MIAMI-DADE

BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

NOTICE OF ACCEPTANCE (NOA)

DURO-LAST Roofing, Inc.
525 Morley Drive
Saginaw, MI 48601

SCOPE:
This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed by Miami-Dade County Product Control Division and accepted by the Board of Rules and Appeals (BORA) to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Division (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. BORA reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Division that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: DURO-LAST Single Ply PVC Roof Systems over Lightweight Concrete Decks

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This consists of pages 1 through 9.
The submitted documentation was reviewed by Frank Zuloaga, RRC

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Single Ply
Material:	PVC
Deck Type:	Lightweight Concrete
Maximum Design Pressure	-45 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product	Dimensions	Test Specification	Product Description
Duro-Last Accessories	Various	ASTM D-4434	Custom fabricated accessories for parapets and penetrations in the Duro-Last roof.
Duro-Last Fascia Bar	1 3/4" x 10'; 4" x 10'		Extruded vinyl drip edge with holes punched 8" o.c..
Duro-Last Fascia Bar Cover	1 3/4" x 10'; 4" x 10'		Extruded decorative cover for Duro-Last Fascia Bar: white, tan or gray.
Duro-Last Termination Bar	1 3/4" x 10'		Termination bar with holes punched 6" o.c.
Duro-Last Membrane	.045" thick, fabricated in sheets up to 2000 sq. ft.	ASTM D-4434	PVC polymer blend polyester reinforced roofing membrane: white, tan or gray.
Duro-Last Stainless Steel Screws	#12 x 1 1/4"	PA 114	Termination and trim fasteners.
Duro-Last Vinyl Coated Sheet Steel	4' x 10' x .043" thick	G-90	G-90 galvanized steel, laminated with Duro-Last Vinyl Film.
Duro-Last Drip edge	2" face x 10'; 4" face x 10'; 6" face x 5'		Extruded vinyl drip edge with holes punched 8" o.c.
Duro-Last Gravel stop	2" face x 10'; 4" face x 10'; 6" face x 5'		Extruded vinyl gravel stop with holes punched 8" o.c..
Duro-Last Duro-Coated Hex Head Screws	#14 x 1 1/4"	PA 114	Termination screws.
Duro-Last Two-Way Roof Vents			Injection molded two-way roof vents with a Duro-Last membrane skirt.

Product	Dimensions	Test Specification	Product Description
Duro-Last Membrane	.037" thick, fabricated in sheets up to 2500 sq. ft.	ASTM D-4434, except thickness	PVC polymer blend polyester reinforced roofing membrane: white, tan or gray.
Roof-Trak Walk Pads	30" x 60" x .125" thick		Extruded vinyl walk way pads manufactured from Duro-Last membrane.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
PYROX	Polyisocyanurate foam insulation	Apache Products Co.
ACFoam I, II &Supreme	Polyisocyanurate foam insulation	Atlas Energy Products
ES Foam I	Polyisocyanurate foam insulation	ESI, Inc.
ISO 95+ GW	Polyisocyanurate foam insulation	Firestone
Expanded Polystyrene & Extruded Polystyrene	Polystyrene roof board insulation (1.5 # Density)	Generic
Gypsum	Gypsum board	generic
Wood Fiber	Wood fiber insulation board	generic
High Density Wood Fiberboard	Wood fiber insulation board	generic
Perlite Insulation	Perlite insulation board	generic
E'NRG'Y-2 & PSI-25, UltraGard Gold, Premier	Polyisocyanurate foam insulation	Johns Manville
Paroc Cap Board	Rockwool insulation	Partek, Inc.

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Duro-Last Duro-Coated Fasteners #14	Roofing and insulation fasteners, Duro-Coated with #3 Phillips head.		Duro-Last
2.	Duro-Last Steel Plates	Galvalume steel stress plates.	3" square	Duro-Last
3.	Duro-Last Insulation Plates	Round plastic stress plates.	3" round	Duro-Last
4.	Duro-Last Polyplates	Round plastic stress plates.	2" round	Duro-Last

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
5.	NTB	Glass-filled nylon auger type fastener with anti-backout wires	various	Olympic Mfg. Group, Inc.
6.	NTB Steel Plates	Galvalume steel stress plates.	3" round	Olympic Mfg. Group, Inc.
7.	NTB Metal Barbed Plates	Galvalume steel stress plates.	2" round	Olympic Mfg. Group, Inc.
8.	NTB Plastic Plates	Round plastic stress plates.	3" round	Olympic Mfg. Group, Inc.

EVIDENCE SUBMITTED:

Test Agency/Identifier	Name	Report	Date
Factory Mutual Research Corporation	J.I. 3Y5A6.AM	Class 1-150 Windstorm	3-10-95
	Letter	Wind Uplift on Concrete Decks	1-18-94
National Evaluation Service, Inc.	Ner-227 & Letter	Membrane Roofing	2-01-94

APPROVED ASSEMBLIES:

Deck Type 4I: Lightweight Insulating Concrete Decks, Insulated, New Construction

Deck Description: Cellular or aggregate lightweight insulating concrete

System Type C: All layers of insulation are mechanically attached to roof deck.

All General and System Limitations apply.

Base Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
AC FOAM I, AC FOAM II, AC FOAM SUPREME, Pyrox, E'NRG'Y II, PSI-25, UltraGard Gold, UltraGard Premier, Firestone ISO-95 GW		
Minimum 1" thick	**1 or 5**	1:4 ft²
	1 or 5 [*]	1:6.4 ft²
Extruded or Expanded Polystyrene, Paroc Capboard		
Minimum 1" thick	**1**	1:4 ft²
	1 or 5 [*]	1:6.4 ft²

Top Insulation Layer	**Insulation Fasteners (Table 3)**	**Fastener Density/ft²**
High Density Wood Fiber, Perlite		
Minimum 1" thick	**1**	1:4 ft²
	1 or 5 [*]	1:6.4 ft²

Note: Insulation layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Vapor Retarders: (Optional) Any UL or FMRC approved vapor barrier.

Barrier Sheet: Atlas Energy Products FR-10®, ¼" Dens Deck, ½" thick UL Classification type X gypsum with a moisture resistant facer and core, Lydall Manning Manniglas 1200®, Foamfold, or a second sheet of barrier board may be used over the insulation (see General Limitation #1).

Membrane with 57" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs, spaced every 57" with Duro-Last fasteners and Poly-Plates® spaced 12" o.c. maximum, through the insulation and into the structural deck.

Membrane with 27" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs, spaced every 27" with Duro-Last fasteners with Duro-Last 2 in. Poly-Plates® spaced 18" o.c. maximum, through the insulation and into the structural deck.

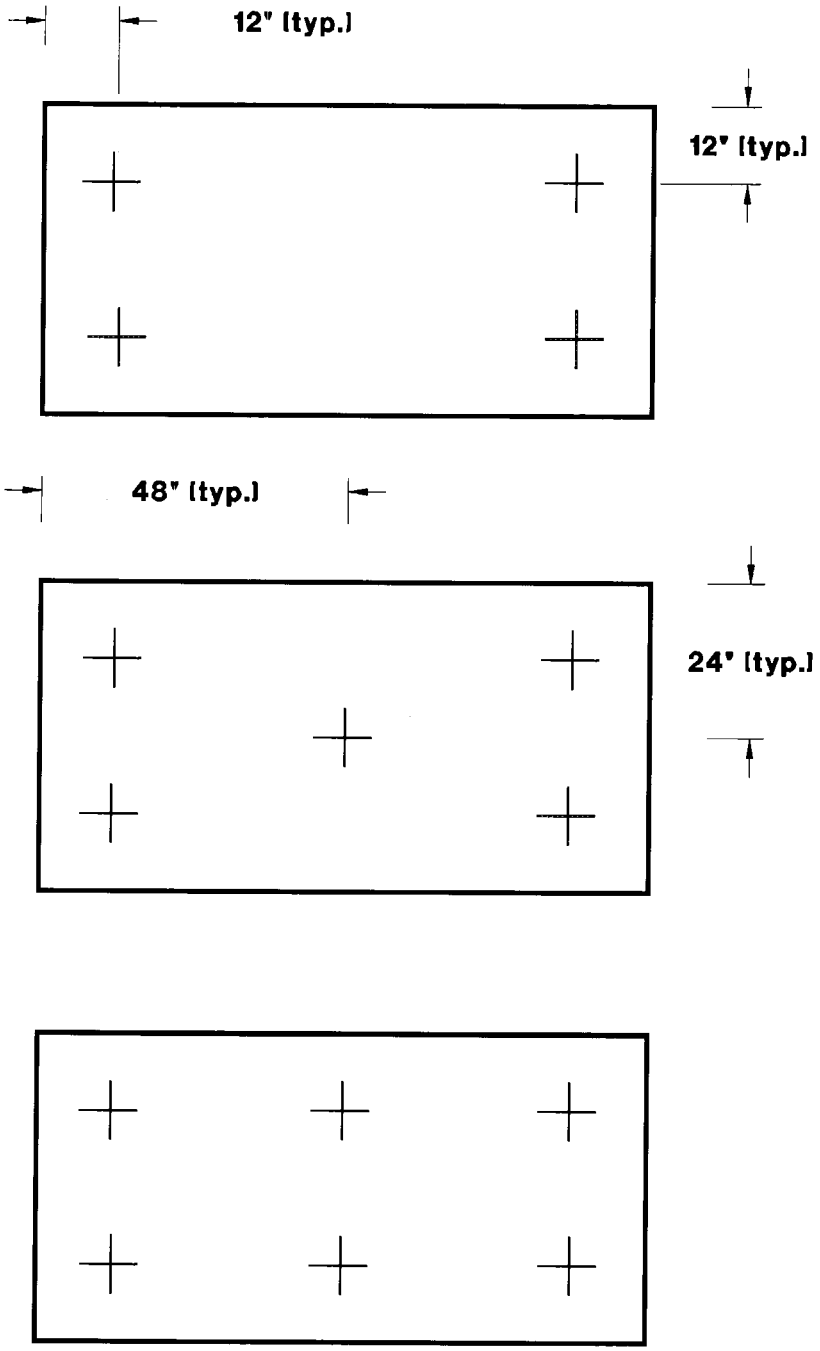
Maximum Design Pressure: -45 psf (See Limitation #7)

Deck Type 4:	Lightweight Insulating Concrete Decks, Non-Insulated, New Construction
Deck Description:	Cellular or aggregate lightweight insulating concrete
System Type E:	Membrane mechanically attached to roof deck.

All General and System Limitations apply.

Vapor Retarders:	(Optional) Any UL or FMRC approved vapor barrier.
Barrier Sheet:	Atlas Energy Products FR-10®, ¼" Dens Deck, ½" thick UL Classification type X gypsum with a moisture resistant facer and core, Lydall Manning Manniglas 1200®, Foamfold, or a second sheet of barrier board may be used over the insulation (see General Limitation #1).
Membrane with 57" tabs:	Duro-Last® membrane shall be mechanically attached at its 3" tabs, spaced every 57" with Duro-Last fasteners and Poly-Plates® spaced 12" o.c. maximum, through the lightweight concrete and into the structural deck.
Membrane with 27" tabs:	Duro-Last® membrane shall be mechanically attached at its 3" tabs, spaced every 27" with Duro-Last fasteners with Duro-Last 2 in. Poly-Plates® spaced 18" o.c. maximum, through the lightweight concrete and into the structural deck.
Maximum Design Pressure:	-45 psf (See Limitation #7)

Detail Drawing
Fastener detail for 4' x 8' insulations boards
Detail No. *



LIGHTWEIGHT INSULATING CONCRETE SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117, calculations shall be signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant.
2. For steel deck application where specific deck construction is not referenced: The deck shall be a minimum 22 gage attached with 5/8" puddle welds with weld washers at every flute with maximum deck spans of 5 ft. o.c.
3. For Systems where specific lightweight insulating concrete si referenced consult current lightweight insulating concrete NOA for specific deck construction and limitations. For systems where specific lightweight insulating concrete is not referenced, the minimum design mix shall be a minimum of 300 psi.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq. **Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.**
5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117. **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**

END OF THIS ACCEPTANCE