



BUILDING CODE COMPLIANCE OFFICE
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PRODUCT CONTROL DIVISION
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PRODUCT CONTROL NOTICE OF ACCEPTANCE

Flex Membrane International
Bethlehem Drive P.O. Box 271
Morgantown, PA 19543

Your application for Notice of Acceptance (NOA) of:

Flex Membrane International/ Single Ply Roofing Systems

under Chapter 8 of the Code of Miami-Dade County governing the use of Alternate Materials and Types of Construction, and completely described herein, has been recommended for acceptance by the Miami-Dade County Building Code Compliance Office (BCCO) under the conditions specified herein.

This NOA shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at any time from a jobsite or manufacturer's plant for quality control testing. If this product or material fails to perform in the approved manner, BCCO may revoke, modify, or suspend the use of such product or material immediately. BCCO reserves the right to revoke this approval, if it is determined by BCCO that this product or material fails to meet the requirements of the South Florida Building Code.

The expense of such testing will be incurred by the manufacturer.

ACCEPTANCE NO.: 00-1012.04
EXPIRES: 02/12/2004

Raul Rodriguez
Chief Product Control Division

THIS IS THE COVERSHEET, SEE ADDITIONAL PAGES FOR SPECIFIC AND GENERAL
CONDITIONS
BUILDING CODE & PRODUCT REVIEW COMMITTEE

This application for Product Approval has been reviewed by the BCCO and approved by the Building Code and Product Review Committee to be used in Miami-Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director
Miami-Dade County
Building Code Compliance Office

APPROVED: 11/30/2000

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: 07530 Single Ply

Approval Date: **November 30, 2000**

Expiration Date: **February 12, 2004**

Material: PVC
Deck Type: Lightweight Concrete
Maximum Design Pressure -465 psf
Fire Classification: See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT

<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 Substrate 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>
Hy Therm	Various	PA 110	Polyisocyanurate foam insulation	Apache Products Co. (with current PCA)
Pyrox	Various	PA 110	Polyisocyanurate foam insulation	Apache Products Co. (with current PCA)


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<u>Product</u>	<u>Dimension</u>	<u>Test Specification</u>	<u>Product Description</u>	<u>Manufacturer</u>
Celcore	<u>s</u>	PA 110	Cellular insulating concrete system	Celcore, Inc. (with current PCA)
High Density Fiber Board	Various	PA 100	Wood fiber insulation	Celotex Corp. (with current PCA)
Hy-Tec	Various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current PCA)
Hy-Tec Composite	Various	PA 110	Polyisocyanurate foam/ wood fiber insulation	Celotex Corp. (with current PCA)
Hy-Therm AP	Various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current PCA)
Hy-Therm Stable R	Various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current PCA)
Top R II	Various	PA 110	Polyisocyanurate foam insulation	Celotex Corp. (with current PCA)
TPR		PA 114	Aluminum fastener for lightweight, gypsum and tectum decks	Creative Construction Components (with current PCA)
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	various		Fire resistant rated gypsum	generic
Dens-Deck	4' x 8'	PA 110	Gypsum board	Georgia-Pacific (with current PCA)
E'NERG'Y PSI-25	various	PA 110	Polyisocyanurate foam insulation	NRG Barriers, Inc. (with current PCA)



<u>Product</u>	<u>Dimension</u>	<u>Test Specification</u>	<u>Product Description</u>	<u>Manufacturer</u>
E'NRG'Y-1	<u>S</u> various	PA 110	Polyisocyanurate foam insulation	NRG Barriers, Inc. (with current PCA)
E'NRG'Y-2	various	PA 110	Polyisocyanurate foam insulation	NRG Barriers, Inc. (with current PCA)
Fesco Foam	various	PA 110	Polyisocyanurate foam / fescoboard insulation	Schuller International (with current PCA)
UltraGard	various	PA 110	Polyisocyanurate foam insulation	Schuller International (with current PCA)
N.T.B. Magnum	Various	PA 114	Glass reinforced nylon fastener for use in gypsum and cementitious wood fiber decks.	Olympic Manufacturing Group (with current PCA)
N.T.B. Spin Weld Plate	2" round	PA 114	2" round amorphous nylon licking plate for use with N.T.B. fasteners with 1" head	Olympic Manufacturing Group (with current PCA)
N.T.B. Plate		PA 114	3" round galvalume AZ55 plate for use with N.T.B. fasteners	Olympic Manufacturing Group (with current PCA)
NTB Plastic Plate	3" round	PA 114	3"round polypropylene stress plate for use with N.T.B. fasteners	Olympic Manufacturing Group (with current PCA)

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



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<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
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



SYSTEM

Membrane Type: SINGLE PLY MEMBRANE

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

Deck Description: Cellular Lightweight Concrete (min. 300 psi compressive strength)

System Type F: Membrane fully adhered to deck.

All General and System Limitations apply.

Deck: 18-22 ga., Wheeling Type 'BV', G-90 steel deck over structural supports having maximum 5 ft spans. Deck shall be fastened with 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 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 concrete with Flex Substrate adhesive at a rate of 1.66 gal./sq..

Maximum Design Pressure: -97.5 psf; (See General Limitation #9.)

Maximum Fire Classification: See General Limitation #1

Maximum Slope: See General Limitation #1



Membrane Type: SINGLE PLY MEMBRANE

Deck Type 4: Lightweight Concrete, Non-insulated, New Construction

Deck Description: Cellular Lightweight Concrete (min. 300 psi compressive strength) over Structural Concrete

System Type F: Membrane adhered to deck.

All General and System Limitations apply.

Barrier: None.

Membrane: Flex Tripolymer FB membrane adhered to the lightweight concrete with Flex Substrate adhesive at a rate of 1.66 gal./sq..

Maximum Design Pressure: -465 psf. *(Consult Notice of Acceptance of lightweight insulating concrete manufacturer for maximum design.)*

Maximum Fire Classification: See General Limitation # 1.

Maximum Slope: See General Limitation # 1.



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



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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.)**



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NOTICE OF ACCEPTANCE STANDARD CONDITIONS

- 1 Renewal of this Acceptance (approval) shall be considered after a renewal application has been filed and the original submitted documentation, including test supporting data, engineering documents, are no older than eight (8) years.
- 2 Any and all approved products shall be permanently labeled with the manufacturer's name, city, state, and the following statement: "Miami-Dade County Product Control Approved", or as specifically stated in the specific conditions of this Acceptance.
- 3 Renewals of Acceptance will not be considered if:
 - a) There has been a change in the South Florida Building Code affecting the evaluation of this product and the product is not in compliance with the code changes;
 - b) The product is no longer the same product (identical) as the one originally approved;
 - c) If the Acceptance holder has not complied with all the requirements of this acceptance, including the correct installation of the product;
 - d) The engineer who originally prepared, signed and sealed the required documentation initially submitted, is no longer practicing the engineering profession.
- 4 Any revision or change in the materials, use, and/or manufacture of the product or process shall automatically be cause for termination of this Acceptance, unless prior written approval has been requested (through the filing of a revision application with appropriate fee) and granted by this office.
- 5 Any of the following shall also be grounds for removal of this Acceptance:
 - a) Unsatisfactory performance of this product or process;
 - b) Misuse of this Acceptance as an endorsement of any product, for sales, advertising or any other purposes.
- 6 The Notice of Acceptance 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 Notice of Acceptance is displayed, then it shall be done in its entirety.
- 7 A copy of this Acceptance as well as approved drawings and other documents, where it applies, shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at all times. The copies need not be resealed by the engineer.
- 8 Failure to comply with any section of this Acceptance shall be cause for termination and removal of Acceptance.
- 9 This Acceptance contains pages 1 through 10.

END OF THIS ACCEPTANCE



Frank Zuloaga, RRC
Roofing Product Control Examiner