

# ICC-ES Evaluation Report

**ESR-4927**

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| <p><b>DIVISION: 06 00 00—</b><br/><b>WOOD, PLASTICS AND</b><br/><b>COMPOSITES</b></p> <p><b>Section: 06 05 23.10—</b><br/><b>Adhesives</b></p> <p><b>DIVISION: 09 00 00—</b><br/><b>FINISHES</b></p> <p><b>Section: 09 29 10—</b><br/><b>Gypsum Board</b><br/><b>Accessories</b></p> | <p><b>REPORT HOLDER:</b><br/><br/><b>AMRIZE BUILDING</b><br/><b>ENVELOPE LLC</b></p> | <p><b>EVALUATION SUBJECT:</b><br/><br/><b>GACOBOND-F2100 TWO-</b><br/><b>PART POLYURETHANE</b><br/><b>FOAM ADHESIVE</b></p> |  |
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## 1.0 EVALUATION SCOPE

**Compliance with the following codes:**

- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015, 2012, 2009 and 2006 [International Residential Code® \(IRC\)](#)

**Properties evaluated:**

- Gypsum board attachment
- Surface-burning characteristics

## 2.0 USES

The GacoBond F2100 Two-Part Polyurethane Foam Adhesive is used to attach various gypsum board to wood framing in walls and ceilings without the use of mechanical fasteners.

## 3.0 DESCRIPTION

The GacoBond F2100 is a two-part polyurethane foam adhesive system. It is applied by pumping two components at a volumetric ratio of 1 to 1 under pressure through heating equipment to produce one continuous bead. The two components are an "A ISO" and a "B Resin". The A and B components are shipped in 2700 - 3250 lb. (1225-1474 kg) caged totes or in 450 - 550 lb. (204-249.5 kg) steel drums. Storage of these containers shall be in an indoor dry place between 65°F and 95°F (18.3°C and 35°C). Unopened containers have a storage life of up to 12 months in these conditions.

The GacoBond F2100 Two-Part Polyurethane Foam Adhesive has a flame-spread index not exceeding 75 and a smoke-developed index not exceeding 450 when tested at a thickness of 1½ inches (38 mm) in accordance with ASTM E84.

## 4.0 DESIGN AND INSTALLATION

### 4.1 Installation:

Gypsum board being used shall comply with ASTM C1396. All substrate surfaces shall be clean, dry and free of dust, wax, ice and loose particles and shall have a surface temperature greater than or equal to 50°F (10°C).

GacoBond F2100 adhesive shall be applied in an ambient temperature range of 40°F to 120°F (4.4°C to 49°C). The adhesive is applied along the intersection of the gypsum and wood framing in accordance with Amrize Building Envelope LLC *Application Instructions*. The adhesive temperature at the heater block and application hose shall be between 105°F and 120°F (40.6°C and 48.9°C), while the proportioning pumps must be accurately metered to a volumetric ratio of 1 to 1 and develop at least an 800-psi hydraulic pressure when in use. After the last bead is applied, the structure must not be moved for a minimum of two minutes.

GacoBond F2100 adhesive shall be used on wood framing with maximum spacing of 16 inches (406 mm) on center for walls and 24 inches (610 mm) on center for ceiling applications. The beads produced shall be sized per [Figure 1](#) and a bead shall not be greater than 1 1/8 inches (29 mm) in size. The adhesive beads are applied along one side of field framing and along both sides at gypsum/sheathing seams.

## 5.0 CONDITIONS OF USE:

The GacoBond F2100 Two-Part Polyurethane Foam Adhesive described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.
- 5.2 GacoBond F2100 is to be applied in an indoor manufacturing facility and shall not be applied in an outdoor uncontrolled environment.
- 5.3 Use of GacoBond F2100 adhesive in a fire-resistance rated assembly is outside the scope of this report.
- 5.4 A vapor barrier shall not be used between the adhesive and the substrates.
- 5.5 The adhesive must be separated from the building interior by a thermal barrier of 1/2-inch (12.7 mm) gypsum wallboard installed in accordance with IBC Section 2603.4 or 2024 IRC Section R303.4 (2021, 2018, 2015, 2012, 2009 and 2006 IRC Section R316.4), as applicable.
- 5.6 Application of GacoBond F2100 adhesive is limited to the back side of gypsum board complying with ASTM C1396. Application of the adhesive to foil backed, moisture resistant or water-resistant gypsum boards is outside the scope of this report.
- 5.7 GacoBondF2100 adhesive is to be manufactured at the Holcim Solutions and Products US, LLC plant in Rockland, MA under a quality-control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

- 6.1 Report of [Figure 1](#) testing in accordance with ASTM C557 testing.
- 6.2 Reports of racking load testing in accordance with Section 14 of ASTM E72.
- 6.3 Report of surface-burning characteristics testing in accordance with ASTM E84.
- 6.4 Reports of fire test of interior finish material in accordance with UL 1715.

## 7.0 IDENTIFICATION

- 7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-4927) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.
- 7.2 In addition, product labeling shall include, the name of the report holder (Amrize Building Envelope LLC) and address, the product name, date of manufacture, shelf-life information, and the ICC-ES mark of conformity. The evaluation report number (ICC-ES ESR-4927) may be used in lieu of the mark of conformity.
- 7.3 The report holder's contact information is the following:

**AMRIZE BUILDING ENVELOPE LLC**  
**56 AIR STATION INDUSTRIAL PARK**  
**ROCKLAND, MASSACHUSETTS 02370**  
**(781) 681-0457**  
<http://www.holcimstaput.com/>

TABLE 1: IN-PLANE SHEAR LOADING ON WOOD FRAME (SECTION 14 OF ASTM E72)

| ASSEMBLY NUMBER | TOP PLATE / BOTTOM PLATE | STUDS / STUD SPACING <sup>2</sup> | SINGLE / DOUBLE SIDED | SIDE A                                                              | SIDE B                                                             | F-2100 ADHESIVE SIZE                                                                                                                                 | ULTIMATE LOAD (PLF) <sup>1</sup> |
|-----------------|--------------------------|-----------------------------------|-----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1               | 2x4 SPF ungraded         | 2x4 stud grade SPF, 16" on center | Single                | <sup>5</sup> / <sub>16</sub> " Vertical, USG Blendtex               | NA                                                                 | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>5</sup> / <sub>8</sub> "<br>on gypsum: <sup>7</sup> / <sub>8</sub> "       | 376.7                            |
| 2               |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, USG Blendtex               |                                                                    | on side of stud: <sup>11</sup> / <sub>16</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: <sup>11</sup> / <sub>16</sub> " | 458.3                            |
| 3 <sup>3</sup>  |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, USG Blendtex               |                                                                    | on side of stud: <sup>3</sup> / <sub>4</sub> "<br>on side of plates: <sup>13</sup> / <sub>16</sub> "<br>on gypsum: 1"                                | 513.8                            |
| 4               |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, Georgia Pacific            |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: <sup>15</sup> / <sub>16</sub> "   | 461.7                            |
| 5               |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, Georgia Pacific            |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>5</sup> / <sub>8</sub> "<br>on gypsum: <sup>13</sup> / <sub>16</sub> "     | 630.4                            |
| 6 <sup>3</sup>  |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, Georgia Pacific            |                                                                    | on side of stud: <sup>9</sup> / <sub>16</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: <sup>15</sup> / <sub>16</sub> "  | 627.9                            |
| 7               |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, National Gypsum Gold Bond  |                                                                    | on side of stud: <sup>7</sup> / <sub>8</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: 1"                                  | 652.1                            |
| 8 <sup>3</sup>  |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, National Gypsum Gold Bond  |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: <sup>15</sup> / <sub>16</sub> "   | 557.1                            |
| 9               |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, USG Blendtex               |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: 1"                                  | 584.6                            |
| 10 <sup>3</sup> |                          |                                   |                       | <sup>5</sup> / <sub>16</sub> " Vertical, USG Blendtex               |                                                                    | on side of stud: <sup>3</sup> / <sub>4</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: 1"                                  | 588.8                            |
| 11 <sup>4</sup> |                          |                                   | Double                | <sup>5</sup> / <sub>16</sub> " Vertical, National Gypsum Gold Bond  | <sup>5</sup> / <sub>16</sub> " Vertical, National Gypsum Gold Bond | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: 1"                                | 680.0                            |
| 12              |                          |                                   | Single                | <sup>1</sup> / <sub>2</sub> " Vertical, James Hardie Gypsum Board   | NA                                                                 | on side of stud: <sup>3</sup> / <sub>4</sub> "<br>on side of plates: 1"<br>on gypsum: 1"                                                             | 546.8                            |
| 13 <sup>4</sup> |                          |                                   | Double                | <sup>1</sup> / <sub>2</sub> " Vertical, James Hardie Gypsum Board   | <sup>1</sup> / <sub>2</sub> " Vertical, James Hardie Gypsum Board  | on side of stud: <sup>3</sup> / <sub>4</sub> "<br>on side of plates: 1"<br>on gypsum: 1"                                                             | 781.4                            |
| 14 <sup>5</sup> |                          |                                   | Single                | <sup>1</sup> / <sub>2</sub> " Horizontal, USG SHEETROCK             | NA                                                                 | on side of stud: <sup>11</sup> / <sub>16</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: <sup>7</sup> / <sub>8</sub> "     | 452.5                            |
| 15 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, USG SHEETROCK             |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>11</sup> / <sub>16</sub> "<br>on gypsum: <sup>7</sup> / <sub>8</sub> "     | 592.5                            |
| 16 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, Georgia Pacific           |                                                                    | on side of stud: <sup>11</sup> / <sub>16</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: <sup>15</sup> / <sub>16</sub> "   | 542.5                            |
| 17 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, Georgia Pacific           |                                                                    | on side of stud: <sup>11</sup> / <sub>16</sub> "<br>on side of plates: <sup>5</sup> / <sub>8</sub> "<br>on gypsum: <sup>11</sup> / <sub>16</sub> "   | 632.9                            |
| 18 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, National Gypsum Gold Bond |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>9</sup> / <sub>16</sub> "<br>on gypsum: <sup>15</sup> / <sub>16</sub> "    | 556.3                            |
| 19 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, National Gypsum Gold Bond |                                                                    | on side of stud: <sup>11</sup> / <sub>16</sub> "<br>on side of plates: <sup>5</sup> / <sub>8</sub> "<br>on gypsum: <sup>7</sup> / <sub>8</sub> "     | 667.1                            |
| 20 <sup>5</sup> |                          |                                   |                       | <sup>1</sup> / <sub>2</sub> " Horizontal, USG Blendtex              |                                                                    | on side of stud: <sup>5</sup> / <sub>8</sub> "<br>on side of plates: <sup>3</sup> / <sub>4</sub> "<br>on gypsum: 1"                                  | 688.8                            |

TABLE 1: IN-PLANE SHEAR LOADING ON WOOD FRAME (SECTION 14 OF ASTM E72) (Continued)

| ASSEMBLY<br>NUMBER | TOP PLATE<br>/ BOTTOM<br>PLATE                                                                 | STUDS /<br>STUD<br>SPACING <sup>2</sup>                                                                                                                                                                       | SINGLE /<br>DOUBLE<br>SIDED | SIDE A                                                                                                                                                                                                        | SIDE B | F-2100 ADHESIVE SIZE                                                                                                                                                                                                | ULTIMATE<br>LOAD<br>(PLF) <sup>1</sup> |
|--------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| 21 <sup>5</sup>    | 2x4 SPF<br>ungraded                                                                            | 2x4 stud<br>grade SPF,<br>16" on center                                                                                                                                                                       | Single                      | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>American<br>Gypsum                                                                                                                                               | NA     | on side of stud: 1"<br>on side of plates: <sup>1</sup> / <sub>2</sub> "<br>on gypsum: <sup>1</sup> / <sub>3</sub> "                                                                                                 | 650.8                                  |
| 22 <sup>5</sup>    |                                                                                                |                                                                                                                                                                                                               |                             | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>USG Sheetrock<br>MH UltraLight<br>Panels Tuf-Base                                                                                                                |        | on gypsum along plates: <sup>15</sup> / <sub>8</sub> '<br>on side of plates: <sup>1</sup> / <sub>8</sub> "<br>on gypsum along studs: <sup>1</sup> / <sub>4</sub> "<br>on side of the stud:1"                        | 508.3                                  |
| 23 <sup>5</sup>    | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>USG Sheetrock<br>MH UltraLight<br>Panels Tuf-Base | on gypsum along plates: <sup>13</sup> / <sub>8</sub> "<br>on side of plates: <sup>1</sup> / <sub>4</sub> "<br>on gypsum along studs: 1"<br>on side of stud:1"                                                 |                             | 576.8                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 24 <sup>5</sup>    | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>USG Sheetrock<br>UltraLight Panels<br>Tuf-Base    | on gypsum along plates: <sup>1</sup> / <sub>4</sub> "<br>on side of plates: 1"<br>on gypsum along studs: <sup>1</sup> / <sub>8</sub> "<br>on side of stud:1"                                                  |                             | 618.1                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 25                 | <sup>5</sup> / <sub>16</sub> " Vertical,<br>CertainTeed<br>ProRoc                              | on side of stud: <sup>1</sup> / <sub>4</sub> "<br>on side of plates: <sup>1</sup> / <sub>2</sub> "<br>on gypsum: <sup>1</sup> / <sub>2</sub> "                                                                |                             | 598.0                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 26 <sup>5</sup>    | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>USG Fiberock<br>Brand MH                          | on side of stud: <sup>7</sup> / <sub>8</sub> "<br>on side of plates: 1"<br>on gypsum: <sup>1</sup> / <sub>8</sub> "                                                                                           |                             | 489.9                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 27                 |                                                                                                | <sup>1</sup> / <sub>2</sub> " Vertical, USG<br>Fiberock Brand<br>MH                                                                                                                                           |                             | on side of the stud: <sup>7</sup> / <sub>8</sub> "<br>on side of the plates: 1"<br>on the gypsum: <sup>1</sup> / <sub>16</sub> "                                                                              |        | 595.5                                                                                                                                                                                                               |                                        |
| 28                 | <sup>1</sup> / <sub>2</sub> " Vertical,<br>James Hardie<br>Gypsum Board                        | on side of the stud: <sup>5</sup> / <sub>8</sub> "<br>on side of the plates: <sup>11</sup> / <sub>16</sub> "<br>on the gypsum: <sup>15</sup> / <sub>16</sub> "                                                |                             | 535.9                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 29                 | <sup>5</sup> / <sub>16</sub> " Vertical,<br>Georgia Pacific                                    | on side of the stud: 1"<br>on side of the plates: <sup>13</sup> / <sub>4</sub> "<br>on the gypsum: <sup>1</sup> / <sub>8</sub> "                                                                              |                             | 415.9                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 30                 | <sup>5</sup> / <sub>16</sub> " Vertical,<br>National Gypsum<br>Gold Bond                       | on side of field stud: <sup>1</sup> / <sub>2</sub> "<br>on side of center stud: <sup>2</sup> / <sub>8</sub> "<br>on side of plates: <sup>2</sup> / <sub>8</sub> "<br>on gypsum: <sup>2</sup> / <sub>8</sub> " |                             | 610.0                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 31                 | <sup>5</sup> / <sub>16</sub> " Vertical,<br>National Gypsum<br>Gold Bond                       | on side of field stud: <sup>1</sup> / <sub>2</sub> "<br>on side of center stud: <sup>2</sup> / <sub>8</sub> "<br>on side of plates: <sup>2</sup> / <sub>8</sub> "<br>on gypsum: <sup>2</sup> / <sub>8</sub> " |                             | 782.6                                                                                                                                                                                                         |        |                                                                                                                                                                                                                     |                                        |
| 32                 |                                                                                                | <sup>5</sup> / <sub>16</sub> " Vertical,<br>National Gypsum<br>Gold Bond                                                                                                                                      |                             | on side of field stud: <sup>1</sup> / <sub>2</sub> "<br>on side of center stud: <sup>2</sup> / <sub>8</sub> "<br>on side of plates: <sup>2</sup> / <sub>8</sub> "<br>on gypsum: <sup>2</sup> / <sub>8</sub> " |        | 696.3                                                                                                                                                                                                               |                                        |
| 33                 | 2x4 SPF<br>ungraded                                                                            | P/C: 2x4 stud<br>grade SPF,<br>Field: 1x4<br>SPF<br>ungraded,<br>24" on center                                                                                                                                |                             | <sup>5</sup> / <sub>16</sub> " Vertical,<br>National Gypsum<br>Gold Bond                                                                                                                                      |        | on side of stud: 1"<br>on side of plates: <sup>1</sup> / <sub>8</sub> "<br>on gypsum: <sup>13</sup> / <sub>16</sub> "                                                                                               | 442.3                                  |
| 34                 |                                                                                                |                                                                                                                                                                                                               |                             | <sup>5</sup> / <sub>16</sub> " Vertical,<br>USG Blendtex                                                                                                                                                      |        | on side of stud: <sup>1</sup> / <sub>4</sub> "<br>on side of plates: <sup>15</sup> / <sub>16</sub> "<br>on gypsum: <sup>1</sup> / <sub>8</sub> "                                                                    | 482.4                                  |
| 35 <sup>5</sup>    | 2x4 stud<br>grade SPF                                                                          | 2x4 stud<br>grade SPF,<br>16" on center                                                                                                                                                                       |                             | <sup>1</sup> / <sub>2</sub> " Horizontal,<br>USG Sheetrock<br>UltraLight Panels<br>Tuf-Base                                                                                                                   |        | on gypsum along plates: <sup>1</sup> / <sub>2</sub> "<br>on side of plates: <sup>1</sup> / <sub>8</sub> "<br>on gypsum along studs: <sup>1</sup> / <sub>8</sub> "<br>on side of stud: <sup>7</sup> / <sub>8</sub> " | 717.1                                  |

<sup>1</sup>Ultimate load values does not include any safety factors.<sup>2</sup>Stud P/C: perimeter and center of tested specimen.<sup>3</sup>Gypsum board seam treated with 3/4" wide masking tape.<sup>4</sup>Side B attachment: one 1/8" bead of PR-32 adhesive and 1/4" C. x 1" lg. 18 Ga. staples 12 on center along the plates and 24" on center along the studs.<sup>5</sup>Gypsum board seam treated with joint tape and joint compound.

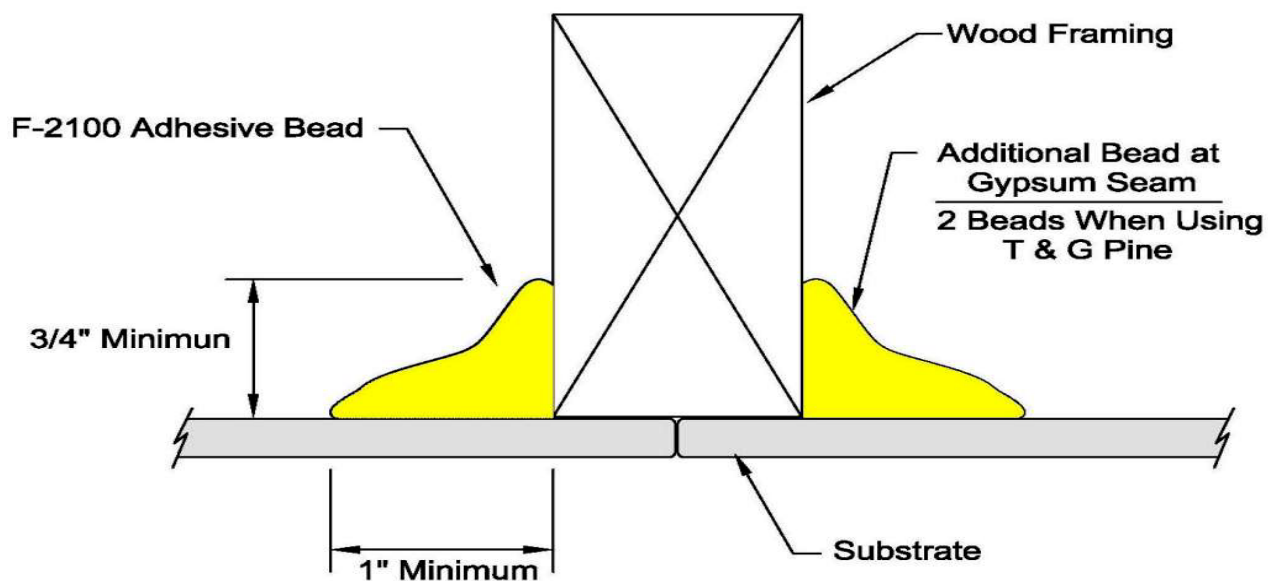


FIGURE 1—APPLICATION OF GACOBOND F2100



FIGURE 2—APPLICATION OF GACOBOND F2100



FIGURE 3—55 GALLON STEEL DRUMS



FIGURE 4—GACOBOND F2100 ISO NT BLACK TOTE



FIGURE 5—GACOBOND F2100 RESIN NT BLUE TOTE