

Sure-Tough™ EPDM

SAT™ Reinforced Membrane



Overview

Carlisle's Sure-Tough EPDM SAT (Self-Adhering Technology) Reinforced Membrane offers added puncture and hail resistance, provides significant labor savings, and qualifies as a Low-VOC option with no solvent-related odors. Sure-Tough SAT is a nominal 60-mil reinforced EPDM membrane laminated to a 100%-solid pressure-sensitive adhesive and is available in 10' x 100' and 10' x 50' (3m x 30m and 3m x 15m) rolls. The release liner is silicone-coated on one side for consistent release from the adhesive.

Features and Benefits

- » Internally reinforced sheets provide excellent resistance to punctures, tears, and scuffs
- » Carlisle EPDM has over 50 years of proven performance and industry leading weathering resistance (35,320 kJ/m² total radiant exposure without cracking or crazing)
- » Factory-Applied Tape™ Seam Technology and full line of Pressure-Sensitive accessories enhance workmanship quality
- » Dark-colored EPDM is the smart choice in colder climates
 - Reduces heating costs which are generally 3 to 5 times greater than air conditioning costs
 - Reduces carbon footprint by lowering heating costs
 - Reduces safety hazard 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

- » Life Cycle 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 confirm that EPDM's elongation and weathering resistance result in superior hail damage resistance
- » EPDM is the most dimensionally stable, heat-resistant membrane and stays flexible even in extremely cold conditions
- » Extruded manufacturing technology results in seamless sheets
- » Eligible for up to 20-year warranties
- » Internally reinforced sheets add puncture-resistance and toughness and offers a limited puncture warranty

Productivity Boosting Features and Benefits:

- » Up to 80% productivity increase compared to traditional bonding adhesive
- » Eliminates loading, stirring, application and disposal of bonding adhesive
- » Pre-cleaned sheet allows roller application of the primer
- » Factory-Applied Tape saves time on the seaming process



Carlisle's Factory-Applied Tape Seam Technology

With Carlisle's patented Factory-Applied Tape 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.

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Installation

Sure-Tough SAT membrane is approved for application to DensDeck® Prime, SECUROCK®, SecurShield® HD, SecurShield HD Plus, SecurShield, InsulBase® Polyiso Insulation and clean concrete. Cover board or insulation is adhered or mechanically attached to the roof deck with SecurFast™ or AccuTrac® Insulation Fastening Plates. Acceptable wall substrates include standard plywood, OSB, masonry block, and brick. **Walls must be primed with CAV-GRIP III or bonding adhesive and allowed to flash-off.**

Minimum temperature requirements for Sure-Tough SAT installation are based on substrate and fastening method as outlined below:

- » 40° F (4° C) ambient and 50° F (10° C) sheet temperature after relaxation for all approved substrates and fastening methods.
- » 32° F (0° C) ambient and 40° F (4° C) sheet temperature after relaxation for Insulbase, DensDeck Prime and Securock fastened with urethane adhesive.

The surface to which the membrane is to be applied must be very clean. Prior to membrane placement, the surface of the insulation or underlayment board must be cleaned of dust and other foreign matter using a fine push broom or a blower. Unroll membrane and allow to relax for 30 minutes.

Option 1

1. Remove the release liner on one half of the sheet starting from the split in the liner at the middle of the sheet. The liner should be removed at an angle to reduce splitting or tearing.
2. Roll the membrane onto the substrate at an angle while avoiding wrinkles. When applying Carlisle's Sure-Tough SAT membrane, it is recommended to maintain a large curve (radius) on the leading edge of the membrane. This will help eliminate creases and bubbles that cannot be removed after the sheet is in place.
3. Broom the membrane in place starting from the middle of the 10'-wide sheet and working towards the outer edge.
4. Fold back the remaining half of the sheet and repeat the above process.

Option 2

1. Pull both release liners off simultaneously from underneath the membrane at a low angle similar to removing the release film from splice tape.
2. Push a broom lengthwise down the middle of the sheet to tack it in place. Continue brooming to push air out from the middle of the sheet towards the edges.

After brooming, roll the membrane with a segmented roller to ensure full contact with the substrate. Roller must weigh at least 50 lbs. (22 kg) per linear foot.

To complete seams between two adjoining membrane panels, apply primer to the splice area in conjunction with Carlisle's Factory-Applied Tape. Strip-in end laps with 6" Pressure-Sensitive Overlayment Strip or Pressure-Sensitive Cured Cover Strip per detail SAT-2. See details SAT-12A, C or D for perimeter securement options.

Review Carlisle specifications and details for complete installation information.

Precautions

- » Use proper stacking procedures to ensure sufficient stability of the materials and to keep the rolls out of the water line.
- » 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.
- » Shade the tape end of the rolls until ready to use in warm, sunny weather.
- » Carlisle Factory-Applied Tape has a shelf life of 1 year.
- » **Walls must be primed with bonding adhesive or CAV-GRIP III.**
- » **The SAT membrane temperature must reach the required minimum temperature prior to installing.**

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Typical Properties and Characteristics

Physical Property	Test Method	SPEC. (PASS)	Typical
Tolerance on Nominal Thickness, %	ASTM D751	±10	±10
Thickness Over Scrim, min, in. (mm)	ASTM D4637 Annex	0.015 (0.381)	0.020 (0.508)
Weight, lbm/ft ² (kg/m ²)			0.46 (2.2)
Breaking Strength, min, lbf (N)	ASTM D751 Grab Method	90 (400)	120 (545)
Elongation, Ultimate, min, %	ASTM D412 Die C	250**	480**
Tearing Strength, min, lbf (N)	ASTM D751 B Tongue Tear	10 (45)	45 (200)
Brittleness Point, max, °F (°C)*	ASTM D2137	-49 (-45)	-49 (-45)
Resistance to Heat Aging* Properties after 4 weeks @ 240°F (116°C)	ASTM D573		
Breaking Strength, min, lbf (N)	ASTM D751	80 (355)	182 (823)
Elongation, Ultimate, min, %	ASTM D412 Die C	200**	250**
Linear Dimensional Change, max, %	ASTM D1204	±1.0	-1.0
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen wrapped around 3 in. mandrel	ASTM D1149	No Cracks	No Cracks
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D471	+8, -2**	5.5**
Water Vapor Permeance* Max, perms	ASTM E 96 (Proc. B or BW)	0.10	0.02
Fungi Resistance	ASTM G21	N/A	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 7,560 kJ/m ² 3,000 hrs	No Cracks No Cracking 35,320 kJ/m ² 14,000 hrs
At 0.35 W/m ² irradiance, 80°C black panel temperature		6,000 hrs	28,000 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. **Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.

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.

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

LEED® Information

Pre-consumer Recycled Content	0%
Post-consumer Recycled Content	0%
Manufacturing Location	Carlisle, PA
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