

Sure-Seal® EPDM

Dusted Non-Reinforced Membranes



Overview

Sure-Seal 45-mil (1.14 mm) and 60-mil (1.52 mm)-thick roofing membranes are non-reinforced Ethylene Propylene Diene Terpolymer (EPDM) based elastomeric homogenous roof coverings. These roofing membranes may be used for new single-ply roof construction and re-roofing applications, and are available in widths of up to 50' (15 m) and lengths of up to 200' (60 m). All membranes are dusted. Both thicknesses are available as Fire Retardant (FR) membranes that are specially formulated to inhibit the spread of flame and meet or exceed code body testing criteria for the fire-retardant roofing membranes.

Features and Benefits

- » Carlisle EPDM has 50 years of proven performance
- » Industry leading resistance to outdoor weathering with 41,580 kJ/m² total radiant exposure without cracking or crazing
- » Factory-Applied Tape™ (FAT) Seam Technology and full line of Pressure-Sensitive Flashing accessories greatly enhance workmanship quality by simplifying the contractors' job.
- » Dark-colored EPDM is the smart choice in colder climates:
 - Reduces heating costs which are generally 5 times greater than air conditioning costs
 - Reduces carbon footprint by lowering heating costs
 - Reduces safety hazards from snow and ice accumulation
 - Reduces hazardous conditions from frost, dew or ice that is difficult to see on white membranes
- » Reduces potential condensation problems that can affect performance

- » Lifecycle Assessment using EPA's TRACI model analyzed EPDM, TPO, PVC and Modified-Bitumen
 - EPDM had the lowest global warming potential
 - EPDM had the lowest acid rain impact
 - EPDM had the lowest contribution to smog
- » Numerous studies and real world experience confirm that Sure-Seal EPDM's 465% elongation and weathering resistance result in superior hail damage resistance; UL 2218 Class 4 Rating
- » EPDM is the most dimensionally stable, heat-resistant membrane, and stays flexible even in extremely cold conditions down to -40°F. (See Flexibility/Torsion DMA data).
- » Wide array of design choices that are UL and FM approved with standard or Low-VOC adhesives
- » 45-mil and 60-mil membranes available for 15- and 20-year warranties
- » Carlisle manufactures all the major components of a typical roofing system including membrane, flashings, tapes, adhesives, sealants, insulations and insulating cover boards

Carlisle's FAT Seam Technology

With Carlisle's patented Factory-Applied Tape (FAT) Seam technology, most of the labor to create seams between membrane panels is completed in a quality-controlled, state-of-the-art environment. This process results in a reliable seam with greater peel and shear strengths and with no entrapped air bubbles. Consistent placement of the FAT also maximizes the splice area and results in a high-quality seam. Carlisle FAT is available on all Sure-Seal membranes up to 30' (9 m) in width, providing the fastest way to complete a seam in today's roofing market.

Installation

Sure-Seal 45-mil (1.14 mm) and 60-mil (1.52 mm)-thick membranes are typically utilized in Design A: Fully Adhered (.060" only), Design B: Ballasted Roofing Systems and Design C: Loose-Laid Protected Roofing Systems.

For Design A: Fully Adhered Roofing System

Insulation is mechanically attached or adhered to the roof deck. The substrate and membrane are coated with Carlisle Bonding Adhesive. The membrane is then rolled into place and broomed down. To complete seams between two adjoining membrane panels, apply primer to the splice area in conjunction with Carlisle's FAT. As an alternative, Carlisle's hand-applied SecurTAPE™ may be used.

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For Design B: Ballasted Roofing System

Insulation is loose-laid over the roof deck. Membrane is loose-laid over the insulation and secured with a minimum 10 lbs (4.5 Kg) of ballast per square foot. **Design C** is a similar system with the insulation installed on top of the membrane. To complete seams between two adjoining membrane panels, apply primer to the splice area in conjunction with Carlisle's FAT. As an alternative, Carlisle's hand-applied SecurTAPE may be used.

For cold weather splicing below 40°F (5°C), these steps must be followed:

1. Heat the primed area of the bottom membrane with a hot-air gun as the top sheet with FAT is applied and pressed into place.
2. 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.

Review Carlisle specifications and details for complete installation information.

Precautions

- » Use proper stacking procedures to ensure sufficient stability of the materials.
- » Exercise caution when walking on a wet membrane. Membranes are slippery when wet.
- » Membranes with FAT should not be exposed to prolonged jobsite storage temperatures in excess of 90°F (32°C), otherwise the shelf life of the FAT may be affected.
- » When membranes with FAT are used, shade the tape end of the rolls until ready to use in warm, sunny weather.

LEED® Information	
Pre-consumer Recycled Content	5%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA Greenville, IL
Solar Reflectance Index	9

Note: Sure-Seal Dusted non-reinforced EPDM membrane meets or exceeds the minimum requirements set forth by ASTM D4637 for Type I non-reinforced EPDM single-ply roofing membranes.

Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (PASS)	Typical	
			.045	.060
Tolerance on Nominal Thickness, %	ASTM D412	±10	±10	±10
Weight, lbf/ft ² (kg/m ²)			0.29 (1.4)	0.39 (1.9)
Tensile Strength, min, psi (MPa)	ASTM D412	1305 (9)	1600 (11.0)	1600 (11.0)
Elongation, Ultimate, min, %	ASTM D412	300	480	465
Tear Strength, min, lbf/in (kN/m)	ASTM D624 (Die C)	150 (26.3)	200 (35.0)	200 (35.0)
Factory Seam Strength, min	Modified ASTM D816	Membrane Rupture	Membrane Rupture	Membrane Rupture
Resistance to Heat Aging* Properties after 28 days @ 240°F (116°C)	ASTM D573			
Tensile Strength, min, psi (MPa)	ASTM D412	1205 (8.3)	1500 (10.3)	1450 (10.0)
Elongation, Ultimate, min, %	ASTM D412	200	225	280
Tear Strength, min, lbf/in (kN/m)	ASTM D624	125 (21.9)	215 (37.6)	215 (37.6)
Linear Dimensional Change, max, %	ASTM D1204	±1.0	-0.4	-0.50
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen is at 50% strain	ASTM D1149	No Cracks	No Cracks	No Cracks
Brittleness Temp., max, °F (°C)*	ASTM D746	-49 (-45)	-49 (-45)	-49 (-45)
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D471	+8, -2	+2.0	+2.0
Water Vapor Permeance* Max, perms	ASTM E96 (Proc. B or BW)	0.10	0.05	0.03
Flexibility/Torsion DMA	ASTM D5279-08	N/A	225 MPa @ -40°F	225 MPa @ -40°F
Fungi Resistance	ASTM G21	N/A	0 (No Growth)	0 (No Growth)
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc, total radiant exposure at 0.70 W/m ² irradiance, 80°C black panel temperature	ASTM G155	No Cracks No Cracking	No Cracks No Cracking 41,580 kJ/m ² 16,500 hrs	No Cracks No Cracking 41,580 kJ/m ² 16,500 hrs
At 0.35 W/m ² irradiance, 80°C black panel temperature		6,000 hrs	33,000 hrs	33,000 hrs

*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.

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.