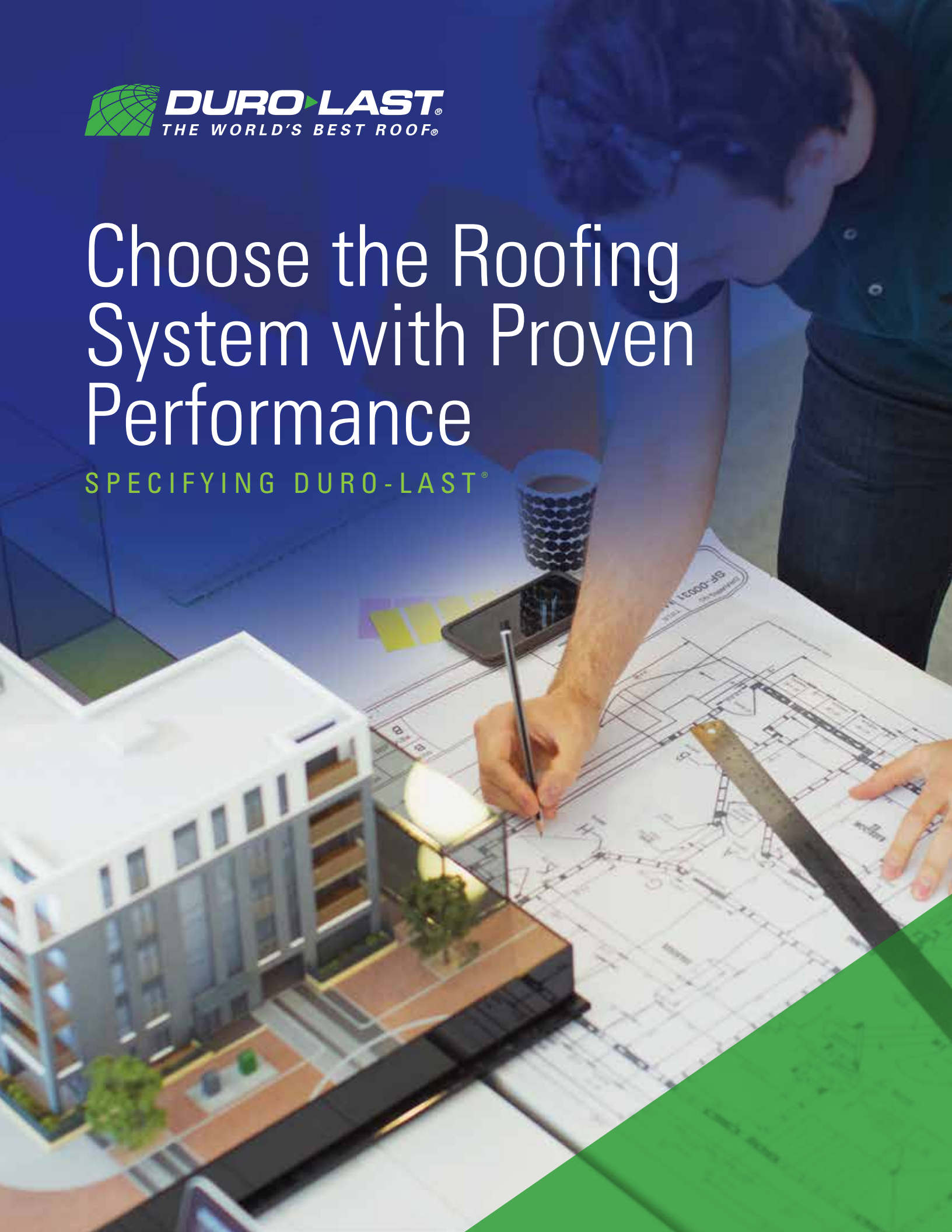
DURO-LAST®
THE WORLD'S BEST ROOF®

# Choose the Roofing System with Proven Performance

## SPECIFYING DURO-LAST®



# The Resilient Roofing System with Proven Performance

A building's roof is the first line of defense against adverse weather events. Specifying a roof that can withstand these natural conditions, and more readily recover, is critical.

## Durability and Performance

For more than 40 years, Duro-Last's formulation has been proven to be durable, serviceable, highly flexible and recyclable with billions of square feet of membrane installed.

Duro-Last Roofing Systems provide protection where buildings need it most: the exposed surface of the membrane. There are two major differentiators with the Duro-Last membrane: the **high-quality reinforcement scrim** and the **thickness above scrim**.

The scrim is the backbone of all Duro-Last membranes, giving them strength and puncture-resistance. Knitted in-house, our **anti-wicking polyester weft-insertion scrim** has an 18 x 14 or 14 x 9 threads-per-inch density – among the highest in the industry. Our scrim uses a third tie yarn to prevent runs and stop tears from spreading, adding to its durability and performance.

The thickness above scrim of each Duro-Last Roofing System – also known as the "performance layer" – exceeds the ASTM minimum standard. Compared to competitive products, the Duro-Last flagship membrane has the thickest film over scrim.

Additionally, our membranes are repairable and weldable. This means that, if damaged, the roof can typically be repaired - instead of replaced - and then continue to maintain performance for years to come.

## Code Approvals

Duro-Last roofing membranes meet or exceed major national fire and wind code requirements, as well as most required regional approvals throughout the country*. For wind codes, we offer a free wind calculator tool to help you determine the correct membrane attachment patterns to meet building code requirements. Visit the Technical Resources tab at duro-last.com to access this tool.

FM Approved
- Two statewide reports
- Over 500 assemblies evaluated

Miami-Dade Notices
- Seven Notices of Acceptance

UL Evaluation Reports
- Over 200 assemblies

* Verifying all code compliance is the responsibility of the architect/designer and contractor.

## Duro-Last in the Industry

Duro-Last participates in all major technical committees and is a member of key organizations in the roofing industry, including:

- American Society of Testing Materials (ASTM)
- American Institute of Architects (AIA)
- Construction Specification Institute (CSI)
- International Institute of Building Enclosure Consultants (IIBEC), formerly RCI, Inc.
- National Roofing Contractors Association (NRCA)
- Single-Ply Roofing Industry (SPRI)
- U.S. Green Building Council (USGBC)
- Vinyl Roofing Division of the Chemical Fabrics and Film Association (CFFA)
- The Roofing Industry Alliance for Progress

## Energy Efficiency

By reflecting up to 88% of the sun's energy, white Duro-Last Roofing Systems can greatly reduce energy costs and help mitigate dangerous urban heat islands.

## Support

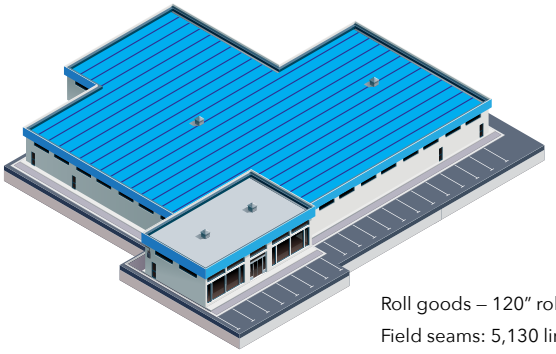
It's important to us that there is seamless integration between the architect or designer, the contractor, and Duro-Last. That's why we have a large team of knowledgeable professionals to support you, including technical experts at our corporate offices, a network of Quality Assurance Technical Representatives strategically located across North America, and an extensive local contractor base.

## The Custom-Fabrication Advantage

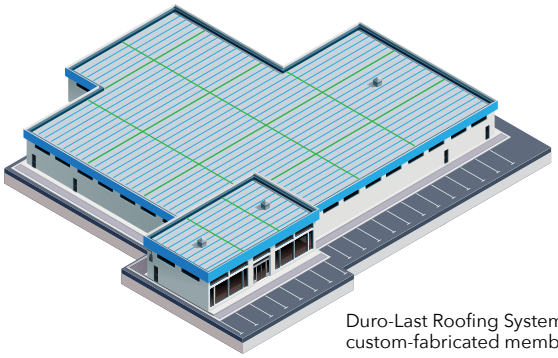
Roof leaks usually stem from installation errors. That's not surprising, considering the challenges a rooftop environment can face and the amount of hands-on labor a typical roof installation requires.

The Duro-Last approach is unique in the commercial roofing industry. We take the roofing design you create and turn it into a complete roofing system – from deck sheets and parapet walls to penetrations, edge details and fasteners. When we say complete, we mean it.

We deliver the entire roofing system to the job site for installation by an authorized Duro-Last contractor.



Roll goods – 120" roll width
Field seams: 5,130 lineal feet



Duro-Last Roofing System
custom-fabricated membrane sheets
Field seams: 1,278 lineal feet

These diagrams show the seaming required on a typical 42,000 square-foot roof. Green lines indicate on-site rooftop seaming. The blue lines on the Duro-Last Roofing System diagram show the seams that were completed in the factory.

# Exceptional Roofs Require Exceptional Details

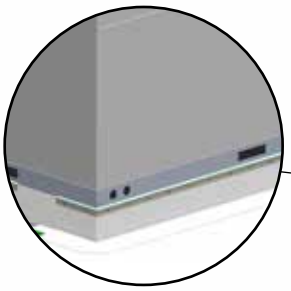
Duro-Last offers complete roofing systems for the most demanding environments - let us be your solution for resilient rooftop design. Our deck sheets and nearly all related components are manufactured under factory-controlled conditions to fit each unique building's requirements. Custom-fabricated stack and curb flashings significantly reduce rooftop labor in critical areas: penetrations and transitions. And our EXCEPTIONAL® Metals division manufactures a wide variety of standard and custom metal details – providing watertight integrity with remarkable appearance – as well as metal roofing solutions.

A Fascia Cover

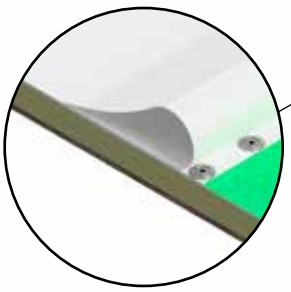
B Two-Piece Snap-On Compression

C Snap-On Fascia Base

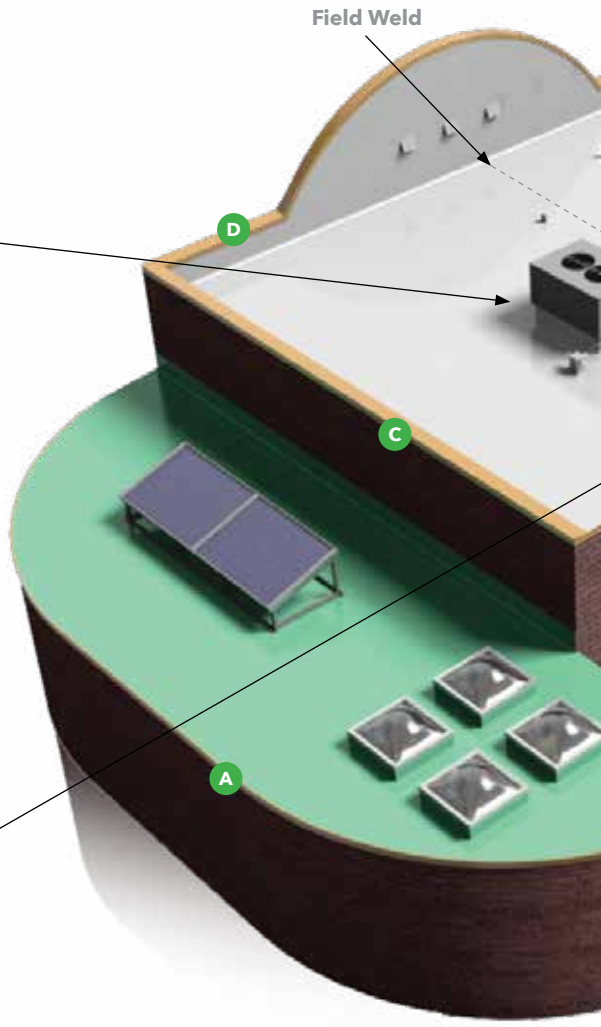
D Snap Coping



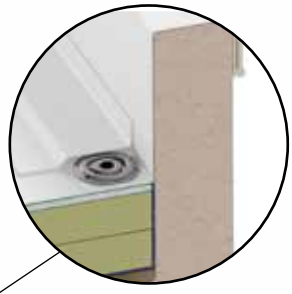
Custom-Fabricated Curb Flashing



Custom-Fabricated Deck Sheet

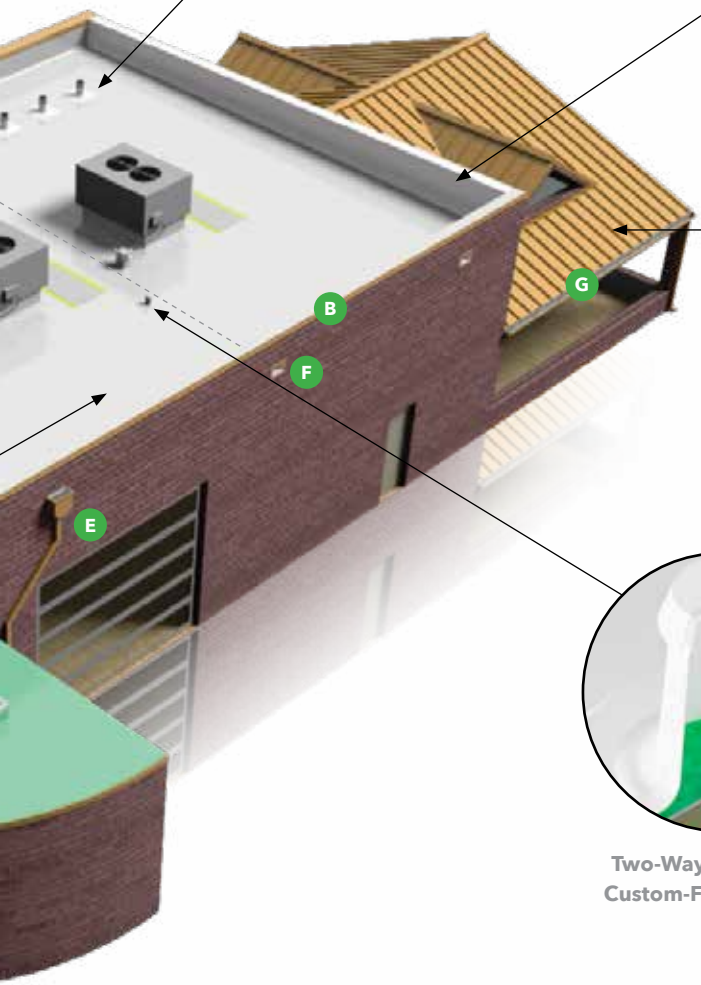


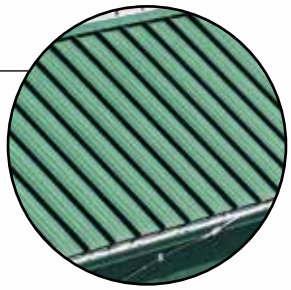
Custom-Fabricated
Stack Flashing



Custom-Fabricated
Wall Flashing

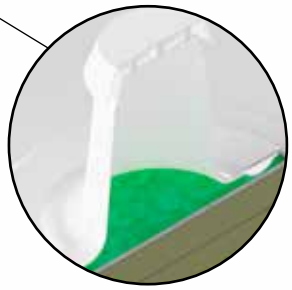
**E** Collector Box with
Downspout Assembly



Variety of
Metal Roof Options

**F** Metal Flange Scupper



Two-Way Air Vent with
Custom-Fabricated Skirt

**G** DX-Style Gutter System

**Note:** Illustrations are not to scale.

# Duro-Last® 60-Mil Membrane

You depend on a 60-mil roofing system that can offer the physical performance properties that your clients demand. The Duro-Last Roofing System has successfully passed the following tests for single-ply roofing systems. We also recognize that unique projects require unique membrane solutions, and offer a variety of mil options for your needs ranging from 40 mil to 80 mil.

## Physical Properties

Duro-Last 60-mil membrane 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 III, internally reinforced sheet. The results of each test are listed below.

| Physical Property | Test Method | ASTM D4434 Requirement | Result | Typical Value |
|---|---|---|---|---|
| Overall Thickness | ASTM D751 | ≥ 0.054 and ≤ 0.066 in. (≥ 54 and ≤ 66 mil) | PASS | 0.060 in. (60 mil), nominal |
| Thickness over Scrim | ASTM D7635 | ≥ 0.016 in. | PASS | 0.028 in. (28 mil) |
| Breaking Strength* | ASTM D751 Grab Method | ≥ 200 lbf./in. | PASS | 438 x 390 lbf./in. |
| Elongation* | ASTM D751 Grab Method | ≥ 15% | PASS | 31% x 31% |
| Seam Strength | ASTM D751 Grab Method | ≥ 328 lbf. (75% of breaking strength) | PASS | 431 lbf. |
| Tear Strength* | ASTM D751 Procedure B | ≥ 45 lbf. | PASS | 132 x 163 lbf. |
| Low Temperature 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 | Total test time: 10,000 hours Irradiance level: 0.35 W/m²-340nm Cycle: 102 minutes light, 18 minutes light + $H_2O$ spray, 63±2.5°C black panel, 30±5% RH | PASS | PASS |
| Dimensional Stability* | ASTM D1204 | Conditioned for 6 hours in oven maintained at 176°F Allowable change: ≤ 0.5% | PASS | -0.45% x -0.20% |
| 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) |

*Typical values are shown for both machine and cross machine directions. The machine direction results are listed first.

## Energy Efficiency and LEED®

The white Duro-Last 60-mil membrane is an excellent product for complying with California Title 24, LEED®, and other energy efficiency programs that require the use of a highly reflective roof membrane. It is also NSF/ANSI 347 gold certified. The white Duro-Last 60-mil membrane alone can obtain 1 credit in either the U.S. Green Building Council's LEED or LEED-EB programs. In combination with other criteria, the membrane may help attain other credits.

| Credit Category | White Duro-Last 60-Mil Membrane |
|---|---|
| LEED Sustainable Sites Credit 7.2 Heat Island Effect: Roof | Solar Reflective Index (SRI) = 111 |
| LEED-EB Sustainable Sites Credit 6.2 Heat Island Effect: Roof | Thermal Emittance = 0.87 |

# Continuing Education Credits

Duro-Last believes that offering continuing education opportunities is vital for growth and development of the roofing industry. We are proud to provide the following AIA, IIBEC and GBCI continuing education courses. Visit duro-last.com and contact a Duro-Last Sales Representative to learn more and schedule a session.

| Program Name | Course Number | Description | AIA Credit Designation | Credits | AIA | IIBEC | GBCI |
|---|---|---|---|---|---|---|---|
| One-Hour Roofing Fabrication Facility Tour | STD001 | Tour of a roof system fabricating plant | LU | 1 | X | | |
| Two-Hour Roofing Fabrication Facility Tour | STD002 | Tour of a roof system fabricating plant and classroom session with demonstration | LU/HSW | 2 | X | | |
| Three-Hour Saginaw Facility Tour | STD003 | Guided tour of roofing system manufacturing complex, including knitting, calendaring, lamination, laboratory and classroom demonstration | LU/HSW | 3 | X | | |
| Thermoplastic Roofing – Materials and Systems | STD004 | Overview of single-ply roofing systems, characteristics of major players, key selection criteria | LU/HSW | 1 | X | | |
| Energy Studies, Codes and the Sustainable Roof | STD006 | Summary and background on reflective roofing and environmental impacts, sustainable design, and life-cycle costs | LU/HSW | 1 | X | | |
| Rooftop Job Site Tour | STD007 | Guided tour of roofing installation in progress | LU | 1 | X | | |
| Cool Thermoplastic Roofing Systems for Sustainable Buildings | STD008 | Thermoplastic roofing as a component of high-performance buildings; review of infrared case studies for cool roofs | LU/HSW | 1 | X | | |
| PVC Single-Plies as Sustainable Roofing Systems | STD009 | Review of current issues regarding PVC-based roofing and comparison of thermoplastic single-plies to alternative systems | LU/HSW | 1 | X | | |
| Beyond Cool and Sustainable – The Five E's of High Performance | STD010 | Identify and discuss the "Five Es" of high-performance roofing; review checklist of high-performance attributes | LU/HSW | 1 | X | | |
| Green Roof 101 | STD011 | Description and benefits of vegetative roof systems; selecting a design team | LU/HSW | 1 | X | | |
| "Roofing" the System | STD014 | Overview of performance characteristics of standing seam metal roofing | LU | 1 | X | | |
| Reducing Peak Electrical Demand | STD015 | The hidden benefits of cool roofs | LU/HSW | 1 | X | X | X |
| The Perimeter Roof Edge | STD016 | More than just aesthetics, the perimeter roof edge is the first line of defense against wind events and costly issues | LU/HSW | 1 | X | | |
| Roofs and Condensation | STD017 | A practical approach for the design professional | LU/HSW | 1 | X | | |
| NSF/ANSI 347 | STD018 | The architect's guide to specifying sustainable singly-ply roofing membranes | LU/HSW | 1 | X | X | X |
| Metal Roof and Wall Systems | STD020 | Specifying for aesthetics, durability and energy efficiency | LU | 1 | X | | |
| Labor Shortage Solution | STD021 | Custom-fabricated membranes and accessories improve rooftop efficiencies and increase a roof's quality and durability | LU/HSW | 1 | X | | |
| Code, Compatibility, Compliance | STD022 | A look at the total system, including single-ply roofing, metal roofing and edge details | LU/HSW | 1 | | | |
| Cool Roofs for a Hot Planet | STD023 | Today's cool roofing systems are a significant platform for urban building sustainability | LU/HSW | 1 | X | | X |
| Resilience in Roof Design | STD025 | Greater roof resilience and the effect on application and performance of roofing systems | LU/HSW | 1 | X | | |

# Industry-Leading Warranties


High-performance roofs require high-performance protection. Duro-Last warranties offer unparalleled security for our commercial and institutional end users because we control more of the end result.

Our 15-Year No Dollar Limit (NDL) Supreme Warranty is transferable, has no exclusions for ponding water, and provides coverage against consequential damages that result from material defects and the authorized contractor's installation of Duro-Last membrane. We were the first manufacturer to offer a warranty that expressly covers consequential damages.

We also offer 20-year warranties, as well as extended 25- and 30-year warranty options and warranties for installations in hail and/or high-wind areas.

ICC-ES Report ESR-1660 · FM APPROVED · MIAMI-DADE · CLASSIFIED UL US R10128 · U.S. GREEN BUILDING COUNCIL MEMBER · CRRC COOL ROOF RATING COUNCIL CHARTER MEMBER · SPRI SINGLE PLY ROOFING INDUSTRY

**Headquarters:** Saginaw, Michigan
Other Locations: Grants Pass, Oregon • Jackson, Mississippi • Sigourney, Iowa • Carrollton, Texas • Ludlow, Massachusetts

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For more information give us a call or visit our website today.

800-248-0280
duro-last.com



RECYCLED

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