



**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)

**Flex Membrane International, Inc.
200 Bethlehem Drive
Morgantown, PA 19543**

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:

Flex Membrane International Single Ply Roof System, over Lightweight Insulating Concrete

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 8.

The submitted documentation was reviewed by Frank Zuloaga, RRC



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Expiration Date: 02/12/04
Approval Date: 04/24/03
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ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: 07530 Single Ply
Material: PVC
Deck Type: Lightweight Insulating Concrete
Maximum Design Pressure -465 psf.
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT

Table 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Flex Tri-Polymer MF/R		ASTM D 4434 PA 114 PA 110	Polyester reinforced PVC membrane for mechanical attachment or adhered application.
Flex Tri-Polymer FB		ASTM D 4434	Polyester felt-backed PVC membrane for application in hot asphalt or adhesive.
Flex MF		ASTM D 4434	PVC membrane for mechanical attachment.
Flex Rubber Emulsion Adhesive	5 gallon	proprietary	Adhesive used to bond Flex FB membrane to concrete or cellular concrete.
Flex Membrane 2" Plates	2" round	PA 114, Appendix E	2" round galvalume disc with barbs.
Flex Bonding Adhesive		proprietary	Adhesive used to bond Flex MF/R membrane to substrate.

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>	<u>Manufacturer</u>
Celcore		PA 110	Cellular insulating concrete system	Celcore, Inc. (with current NOA)
Asphalt		ASTM D 312	Type III or IV Hot asphalt bitumin adhesive	generic
Asphalt Primer		ASTM D 41	Asphalt Primer	generic
High Density Wood Fiberboard	various	PA 110	Wood fiber insulation board	generic
Type X Gypsum Dens-Deck	various 4' x 8'	PA 110	Fire resistant rated gypsum Gypsum board	generic Georgia-Pacific (with current NOA)



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EVIDENCE SUBMITTED

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corporation	Wind Resistance	J.I. 0R8A5.AM (FMRC 4470 - PA 114)	04/03/90
Factory Mutual Research Corporation	Wind Resistance	J.I. 1T3A2.AM (FMRC 4470 - PA 114)	02/01/91
Factory Mutual Research Corporation	Wind Resistance	J.I. 0V2A5.AM (FMRC 4470 - PA 114)	10/05/92
Factory Mutual Research Corporation	Wind Resistance	J.I. 2W5A3.AM (FMRC 4470 - PA 114)	12/22/93
Factory Mutual Research Corporation	Wind Resistance	J.I. 2X4A1.AM (FMRC 4470 - PA 114)	06/29/94
Factory Mutual Research Corporation	Current insulation and fastening requirements.	1996 FMRC Approval Guide	01/01/94
Report by Trinity Engineering, Inc. to Dade County Building Code Compliance	Wind Resistance	91.08.08 (PA 114)	08/08/91
Underwriters Laboratories, Inc.	Fire Classification	R9228 (UL 790 - PA 114)	01/01/96
Trinity Engineering, Inc.	Wind Resistance	#3901.12.95-1	12/31/95
Exterior Research & Design, LLC. - Trinity Engineering	Wind Resistance	#3901.02.96-1	01/30/96
IRT of S. Florida, Inc.	PA 114	99027	11/16/99



APPROVED SYSTEM

- Deck Type 4:** Lightweight Insulating Concrete, New Construction
- Deck Description:** Cellular Lightweight Insulating Concrete (min. 300 psi compressive strength)
- System Type F-1:** Membrane fully adhered to deck.
- Deck :** Minimum 22 ga., Wheeling Type 'BV', G-90 steel deck over structural supports having maximum 5 ft spans. Deck shall be fastened with $\frac{5}{8}$ " puddle welds at every flute. Deck side laps shall be secured with #10 TEK screws spaced at a maximum 15" o.c. Followed by rigid insulation panels shall be placed in a minimum $\frac{1}{8}$ " slurry-coat of insulating concrete. Followed by a minimum 1" rigid insulation shall be covered with a minimum 2" topcoat cast of Range II Elastizell lightweight insulating concrete.
- Membrane:** Flex Tripolymer FB membrane adhered to the lightweight insulating concrete with Flex Rubber Emulsion Adhesive at a rate of 1.66 gal./sq..
- Maximum Design Pressure:** -97.5 psf; (See General Limitation #9.)



- Deck Type 4:** Lightweight Insulating Concrete, New Construction
- Deck Description:** Celcore cellular lightweight insulating concrete (min. 200 psi compressive strength)
- System Type F-2:** Membrane fully adhered to deck.
- Deck :** Minimum 22 ga., Type 'B', G-90 steel deck over structural supports having maximum spans as detailed in Table A below. Deck fastening shall be as detailed in Table A below using $\frac{5}{8}$ " puddle welds and washers at every flute, or ITW Buildex Traxx/5 deck screws. Deck side laps shall be secured with ITW Buildex Traxx/5 screws spaced at a maximum 24" o.c. Rigid insulation panels shall be placed in a minimum $\frac{1}{8}$ " slurry-coat of insulating concrete, while material is in plastic state.

Insulation panels and slurry coat shall be left to cure overnight before the installation of the topcoat.

The following day a minimum 2" topcoat shall be poured and screeded to a smooth finish surface, at the proper thickness and slope. After setting of the topcoat to support foot traffic, Celcore PVA curing compound shall be applied to the entire deck at a minimum rate of 300 ft² per gallon of PVA curing compound.

Membrane: Flex Tripolymer FB membrane adhered to the lightweight insulating concrete as follows:

In a full mopping of hot asphalt applied to a primed deck at a minimum rate of 20-25lbs per 100 ft². Deck shall be primed with ASTM D 41 primer at a minimum rate of $\frac{3}{4}$ gallon per 100 ft²
OR,

Membrane adhered with Flex Rubber Emulsion Adhesive applied at a minimum rate of 60 ft² per gallon.

Maximum Design Pressure: Shall be as detailed in Table A below:

Table A		
Maximum Design Pressures (See General Limitation #9)	Maximum Deck Span	Steel Deck Attachment
-60 psf.	6 ft.	Traxx 5 Screws
-75 psf.	5 ft.	Puddle welds
-82.5 psf.	5 ft.	Traxx5 Screws
90 psf.	4 ft.	Traxx5 Screws



Deck Type 4: Lightweight Insulating Concrete, New Construction

Deck Description: Celcore cellular lightweight insulating concrete (min. 200 psi compressive strength) over structural concrete

System Type F-3: Membrane fully adhered to deck.

Deck : **Structural Concrete Deck**

Rigid insulation panels shall be placed in a minimum 1/8" slurry-coat of insulating concrete, while material is in plastic state.

Insulation panels and slurry coat shall be left to cure overnight before the installation of the topcoat.

The following day a minimum 2" topcoat shall be poured and screeded to a smooth finish surface, at the proper thickness and slope. After setting of the topcoat to support foot traffic, Celcore PVA curing compound shall be applied to the entire deck at a minimum rate of 300 ft² per gallon of PVA curing compound.

Membrane: Flex Tripolymer FB membrane adhered to the lightweight insulating concrete as follows:

In a full mopping of hot asphalt applied to a primed deck at a minimum rate of 20-25lbs per 100 ft². Deck shall be primed with ASTM D 41 primer at a minimum rate of 3/4 gallon per 100 ft²
OR,

Membrane adhered with Flex Rubber Emulsion Adhesive applied at a minimum rate of 60 ft² per gallon.

Maximum Design Pressure: Shall be as detailed in Table B below:

Table B	
Maximum Design Pressures (See General Limitation #9)	Membrane Adhesive Type
-135 psf.	Hot Asphalt
-105 psf.	Rubber Emulsion Adhesive



Deck Type 4: Lightweight Concrete, Non-insulated, New Construction
Deck Description: Cellular Lightweight Insulating Concrete (min. 300 psi compressive strength)
System Type F-4: Membrane adhered to deck.
Deck : Structural Concrete

All General and System limitations apply.

Membrane: Flex Tripolymer FB membrane adhered to the lightweight insulating concrete with Flex Rubber Emulsion Adhesive at a rate of 1.66 gal./sq..

Maximum Design Pressure: -465 psf. See General Limitation #7.

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 Professional Engineer, Registered 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 $\frac{5}{8}$ " 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 is not referenced, the minimum design mix shall be a minimum of 250 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 Professional Engineer, Registered 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. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(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



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