

# DURO-FLEECE® 60-MIL MEMBRANE

## Advantages:

Duro-Last® Duro-Fleece® 60-Mil (DF60) membrane is an excellent choice for projects requiring a long lasting, energy efficient roofing membrane. The combination of fleece and the proven performance of Duro-Last roofing membrane results in an ideal product for use in adhered and mechanically attached applications over a wide variety of roof substrates. A complete line of custom prefabricated accessories is available for the DF60 membrane.

## Description:

In addition to the fleece, DF60 membrane incorporates a weft-inserted, knitted scrim within PVC films to provide exceptional strength and waterproofing.

**Duro-Fleece membranes must not be used with Duro-Last EV membranes.**

**PVC Film** - Proprietary thermoplastic PVC formulation of resins, plasticizers, stabilizers, biocides, flame retardants, and U.V. absorbents.

- PVC film above weft-inserted scrim – 31 mil

**Weft-Inserted Scrim** - An 18 x 9 polyester fabric construction with weft insertion, composed of 840 x 1000 denier threads, provides superior tear and puncture resistance. The polyester thread is treated to prevent wicking.

**Fleece** - The 3.8-ounce per square yard needle-punched polypropylene fleece provides excellent properties for adhering to, or mechanically attaching over, a variety of substrates. Each roll of membrane has one selvage edge where the fleece is held back 3 inches to provide for hot-air welding to the underlying membrane.

**Total Membrane Thickness** – 60 mil, nominal.

**Overall Thickness (with Fleece)** – 78 mil.

**Weight** – 0.39 lb. per square foot.

**Color** – White.

**R-Value** – 0.1 ft<sup>2</sup>·°F·hr/Btu.

**Packaging** – DF60 is supplied in the roll sizes shown below. A full pallet contains ten rolls.

## Roll Dimensions:

Dimensions	Estimated Coverage	Roll Weight
10 ft. x 100 ft.	960 sq. ft.	390 lb.
5 ft. x 100 ft.	460 sq. ft.	195 lb.



## Energy Efficiency:

White DF60 membrane is an excellent product for complying with California Title 24, LEED® and other energy efficiency programs requiring the use of a highly reflective roof membrane.

### Cool Roof Rating Council (CRRC)<sup>1</sup>

	Solar Reflectance		Thermal Emittance		Solar Reflective Index (SRI)	
	Initial	3-yr	Initial	3-yr	Initial	3-yr
<b>White</b>	0.87	Pending	0.89	P <sup>2</sup>	110	P <sup>2</sup>

<sup>1</sup> Duro-Last's CRRC Product ID: 0610.

<sup>2</sup> 3-year aged results pending.

**LEED & LEED-EB Credits** - White DF60 membrane alone can obtain 1 credit in either U.S. Green Building Council's LEED or LEED-EB programs. In combination with other design criteria the membrane may help attain many other credits.

LEED Credit Category	Duro-Last Attribute
Sustainable Sites Credit 7.2 Heat Island Effect: Roof	Solar Reflective Index SRI = 110

LEED-EB Credit Category	Duro-Last Attribute
Sustainable Sites Credit 7.2 Heat Island Effect: Roof	Solar Reflective Index SRI = 110

## Warranty:

The following warranties are available for projects utilizing DF60 membrane. Contact Duro-Last for warranty details. **Consequential damage coverage is not available for Duro-Fleece installations.**

Available Warranties		
<b>Supreme</b>	Not applicable for this product	
<b>Ultra</b>	15-YR High Wind	20-YR High Wind
<b>Basic</b>	15-YR ND L	20-YR ND L
<b>Residential</b>	15-YR Material Only	20-YR Material Only

**Codes and Standards:**

Underwriters Laboratories (US & Canada), FM Approvals, State of Florida, Miami-Dade County, Texas Department of Insurance.

**Storage:**

Store rolls lengthwise on pallets. Use tarps to keep rolls dry.

**Membrane Attachment:**

**Adhered** – DF60 membrane may be adhered to a variety of roof decks, walls, cover boards and insulations. It may be adhered directly to an existing built-up roof (BUR) by using Duro-Fleece Membrane Adhesive or splatter-applied Duro-Grip® CR-20. Prior written approval from the Duro-Last Engineering Services Department is required prior to adhering to BUR. Refer to the Adhered Duro-Fleece Roofing System Specification for substrate preparation, acceptable adhesives and system requirements.

**Mechanically Fastened** – DF60 membrane may be mechanically attached to a variety of roof deck and wall materials. An appropriate slip sheet or cover board may be required. Refer to the Roll Good Mechanically Fastened Systems Specification for system requirements.

**Physical Properties:**

DF60 membrane has been subjected to the tests required by ASTM 4434 “Standard Specification for Poly (Vinyl Chloride) Sheet Roofing” and has been classified as a Type III, internally reinforced sheet with a fabric backing. The results of each test are listed below.

Physical Property	Test Method	ASTM 4434 Requirement	Result	Typical Value
Overall Thickness	ASTM D751	≥ 0.045 in.	PASS	0.060 in. (60 mil), nominal (With fleece: 78 mil)
Thickness Over Scrim	ASTM D7635	≥ 0.016 in.	PASS	0.031 in. (31 mil)
Breaking Strength <sup>1</sup>	ASTM D751 Grab Method	≥ 200 lbf./in.	PASS	554 x 408 lbf./in.
Elongation <sup>1</sup>	ASTM D751 Grab Method	≥ 15%	PASS	34% x 85%
Seam Strength	ASTM D751 Grab Method	≥ 415 lbf. (75% of Breaking Strength)	PASS	437 lbf.
Tear Strength <sup>1</sup>	ASTM D751 Procedure B	≥ 45 lbf.	PASS	50 x 200 lbf.
Low Temp. Bend	ASTM D2136	Must pass at -40° F	PASS	PASS
Heat Aging	ASTM D3045	Conditioned for 56 days in oven maintained at 176° F	PASS	PASS
Accelerated Weathering	ASTM G154 (formerly G53)	5,000 hours total test time. Irradiance level of 0.68 W/m <sup>2</sup> -nm. Cycle: 8 hours at 145° F, 4 hours condensation at 122° F	PASS	PASS
Dimensional Stability <sup>1</sup>	ASTM D1204	Conditioned for 6 hours in oven maintained at 176° F. Allowable change: ≤ 0.5%	PASS	0.10% x 0.00%
Water Absorption	ASTM D570	Immersed in water at 158° F for 168 hours. Allowable weight change: ≤ 3%	PASS	2.3%
Static Puncture	ASTM D5602	≥ 33 lbf.	PASS	≥ 33 lbf.
Dynamic Puncture	ASTM 5635	≥ 14.7 ft-lbf.	PASS	≥ 14.7 ft-lbf.

<sup>1</sup> Typical values are shown for both machine and cross machine directions. The machine direction results are listed first.

