MIAMI-DADE

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
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CONTRACTOR ENFORCEMENT DIVISION
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PRODUCT CONTROL DIVISION
(305) 375-2902 FAX (305) 372-6339

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Ecology Roof Systems Corp.
1851 East 1st Street
Santa Ana ,CA 92705

Your application for Notice of Acceptance (NOA) of:
Ecology Roof Systems /Steel Deck
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.: 01-0326.03
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: 07/05/2001

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	07530 Single Ply
Material:	PVC
Deck Type:	Steel
Maximum Design Pressure	-45 psf
Fire Classification:	See General Limitation #1

Approval Date: **July 5, 2001**

Expiration Date: **February 12, 2004**

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT

Product	Dimensions	Test Specification	Product Description
ERS-8000MA		ASTM D 4434 PA 114 PA 110	Polyester reinforced PVC membrane for mechanical attachment or adhered application.
ERS-8000		ASTM D 4434	Polyester felt-backed PVC membrane for application in hot asphalt or adhesive.
ERS-8000FL		ASTM D 4434	PVC membrane for mechanical attachment.
ERS-8001 Adhesive	5 gallon	proprietary	Adhesive used to bond ERS-8000 membrane to concrete or cellular concrete.
Ecology 2" Plates	2" round	PA 114, Appendix E	2" round galvalume disc with barbs.
ERS-8002 Adhesive		proprietary	Adhesive used to bond ERS-8000FL membrane to substrate.

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS

Product	Dimensions	Test Specification	Product Description	Manufacturer
Hy Therm	Various	PA 110	Polyisocyanurate foam insulation	Apache Products Co. (with current NOA)
Pyrox	Various	PA 110	Polyisocyanurate foam insulation	Apache Products Co. (with current NOA)
Celcore		PA110	Cellular insulating concrete system	Celcore (with current NOA)
Dekfast Hex Plate	2 $^{7}/_{8}$" x 3 $^{1}/_{4}$"	PA 114	Galvalume hex stress plate.	Construction Fasteners (with current NOA)
Dekfast Lock Plate	3" x 3 $^{1}/_{4}$"	PA 114	Polypropylene locking plate.	Construction Fasteners (with current NOA)
Dekfast Fasteners #12		PA 114	Insulation fastener for steel and wood decks.	Construction Fasteners (with current NOA)
Asphalt		ASTM D 312	Type III or IV Hot asphlat bitumin adhesive	Generic (with current NOA)

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Roofing Product Control Examiner

Product	Dimensions	Test Specification	Product Description	Manufacturer
High Density Wood Fiberboard	various	PA 110	Wood fiber insulation board	Generic (with current NOA)
Type X Gypsum	various		Fire resistant rated gypsum	Generic (with current NOA)
Dens-Deck	4' x 8'	PA 110	Gypsum board	Georgia-Pacific (with current NOA)
#12 Roofgrip		PA 114	Insulation fastener for steel or wood decks	ITW Buildex (with current NOA)
#14 Roofgrip		PA 114	Insulation fastener steel, wood or concrete decks	ITW Buildex (with current NOA)
Roofgrip Fastener		PA 114	Insulation fastener	ITW Buildex (with current NOA)
Standard Plastic Plate	3" round	PA 114	Polyolefin plastic plate	ITW Buildex (with current NOA)
E'NERG'Y PSI-25	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
E'NRG'Y-1	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
E'NRG'Y-2	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
Olympic Fastener #14		PA 114	Insulation fastener	Olympic Manufacturing Group (with current NOA)
Olympic 2" Plate	2" round	PA 114	2" galvalume disc with barbs.	Olympic Manufacturing Group (with current NOA)
Olympic Polypropylene	3.25" round	PA 114	Polypropylene plastic plate	Olympic Manufacturing Group (with current NOA)
Fesco Foam	various	PA 110	Polyisocyanurate foam / fescoboard insulation	Johns Manville (with current NOA)
UltraGard	various	PA 110	Polyisocyanurate foam insulation	Johns Manville (with current NOA)
HD Insul-Fixx Fastener		PA 114	Insulation fastener for use in steel and concrete decks	SFS/Stadler (with current NOA)
Insul-Fixx Fastener		PA 114	Insulation fastener for steel and wood decks	SFS/Stadler (with current NOA)
Insul-Fixx S	3" square	PA 114	3" square galvalume AZ55 stress plate	SFS/Stadler (with current NOA)
Insul-Fixx P	3" round	PA 114	3" round polyethylene stress plate	SFS/Stadler (with current NOA)
Isofast Plate	various	PA 114	Square or oblong galvalume steel plates for use with Isofast fasteners	SFS/Stadler (with current NOA)

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Product	Dimensions	Test Specification	Product Description	Manufacturer
Isofast Fasteners		PA 114	Insulation fastener for steel and wood decks	SFS/Stadler (with current NOA)

EVIDENCE SUBMITTED

Test Agency/Identifier	Name	Report	Date
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

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Membrane Type: SINGLE PLY MEMBRANE

Deck Type 2I: Steel, Insulated, New Construction

Deck Description: 18-22 ga. steel

System Type C: All layers of insulation simultaneously attached; membrane fully adhered.

All General and System Limitations apply.

Insulation Base Layer	Fastener Type	Fastening Detail No.	Fasteners Per Board	Fastener Density
One or more layers of the following.				
Approved Type(s): **E'NRG'Y-1, E'NRG'Y-2, PSI-25**				
Minimum: 1.4" X 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **Isotherm R**				
Minimum: 1.3" x 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **Pyrox**				
Minimum: 1.2" x 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **UltraGard**				
Minimum: 1.3" x 4' x 4'	N/A	N/A	N/A	N/A

Note: All layers shall be simultaneously attached; see top layer below for fasteners and density. Insulation panels listed are minimum sizes and dimensions; if larger panels are used, the numbers of fasteners shall be increased maintaining the same fastener density. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Insulation Top Layer	Fastener Type	Fastening Detail No.	Fasteners Per Board	Fastener Density
Approved Type(s): **E'NRG'Y-1, E'NRG'Y-2, PSI-25**				
Minimum: 1.4" x 4' x 4'	Roofgrip	[3]	8	1:2 ft.^{2}
Minimum: 1.4" x 4' x 4'	Dekfast	[3]	8	1:2 ft.^{2}
Minimum: 1.4" x 4' x 4'	Gripdek	[3]	8	1:2 ft.^{2}
Minimum: 1.4" x 4' x 4'	Insulfixx	[3]	8	1:2 ft.^{2}
Minimum: 1.4" x 4' x 4'	Insulfixx HD	[3]	8	1:2 ft.^{2}
Approved Type(s): **Isotherm R**				
Minimum: 1.3" x 4' x 4'	Roofgrip	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Dekfast	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Gripdek	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Insulfixx	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Insulfixx HD	[3]	8	1:2 ft.^{2}

Approved Type(s): **Pyrox**

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Minimum: 1.2" x 4' x 4'	Roofgrip	[3]	8	1:2 ft.^{2}
Minimum: 1.2" x 4' x 4'	Dekfast	[3]	8	1:2 ft.^{2}
Minimum: 1.2" x 4' x 4'	Gripdek	[3]	8	1:2 ft.^{2}
Minimum: 1.2" x 4' x 4'	Insulfixx	[3]	8	1:2 ft.^{2}
Minimum: 1.2" x 4' x 4'	Insulfixx HD	[3]	8	1:2 ft.^{2}
Approved Type(s): **UltraGard**				
Minimum: 1.3" x 4' x 4'	Roofgrip	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Dekfast	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Gripdek	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Insulfixx	[3]	8	1:2 ft.^{2}
Minimum: 1.3" x 4' x 4'	Insulfixx HD	[3]	8	1:2 ft.^{2}
Approved Type(s): **E'NRG'Y-2 Composite, Fesco Foam**				
Minimum: 1.25" x 4' x 4'	Roofgrip	[3]	8	1:2 ft.^{2}
Minimum: 1.25" x 4' x 4'	Dekfast	[3]	8	1:2 ft.^{2}
Minimum: 1.25" x 4' x 4'	Gripdek	[3]	8	1:2 ft.^{2}
Minimum: 1.25" x 4' x 4'	Insulfixx	[3]	8	1:2 ft.^{2}
Minimum: 1.25" x 4' x 4'	Insulfixx HD	[3]	8	1:2 ft.^{2}

Note: All layers of insulation shall be mechanically attached using the fastener density listed above. The insulation panels listed are minimum sizes and dimensions; if larger panels are used, the number of fasteners shall be increased maintaining the same fastener density. Insulation fasteners shall be tested for withdrawal resistance in compliance with Testing Application Standard TAS 105 to confirm compliance with the wind load requirements. Please refer to Roofing Application Standard RAS 117 for Insulation attachment.

Vapor Retarder:	Any UL or FMRC approved vapor retarder may be installed on the deck or over the base layer of insulation.
Barrier:	None.
Membrane:	ERS-8000MA or ERS-8000 membrane adhered to the insulation substrate with ERS-8002Adhesive at a rate of 1.66 gal./sq. applied to the insulation, or theERS-8000 FB membrane may be set in type III hot asphalt adhesive applied at the rate of 25 lb./sq. ± 15%.
Note:	**Substrate Adhesive shall not be used on composite board insulation with the perlite face up.**
Maximum Design Pressure:	-45 psf. (See General Limitation # 9)

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Membrane Type: SINGLE PLY MEMBRANE

Deck Type 2I: Steel, Insulated, New Construction

Deck Description: 18-22 ga. steel

System Type D: Membrane mechanically attached over preliminary fastened insulation.

All General and System Limitations apply.

Insulation Layer	Fastener Type	Fastening Detail No.	Fasteners Per Board	Fastener Density
One or more layers of the following.				
Approved Type(s): **E'NRG'Y-1, E'NRG'Y-2, PSI-25**				
Minimum: 1.4" X 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **Isotherm R**				
Minimum: 1.3" x 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **Multi Max**				
Minimum: 1.3" x 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **Pyrox**				
Minimum: 1.2" x 4' x 4'	N/A	N/A	N/A	N/A
Approved Type(s): **UltraGard**				
Minimum: 1.3" x 4' x 4'	N/A	N/A	N/A	N/A

Note: Top layer shall have preliminary attachment, prior to the installation of the base/anchor sheet, at a minimum application rate of two fasteners per board for insulation boards having no dimensions greater than 4ft., and four fasteners for any insulation board having no dimension greater than 8ft. All layers of insulation and base sheet shall be simultaneously fastened. See base/anchor sheet below for fasteners and density.

Vapor Retarder:	Any UL or FMRC approved vapor retarder may be installed on the deck or over the base layer of insulation.
Barrier:	None.
Membrane:	ERS-8000MA or ERS-8000FL attached through preliminary attached insulation to the deck as described below.
Fastening:	Flex Membrane or Olympic 2" plates and Olympic #14 screws placed 6" o.c. in the membrane lap seams not more than 55" o.c.
Maximum Design Pressure:	-45 psf. (See General Limitation # 7)

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Membrane Type: SINGLE PLY MEMBRANE

Deck Type 2I: Steel, Insulated, New Construction

Deck Description: 18-22 ga. steel

System Type F: Membrane Adhered to Gypsum.

All General and System Limitations apply.

Barrier Board	Fastener Type	Fastening Detail No.	Fasteners Per Board	Fastener Density
Approved Type(s): **Dens Deck**				
Minimum: 5/8" x 4' x 8'	SFS #12	[4]	16	1:2 ft.^{2}

Membrane: ERS-8000MA membrane adhered to the insulation substrate with ERS-8001 Adhesive at a rate of 1.66 gal./sq. applied to barrier board.

Maximum Design Pressure: -45 psf. See General Limitation # 9

Steel Deck 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 not need to 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 2 through 10

END OF THIS ACCEPTANCE

Frank Zuloaga, RRC
Roofing Product Control Examiner