

FleeceBACK® AFX EPDM

Membranes



Overview

Carlisle's Sure-Seal® FleeceBACK AFX EPDM cap sheet membranes are manufactured using a patented hot-melt adhesive technology to bond a proprietary 7.5-ounce, 45-mil fleece backing to the EPDM sheeting. Once the EPDM is reinforced and enhanced with fleece, the total sheet thicknesses available are 90- or 105-mil. The result is a very tough, durable and versatile cap sheet that is ideal for re-roofing or new construction projects. FleeceBACK AFX EPDM cap sheet is manufactured with 3" or 6" Factory-Applied Tape™ (FAT) to ensure consistent quality seams. AFX cap sheets are available in 4.5' and 10' widths. A Sure-White™ FleeceBACK EPDM AFX cap sheet is available in the 4.5' x 50' roll with 6" Factory-Applied Tape.

FleeceBACK AFX EPDM cap sheet membranes are intended for adhered roofing and waterproofing systems. FleeceBACK is ideally suited for recovering aged smooth BUR, mineral cap sheets or SBS modified bitumen roofs. Roof Garden and Plaza Deck applications are also popular due to its added toughness/durability and the ability to incorporate Carlisle's Modified Base Sheet for a redundant system. Mechanically Fastened System installations are also approved.

Features and Benefits

- » FleeceBACK AFX EPDM (Black) membranes offer industry leading resistance to outdoor weathering of 41,580 kJ/m²
- » Choice of Hot-Mopped or Cold-Applied adhesives
- » Ability to design a multiple-ply redundant system
- » Greater puncture resistance than non-fleece single-ply
- » Greater puncture resistance than Modified Bitumen
- » 67% fewer seams than Modified Bitumen
- » Factory-Applied Tape provides consistent seam quality and enhances productivity
- » Excellent hail damage resistance, passing FM's severe hail test

Installation

Adhered Roofing System

Insulation is mechanically fastened or adhered with Carlisle's Cold-Applied adhesive, ASTM D312 Type III, IV or Modified Asphalt to the roof deck. When adhering insulation with asphalt or Cold-Applied adhesive, the insulation boards are limited to 4' x 4'. Cover boards are required over the insulation for hot asphalt installations. If a two-ply system is specified, install Carlisle's Modified Base Sheet with hot asphalt or Cold-Applied Adhesive over an approved substrate. Apply Type III, IV Modified Asphalt or Cold-Applied adhesive to the substrate or Modified Base Sheet and set AFX cap sheet membrane into the asphalt or adhesive. Broom the FleeceBACK AFX EPDM membrane with a stiff bristle push broom to ensure full embedment. Splices are sealed with Carlisle's unique Factory-Applied Tape. End laps are sealed with Pressure-Sensitive Cured Cover Strip or Overlayment Strip. FleeceBACK AFX EPDM cap sheet membrane may be adhered directly to existing smooth BUR, mineral cap sheet, or SBS modified bitumen after priming the surface with ASTM-D41-compliant, Cut-Back Asphalt primer.

Splicing

1. Roller-apply HP-250 primer or Low-VOC EPDM Primer to the splice area of the bottom sheet with a short nap-length paint roller. The primed area will be free of globs or puddles. Allow primer to dry until it does not transfer to a dry finger.
2. Allow the taped edge of the top sheet to fall freely onto the primed sheet below.
3. Pull the poly backing from the Factory-Applied Tape beneath the top sheet and allow the top sheet to fall freely onto the exposed primed surface.
4. Press top sheet on to the bottom sheet using firm, even hand pressure across the splice towards the splice edge.
5. Immediately roll the splice with a 2" (50 mm)-wide steel roller or Carlisle's stand-up SeamRoller using positive pressure. Roll across the splice edge when using a 2" roller, not parallel to it. When using the SeamRoller, roll parallel to direction of the splice.
6. For cold weather splicing below 40°F (5°C), the following steps must be followed:
 - Heat the primed area of the bottom membrane with a hot-air gun as the top sheet with Factory-Applied Tape is applied and pressed into place.
 - Prior to rolling the splice area with a 2"-wide steel hand roller, apply heat to the top side of the membrane with a hot-air gun. The heated surface should be hot to the touch. Be careful not to burn or blister the membrane.
7. Install Pressure-Sensitive Elastoform Flashing® or Pressure-Sensitive T-Joint Covers over all field splice intersections. Lap seal according to the detail.

Review Carlisle specifications and details for complete installation information.

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Precautions

- » Use proper stacking procedures to ensure sufficient stability of the materials.
- » Exercise caution when walking on wet membrane. Membranes are slippery when wet.
- » Care must be exercised when working close to a roof edge when the surrounding area is snow covered.
- » FleeceBACK AFX EPDM rolls must be tarped and elevated to keep dry prior to installation. If the fleece gets wet use a wet vac system to help remove moisture from the fleece.
- » Once installed, FleeceBACK AFX EPDM membrane edges must be sealed on a daily basis to prevent water from wicking into the fleece.
- » Prolonged jobsite storage at temperatures in excess of 90°F (32°C) may affect product shelf life.
- » In warm, sunny weather, shade the tape end of the rolls until ready to use.

Radiative Properties for Cool Roof Rating Council (CRRC) and LEED

Physical Property	Test Method	Sure-White FleeceBACK AFX EPDM
CRRC – Initial solar reflectance	ASTM C1549	0.76
CRRC – Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.64
CRRC – Initial thermal emittance	ASTM C1371	0.90
CRRC – Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.87
LEED – Thermal emittance	ASTM E408	0.91
Solar Reflectance Index (SRI)	ASTM E1980	105

The Cool Roof Rating Council (CRRC) does not specify minimums for reflectance or emittance, but they do require specific protocols for testing and reporting. Cleaning of the aged roof surface is not permitted for the determination of radiative properties after 3 years aging.

For LEED and LEED Credit Points:

- A LEED “point” may be earned if a roof material is ENERGY STAR-qualified and has a thermal emittance of at least 0.90 as determined under ASTM E 408.

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (Pass)	Sure-Seal	Sure-White
Tolerance on nominal thickness, %	ASTM D751	+/-10	+/-10	+/-10
Thickness over Fleece, min	ASTM D4637			
90-mil (2.29 mm)	Annex	.030 (.762)	.045 (1.14)	—
105-mil (2.67 mm)		.045 (1.14)	.060 (1.52)	.060 (1.52)
Weight, lbf/ft ² (kg/m ²)				
90-mil	—	—	0.29 (1.4)	—
105-mil			0.38 (1.9)	0.42 (2.1)
Breaking Strength, min, lbf (N)	ASTM D751			
90- & 105- mil	Grab Method	90 (400)	200 (890)	200 (890)
Elongation, Ultimate, min, %	ASTM D412	300 **	480 **	500 **
Tearing strength, min, lbf (N)	ASTM D751			
90- & 105- mil	B Tongue Tear	10 (45)	45 (200)	45 (200)
Puncture Resistance, Joules	ASTM D5635			
90-mil	—	—	17.5	—
105-mil	—	—	20	25
Puncture Resistance, lbf	FTM 101C			
90-mil	Method 2031	—	280	—
105-mil	—	—	292	280
Puncture Resistance, lbf	ASTM D120			
90-mil	—	—	21	—
105-mil	—	—	22	19
Brittleness point, max, °F (°C)	ASTM D2137	-49 (-45)	-67 (-55)	-67 (-55)
Resistance to Heat Aging* Properties after 4 weeks @ 240°F (116°C)	ASTM D573			
Breaking Strength, min, lbf (N)	ASTM D751	80 (355)	200 (890)	200 (890)
Elongation, Ultimate, min, %	ASTM D412	200 **	225 **	225 **
Linear Dimensional Change, max, %	ASTM D1204	± 1.0	-0.7	-0.7
Ozone Resistance* Condition after exposure to 100 ppm Ozone in air for 168 hours @ 104°F (40°C) Specimen wrapped around 3-inch (7.5 cm)-mandrel	ASTM D1149	No cracks	No cracks	No cracks
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D471	+8, -2 **	+2.0 **	+3.6 **
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m ² irradiance, 80°C black panel temp	ASTM G155 ASTM D4637 Conditions	No cracks No Cracking	No cracks No Cracking	No cracks No Cracking
		7.560 kJ/m ²	41,580 kJ/m ²	25,200 kJ/m ²

*Not a quality control test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.

**Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.

Note: FleeceBACK AFX EPDM membrane meets or exceeds the minimum requirements set forth by ASTM D4637 for Type III fabric backed EPDM.

LEED® Information

	Sure-Seal	Sure-White
Pre-consumer Recycled Content	5%	0%
Post-consumer Recycled Content	0%	0%
Manufacturing Location	Carlisle, PA	Carlisle, PA
Solar Reflectance Index	0 – 1	105