



**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)

**LWC Products Inc.
800 S.W. 21st Terrace
Fort Lauderdale, FL 33312**

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 Florida Building Code and the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: L.W.C. Lightweight Insulating Concrete deck

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 7.

The submitted documentation was reviewed by Jorge L. Acebo.



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ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub-Category: Lightweight Insulating Concrete
Materials: Cellular
Maximum Design Pressure -502.5 psf.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
LWC Foam Concentrate	various	ASTM C 869	Foaming agent to produce preformed foam for use in lightweight cellular concrete.
LWC Accelerator	Dosage: 200 sqft./gallon	N/A	Water based sodium silicate solution applied to top surface of lightweight cellular concrete deck to enhance curing and scaling.
LWC Bonding Agent	various	N/A	Bonding Agent applied to surfaces over which lightweight cellular concrete is poured to remove dust and enhance bonding strength.

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS:

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>	<u>Manufacturer</u>
Portland Cement	various	ASTM C 150	Portland Cement	Generic
Apache Holey Board	Min. 2' x 4' 1"- 12" thick 1.0 pcf density	ASTM C 578	Expanded polystyrene board with eight 2 7/8" diameter holes per 8 ft ² and eight to eleven holes per 16 ft ² Top and bottom surfaces are smooth.	Apache
Carpenter	Min. 2' x 4' 1"- 12" thick 1.0 pcf density	ASTM C 578	Expanded polystyrene board with eight 2 7/8" diameter holes per 8 ft ² and eight to eleven holes per 16 ft ² Top and bottom surfaces are smooth.	Carpenter



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<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>	<u>Manufacturer</u>
Insulfoam	Min. 2' x 4' 1"- 12" thick 1.0 pcf density	ASTM C 578	Expanded polystyrene board with eight 2 7/8" diameter holes per 8 ft ² and eight to eleven holes per 16 ft ² Top and bottom surfaces are smooth.	Insulfoam
C-R Base Felt Fastener and C-R Base Sheet Disc	1.75" Standard 1.2" NVS	TAS 110	Steel base sheet fastener for lightweight concrete with integral plate.	Olympic Mfg. Group
FM-90 Base Ply Fastener	1.7" Standard	TAS 110	Steel base sheet fastener for lightweight concrete with 2.7" integral plate.	ES Products Inc.
FM-45 Base Ply Fastener and FM-30 disc	1" NVS	TAS 110	Steel base sheet fastener for lightweight concrete with separate 2.7" round plate.	ES Products Inc.
Twin-Lock Base Sheet Fastener	1.8" 1.4"	TAS 110	Steel base sheet fastener for lightweight concrete decks.	ES Products Inc.
Base-Lok Fastener	1.75" long 3" head diameter	TAS 110	Nylon 66, screw-in base sheet fastener for lightweight concrete decks.	Simplex, Inc.
Lite Weight Concrete Fastener	1.76" long	TAS 110	Steel base sheet fastener for lightweight concrete decks.	ITW Buildex, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Atlantic & Caribbean Roof Consulting, LLC	ACRC 06-012	TAS 114 Appendix J	04/05/06
	ACRC 06-015	TAS 114 Appendix J	05/03/06
	ACRC 06-036	TAS 114 Appendix D	10/30/06
	ACRC 07-013	TAS 114 Appendix D	04/04/07



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APPROVED APPLICATIONS:

Deck Type 1: Lightweight Insulating Concrete

System A: Cellular

Cast Density Range: 34 - 55 PCF

Dry Density Range: 27 - 51 PCF

28 Day Compressive Strength Range: 200 - 350 psi minimum

Minimum Characteristic Resistance

Force with Approved Fasteners: Cure Time MCRF (lbf)

2-4 Days 46 lbf

15 Days 60 lbf

Components: Portland Cement ASTM C 150: 525-700 lbs. / cubic yard
 Foaming Agent ASTM C 869: 40:1 Water: Concentrate
 3.0 ft³ preformed foam
 Water (max chloride level 250 PPM): 190-242 gallon / cubic yard
 LWC Fibers (optional): see manufacturer's instructions
 LWC Bonding Agent (optional): 1.2 gallon / cubic yard
 LWC Curing Agent (optional): see manufacturer's instructions
 Other Approved admixtures (optional): see manufacturer's instructions

Table 1 Wet and Dry Density Ranges Resulting from Range of Proportioned Ingredients						
Compressive Strength (psi)	Cast Density Range (pcf)	Dry Density Range (pcf)	Proportions for a Cubic Yard			
			Foam (ft ³)	Cement Range (lbs)	Mixing Water Range (lbs)	Minimum Thickness (inches)
200 - 249	32 - 37	28 - 34	21.30 - 20.50	525 - 600	190-215	2
250 - 350	37 - 43	34 - 39	20.50 - 19.60	600 - 700	215-242	2



Deck Type 1: Lightweight Insulating Concrete

Application: Materials shall be mixed in a horizontal paddle drum mixer and pumped to the roof at the indicated density, and in compliance with manufacturer specifications. Cast densities shall be checked and recorded as it comes out of the hose, at a minimum interval of one-hour.

Polystyrene Insulation:

See approved polystyrene noted in the Trade Names of Products Manufactured by Others Table and Maximum Design Pressures (Table 2) Section of this Notice of Acceptance. Rigid insulation panels shall be placed in a minimum 1/8" slurry-coat of insulating concrete, while the material is still in a plastic state. The panels shall be covered with a minimum 2" topcoat. The insulating concrete topcoat shall be screeded to a smooth finish surface free of ridges and at the proper thickness and slope prior to the installation of the roofing membrane.

For steel deck applications, there shall be no traffic on the roof deck for 24 hours following installation of the lightweight concrete deck system.

SUBSTRATE REQUIREMENTS:

Note: Refer to Maximum Design Pressures Section of this Notice of Acceptance for specific substrate or substrate treatment requirements.

New Construction:

Concrete: Structurally designed in compliance with applicable Building Code.

Steel Deck: Minimum 22 gage galvanized G-90 attached to supports in compliance with applicable Building Code. (See Maximum Design Pressures for limitations on deck gauge)

Existing Construction:

Concrete: Broom cleaned and free of any materials or covering that may impede bonding. Substrate shall be in compliance with applicable Building Code.

Steel Deck: Properly prepared steel deck in compliance with applicable Building Code.

Temporary Roofing: Shall be installed in compliance with applicable Building Code.



MAXIMUM DESIGN PRESSURES:

Table 2						
NEW CONSTRUCTION OR REROOF BUR OR MODIFIED SYSTEM						
Substrate	Substrate Treatment	Bonding Agent	Minimum Compressive Strength	Polystyrene Insulation Board	Curing Compound	Maximum Design Pressure
Min. 22 ga , type "B" or "BV" G-90 Steel deck welded to supports spaced 6' o.c. with 5/8" puddle welds at every flute. Deck side laps fastened with #10 TEK screws at 12" o.c.	none	LWC Bonding Agent at 600 ft ² /gal (optional)	300-350 psi	(optional) Min. 1" Apache Holey Board	LWC Curing Compound 600 ft ² /gal (optional)	-105 psf
Min. 22 ga , type "B" or "BV" G-90 Steel deck welded to supports spaced 6' o.c. with 5/8" puddle welds at every flute. Deck side laps fastened with #10 TEK screws at 12" o.c.	none	LWC Bonding Agent at 600 ft ² /gal (optional)	250-350 psi	(optional) Min. 1" Insulfoam Hol-E-Board	LWC Curing Compound 600 ft ² /gal (optional)	-90 psf
NEW CONSTRUCTION OR REROOF SINGLE PLY						
Min. 22 ga , type "B" or "BV" G-90 Steel deck welded to supports spaced 6' o.c. with 5/8" puddle welds at every flute. Deck side laps fastened with #10 TEK screws at 12" o.c.	none	LWC Bonding Agent at 600 ft ² /gal (optional)	300-350 psi	(optional) Min. 1" Apache Holey Board	LWC Curing Compound 600 ft ² /gal (optional)	-105 psf
Structural Concrete Slab	none	none	200-350 psi	(optional) Min. 1" Apache Holey Board	LWC Curing Compound 600 ft ² /gal (optional)	-417.5 psf
RECOVER						
Existing Structural Concrete Slab with existing asphaltic BUR roof cover, vapor retarder or temporary roof.	none	none	200-350 psi	(optional) Min. 1" Apache Holey Board	LWC Curing Compound 600 ft ² /gal (optional)	-502.5 psf

Note: Maximum Design Pressures noted herein shall be used in conjunction with those maximum design pressures published in the Roof Assembly Product Control Notice of Acceptance for Accepted Systems over lightweight concrete decks.



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GENERAL LIMITATIONS:

1. Any excess water on the lightweight concrete shall be removed prior to roof installation.
2. Applicator shall maintain a job log and make it available to the Building Official upon request. The job log shall contain cast densities recordings taken at a minimum interval of one-hour.
 - a. Cast densities shall be measured with calibrated scale accurate from 1 to 50 lbs. The scale shall display weight in increments of $\frac{1}{4}$ lb. and be accurately calibrated to $\frac{1}{16}$ lb.
 - b. The measuring bucket shall be of 5 quarts or larger
3. Lightweight insulating concrete installation shall demonstrate its suitability to perform as a satisfactory substrate during the "walkability inspection". If the deck or a portion of the deck is determined to be out of compliance, the Building Official may call for further testing (if applicable for the roof system) to confirm fastener spacing or provide data for the roof system manufacturer to calculate a new fastener pattern. Fastener testing (if applicable for the roof system) shall be required. Any areas where fasteners will not hold a minimum 40 lbf. after 5 days of cure shall be removed and recast.
4. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value as calculated in conjunction with the maximum design value listed within specific roof membrane manufacturer's NOA. 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. If continued noncompliance is observed and the roof deck and associated roof system cannot be corrected based on additional testing and attachment calculations, the Building Official may call for the removal of all or portions of the deck.
5. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased 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 shall be provided to the Building Official for his/her review.
6. Roofing contractor shall consult with roofing assembly manufacturer for compatibility with all surface coatings or treatments listed in this NOA.
7. Direct-adhered single ply systems shall be installed in strict compliance with membrane manufacturer's specifications and roof assembly manufacturer NOA.
8. All coatings or surface preparation materials applied to the lightweight insulating concrete shall be listed as an approved interface material with the roof assembly manufacturer.
9. A minimum 1/8" slurry-coat of insulating concrete shall be applied with the insulation panels immediately adhered. Slurry-coat and insulation panels shall be covered with a minimum 2" topcoat of lightweight concrete.
10. Maximum Design Pressures noted in this NOA shall be used in conjunction with the maximum design pressures listed in the roof assembly manufacturer's NOA.
11. For steel deck applications, there shall be no traffic on the roof deck for 24 hours following installation of the lightweight concrete deck system.

END OF THIS ACCEPTANCE



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