

AN ARCHITECT'S GUIDE TO THE DURO-LAST ROOFING SYSTEM

DURO-LAST[®]

ROOFING, INC.



DURO-LAST.
THE WORLD'S BEST ROOF[®]

SPECIFY THE PROVEN PERFORMER[®]:
THE DURO-LAST ROOFING SYSTEM

IF YOU CAN DRAW



Your designs



Precision-fabricated by Duro-Last



Complete roofing system

Dealing with building designs and roofing details can be a daily challenge for you. No matter how simple or complex your project might be, at Duro-Last® Roofing, Inc., our philosophy is: *if you can draw it, we can make it.* Our approach is unique in the commercial roofing industry because the entire system that you design – from deck sheets and parapet walls to penetrations and edge details – is prefabricated in our controlled factory environment, rather than manufactured on the rooftop.

If your project requires a unique configuration, additional fastening strength, or a special wind, fire or hail assembly, Duro-Last's experienced team of engineers can help you design it. Then we'll make the roofing system in our factory to your specifications, ready to be installed at the job site.

Duro-Last's precision fabrication expertise means that you and your clients are assured superior water-tight protection for years to come.

Duro-Last offers the best design support in the roofing industry. Whether you need CAD drawings for a meeting, specifications for a unique project, or an answer to a technical question, we provide the resources you need to get the job done.

Over a billion square feet of Duro-Last membrane have been installed since 1978. Our reputation for quality stems from long-term, steady company ownership, a time-tested product formulation, and a highly-refined installation method that relies on reputable, factory-authorized contractors.

For your next roofing project, draw on the quality, reliability, and durability delivered by the "World's Best Roof"® – the precision-fabricated Duro-Last roofing system.

IT, WE CAN MAKE IT.

Prefabrication...The Duro-Last Difference

Roof leaks usually stem from installation errors – not surprising, considering how challenging a rooftop environment can be and the amount of hands-on labor a typical roof installation requires.

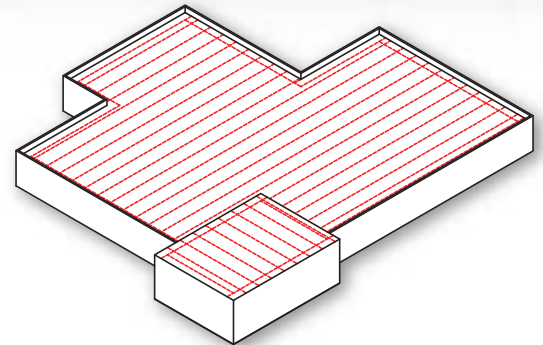
Duro-Last addresses this issue by prefabricating every roofing system in a controlled factory environment. By manufacturing each roof to specification, using state-of-the-art technology, Duro-Last reduces the amount of field welding that contractors must perform on the rooftop by 80-85%. This significantly reduces the likelihood of leaks developing in the future.

Duro-Last's edge-to-edge precision fabrication provides peace of mind, ensuring a predictable installation that delivers long-term, worry-free, leak-proof protection.

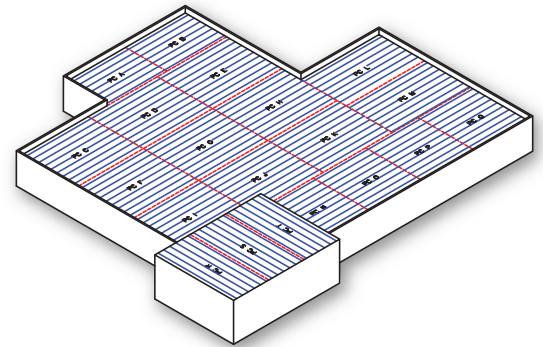
Less Seaming Means An Easier, More Reliable Installation

The diagrams shown at the right compare the seaming required on a typical 42,000 square-foot roof using EPDM roll goods and the prefabricated Duro-Last roofing system. The red lines on both diagrams indicate the amount of on-site rooftop seaming required. The blue lines on the Duro-Last diagram show the seams that are completed in the Duro-Last factory.* By eliminating most on-site rooftop seaming, we substantially reduce the potential for leaks and add the advantages of faster, quieter installations, less maintenance, and reliable roof performance.

* The Duro-Last roofing system has similar seaming advantages over other rolled systems that must be constructed on the rooftop, including modified cap sheet and TPO.



EPDM (Rubber) Sheets - 120" Roll Width
Lineal Feet of Field Seams - 5,130



Duro-Last Roofing System
Prefabricated Membrane Sheets
Lineal Feet of Field Seams - 1,278



EXCEPTIONAL ROOFS REQUIRE

With the Duro-Last roofing system, you design the roof, and we build it. Deck sheets are custom-prefabricated in sections of up to 2,500 square feet each. Plus, we produce virtually all other components in our controlled factory environment. The illustrations and photographs on these pages represent only a small portion of the functional and aesthetic accessories that we offer. Custom prefabricated stack and curb flashings eliminate nearly all rooftop labor from the most critical roof areas – penetrations and transitions. Our EXCEPTIONAL® Metals subsidiary makes a wide variety of standard and custom metal details, providing the integrity and appearance your clients expect.



A FASCIA COVER



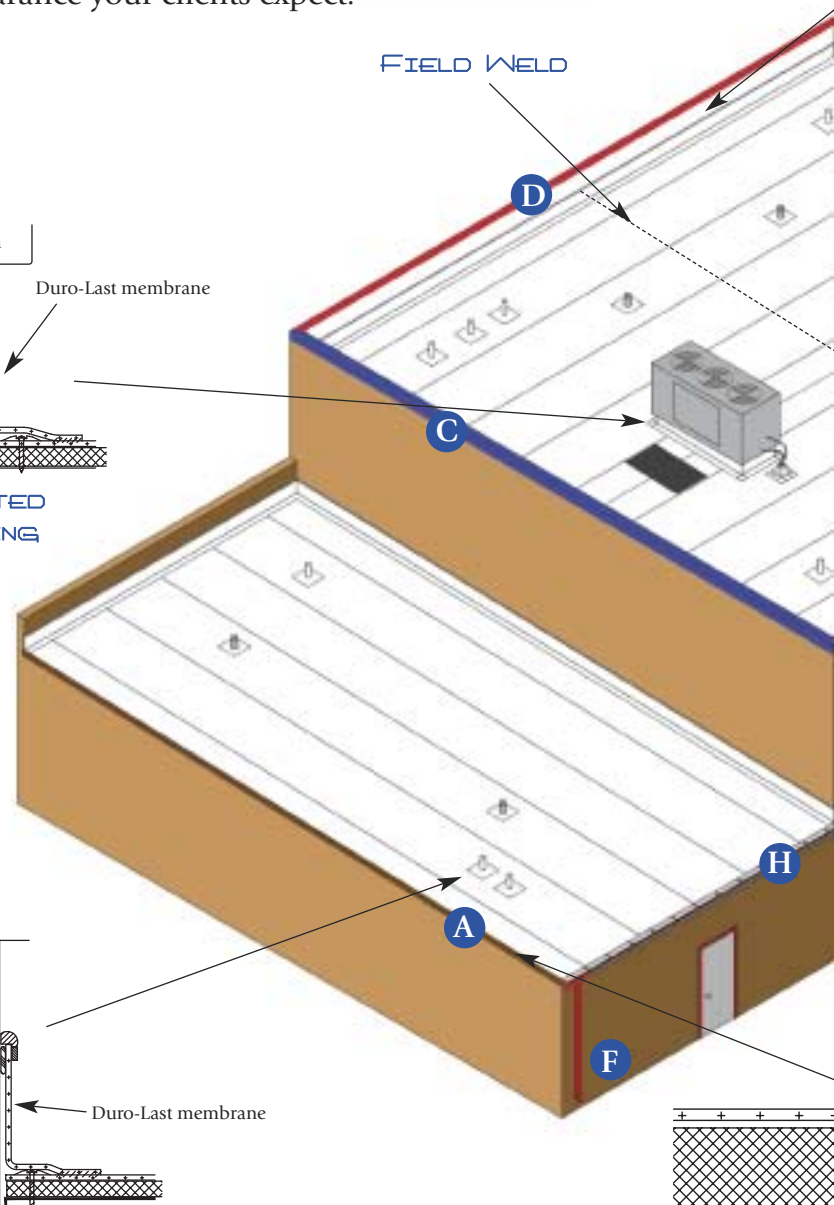
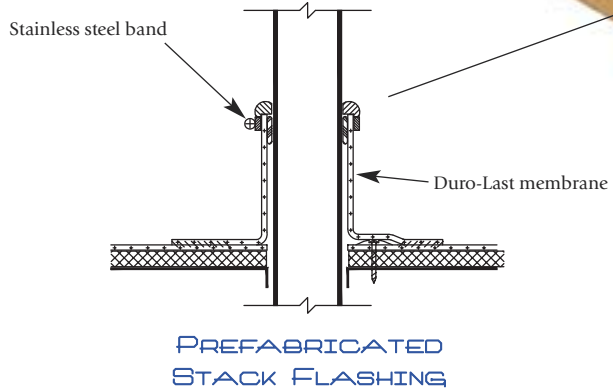
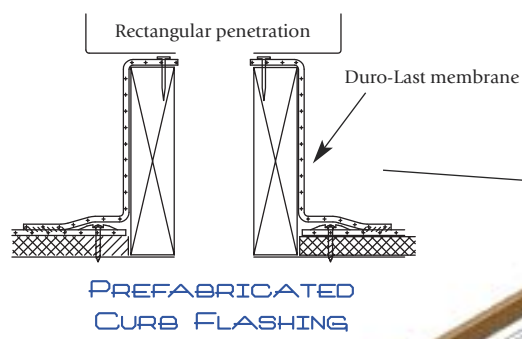
B 2-PIECE SNAP-ON COMPRESSION



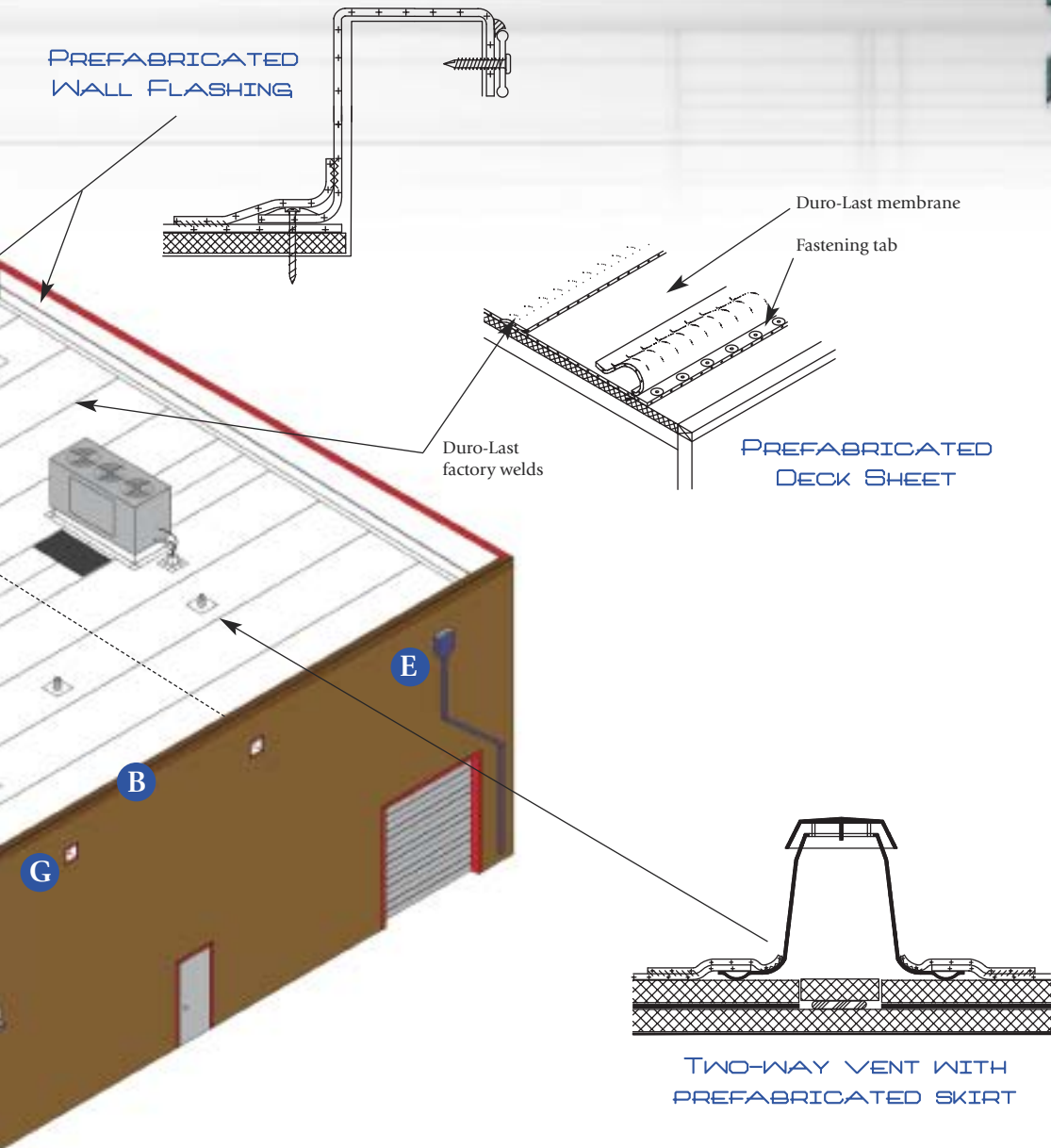
C SNAP-ON FASCIA/BASE



D SNAP COPING



Note: Illustrations are not to scale.



E COLLECTOR BOX



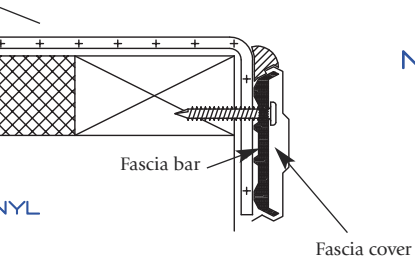
F BOX GUTTER ASSEMBLY



G SCUPPER



H D-STYLE GUTTER SYSTEM



DURO-LAST AND EXCEPTIONAL METALS OFFER A SINGLE SOURCE OF PREFABRICATED ROOFING MATERIALS MANUFACTURED FOR UNSURPASSED PROTECTION, DURABILITY, AND EFFICIENCY.

PHYSICAL PROPERTIES

You depend on a 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.

Tests outlined by ASTM D-4434	Test Description	Test Method	Metric Results	U.S. Standard Results
	Thickness-Nominal	ASTM D 751	1 mm.	40 mil - Type IV (50 and 60 mil also available)
	Breaking Strength	ASTM D 751 - Grab Method	1579 x 1961 N	355 x 441 lbf./in.
	Elongation at Break	ASTM D 751 - Grab Method		31%
	Heat Aging	ASTM 3045, 56 days @ 176° F		Pass
	Factory Seam Strength	ASTM D 751 - Grab Method	2081 N	468 lbf.
	Tearing Strength	ASTM D 751 - Procedure B	404 x 569 N	91 x 128 lbf.
	Low Temperature Bend	ASTM D 2136@-40°F		Pass
	Accelerated Weathering	ASTM G 154 (Formerly G53)	No cracking, checking, crazing or erosion at 5,000 hours of exposure. Pass	
	Linear Dimensional Change	ASTM D 1204 - 6 hrs. @ 176° F		-0.2%
	Water Absorption	ASTM D 570 - 166 hrs. @ 158° F		1.40%
	Static Puncture	ASTM D 5602	25 kg.	56 lb.
	Dynamic Puncture	ASTM D 5635	20 J	474 pdl-ft.

Additional Tests	Test Description	Test Method	Metric Results	U.S. Standard Results
	Fungi Resistance	ASTM G-21	No sustained growth or discoloration	
	Solar Reflectance	ASTM C1549	88%	
	Thermal Emittance	ASTM C1371-98	87%	
	Thermal Emissivity	ASTM E408	95%	
	EMMAQUA Exposure	ASTM G90, Desert Sun	339,790 M/J/m ²	>8.1 million Langleys
	Moisture Vapor Transmission	ASTM E-96, Proc. B, Method A	<.086 g/hr/m ²	<.25 U.S. Perms
	Weight	ASTM D 751	1.1 kg per m ²	.22 lb. per ft ²
	Underwriters Laboratories	UL-790	Classes A, B & C approved	
	Factory Mutual Research	ASTM E-108; FM 4450 & FM 4470	Rated 1-60, 1-75, 1-95, 1-105, 1-120, 1-135, 1-150, 1-165, 1-195, 1-210, 1-270, 1-435, and 1-495	

The Duro-Last membrane is available in terra cotta, tan, dark gray, gray, and white.

MATERIALS THAT CAN BE USED SAFELY WITH THE DURO-LAST ROOFING SYSTEM

The Duro-Last roofing membrane is extremely durable and compatible with dozens of chemicals, construction products, and other materials. Some of the most common are below. For information about materials not listed, contact the Duro-Last Engineering Services Department at 800-248-0280.

- Acid Rain
- Brick & Masonry Cleaner
- Ethyl/Methyl Alcohol
- Linseed Oil
- Sea Water
- Acrylic/Latex Paint
- Cooking Grease
- Furnace Residue
- Nitrogen Sulfate
- Soldering Acid/Flux
- Bird Droppings
- Detergent Solution
- Hydrofluoric Acid Cleaner
- Polyethylene
- Tannic Acid
- Bleach
- Diatomaceous Earth
- Incinerator Ash
- Polypropylene
- Triethylene Glycol

CONTINUING EDUCATION CREDITS



AS A REGISTERED PROVIDER OF AIA/CES COURSES, DURO-LAST OFFERS THE FOLLOWING:

Program Name	Course No.	Description	HSW*	SD*	Credits
One-Hour Roofing Fabrication Facility Tour	STD001	Tour of a roof system fabricating plant.	Yes	No	1
Two-Hour Roofing Fabrication Facility Tour	STD002	Tour of a roof system fabricating plant and classroom session with demonstration.	Yes	No	2
Three-Hour Saginaw Facility Tour	STD003	Guided tour of roofing system manufacturing complex, including knitting, calendaring, lamination, laboratory, and classroom demo.	Yes	No	3
Thermoplastic Roofing – Materials And Systems	STD004	Overview of single-ply roofing systems, characteristics of major players, key selection criteria.	Yes	No	1
Energy Studies, Codes, And The Sustainable Roof	STD006	Summary and background on reflective roofing and environmental impacts, sustainable design, and life-cycle costs.	Yes	Yes	1
Rooftop Job Site Tour	STD007	Guided tour of roofing installation in progress.	Yes	No	1
Cool Thermoplastic Roofing Systems For Sustainable Buildings	STD008	Thermoplastic roofing as a component of high performance buildings. Review infrared case studies for cool roofs.	Yes	Yes	1
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.	Yes	Yes	1
Beyond Cool And Sustainable – The Five E’s Of High Performance	STD010	Identify and discuss “Five E’s” of high-performance roofing, review checklist of high-performance attributes.	Yes	Yes	1
Green Roof 101 sign team.	STD011	Description and benefits of vegetative roof systems, selecting a design team.	Yes	Yes	1
High Performance Vinyl Roofing – An Active Asset	STD012	Summary of what makes vinyl roofing sustainable and how companies include sustainable activities throughout their processes and facilities	Yes	Yes	1
Integrating Single-Ply Roofing With Photovoltaic Arrays	STD013	Summary of rooftop solar systems and integration with the roof system.	Yes	Yes	1

*HSW – Health, Safety, and Welfare

*SD – Sustainable Design



DURO-LAST: THE PROVEN PERFORMER®



You depend on a roofing system that has the code approvals your clients require. The Duro-Last roofing system has met or exceeded all major fire/wind code requirements, and obtained necessary regional approvals throughout the United States and Canada.

Duro-Last participates in all major technical committees in the roofing industry, plus the American Society of Testing Materials (ASTM); American Institute of Architects (AIA); Construction Specification Institute (CSI); Roof Consultants Institute (RCI); National Roofing Contractors Association (NRCA); and the Single Ply Roofing Industry (SPRI).

Duro-Last is a charter partner of the ENERGY STAR® Roof Products Program; a charter member of the Cool Roof Rating Council (CRRC); and a member of the United States Green Building Council (USGBC). Duro-Last is also a member of the Vinyl Roofing Division of the Chemical Fabrics and Film Association (CFFA).



The "World's Best Roof"® is backed by the roofing industry's best warranty.

Duro-Last warranties provide unparalleled security for virtually all commercial roofing applications. Our standard, comprehensive 15-Year No Dollar Limit (NDL) Warranty is the best in the industry. It's 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 products. We also offer 20-year warranties that include 15 years of consequential damage coverage as well as warranties for installations in hail and/or high-wind areas.

Draw on the experience of Duro-Last. With almost 30 years of delivering leak-proof protection for buildings of all types across North America, the precision-fabricated Duro-Last roofing system is the right choice for your next roofing project.



Headquarters: Saginaw, Michigan

Other Locations: Grants Pass, Oregon • Jackson, Mississippi • Sigourney, Iowa • Carrollton, Texas



[View specifications online.](#)



The Duro-Last Roofing System is proudly manufactured in the United States of America.