MIAMI-DADE

BUILDING CODE COMPLIANCE OFFICE (BCCO)
PRODUCT CONTROL DIVISION

MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
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NOTICE OF ACCEPTANCE (NOA)

Ecology Roof Systems
505 N. Tustin Avenue Suite 188
Santa Ana, CA 92705

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 the BCCO and accepted by the Building Code and Product Review Committee 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 BCCO (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. BCCO reserves the right to revoke this acceptance, if it is determined by BCCO 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: Ecology Modified Bitumen Roofing 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 NOA consists of pages 1 through 9.
The submitted documentation was reviewed by Frank Zuloaga, RRC

ROOFING SYSTEM APPROVAL

Category:	Roofing
Sub-Category:	Modified Bitumen
Material:	SBS
Deck Type:	Lightweight Concrete
Maximum Design Pressure	-75 psf
Fire Classification:	See General Limitation #1

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

Product	Dimensions	Test Specification	Product Description
ERS-500	3 squares; roll weight: 85 lbs.	ASTM D 5147	Lightweight SBS modified base sheet for use as a base or interply in modified bitumen roof systems.
ERS-500-4	2 squares; roll weight: 90 lbs.	ASTM D 5147	Heavyweight SBS modified base sheet for use as a base or interply in modified bitumen roof systems.
ERS-500-6	1.5 squares; roll weight: 106 lbs.	ASTM D 5147	SBS modified interply sheet for use in the metalflex and hot asphalt/cold adhesive modified bitumen built-up roof systems.
ERS-603	1 square; roll weight: 120 lbs.	ASTM D 5147	Dual reinforced, SBS modified granulated torch applied membrane.
ERS-602	1 square; roll weight: 110 lbs.	ASTM D 5147	Dual reinforced, SBS modified smooth torch applied membrane. Use permitted only with additional surfacing.
ERS-502	1 square; roll weight: 100 lbs.	ASTM D 5147	Polyester reinforced SBS modified granulated membrane. Applied in hot asphalt.
ERS-501	1 square; roll weight: 90 lbs.	ASTM D 5147	Polyester reinforced SBS smooth surface membrane. May be used as an interply, or as a membrane with additional surfacing. Applied in hot asphalt or cold adhesive.
ERS-505	1 square; roll weight: 90 lbs.	ASTM D 5147	Lighweight glass reinforced cap membrane. Applied in hot asphalt or cold adhesive.

Product	Dimensions	Test Specification	Product Description
ERS-504C	1 square; roll weight: 110 lbs.	ASTM D 5147	Polyester and glass reinforced SBS membrane for use in modified bitumen roof systems. Applied in hot asphalt or cold adhesive.
ERS-504G	1 square; roll weight: 110 lbs.	ASTM D 5147	Fiberglass reinforced SBS membrane with granule surface for use in modified bitumen roof systems. Applied in hot asphalt or cold adhesive.
ERS-504CG	1 square; roll weight: 120 lbs.	ASTM D 5147	Polyester and glass reinforced SBS membrane for use in modified bitumen roof systems. Torch applied.
ERS-703	1 square; roll weight: 101 lbs.	ASTM D 5147	Aluminum or copper embossed SBS modified cap membrane for use on modified bitumen roof systems. May be applied in hot asphalt or by torch.
ERS-500-6P	9½ square; roll weight: 106 lbs.	ASTM D 5147	Polyester reinforced SBS modified interply sheet used in hot or cold modified bitumen built-up roof systems.
ERS-604	1 square; roll weight: 120 lbs.	ASTM D 5147	Dual reinforced, fire rated SBS modified granulated torch membrane. Torch applied.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
N/A	N/A	N/A

APPROVED FASTENERS:

TABLE 3

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Olympic CR Base Felt Fastener	Fastener assembly for Base Sheet fastening only		Olympic Mfg. Group, Inc.
2.	FM-30, FM-45, FM-60, FM-90 Fasteners	Base ply fastening systems for lightweight concrete decks.		ES Products, Inc.

EVIDENCE SUBMITTED:

Test Agency/Identifier	Name	Report	Date
Factory Mutual Research Corporation	Wind Uplift Classification and Fire Rating	J.I. 2X4A8.AM	09/07/94
Warnock Hersey International, Inc.	Fire Classification	See current Warnock Hersey Directory	01/01/94
Underwriters Laboratories, Inc.	Fire Classification	See current Underwriters Laboratories Guide	01/01/94
Factory Mutual Research Corporation	Current insulation fastening requirements	See current FMRC Approval Guide	01/01/94
IRT of South Florida	PA 114 Uplift	99030 99034	09/30/99

APPROVED ASSEMBLIES

Membrane Type: SBS

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

Deck Description: Cellular or Aggregate Lightweight Concrete

System Type E: Base sheet mechanically fastened.

All General and System limitations apply.

Base Sheet:	One ply of Johns Manville Glass Base mechanically fastened to the lightweight deck as described below:
Fasteners:	ES FM-45, FM-60 base ply fasteners and FM 30 discs or Olympic C-R base felt fasteners and discs at a 4" side lap 9" o.c. and two rows staggered in the center of the sheet 18" o.c..
Ply Sheet:	One or more plies ERS-500, ERS-500-4 or ERS-500-6 in full mopping of approved asphalt applied at a rate of 20-35 lbs./sq.
Membrane:	One ply of ERS-603 or ERS-604 applied to base sheet, or one ply of ERS-502, ERS-505, ERS-504C or ERS-504G adhered with approved mopping asphalt or adhesive at an application rate of 20-40 lbs./sq.
Surfacing:	(Optional) one of the following as required: 1. APOC Sunbrite 400 at an application rate of 2 gal./sq..
Maximum Design Pressure:	-45 psf. See General Limitation #9.

Membrane Type:	SBS
Deck Type 4:	Lightweight Concrete, Non-insulated, New Construction
Deck Description:	Elastizell Cellular Lightweight Concrete
System Type E-2:	Base sheet mechanically fastened.
Deck :	18-22 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 5 ft on centers with 5/8" puddle welds. Deck side laps were also secured at 15 inches o.c. with #10 TEK screws. Followed by rigid insulation panels shall be placed in a minimum 1/8" slurry-coat of Range II Elastizell lightweight insulating concrete. The same working day the minimum 2" rigid insulation shall be covered with a minimum 2" topcoat cast of Range II Elastizell lightweight insulating concrete.

All General and System limitations apply.

Base Sheet:	One ply of Johns Mansville Glass Base mechanically fastened to the lightweight deck as described below:
Fasteners:	ES FM-45, FM-60 base ply fasteners and FM 30 discs or Olympic CR base felt fasteners and discs at a 3½" side lap 8" o.c. and two rows staggered in the center of the sheet 10" o.c..
Ply Sheet:	One or more plies of ERS-501 in full mopping of approved asphalt applied at a rate of 20-40 lbs./sq.
Membrane:	One ply of ERS-505, ERS-504C or ERS-504G adhered with approved mopping asphalt or adhesive at an application rate of 20-40 lbs./sq.
Surfacing:	(Optional) one of the following as required: 1. APOC Sunbrite 400 at an application rate of 2 gal./sq..
Maximum Design Pressure:	-75 psf. See General Limitation #7.

Membrane Type:	SBS
Deck Type 4:	Lightweight Concrete, Non-insulated, New Construction
Deck Description:	Elastizell Cellular Lightweight Concrete
System Type E-3:	Base sheet mechanically fastened.
Deck :	18-20 ga steel deck shall be secured 6" o.c. to structural supports spaced a maximum of 6'-3" on centers with 5/8" puddle welds. Deck side laps were also secured at 18 inches o.c. with #10 TEK screws. Followed by rigid insulation panels shall be placed in a minimum 1/8" slurry-coat of Range II Elastizell lightweight insulating concrete. The same working day the minimum 2" rigid insulation shall be covered with a minimum 2" topcoat cast of Range II Elastizell lightweight insulating concrete.

All General and System limitations apply.

Base Sheet:	One ply of Johns Manville Glass Base mechanically fastened to the lightweight deck as described below:
Fasteners:	ES FM-45, FM-60 base ply fasteners and FM 30 discs or Olympic CR base felt fasteners and discs at a 3½" side lap 8" o.c. and two rows staggered in the center of the sheet 10" o.c..
Ply Sheet:	One or more plies of ERS-501 in full mopping of approved asphalt applied at a rate of 20-40 lbs./sq.
Membrane:	One ply of ERS-505, ERS-504C or ERS-504G adhered with approved mopping asphalt or adhesive at an application rate of 20-40 lbs./sq.
Surfacing:	(Optional) one of the following as required: 1. APOC Sunbrite 400 at an application rate of 2 gal./sq..
Maximum Design Pressure:	-52.5 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 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 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 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