(574) 295-5206
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EVALUATION SUBJECT:
ALPHASEAL 5200 SYSTEM

EVALUATION SCOPE:
Compliance with the following code:
BOCA® National Building Code/1999
- Section 106.4 Alternative materials and equipment
- Section 2503.3 Installation

DESCRIPTION
Alphaseal 5200 System is a two-part foaming, rapid setting, polyurethane adhesive system intended to adhere gypsum board to wood framing with or without the use of mechanical fasteners. Alphaseal 5200 System is comprised of A-ISO and B-Resin components pumped at a 1-to-1 ratio to form a rigid foam plastic structural adhesive. The adhesive system is 100 percent solids and does not contain solvents. Each component, A and B, is available in 55, 275, and 350 gallon (208, 1041, and 1249 L) containers.

Alphaseal 5200 System is applied by means of a high-pressure impingement mixing spray gun. The applicator adjusts the gun such that a stream is directed, at a 15-45 degree angle to the perpendicular, along the wood structural member and the gypsum board interface. A “fillet” bead is formed by the reaction of the components, Parts A and B.

Alphaseal 5200 System is applied along one side of the interface formed by the framing member and the gypsum board, and along both sides of the interface at locations where gypsum boards abut to form a joint on the framing member. Required average bead size is shown in Figure 1 of this report. For ceiling joints or seams, the Alphaseal 5200 System adhesive bead is applied continuously on both sides of all joint or seam edges. Beads wider than shown in Figure 1 of this report shall not increase structural capacity of the Alphaseal 5200 System.

For bearing wall applications, a continuous Alphaseal 5200 System adhesive bead is applied to top and bottom plates and on both sides of all joint or seam studs. Beads wider than shown in Figure 1 of this report shall not increase structural capacity of Alphaseal 5200 System.

Bead widths of installed compound shall not exceed 4 inches (102 mm).

Applications other than continuous beads are outside the scope of this report. Use of other bead application requires the submission of test reports and structural calculations, for the particular pattern, to the code official for approval.

Application equipment temperature of the Alphaseal 5200 System is a range of 100 to 110 degrees F (38 to 42 degrees C). Room temperature and the substrate components shall be in the temperature range of 40 to 110 degrees F (8 to 42 degrees C). Substrate material shall be clean and dry at the time of application.

CONDITIONS OF USE
This report is limited to the applications and products as stated in this report. The ICC-ES Subcommittee on National Codes intends that the report be used by the code official to determine that the report subject complies with the code requirements specifically addressed, provided that this product is installed in accordance with the following conditions:

- Alphaseal 5200 System shall be installed in accordance with this report and the manufacturer’s instructions, given in the document entitled ALPHASEAL 5200 Two-Component Polyurethane Adhesive System, dated July 14, 1998.

- Use of the Alphaseal 5200 System shall be limited to the installation of gypsum board to wood ceiling/roof trusses, and wood wall studs. Water-resistant and foil-backed gypsum boards are outside the scope of this report.

- For ceiling applications, the Alphaseal 5200 System is applied along one side of interface formed by the framing member and the gypsum board, and along both sides of the interface at locations where gypsum boards abut to form a joint on the framing member. Required average bead size is shown in Figure 1 of this report. For ceiling joints or seams, the Alphaseal 5200 System adhesive bead is applied continuously on both sides of all joint or seam trusses. Beads wider than shown in Figure 1 of this report shall not increase structural capacity of the Alphaseal 5200 System.

- For bearing wall applications, a continuous Alphaseal 5200 System adhesive bead is applied to top and bottom plates and on both sides of all joint or seam studs. Beads wider than shown in Figure 1 of this report shall not increase structural capacity of Alphaseal 5200 System.

- Bead widths of installed compound shall not exceed 4 inches (102 mm).

- Applications other than continuous beads are outside the scope of this report. Use of other bead application requires the submission of test reports and structural calculations, for the particular pattern, to the code official for approval.
Horizontal wood members shall be spaced a maximum of 24 inches (610 mm) and at a minimum of 8 inches (203 mm) on center.

Vertical wood framing members shall be spaced a maximum of 16 inches (406 mm) on center.

Alphaseal 5200 System installed using a continuous bead pattern is capable of supporting the vertical dead load associated with the installation of gypsum board as the ceiling membrane and typical attic insulation. The support of items other than the gypsum board membrane and insulation, such as light fixtures and mechanical items, is outside the scope of this report. Alphaseal 5200 System shall be designed to support a maximum vertical load of 15.3 pounds per lineal foot (22.8 kg/m) of fillet bead length.

Alphaseal 5200 System shall be designed to resist a maximum horizontal diaphragm design load of 203.3 pounds per lineal foot (302 kg/m) for ceiling applications.

Alphaseal 5200 System shall be designed to resist a maximum horizontal racking diaphragm design load of 236.1 pounds per lineal foot (352 kg/m) for ceiling applications.

Gypsum board shall be held in contact with the wood members for a minimum of 2 minutes after the Alphaseal 5200 adhesive is applied.

A vapor retarder shall not be installed at the interface of the gypsum board and the wood framing when the Alphaseal 5200 System is used.

Structural considerations in this report are limited to the adhesive characteristics of Alphaseal 5200 adhesive when adhering gypsum boards to wood members.

Use of Alphaseal 5200 System as a gypsum adhesive in a fire-resistance rated assembly is outside the scope of this report.

Alphaseal 5200 System shall be applied only to wood and gypsum board that is clean, dry, and free of oil and/or grease. Application equipment temperature range of the Alphaseal 5200 System is in the range of 100 to 110 degrees F (38 to 42 degrees C). Room temperature and substrate components (wood studs, gypsum board, etc.) shall be in the temperature range of 40 to 110 degrees F (8 to 42 degrees C) or higher at time of application and for the duration of minimum curing time.

Alphaseal 5200 System shall be installed within 6 months of the date of manufacture, which shall be indicated by the lot number indicated on the label placed on each drum of both components.

Use of Alphaseal 5200 Systems with preservative-treated or fire-retardant-treated wood is outside the scope of this report.

Structural design of the wood framing system used with the Alphaseal 5200 System is outside the scope of this report.

Alphaseal 5200 System applications installed in the field are subject to special inspections in accordance with Section 1705 of the BOCA® National Building Code'1999.

This report is subject to periodic re-examination. For information on the current status of this report, contact the ICC-ES.

ITEMS REQUIRING VERIFICATION

The following items are related to the installation of the report subject, but are not within the scope of this evaluation. These items are related to the determination of code compliance:

- Gypsum board complying with ASTM C 36 and GA-216-89.
- Gypsum board complying with ASTM C 36 and GA-216-89.
- Design loads beyond the scope of this report are resisted by building elements other than Alphaseal 5200 System adhesive.

INFORMATION SUBMITTED

- Progressive Engineering, Inc. Full Scale Ceiling Diaphragm Test on an 11'-9" x 48'-0" Flat Ceiling Using Alphaseal 5200, dated June 26, 1998. Report is signed and sealed by Evor F. Johns, P.E.
- Progressive Engineering, Inc. Full Scale Cathedral Ceiling Diaphragm Test on an 11'-9" x 48'-0" Using Alphaseal 5200, dated February 24, 2000. Report is signed and sealed by Evor F. Johns, P.E.
- Progressive Engineering, Inc. Full Scale Cathedral Ceiling Diaphragm Test on a 15'-6" x 48'-0" Flat Ceiling Using Alphaseal 5200, dated July 6, 1998. Report is signed and sealed by Evor F. Johns, P.E.
- Progressive Engineering, Inc. Full Scale Cathedral Ceiling Diaphragm Test on an 15'-6" x 48'-0" Using Alphaseal 5200, dated July 7, 1998. Report is signed and sealed by Evor F. Johns, P.E.
- Progressive Engineering, Inc. PEI Standard No. 93-7 Test on Alphaseal 5200, dated November 17, 1999. This test is similar to ASTM C 557 and the report is signed and sealed by Evor F. Johns, P.E.
- National Gypsum Research Center, Surface Burning Characteristics ASTM E 84 ALPHASEAL SYSTEMS INC. Report Project No. H-221, dated October 16, 1998. The Alphaseal 5200 System has a flame spread index of less than 75 and a smoke-developed index of less than 450 when tested in accordance with ASTM E 84.
APPLICATION FOR PERMIT

To aid in the determination of code compliance with this report, the following represents the minimum level of information to accompany the application for permit:

- The language “See ICC-ES Legacy Report No. 21-48”;
- Alphaseal 5200 System details and notes indicating bead size, location and length of bead, and spacing of framing members consistent with this report;
- Calculated vertical load to be supported by Alphaseal 5200 adhesive; and
- Calculated diaphragm and racking loads to be resisted by Alphaseal 5200 adhesive.

PRODUCT IDENTIFICATION

Alphaseal 5200 System manufactured in accordance with this report shall be marked at the plant with identifying language “See ICC-ES Legacy Report No. 21-48.”

Containers of Alphaseal 5200 System components shall bear the label of Progressive Engineering, Inc. as the independent third-party inspection agency.

FIGURE 1*

For SI: 1 inch = 25.4 mm.  
Notes to Figure 1:
1. Double bead used at all gypsum board seams.  
2. This drawing is for general illustration only.

*THIS DRAWING IS FOR ILLUSTRATION PURPOSES ONLY. IT IS NOT INTENDED FOR USE AS A CONSTRUCTION DOCUMENT FOR THE PURPOSE OF DESIGN, FABRICATION OR ERECTION.