

# DURO-LAST® 40-MIL MEMBRANE

**Advantages:**

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

**Description:**

DL40 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, nominal

**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 R (0.1 ft<sup>2</sup>·°F·hr/Btu).

**Available Configurations:**

**Custom-fabricated Sections** – DL40 is available in custom-fabricated sections as listed within the Ordering and Estimating section on the Duro-Last website.

**Roll Dimensions<sup>1</sup>**

Width	Length (max.)	Roll Area	Approx. Weight	Approx. Coverage <sup>2</sup>
64 inches	150 ft.	800 sq. ft.	176 lb.	725 sq. ft.
64 inches	100 ft.	534 sq. ft.	118 lb.	483 sq. ft.
64 inches	50 ft.	267 sq. ft.	59 lb.	241 sq. ft.
32 inches	100 ft.	267 sq. ft.	59 lb.	217 sq. ft.
12 inches	100 ft.	100 sq. ft.	22 lb.	N/A
8 inches	100 ft.	67 sq. ft.	15 lb.	N/A

<sup>1</sup> Custom rolls of maximum 64 in. by 240 ft. may be produced upon request.

<sup>2</sup> Assuming 6-inch overlap.

**Energy Efficiency:**

White DL40 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)**

	CRRC ID	Solar Reflectance		Thermal Emittance		Solar Reflective Index (SRI)	
		Initial	3-yr	Initial	3-yr	Initial	3-yr
<b>White</b>	0610-0001a	0.86	0.74	0.89	0.89	108	91
<b>Tan</b>	0610-0005	0.39	0.33	0.89	0.89	43	35
<b>Gray</b>	0610-0004	0.47	0.40	0.89	0.89	54	45
<b>Dark Gray</b>	0610-0006	0.26	0.25	0.87	0.89	25	25

**LEED-NC & LEED-EB Credits** – White DL40 alone can obtain 1 credit in either U.S. Green Building Council’s LEED-NC or LEED-EB programs. In combination with other design criteria the membrane may help attain other credits.

LEED-NC Credit Category	Duro-Last Attribute
Sustainable Sites Heat Island Reduction	Solar Reflective Index (SRI) = 108

LEED-EB Credit Category	Duro-Last Attribute
Sustainable Sites Heat Island Reduction	Solar Reflective Index (SRI) = 108

**Warranty:**

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

Available Warranties	
<b>Supreme</b>	15-Year NDL Warranty
<b>Ultra</b>	15-Year NDL High Wind Warranty <sup>1</sup>
<b>Basic</b>	15-Year NDL Warranty <sup>1</sup>
<b>Residential</b>	15-Year Residential Material Limited Warranty <sup>1</sup>

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

**Codes and Standards:**

Underwriters Laboratories (US & Canada), UL Evaluation Report (ER10128), FM Approvals, 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 may be mechanically fastened to a variety of roof deck and wall materials. An appropriate slip sheet, insulation or cover board may be required. Refer to the Duro-Last Mechanically Fastened Roofing System Specification for custom-fabricated system requirements. If using roll goods, refer to the Duro-Last Roll Good Mechanically Fastened Roofing System Specification.

**Induction welded** – Induction welding may be used to attach DL40. An appropriate slip sheet, insulation or cover board may be required. Refer to the Duro-Bond® Induction Weld Roofing System Specification for system requirements.

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

**Physical Properties:**

DL40 has been subjected to the tests required by ASTM D4434 “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 G155	10,000 hours total test time. Irradiance level of 0.35 W/m <sup>2</sup> -340nm. Cycle: 102 minutes light, 18 minutes light + H <sub>2</sub> O spray, 63±2.5° C black panel, 30±5% RH	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

