

Product Evaluation

RC353 | 0920

Engineering Services Program

The following product has been evaluated for compliance with the wind loads specified in the International Residential Code (IRC) and the International Building Code (IBC).

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code, and the Texas Engineering Practice Act.

For more information, contact TDI Engineering Services Program at (800) 248-6032.

Evaluation ID: RC-353

Effective Date: September 1, 2020

Re-evaluation Date: September 2024

Product Name: GacoRoofFoam 2733 Spray Applied Polyurethane Foam (PUF) Systems

Manufacturer: Gaco a div. of Firestone Building Products Company, LLC
200 4th Ave. South
Nashville, TN 37201
(317) 845-3875

Product Description:

- **Polyurethane Foam:** GacoRoofFoam 2733 is uniformly applied over surface to a minimum thickness of 1".
- **Coatings:** The foam is covered with one of the following elastomeric coatings to form a continuous membrane:
 - GacoFlex A-31 series is an acrylic quick-set elastomeric coating that is brush, roller or spray applied in three (3) coats at a minimum total rate of 1.5 gal/100 ft².
 - GacoFlex S-10 series is a silicone elastomeric coating that is brush, roller or spray applied in one (1) or two (2) two coats at a minimum total rate of 2.2 gal/100 ft².
 - GacoFlex S-20 series is a silicone-free, single component, moisture cured, waterproof elastomeric coating that is brush, roller or spray applied in one (1) or two (2) coats at a minimum total rate of 1.5 gal/100 ft².
 - GacoFlex S-21 series is a silicone-free, single component, moisture cured, waterproof elastomeric coating that is brush, roller or spray applied in one (1) or two (2) coats at a minimum total rate of 1.5 gal/100 ft².

- GacoFlex S-42 series is a silicone-free, single component, moisture cured, waterproof elastomeric coating that is brush, roller or spray applied in one (1) or two (2) coats at a minimum total rate of 1.25 gal/100 ft².
- GacoRoof GR-16 series is a silicone elastomeric coating that is brush, roller or spray applied in one (1) or two (2) two coats at a minimum total rate of 2.0 gal/100 ft².
- **Primers:** Some substrates are primed with one of the following primers prior to applying the foam:
 - GacoFlex E-5320 is a two-component water-based epoxy primer composed of Part A and Part B. This product shall be reduced with 1 pint of water per gallon of primer and roller applied to the surface.
 - GacoFlex A4600 is a water-borne acrylic roof coating that is brush, roller, or spray-applied at a minimum of 1 gal/100 ft².

Roof Deck: The spray-applied polyurethane foam systems may be applied to concrete, wood, gypsum, lightweight insulating concrete, cementous wood fiber, recover, and steel substrates. Refer to the approved assemblies for description of acceptable substrates.

Limitations:

- **Design Wind Pressures:** The Gaco spray-applied polyurethane foam roof covering systems, when installed in accordance with this evaluation report, must have the allowable uplift wind pressure specified in each assembly.
- **Roof Slope:** The roof decks must have a minimum slope of 1/4" in 12".
- **Spray-applied Polyurethane Foam Product Identification:** Each container of polyurethane foam plastic insulation bears a label with Gaco name and address; the product name; the component type; the density; the shelf life; and the manufacture date.
- **Application Conditions:** Do not apply Gaco SPF systems if the ambient temperature is expected to fall below 50 degrees F, the ambient temperature is within 5 degrees F of the dew point, or if expecting rain before the application has time to cure. Do not apply the coating when dew, condensation, precipitation, or if anticipating freezing temperatures prior to completion of the coating application.

Installation Notes:

1. **General:** Satisfy all IRC and IBC requirements, and follow the manufacturer's installation instructions, unless otherwise specified by this product evaluation.
2. **Roof Deck:** The decks must be free of all grease, oil, loose particles, moisture and other foreign materials. Apply primers in accordance with the manufacturer's installation instructions. All primers must be thoroughly dry and cured prior to foam application.
3. **Cellular Lightweight Concrete:**
 - Concrecel, Mearlcrete, Elastizell, and generic cellular lightweight concrete shall be installed with a min. 1/8" thick slurry coat, a 1" thick EPS board (1 lbs/ft³), and a min. 2" thick top coat.
 - Celcore MF with HS Rheology Admixture shall be installed with a min. 1/8" thick slurry coat, a 1" thick EPS board (1 lbs/ft³), a min. 2" thick top coat, and Celcore PVA curing compound applied at a rate of 300 ft²/gal.

4. Acceptable Coatings:

- GacoFlex A-31 applied in three (3) coats at a min. total rate of 1.5 gal./100 ft²
- GacoFlex S-10 applied in one (1) or two (2) coats at a min. total rate of 2.2 gal./100 ft²
- GacoFlex S-20 applied in one (1) or two (2) coats at a min. total rate of 1.5 gal./100 ft²
- GacoFlex S-21 applied in one (1) or two (2) coats at a min. total rate of 1.5 gal./100 ft²
- GacoFlex S-42 applied in one (1) or two (2) coats at a min. total rate of 1.25 gal./100 ft²
- GacoRoof GR-16 applied in one (1) or two (2) coats at a min. total rate of 2.0 gal./100 ft²

5. Foam Application: A minimum of 1" thickness GacoRoofFoam F2733 spray applied polyurethane applied directly to the deck. The polyurethane foam plastic insulation is applied in a 1:1 ratio by volume of the A and B components using foam spraying equipment recommended by Gaco.

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
Concrete Deck Assemblies:							
C-1	Min. 2,500 psi concrete deck	-	-	-	GacoRoofFoam 2733	Acceptable Coating	870
C-2	Min. 2,500 psi concrete deck	Min. 300 psi Elastizell	Firestone SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 9" o.c. in the laps and 9" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	90
C-3	Min. 2,500 psi concrete deck	Min. 380 psi Celcore MF with HS Rheology Admixture	Firestone SBS Base attached with Firestone 1.8" Two-Piece Impact Nails spaced 8" o.c. in the laps and 8" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	105
C-4	Min. 2,500 psi concrete deck	Min. 200 psi Cellular Lightweight Concrete (MCRF \geq 176 lbf)	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 7" o.c. in the laps and 7" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	120
C-5	Min. 2,500 psi concrete deck	Min. 380 psi Celcore MF with HS Rheology Admixture	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 8" o.c. in the laps and 8" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	120

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
C-6	Min. 2,500 psi concrete deck	Min. 360 psi Celcore MF with HS Rheology Admixture	Firestone SBS Base attached with Firestone 1.8" Two-Piece Impact Nails spaced 7" o.c. in the laps and 7" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	135
C-7	Min. 2,500 psi concrete deck	Min. 300 psi Celcore MF with HS Rheology Admixture	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 7" o.c. In the laps and 7" o.c. in two equally spaced, staggered rows in the field.	-	GacoRoofFoam 2733	Acceptable Coating	150
C-8	Min. 2,500 psi concrete deck	Min. 770 psi Concrecel	1/2" DensDeck Prime secured 6" o.c. in Firestone I.S.O. Twin Pack Insulation Adhesive	-	GacoRoofFoam 2733	Acceptable Coating	375
Cementous Wood Fiber Deck Assemblies:							
CWF-1	Min. 2.5" Tectum I panels	-	-	-	GacoRoofFoam 2733	Acceptable Coating	445
Gypsum Deck Assemblies:							
G-1	Gypsum Deck	-	-	-	GacoRoofFoam 2733	Acceptable Coating	445
Steel Deck Assemblies:							
S-1	Grade 33 Steel Deck with min 5-ft spans	Min. 300 psi Elastizell	Firestone SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 9" o.c. in the laps and 9" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	90

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
S-2	Grade 33 Steel Deck with min 6-ft spans	Min. 380 psi Celcore MF with HS Rheology Admixture	Firestone SBS Base attached with Firestone 1.8" Two-Piece Impact Nails spaced 8" o.c. in the laps and 8" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	105
S-3	Grade 33 Steel Deck with min 5-ft spans	Min. 200 psi Cellular Lightweight Concrete (MCRF \geq 176 lbf)	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 7" o.c. in the laps and 7" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	120
S-4	Grade 33 Steel Deck with min 6-ft spans	Min. 380 psi Celcore MF with HS Rheology Admixture	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 8" o.c. in the laps and 8" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	120
S-5	Grade 33 Steel Deck with min 6-ft spans	Min. 460 psi Concrecel	1/2" USG SECUROCK Gypsum-Fiber Roof Board attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates at a rate 1 fastener per 2 ft ²	-	GacoRoofFoam 2733	Acceptable Coating	120
S-6	Grade 33 Steel Deck with min 6-ft spans	Min. 360 psi Celcore MF with HS Rheology Admixture	Firestone SBS Base attached with Firestone 1.8" Two-Piece Impact Nails spaced 7" o.c. in the laps and 7" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	135

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
S-7	Grade 33 Steel Deck with min 6-ft spans	Min. 300 psi Celcore MF with HS Rheology Admixture	Firestone MB Base or SBS Base attached with Firestone 1.7" LWC Base-Ply Fasteners spaced 7" o.c. in the laps and 7" o.c. in two equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	150
S-8	Grade 33 Steel Deck with min 6-ft spans	-	1/2" DensDeck Prime attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates at a rate of 1 fastener per 1.6 ft ²	-	GacoRoofFoam 2733	Acceptable Coating	150
S-9	Grade 33 Steel Deck with min 6-ft spans	-	-	-	GacoRoofFoam 2733	Acceptable Coating	150
S-10	Grade 33 Steel Deck with min 6-ft spans	-	Any manufacturer-approved insulation loose-laid followed by Firestone SBS Base attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates spaced 12" o.c. in the lap and 12" o.c. in two staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	120
S-11	Grade 40 Steel Deck with min 6-ft spans	-	1/2" DensDeck Prime attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates at a rate of 1 fastener per 1.6 ft ²	-	GacoRoofFoam 2733	Acceptable Coating	195

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
S-12	Grade 50 Steel Deck with min 6-ft spans	-	-	-	GacoRoofFoam 2733	Acceptable Coating	210
S-13	Grade 33 Steel Deck	-	1/2" DensDeck Prime secured in 3/4" wide beads spaced 6" o.c. in Firestone I.S.O. Twin Pack Insulation Adhesive to the top flange of the deck ribs	-	GacoRoofFoam 2733	Acceptable Coating	295
S-14	Grade 33 Steel Deck	-	-	-	GacoRoofFoam 2733	Acceptable Coating	815
S-15	Grade 33 Steel Deck	Min. 520 psi Concrecel	1/2" DensDeck Prime attached with Firestone Heavy Duty Fasteners and Insulation Fastening Plates at a rate of 1 fastener per 1.6 ft ²	-	GacoRoofFoam 2733	Acceptable Coating	165
S-16	Grade 33 Steel Deck	Min. 300 psi Mearlcrete	MB Base or SBS Base attached with 1.7" LWC Base-Ply Fasteners spaced 7" o.c. in the laps and 7" o.c. in two (2) equally spaced, staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	45
Wood Deck Assemblies:							
W-1	19/32" Plywood	-	Firestone MB Base attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates spaced 18" o.c in the lap and 18" o.c. in two staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	75

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
W-2	19/32" Plywood	-	Firestone MB Base attached with 12 ga. x 1-1/4" ring shank roofing nails with 1-5/8" diameter, 32 ga. tin tabs spaced 9" o.c in the lap and 9" o.c. in three staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	105
W-3	19/32" Plywood	-	Firestone MB Base attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates spaced 12" o.c in the lap and 12" o.c. in two staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	135
W-4	19/32" Plywood	-	Firestone SBS Base attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates spaced 12" o.c in the lap and 12" o.c. in two staggered rows in the field	GacoFlex A-4600, 1 gal/ 100 ft ²	GacoRoofFoam 2733	Acceptable Coating	135
W-5	19/32" Plywood	-	1/2" Georgia Pacific DensDeck Prime attached with Firestone All-Purpose Fasteners and Insulation Fastening Plates at a rate of 1 fastener per 1.6 ft ²	GacoFlex A-4600, 1 gal/ 100 ft ²	GacoRoofFoam 2733	Acceptable Coating	165

System Number	Deck Details	Lightweight Concrete (see Installation Note #3)	Anchor Sheet and/or Roof Board	Primer	Polyurethane Foam (See Installation Note #5)	Protective Coating (See Installation Note #4)	Passing Uplift Pressure (psf.)
W-6	19/32" Plywood	-	Firestone SBS Premium Base attached with 0.120" x 1-1/4" ring shank roofing nails with 1-5/8" diameter, 32 ga. tin tabs spaced 6" o.c in the lap and 6" o.c. in three staggered rows in the field	-	GacoRoofFoam 2733	Acceptable Coating	165
W-7	19/32" Plywood	-	GAF GAFGLAS Stratavent Perforated Venting Base Sheet attached with 11 ga x 1-1/4" ring shank nails and 32 ga x 1-5/8" diameter tin caps spaced 7" o.c. in the lap and 7" o.c. in two staggered rows in the field	GacoFlex E-5320	GacoFoam 2733	Acceptable Coating	105

Note: Keep the manufacturer's installation instructions at the job site during the application process. Manufacturer-approved applicators must perform the application. Use corrosion resistant fasteners as specified in the IRC and the IBC.