

FAST™ Adhesive



Overview

Carlisle's FAST Adhesive is a low-rise, two-component, insulating polyurethane for use with Carlisle's FleeceBACK® Adhered Roofing Systems. FAST Adhesive is applied in full spray or as extruded beads using high or low pressure dispensing equipment to deliver the two components onto the substrate. A catalytic reaction takes place, causing the FAST Adhesive to expand and foam. After the adhesive has developed string/body, FleeceBACK membrane is laid into the foamed adhesive and rolled with a 150-lb. weighted roller to ensure the fibers of the fleece are embedded into the adhesive. FAST Adhesive is also used to secure insulation boards to the roof deck for a totally non-penetrating system application.

Features and Benefits

» Energy Efficient and Environmentally Sound

Each layer of FAST Adhesive expands to 1/16"–1/8"-thick and provides an additional R-value of 0.20 to 0.50 per layer. The NRCA estimates that up to 10% of R-value can be lost due to joints in the insulation. The expanding nature of FAST adhesive helps to seal insulation joints, when FAST Adhesive is specified for insulation attachment in place of mechanical fasteners, the 3–8% loss in R-value can be eliminated. Water is used as the blowing agent in FAST Adhesive, making it VOC compliant and not labeled as a flammable product.

» Superior Wind Uplift

Superior wind uplift resistance is delivered through code-rated assemblies that can achieve FM 1-90 up to 1-990 ratings, Dade County Approval, and UL Classification under UL 580 and UL 1897 Standards. As a result of the extraordinary wind uplift performance, the FleeceBACK/FAST Adhesive System can qualify

for upgraded wind speed warranties of 80-120 mph with design enhancements. **Contact Carlisle SynTec Systems for design enhancement requirements.**

» Expedient Installations Without Interruption

Due to the low noise and low odor associated with the system, the FleeceBACK/FAST assembly is an excellent choice for re-roofing occupied buildings, as there is minimal disruption. Because of these benefits, schools, universities and hospitals are some of the biggest users of the FleeceBACK/FAST assembly. The speed of application with FAST Adhesive affords project completion in a timely manner.

» System Warranties

A full range of system warranties are available, including: 10-, 15-, 20-, and 30-year terms, No Dollar Limit, transferable, and not voided for ponded water. In summary, the combination of 50 years of single-ply experience, fleece backing reinforcement, and Carlisle's impact-resistant adhesive technology results in an extremely tough and durable roofing composite system with superior wind uplift performance that can be applied with minimal business disruption and no deck penetrations.

Productivity Boosting Features and Benefits:

- » Reduces membrane application time up to 93% when compared to traditional installations using bonding adhesives on non-FleeceBACK systems
- » Eliminates the need to pre-drill into concrete and gypsum decks
- » 15- and 50-gallon drums reduce empty adhesive container stoppage time by 67%–90% when compared to Bag-in-a-Box



Application

1. The surface on or against which adhesive is to be applied shall be dry and free of fins, protrusions, sharp edges, loose and foreign materials, oil, and grease. Depressions greater than 1/4" (6 mm) shall be filled with FAST Adhesive or other approved patching material. All sharp projections shall be removed. **Previously unexposed asphalt must be primed with CAV-GRIP™ III.**
2. **Seal gaps between the wall/penetration and concrete deck with Carlisle VapAir Seal™ 725TR, flashing foams or other suitable material to avoid condensation issues and possible pressure from air infiltration.**

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- When re-roofing sprayed-in-place (SPF) urethane roofs, all wet areas must be removed. The surface must then be scarified or perforated (depending on the coating) before applying FAST Adhesive.
- Apply FAST Adhesive when the substrate and ambient temperatures are 25°F (-4°C) or above when spraying with heated equipment. Apply FAST Adhesive when the substrate and ambient temperatures are 40°F (4°C) or above when extruding or spraying through non-heated equipment. Dispense the adhesive between 300–800 psi depending on the equipment used. Consult with your local FleeceBACK Specialist for more details.
- Set pre-heater and hose temperature to 120°F (49°C). Temperature settings will vary with conditions.

Review Carlisle specifications and details for complete application information.

FleeceBACK Installation

Slide-in Method

- Unroll FleeceBACK sheet and position. Fold the sheet back in half lengthwise (end-to-end).
- Spray-apply or extrude FAST Adhesive to the substrate.
 - For fully adhered application, spray adhesive to obtain full coverage (approx. 1/8" to 1/4"-thick after foaming). Ensure end laps are protected from adhesive.
 - For extruded applications, apply at 4", 6", or 12" on center with a min. 1/2" wet bead. Ensure end laps are protected from adhesive.
- Once "string time" occurs, gradually feed FleeceBACK sheet into FAST Adhesive, checking for "string/body" every few feet. Stop feeding FleeceBACK sheet into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Roll-in (Mod Bit) Method

- Keeping the FleeceBACK sheet on the core, position roll of FleeceBACK membrane at the designated starting point.
- Spray-apply or extrude FAST Adhesive to the substrate.
 - For fully adhered application, spray adhesive to obtain full coverage (approx. 1/8" to 1/4"-thick after foaming). Ensure end laps are protected from adhesive.
 - For extruded applications, apply at 4", 6", or 12" on center with a min. 1/2" wet bead. Ensure end laps are protected from adhesive.

- Once "string time" occurs, gradually roll FleeceBACK membrane into FAST Adhesive, checking for "string/body" every few feet. Stop rolling FleeceBACK into adhesive when applicator reaches adhesive that has NOT developed "string/body". Immediately begin to roll membrane width-wise with a 150-lb. segmented weighted roller. Repeat process until FleeceBACK sheet is fully installed.

Insulation Attachment

- Apply FAST Adhesive to the substrate, achieving a light-yellow-colored foam.
 - For fully adhered applications, spray adhesive to obtain full coverage (approx. 1/8" to 1/4"-thick after foaming).
 - For extruded applications, apply adhesive at 4", 6" or 12" on center with a **minimum 1/2" wet bead**. For steel decks, extrusion of FAST must run parallel with and be on top of every steel deck flute.

Bead Spacing parameters for 5-, 10-, or 15-year 55-mph warranties:

Contact Carlisle Project Review for bead spacing on higher mph warranties or 20- and 30-year warranty projects.

| Building Height | Bead Spacing (Perimeter) | Bead Spacing (Field) |
|-----------------|--------------------------|----------------------|
| 0' – 25' | 6" o.c. (4' perimeter) | 12" o.c. |
| 25' – 50' | 6" o.c. (8' perimeter) | 12" o.c. |
| 50' – 75' | 6" o.c. (12' perimeter) | 12" o.c. |
| 75' – 100' | 6" o.c. (15' perimeter) | 12" o.c. |

100' or greater: Contact Carlisle for bead spacing requirements

- Factory Mutual (FM) bead spacing guidelines for perimeters and corners may differ from the table above. Beads at 12" o.c. are not acceptable at perimeters or corners.
- Allow FAST Adhesive to rise and develop "string/body" (approx. 1½ – 2 min.). String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
- Place insulation boards (maximum 4' x 4' insulation boards when adhesive is extruded at 12" o.c. or when boards exceed 4" thickness, or 4' x 8' insulation boards when adhesive is applied in full spray, 4", or 6" beads) into adhesive after allowing it to rise and develop "string/body". String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.
- Designate one person to walk the boards into place and then roll the boards with a 150-lb. weighted roller 5–7 minutes after the initial adhesive application. Boards may be temporarily weighted or relief-

cut where necessary to keep the boards in constant contact with the adhesive until the adhesive cures.

6. For cold-weather applications, Carlisle recommends adding FAST Catalyst to speed set-up time. Catalyst should be added according to the chart provided on its can. Contact your local FleeceBACK Specialist for additional information.
7. At the beginning of the insulation attachment process, and periodically throughout the day, check the adhesion of boards to ensure a tight bond is created and maximum contact is achieved.
8. Factory Mutual (FM) bead spacing guidelines for perimeters and corners may differ from the table above. Beads at 12" o.c. are not acceptable at perimeters or corners.

Review Carlisle specifications and details for complete application information.

Precautions

- » Review the appropriate Safety Data Sheet(s) for complete safety information prior to use.
- » The foam produced is an inert organic material. It must be considered combustible and may constitute a fire hazard. The foam adhesive must not be left exposed or unprotected. Shield from heat and sparks.
- » Do not smoke during application.
- » Use with adequate ventilation. Avoid breathing vapors. Wear a NIOSH- or MSHA-approved respirator for organic vapors with pre-filters and solvent-resistant cartridges or supplied airline respirators while spraying. Proper safety training is essential for all persons involved in the installation process. If vapor is inhaled, remove to fresh air and administer oxygen if breathing is difficult. Consult a physician immediately.
- » Avoid contact with eyes. Safety glasses or goggles are required.
- » If FAST Adhesive is splashed in eyes, immediately flush eyes with plenty of clean water for at least 15 minutes. Contact a physician immediately.
- » Avoid contact with skin. Wear long-sleeved shirts and long pants. Wash hands thoroughly after handling. In case of contact with skin, thoroughly wash affected area with soap and water or corn oil. NOTE: Permeation-resistant gloves that meet ANSI/ISEA 105-2005 are required when handling the material and during application.
- » Storage temperatures in excess of 90°F (32°C) may affect product shelf life. When temperatures are in excess of 90°F (32°C) utilize white membrane or material to shield the drums from direct sunlight. Should

the material be stored at temperatures lower than 70°F (21°C), restore internal material temperature to 70°F prior to use. Do not allow FAST Adhesive to freeze.

- » When spraying in windy conditions, use spray booths, windscreens, and/or lower spray pressure with spatter tips.
- » Precautions must be taken to prevent FAST Adhesive vapors or overspray from entering buildings during application. All air intake vents on roofs must be closed during the application of FAST Adhesive.
- » Use desiccant dryers on Part A drums to avoid the formation of crystals from exposure to moisture in the air.
- » A constant internal material temperature of 70°F–90°F (21°C–32°C) must be maintained at all times.
- » KEEP OUT OF THE REACH OF CHILDREN.

Coverage Rate

May vary due to jobsite conditions.

| 50-gallon sets | Spray | 4" o.c. | 6" o.c. | 12" o.c. |
|-----------------------------------|--------|---------|---------|----------|
| Adhesive to a smooth flat surface | 10,000 | 9,000 | 12,500 | 17,500 |
| Insulation to wood fiber decks | 6,500 | 5,500 | 8,125 | 11,375 |
| Insulation to gravel BUR | 5,000 | 4,500 | 7,500 | N/A |

| 15-gallon sets | Spray | 4" o.c. | 6" o.c. | 12" o.c. |
|-----------------------------------|-------|---------|---------|----------|
| Adhesive to a smooth flat surface | 3,000 | 2,700 | 3,750 | 5,250 |
| Insulation to wood fiber decks | 2,000 | 1,650 | 2,500 | 3,500 |
| Insulation to gravel BUR | 1,800 | 1,500 | 2,250 | N/A |

LEED® Information

| | |
|--------------------------------|--|
| Pre-consumer Recycled Content | 0% |
| Post-consumer Recycled Content | 0% |
| Manufacturing Locations | Geismar, LA Chattanooga, TN Baytown, TX Houston, TX |
| VOC Content | 0 g/L |
| Solar Reflectance Index | N/A |

FAST Adhesive

Substrate Compatibility

| Insulation/Underlayments | | Roof Decks | | Existing Roofing Materials | |
|----------------------------|------------------|---------------------------|------------------|----------------------------|----------------------|
| HP Polyiso | Yes | Concrete | Yes | Smooth BUR | Yes ⁵ |
| HP Recovery Board | Yes | Cellular Lt. Wt. Concrete | Yes | Gravel BUR | Yes ⁶ |
| Expanded Polystyrene (EPS) | Yes ¹ | NVS Lt. Wt. Concrete | Yes | Mineral Cap Sheet | Yes |
| Extruded Polystyrene | Yes ² | Gypsum | Yes | Granular Modified-Bitumen | Yes |
| New Sprayed Foam | Yes | Cementitious Wood Fiber | Yes | Smooth Modified-Bitumen | Yes |
| Scarified SPF | Yes | Plywood/OSB | Yes | Coal Tar Pitch | Yes ⁷ |
| DensDeck® | Yes | Painted Steel | Yes | Aluminum-Coated BUR | Yes ⁸ |
| SECURROCK® | Yes | Galvanized Steel | Yes ³ | Acrylic-Coated SPF | Yes |
| Oriented Strand Board | Yes | Acoustical Steel | Yes ⁴ | Silicone-Coated SPF | Yes ⁹ |
| SecurShield® | Yes | Wood Plate | Yes | Aged EPDM, Hypalon, TPO | Yes ^{10,12} |
| | | | | Unexposed Asphalt | Yes/No ¹¹ |

1. EPS insulation cannot be used directly beneath Sure-Seal® (Black) FleeceBACK membrane unless a light-colored coating is specified. Both Sure-White™ and Sure-Weld® FleeceBACK membranes may be installed directly over minimum 1.5-lb.-density EPS; however, to obtain UL & FM codes, an overlayment of HP Recovery Board, DensDeck, SECURROCK or HP Polyiso insulation is required.
2. For insulation attachment only.
3. For new galvanized steel decks, power-washing is necessary to remove finishing oil residue if present.
4. For acoustical steel decks, fill the flutes with fiberglass or other suitable fill insulation and tack in place with strips of duct tape 3' o.c., or other adhesive, prior to spraying the deck with FAST Adhesive.
5. Existing Smooth BUR must be Type III or IV asphalt if the (Black) FleeceBACK EPDM, FleeceBACK PVC and KEE HP or FleeceBACK TPO membrane is to be installed directly without insulation.
6. A minimum ½" HP Recovery Board or insulation is required over properly prepared gravel BUR. FleeceBACK membrane cannot be installed directly over a gravel/slag surface.
7. An insulation providing the necessary R-value must be specified to prevent the coal tar pitch from softening. FleeceBACK membranes cannot be installed directly to coal tar pitch.
8. Any loose coatings must be removed by power-washing or by physical abrasion prior to the application of FAST Adhesive. A test installation over the aluminum-coated smooth BUR is recommended to ensure the aluminum coating is fully adhered.
9. Silicone-coated substrates must be scarified (coating removed) prior to the application of FAST Adhesive.
10. Power-washing aged EPDM, Hypalon, or TPO membrane is required prior to the application of FAST Adhesive.
11. Requires CAV-GRIP III for all applications.
12. Contact Carlisle for specific requirements on TPO recover.

Typical Properties and Characteristics

| Base | 100-LV A Polymeric Isocyanate | 100-LV B Polyols, Surfactants and Catalysts |
|---|---|--|
| Mixing Ratios by Volume | 1:1 Part A to Part B | |
| Viscosity (CPS @ 25°C) | 250 | 300–500 |
| Avg. Net Weight | 10.25 lbs/gal | 8.75 lbs/gal |
| Packaging | 15-gallon drum (57 L) 50-gallon drum (190 L) | 15-gallon drum (57 L) 50-gallon drum (190 L) |
| Shelf Life | 1 year | 1 year* |
| Temperature Requirements (Substrate and Ambient) | | min. 25°F (heated equipment) min. 40°F (unheated equipment) |
| Typical R-value added for FleeceBACK membrane attachment R-Value may be higher as more adhesive is used on uneven surfaces | | 0.20 to 0.50 R-value |

*Can be extended to one year by adding FAST Catalyst after six months.

Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.