

Get the Royal Edge Advantage with RPI



RE-FLEX TPO MEMBRANE

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DESCRIPTION

RPI Re-Flex Reinforced TPO thermoplastic polyolefin membrane is engineered to be installed as part of a premium performance, cost competitive, single ply membrane system that provides a durable, lightweight, puncture and chemical resistant, Energy Star rated alternative to other low slope roofing systems.

Re-Flex TPO provides the benefits of a white reflective membrane that can be installed with RPI Re-Flex Seam Tapes, Flashings and Accessories, or heat welded seams.

THE RPI ROYAL EDGE ADVANTAGE

Available in multiple widths and lengths to accommodate large or small installation requirements.

Installed using RPI Re-Flex Seam Tapes and Flashings or Heat Welding resulting in a high performance system and ease of installation.

Highly resistance to outdoor weathering and UV radiant exposure without cracking or crazing.

Excellent resistance to chemicals, acids, restaurant exhaust, and petroleum based products.

Reduces carbon footprint by lowering air conditioning costs.

Re-Flex TPO polyester re-inforced membrane provides superior puncture resistance and weathering performance resulting in excellent hail damage resistance meeting a UL 2218 Class 4 hail rating.

Available with RPI Clean-Start Release Film which protects the field membrane from job-site dirt, stains, and scuffs that may occur during the installation process. Clean-Start Release Film is easily removed upon completion of the installation.

A complete line of UL and FM approved Re-Flex TPO flashings, adhesives and accessories.

APPLICATION INSTRUCTIONS

RPI Re-Flex TPO is designed to be installed as part of a fully adhered or mechanically attached system using RPI adhesives, Flashings, Tapes, and other accessories. Refer to RPI Specification Manual for more complete installation details.

INSTALLATION PRECAUTIONS

Due to Re-Flex TPO's highly reflective surface, UV filtering sunglasses should be worn during installation.

During wet or cold conditions, extreme caution should be exercised when walking on the membrane. Frost and accumulations of ice and snow may be difficult to detect and will make the surface slippery.

Maintain a clean work area, free of debris. Ice or frost may remain under scraps of membrane causing a hazardous condition.

When installation temperatures are at 50° F or falling, the following seaming procedures are required when using RPI Re-Flex Tapes.

- Using a hot-air gun, warm the primed area of the bottom sheet as the tape is applied and pressed into place.
- Prior to hand rolling the top sheet seam area into position, apply heat to the top side of the membrane, warming the sheet. Caution: The sheet should not be hot to the touch. Do not overheat, burn, or blister the membrane.
- To ensure complete and proper adhesion in cold weather applications (temperature of 50° F or lower), keep the flashings stored in a warming box until installation. The primed area and flashing membrane may be warmed with a hot- air gun while installing the flashings.

APPROVALS

RPI Re-Flex TPO is a .045, .060, and .080 mil thermoplastic polyolefin membrane designed to be installed as part of an FM Approved and UL Classified Assembly.

Radiative Properties for ENERGY STAR* and LEED

Physical Property	Test Method	White	Tan	Grey
ENERGY STAR Initial solar reflectance	Solar Spectrum Reflectometer	0.79	0.71	N/A
ENERGY STAR Solar Reflectance after 3 yrs.	Solar Spectrum Reflectometer (after cleaning)	0.70	0.64	N/A
CCRC Initial solar reflectance	ASTM C1549	0.79	0.71	0.46
CCRC Solar reflectance after 3 yrs.	ASTM C1549 (uncleaned)	0.70	0.64	0.46
CCRC Initial thermal emittance	ASTM C1371	0.90	0.86	0.89
CCRC Initial thermal emittance after 3 yrs.	ASTM C1371 (uncleaned)	0.86	0.87	0.88
LEED® Thermal emittance	PASS	0.90	0.86	0.85
SRI-Initial Solar Reflectance Index		99	86	53
SRI-3 year aged Solar Reflectance Index		85	77	48

* The ENERGY STAR program recommends using the Roof Savings Calculator available at rsc.ornl.gov to calculate and determine if a white reflective membrane roof will save or cost you money compared to a dark-colored membrane. The results are dependent upon geographic climate conditions, the building location, and other variables.

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MEMBRANE PHYSICAL PROPERTIES

Typical Properties	ASTM D6878	Membrane Characteristics		
Physical Property	ASTM D6878 Requirement	45-mil	60-mil	80-mil
Tolerance on Nominal Thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10
Thickness Over Scrim, in. (mm) ASTM D7635 optical method, average of 3 areas	0.015 min (0.380)	0.018 typical (0.457)	0.024 typical (0.610)	0.034 typical (0.864)
Breaking Strength, lbf (kN) ASTM D751 grab	220 (976 N) min	225 (1.0) min 320 (1.4) typical	250 (1.1) min 360 (1.6) typical	350 (1.6) min 425 (1.9) typical
Elongation Break of Reinforcement, % ASTM D751 grab method	15 min	15 min 25 typical	15 min 25 typical	15 min 25 typical
Tearing Strength, lbf (N) ASTM D751 proc. B 8 in. x 8 in.	55 (245) min	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical	55 (245) min 130 (578) typical
Brittleness Point, °F (°C) ASTM D2137	-40 (-40) max	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical	-40 (-40) max -50 (-46) typical
Linear Dimensional Change, % ASTM D1204, 6 hours at 158°F	± 1 max	± 1 max -0.2 typical	± 1 max -0.2 typical	± 1 max -0.2 typical
Ozone Resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs	PASS	PASS	PASS	PASS
Water Absorption Resistance, mass % ASTM D471 top surface only 166 hours at 158°F water	± 3.0 max	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical	± 3.0 max 0.90 typical
Factory Seam Strength, lbf/in (kN/m) ASTM D751 grab method	66 (290) min	66 (290) min	66 (290) min	66 (290) min
Field Seam Strength, lbf/in (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min 50 (8.8) typical	25 (4.4) min 60 (10.5) typical	40 (7.0) min 70 (12.3) typical
Water Vapor Permeance, perms ASTM E96 proc. B	No requirement	0.10 max 0.05 typical	0.10 max 0.05 typical	0.10 max 0.05 typical
Puncture Resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min 325 (1.4) typical	300 (1.3) min 350 (1.6) typical	400 (1.8) min 450 (2.0) typical
Properties After Heat Aging ASTM D573, 5376 hours @ 240°F Breaking strength Elongation Reinf. Tearing Strength Weight Change, %	198 (881) 90% min 13.5 (90%) min 33 (60%) min ± 1.0 max	205 (912) min 13.5 min 33 min 1.0 max	225 (1000) min 13.5 min 33 min 1.0 max	315 (1400) min 13.5 min 33 min 1.0 max
Typical Weights lb/ft ² (kg/m ²)		0.23 (1.1)	0.29 (1.4)	0.40 (2.0)

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.

Xenon-Arc Weather Test				
	Re-Flex TPO Results			
ASTM TEST	ASTM D6878 Requirement	45-mil	60-mil	80-mil
kJ/m ² at 340 nm	10,080	17,640	20,160	27,720

Xenon-arc exposes the membrane samples to the combined effect of UV, visible and infrared radiation as well as ozone, heat and water spray to greatly accelerated the effects of outdoor weathering. The radiation is measured in kilojoules per square meter at 340 nm machine UV wavelength. The irradiance power of the xenon arc lamp is measured in watts per square meter (W/m²).

Heat Aging Test		
	ASTM Requirement	Re-Flex TPO Requirement
ASTM TEST 240° F	32 weeks**	52 weeks

**Comparable to 1,024 weeks (20 years at 185° F for 6 hours per day).

Heat Aging accelerates the oxidation rate that roughly doubles for each 18° F (10° C) increase in the roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

Criterion - no visible cracks after bending aged test specimen around 0.25" diameter mandrel.

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AVAILABLE MEMBRANE COLOR

RPI Re-Flex TPO Membrane is available in standard colors of White, Tan, Rock Brown, Patina Green, and Grey. Although some accessories may not be available in all colors, they may be color matched using a custom color paint formula by Sherwin Williams and painted with a high quality satin finish exterior latex paint.

RE-FLEX RELEASE CLEAN MEMBRANE

Re-Flex TPO is also available with a Release Clean Film that remains on the membrane protecting against scuffs, dirt, debris, and stains from foot traffic. The film may remain on the membrane for up to 90 days or until the installation is completed protecting the membrane until the contractor peels the film from the membrane.

Release Clean Film is available only for white 60 mil Re-Flex TPO membrane in 6ft. and 10ft. widths by 100ft. lengths.

RE-FLEX RELEASE CLEAN QUESTIONS AND ANSWERS:

Q: Are there installation temperature restrictions when using Re-Flex TPO with Release Clean Film?

A: There are no temperature restrictions.

Q: What is the shelf life of the Release Clean Film.

A: There is no shelf life.

Q: Does the heat welder affect the film?

A: On membrane with the overlap line, the film is 1/2" away from the line to prevent contact of the welding nozzle and the film. Do not allow the welder nozzle to come into contact with the Release Clean Film.

Q: How are the end laps welded?

A: Prior to welding the end laps, remove the release film from several inches of the bottom membrane, exposing the weld area. After the end lap is welded, lay the release film over the welded seam and apply pressure. The film will re-adhere to the membrane.

Q: How do I repair leaks or damage to the membrane that may occur during or before the installation is completed?

A: The film must be peeled back from around the damaged area. Once the repair is completed, the film may be re-adhered to the repaired area.

Important: On installations that require staging of materials and foot traffic from other trades, the Release Clean Film may remain in place for up to 90 days before the roofing contractor removes the film.

The Release Membrane should not be considered, nor was it designed to be a waterproofing membrane.

PACKAGING

Widths

4 ft. and 6 ft. perimeter sheets
8 ft., 10 ft., and 12 ft. field sheets

Lengths

25 ft., 50 ft., and 100 ft. rolls

PRECAUTIONS

1. When moving/transporting: avoid dragging rolls. Do not allow membrane to come into contact with objects that can puncture, cut, or tear the membrane.
2. Membrane rolls are heavy. Take adequate precautions when moving or positioning and installing.
3. Refer to Safety Data Sheets (SDS) for safety information and disposal.

RECOMMENDED STORAGE

1. Before stocking/loading rooftop, check existing structure to ensure dead limitations are not exceeded. Consultation with a structural engineer is recommended.
2. Keep product protected from weather in original wrappers.



See UL Roofing Materials and Systems Directory
R10073

LEED® Information

Pre-consumer Recycled Content	10%
Post-consumer Recycled Conte	0%
Manufacturing Location	Carlisle, PA Senatobia, MS Toolel, UT
Solar Reflectance Index (SRI)	99 (white) 86 (tan)

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