

# DURO-LAST® 40-MIL MEMBRANE

**Advantages:**

Duro-Last® 40-Mil (DL40) membrane is an excellent choice for projects requiring a long lasting, energy efficient roofing membrane. The membrane is available in prefabricated sections or as roll goods. A complete line of custom prefabricated accessories is available for the DL40 membrane.

**Description:**

DL40 membrane is composed of PVC film laminated to both sides of a reinforcement fabric (weft-inserted scrim).

**Duro-Last 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 – 17 mil

**Weft-Inserted Scrim** - An 18 x 14 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.

**Total Thickness** – 40 mil, nominal.

**Weight** – 0.22 lb. per square foot.

**Colors** – White, tan, gray and dark gray.

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

**Available Configurations:**

**Prefabricated Sections** - DL40 is available in prefabricated sections up to 2,500 sq. ft. with a maximum 100 ft. in either dimension.

**Roll Good – Typical Dimensions**

Width	Length (max.)	Roll Area	Approx. Weight	Approx. Coverage <sup>1</sup>
64 inches	150 ft.	795 sq. ft.	176 lb.	725 sq. ft.
48 inches	150 ft.	600 sq. ft.	132 lb.	525 sq. ft.
32 inches	150 ft.	400 sq. ft.	88 lb.	325 sq. ft.
16 inches	150 ft.	200 sq. ft.	44 lb.	125 sq. ft.

<sup>1</sup> Assuming 6-inch overlap

**Energy Efficiency:**

White DL40 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. It is an ENERGY STAR® qualified product.



**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>	0.88	0.68	0.87	0.84	111	82
<b>Tan</b>	0.39	0.33	0.89	0.89	43	35
<b>Gray</b>	0.47	0.40	0.89	0.89	54	45
<b>Dark Gray</b>	0.26	0.25	0.88	0.89	26	25

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

**LEED & LEED-EB Credits** - White DL40 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 other credits.

LEED Credit Category	Duro-Last Attribute
Sustainable Sites Credit 7.2 Heat Island Effect: Roof	Solar Reflective Index (SRI) SRI = 111

LEED-EB Credit Category	Duro-Last Attribute
Sustainable Sites Credit 6.2 Heat Island Effect: Roof	ENERGY STAR Qualified Thermal Emittance = 0.87

**Warranty:**

The following warranties are available for projects utilizing DL40 membrane. Contact Duro-Last for warranty details.

Available Warranties	
<b>Supreme</b>	15-YR NDL
<b>Ultra</b>	15-YR High Wind <sup>1</sup>
<b>Basic</b>	15-YR NDL <sup>1</sup>
<b>Residential</b>	15-YR Material Only <sup>1</sup>

<sup>1</sup> Excludes consequential damage coverage.

**Codes and Standards:**

Underwriters Laboratories (US & Canada), FM Approvals, ICC-ES (ESR-1660), Canadian Construction Materials Centre (CCMC 13299-L), State of Florida, Miami-Dade County, Texas Department of Insurance.

**Storage:**

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

**Membrane Attachment:**

**Mechanically Fastened** – DL40 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 Duro-Last Mechanically Fastened Systems Specification for prefabricated system requirements. If using roll goods, refer to the Roll Good Mechanically Fastened Systems Specification.

**Duro-Bond® System** – The Duro-Bond system (induction weld) may be used to attach DL40 membrane. Refer to the Duro-Last Duro-Bond System Specification for system requirements.

**Adhered** – DL40 membrane may be adhered to a variety of properly prepared roof decks, walls, cover boards and insulations. Refer to the Duro-Last Adhered Systems Specification for system requirements.

**Physical Properties:**

DL40 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 IV, internally reinforced sheet. The results of each test are listed below. ASTM’s Overall Thickness requirements for the membrane are plus or minus 10% (nominal) of the listed Typical Value.

Physical Property	Test Method	ASTM D4434 Requirement	Result	Typical Value
Overall Thickness	ASTM D751	≥ 0.036 and ≤ 0.044 in. (≥ 36 and ≤ 44 mil)	PASS	0.040 in. (40 mil), nominal
Thickness Over Scrim	ASTM D7635	≥ 0.016 in.	PASS	0.017 in. (17 mil)
Breaking Strength <sup>1</sup>	ASTM D751 Grab Method	≥ 275 lbf./in.	PASS	441 x 355 lbf./in.
Elongation <sup>1</sup>	ASTM D751 Grab Method	≥ 25%	PASS	28% x 31%
Seam Strength	ASTM D751 Grab Method	≥ 330 lbf. (75% of Breaking Strength.)	PASS	360 lbf.
Tear Strength <sup>1</sup>	ASTM D751 Procedure B	≥ 90 lbf.	PASS	125 x 136 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 Aging	ASTM G154 (Formerly G53)	5,000 hours total test time. Irradiance level of 0.68 W/m2-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	-0.45% x -0.40%
Water Absorption	ASTM D570	Immersed in water at 158° F for 168 hours. Allowable weight change: ≤ 3%	PASS	2.6%
Static Puncture	ASTM D5602	≥ 33 lbf.	PASS	56 lbf.
Dynamic Puncture	ASTM D5635	≥ 14.7 ft-lbf. (20 J)	PASS	≥ 14.7 ft-lbf. (20 J)

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

**Additional Tests**

Fungi Resistance	ASTM G21	No sustained growth or discoloration
Moisture Vapor Transmission	ASTM E96, Proc. B, Method A	< 0.35 U.S. perms

