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WATERPROOFING

MiraPLY-H with SeamLOCK™ Technology



WATERPROOFING FOR THE 21ST CENTURY

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MiraPLY-H with SeamLOCK™ Technology

Design Professionals Choice for Durability, Strength and Reliability

MiraPLY-H is a 70-mil-thick, self-adhering blindside waterproofing system designed for waterproofing under slab applications. Comprised of a tough, durable, 45-mil-thick reinforced TPO backing fused to a 25-mil-thick butyl alloy adhesive coating, MiraPLY-H combines two proven waterproofing technologies to create a dual laminate membrane that provides a secure bond with the substrate without the need for soil compression.

History of Reinforced TPO:

- Used in commercial roofing for more than 20 years
- Largest and fastest-growing segment of the commercial roofing industry. Carlisle Construction Materials has sold over 5-billion square feet of TPO membrane
- Carlisle Construction Materials, the parent company of CCW, is the world's largest TPO manufacturer

Typical Properties

Property	Method	Unit	Typical Value
TPO	—	mils (mm)	45
Butyl Alloy	—	mils (mm)	25
Thickness per ASTM D 5147 across sheet	ASTM D1970	mils (mm)	70
Water Vapor Transmission (Water Method) - With Seams	ASTM E96	perms	0.090
Tensile Strength ¹	ASTM D882	psi	1,500
300% Modulus ¹	ASTM D412	psi	1,000
Lap Seam T-Peel (90°)	ASTM D1876	pli.	15.0
Elongation @ Break @ 23°C (Die C) ¹	ASTM D412	%	325
Flexibility Temperature @ -29°C (-20°F) ¹	ASTM D1970	pass/fail	No Cracking @ -29°C (-20°F)
Hydrostatic Pressure Resistance	ASTM D5385	ft.	>231 ft. (100 psi)
Peel Strength Over Poured Concrete	ASTM D903	pli.	>5.0
Puncture Resistance Load at Puncture	ASTM E154	lb.	375
Tear Strength of Vulcanized Rubber and Thermoplastics Die C ¹	ASTM D624	psi	1,000
Soil Decay E 96 Testing Water Vapor Transmission	ASTM E154		Pass
Soil Decay Testing- Weight Loss	ASTM E154		Pass
Lateral Water Migration Resistance ²	ASTM D5385 modified		Pass at 100 psi (231 ft) of hydrostatic pressure

¹Data Listed according to Machine Direction criteria where applicable

²Lateral water migration resistance test is performed by casting concrete against butyl side of membrane with a hole and applying a hydrostatic head pressure with water. This test measures the resistance of lateral water migration between membrane and concrete.

For Critical Below-Grade Applications

Tough & Durable

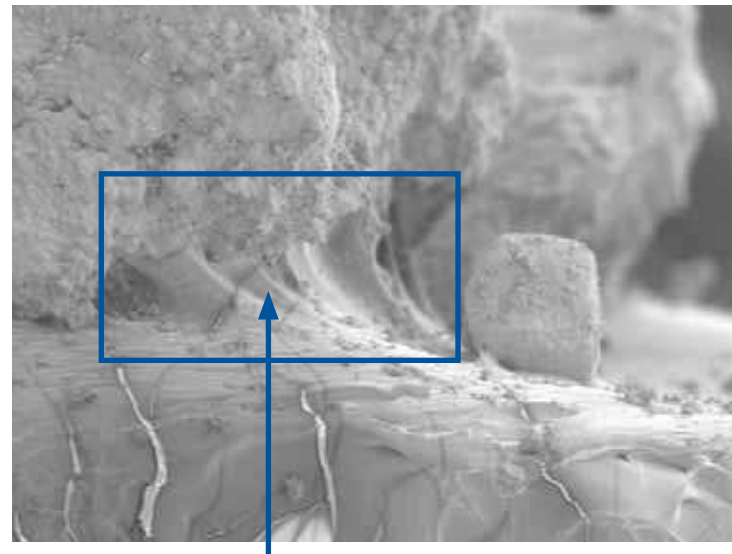
Reinforced TPO outperforms and protects due to the high-performance polyester fabric encapsulated between the TPO-based top and bottom plies. Combined fabric and TPO plies provides excellent breaking and tearing strength, as well as:

- Excellent chemical resistance — reinforced TPO is highly resistant to acids, bases, and other undesirable water and soil conditions
- Robust sheet — the reinforced TPO stays flatter, handles uneven substrate conditions and contributes to high-quality seam performance

Fully Bonded Waterproofing Technology

Tenacious Bond

- Chemically bonds to placed structural concrete eliminating water migration between membrane and concrete
- Protects against ground settlement beneath slabs

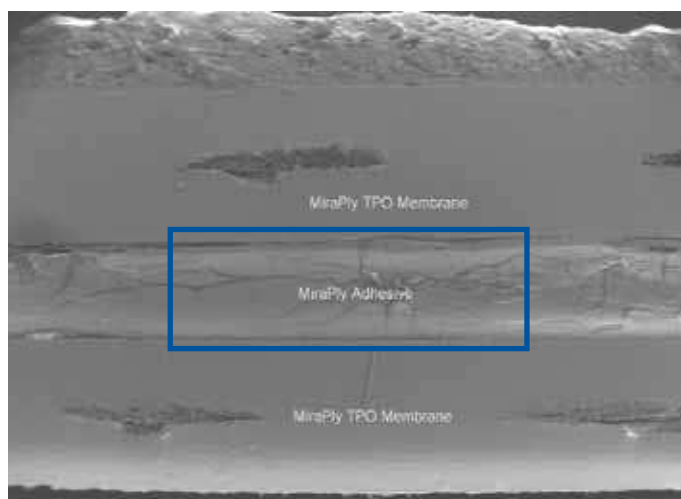


MiraPLY bonded to concrete under 100x magnification. Polymer adhesive “legs” grab concrete and create an aggressive chemical bond that can withstand even the heaviest construction traffic.

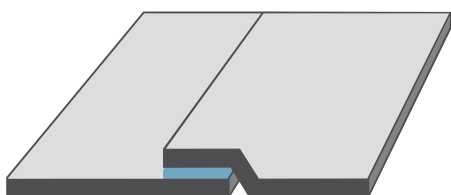
Robust Seam

Auto Adhesion

SeamLOCK™ Technology uses auto adhesion, which chemically fuses molecules between dual membranes to create the industry's most robust seam.



Even under 25x magnification, the seam is invisible, indicating a permanent, watertight seal.

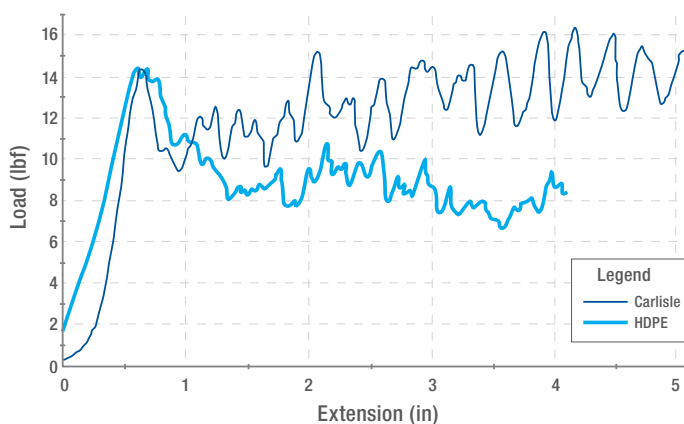


Consistent Peel Strength

Lab tests show MiraPLY's self-adhering SeamLOCK technology is among the strongest in the industry. The Lap Seam T-Peel test (ASTM D 1876) demonstrates separation resistance, an essential characteristic of high performance seams. As shown in the chart below, MiraPLY with SeamLOCK technology outperforms a leading competitor by maintaining consistent peel strength throughout the length of the test.



MiraPLY-H with SeamLOCK™ Technology reveals superior adhesion under 15 pounds of linear resistance.



Efficient Application



- Kick out roll saves time, labor, and money
- Ease of detailing reduces complexity and application risk
- Cuts easily for fewer installer hand injuries
- Installs down to 25 degrees, providing an all-weather system solution
- Pre-primed strips
- Easier side lap construction
- Release liner pulls simultaneously for fast “peel, roll and go” application

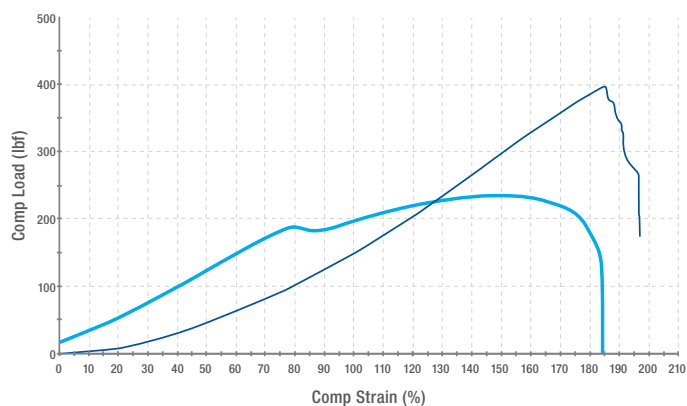
MiraPLY-H with SeamLOCK™ Technology: Best in Puncture Resistance

MiraPLY-H with SeamLOCK™ Technology is the best system available for tough jobsite conditions. Here's why:

- Twice the puncture resistance of HDPE
- Robust sheet stays flat to ensure high quality seam performance
- Pliable sheet absorbs punctures versus rigid HDPE membranes which perforate
- Best for rugged, uneven substrates where membranes are more likely to be punctured than damaged by impact on most jobsites

Puncture Resistance

E154 - Puncture Plots



Legend

- MiraPLY-H with SeamLOCK™ Technology
- HDPE Membrane

Engineered for Rugged Site Conditions



Pliable MiraPLY-H with SeamLOCK™ Technology inherently absorbs impact during a puncture test.



Rigid HDPE perforates when impacted during a puncture test.

Carlisle Coatings & Waterproofing

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