



CARLISLE'S  
**SURE-WELD**®



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## Carlisle's Sure-Weld

The membrane is comprised of three layers – a TPO polymer base; a strong, polyester-reinforced fabric center (scrim) and a tough thermoplastic polyolefin compounded top ply. Because the top ply is the most vital membrane component for long-term weathering characteristics, Carlisle manufactures its membranes with an industry leading “thicker” and “smoother” top ply coverage. The smooth surface resists dirt pick-up and biological growth compared to other thermoplastic membranes.

## Membrane Sizes and Benefits

Available in seamless 6'-, 8'-, 10'-, and 12'-widths, with both 4'- and 6'-wide perimeter sheets, Sure-Weld is offered in 45- and 60-mil standard, and 72- and 80-mil extra thicknesses. Membranes are manufactured in standard white, gray and tan. Special colors are available upon request.

Sure-Weld TPO membranes carry the ENERGY STAR® rating having exceeded the stringent program guidelines based upon solar reflectance and heat emittance. Additionally, Sure-Weld is listed as a CRRC (Cool Roof Rating Council) certified product meeting the Title 24 mandates for the state of California.

Carlisle's ENERGY STAR compliant Sure-Weld membranes, with their high reflectivity ratings, help reduce the amount of energy required to maintain cool building environments. Less energy consumed results in less pollutants generated back into the atmosphere (lessening the Urban Heat Island Effect) and directly contributes to a cleaner, cooler environment.

## Environment

Sure-Weld membranes are ideally suited when environmental issues are of concern because the membrane is produced without the use of any chlorinated ingredients or plasticizers. Sure-Weld membranes are 100% recyclable.

## Installation

Heat-Welded Systems are easy to install since minimal labor and few components are required. Sure-Weld membrane welds at fast speeds — 10 to 15 feet per minute at moderate temperature settings.

The Mechanically-Fastened Roofing System starts with insulation fastened to the substrate. Sure-Weld membrane is then mechanically fastened through the insulation using HP-X fasteners and Piranha Plates (see Carlisle's Fastener Briefing Sheet). Adjoining membrane sheets are overlapped and joined together by hot air welding.

Sure-Weld Fully-Adhered Systems begin with insulation mechanically attached to the roof deck. The membrane and substrate are then coated with Carlisle's Sure-Weld Bonding Adhesive. Sure-Weld membrane is rolled into place, and seams are hot air welded to form a monolithic assembly.



**ROOFING AMERICA: OVER 40 YEARS AND 10 BILLION SQUARE FEET™**

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Carlisle SynTec Incorporated



## Sure-Weld System Accessories

Carlisle offers a complete line-up of Sure-Weld TPO accessories to support the installation of the Sure-Weld Roofing System. From HP-X fasteners and Piranha plates, adhesives, cleaners and coated metal, to heat-weldable walkway pads, standard inside and outside corners and sealant pockets, a comprehensive package of accessories and flashings are available. Additionally, Carlisle is the first company to offer pre-fabricated TPO accessories including:



### Split Pipe Seals

Sure-Weld TPO Split Pipe Seals are fabricated flashings made of 45-mil reinforced Sure-Weld membrane. A split (cut) and overlap tabs allow the pipe seals to be opened and wrapped around a round pipe with an obstruction.



### Square Tubing Wraps

Sure-Weld TPO Square Tubing Wraps are made of 45-mil reinforced Sure-Weld membrane. A split (cut) and overlap tabs allow the seals to be opened and wrapped around square tubing.



### Curb Wrap Corners

Sure-Weld TPO Curb Wrap Corners are made of 45-mil reinforced Sure-Weld membrane. With six sizes in stock to fit curbs up to 6' by 6', this innovative product reduces installation time compared to conventional flashing methods. Special order Curb wraps are available to handle any size curbs.



### Cover Strip

Sure-Weld Pressure-Sensitive Cover Strip is TPO membrane laminated to a fully cured synthetic rubber pressure-sensitive adhesive. Available in white, gray and tan, PS Cover Strip provides maximum protection against inclement weather and is ideal for stripping in shop bent metal drip edge.



### Molded Sealant Pockets

Carlisle Molded TPO Sealant Pockets consist of an interlocking, two-piece, injection molded flexible pocket with a rigid polypropylene vertical wall and preformed deck flanges. Used with Carlisle sealant and primer, this product effectively waterproofs pipe clusters or other odd shaped penetrations on Sure-Weld roofing systems.



### RUSS For Angle Changes

TPO Pressure-Sensitive RUSS is a reinforced TPO membrane strip with a pressure-sensitive tape laminated along one edge. Placed below the deck membrane, TPO Pressure-Sensitive RUSS™ provides membrane securement at angle changes without penetrating the sheet.

## Sure-Weld 45-mil & 60-mil Thick Reinforced TPO Sheet

Physical Property	Test Method	Property of Unaged Sheet	Property After Aging
Tolerance on nominal thickness, %	ASTM D 751	±10	
Thickness over scrim, in. (mm)	ASTM D 4637 Optical Method	0.015 (0.381) ±10%	
Solar reflectance (albedo X 100), % Min. for ENERGY STAR® approval is 65%	Solar Spectrum Reflectometer	White - 75 min., 87 typical Tan - 65 min., 70 typical	
Breaking strength, lbf (kN)	ASTM D 751 Grab Method	225 (1.0) min. 340 (1.5) typical	225 (1.0) min. 340 (1.5) typical
Elongation at break of fabric, %	ASTM D 751	25 typical	25 typical
Tearing strength, lbf (N) 8 by 8 in. specimen	ASTM D 751 B Tongue Tear	55 (245) min. 130 (578) typical	55 (245) min. 130 (578) typical
Brittleness point, °F (°C)	ASTM D 2137	-40 (-40) max. -50 (-46) typical	
Linear Dimensional Change (shrinkage), %	ASTM D 1204	+/- 0.5 max. - 0.2 typical	
Ozone resistance, 100 pphm, 168 hours	ASTM D 1149	No cracks	No cracks
Resistance to water absorption After 7 days immersion 158°F (70°C) Change in mass, %	ASTM D 471	4.0 max. 2.0 typical	
Resistance to microbial surface growth, rating (1 is very poor, 10 is no growth)	ASTM D 3274 2 yr S. Florida	9-10 typical	
Field seam strength, lbf/in. (kN/m) Seam tested in peel	ASTM D 1876	25 (4.4) min. 60 (10.5) typical	
Water vapor permeance, Perms	ASTM E 96	0.10 max. 0.05 typical	
Puncture resistance, lbf (N)	FTM 101C Method 2031	250 (1110) min. 300 (1330) typical -45-mil 350 (1560) typical -60-mil	250 (1110) min. 300 (1330) typical -45-mil 350 (1560) typical -60-mil
Resistance to xenon-arc weathering <sup>2</sup> Xenon-Arc, 17,640 kJ/m <sup>2</sup> total radiant exposure, visual condition at 10X	ASTM G 155 0.70 W/m <sup>2</sup> 80°C B.P.T.	No cracks No loss of breaking or tearing strength	

<sup>1</sup> Aging conditions are 28 days at 240°F (116°C) equivalent to 400 days at 176°F (80°C) for breaking strength, elongation, tearing strength, linear dimensional change, ozone and puncture resistance.

<sup>2</sup> Approximately equivalent to 8000 hours exposure at 158°F (70°C) black panel temperature.

Contact your Carlisle Manufacturer's Representative for current specifications and details.



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