MIAMI-DADE

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)

Cellular Concrete LLC
7020 Snowdrift Road, Suite 102
Allentown, PA. 18106

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

DESCRIPTION: Cellular Lightweight 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 renews NOA #03-0929.04 and consists of pages 1 through 7.
The submitted documentation was reviewed by Alex Tigera.

MIAMI-DADE COUNTY APPROVED

ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub-Category: Lightweight Insulating Concrete

Materials: Aggregate
Maximum Design Pressure -262.5 psf.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

Product	Dimensions	Test Specifications	Product Description
Mearlcrete Foam Concentrate	various	ASTM C 869	Foaming agents used in making preformed foam for use in cellular lightweight concrete.

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS:

Product	Dimensions	Test Specifications	Product Description	Manufacturer
Expanded Polystyrene	Min. 1" x 2' x 4' 1.0 pcf density	ASTM C 578	Expanded polystyrene with a minimum of six - 3" diameter holes (3.7% of surface area) to provide monolithic bonding of topping to board slurry coat.	Generic
Portland Cement	various	ASTM C 150	Portland Cement	Generic
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.
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.
Tri-Fix Fastner	3" diameter	TAS 110	Steel base sheet fastener for lightweight concrete decks	Soprema, Inc

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Test Name/Report	Date
Factory Mutual Research Corp.	J.I. DOAO.AM	Uplift Resistance (FMRC 4454 - TAS 114)	09/28/99
Factory Mutual Research Corp.	J.I. 3001331	Uplift Resistance (FMRC 4454 - TAS 114)	12/31/99
Exterior Research & Design, LLC. - Trinity Engineering	#4852.07.96-1	Uplift Resistance (TAS 114, Appendix D)	07/10/96
IRT of South Florida	01-005	PA 114	03/13/01

APPROVED APPLICATIONS:

Deck Type 1: Lightweight Insulating Concrete
System A: Cellular
Cast Density Range: 34 - 50 PCF
Dry Density Range: 27 - 40 PCF
28 Day Compressive Strength Range: 200 - 350 psi depending on membrane type
Minimum Characteristic Resistance
Force with Approved Fasteners: Cure TimeMCRF (lbf)

2-4 Days	46 lbf
15 Days	77 lbf
21 Days	112 lbf
28 Days	141 lbf

Components: Portland Cement ASTM C 150:94 lbs. bag
Foaming Agent ASTM C 869:40:1 Water/Concentrate
3.0 ft^3 preformed foam
Water (max chloride level 250 ppm):5 gal./sack

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 - 40	22 - 30	19.70 - 17.70	590 - 730	267 - 350	2
250 - 350	42 - 50	32 - 40	17.70 - 15.60	730 - 870	350 - 432	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:

Minimum Density:	1.0 pcf
Minimum Dimensions:	1" x 2' x 4'
Key Holes and Slots:	Six 3" diameter holes per 2' x 4' board (3.7% of surface area) minimum required to provide monolithic bonding of topping board to bond (with current NOA).

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 and shall be covered with a minimum 2" topcoat cast within the same working day of placement of the insulation panels.

Alternately, the slurry coat and insulation panels shall be allowed to cure for 24 hours prior to the application of the topcoat. For steel deck applications the slurry coat and insulation boards shall be left undisturbed to cure for a minimum of 24 hours before the application of the topcoat. See Maximum Design Pressure listing herein.

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.

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 Table 2 herein for maximum design pressures and attachments)

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.
Gravel Surfaced BUR:	Loose gravel shall be removed, and adhesion of existing roof system shall be tested in compliance with TAS 124 to meet the design pressure requirements determined in compliance with applicable Building Code.
Smooth Surface BUR:	adhesion of existing roof system shall be tested in compliance with TAS 124 to meet the design pressure requirements determined in compliance with applicable Building Code.

Granule Surface Cap: adhesion of existing roof system shall be tested in compliance with TAS 124 to meet the design pressure requirements determined in compliance with applicable Building Code.

MAXIMUM DESIGN PRESSURES:

Table 2
NEW CONSTRUCTION

Substrate	Substrate Treatment	Min. Compressive Strength (psi)	Polystyrene Insulation Board	Maximum Design Pressure (psf.)
Min. 22 ga , type B attached to steel supports spaced 5 ft	none	300	Optional min. 1" thick min. 1.0 pcf	45
Min. 22 ga , type B Grade E slotted deck, attached to steel supports spaced 5 ft o.c. with ITW-Buildex Traxx-5 fasteners, fastened 6" o.c. Side-laps fastened 18" on center.	Hydrostop "BarierGard" applied to the steel deck at a rate of 15 sq. ft per gallon	300	min. 1" thick min. 1.0 pcf Apache Corrugated E.P.S.	67.5
Min. 22 ga , type B Grade E slotted deck, welded to steel supports spaced 5 ft o.c. with 3/8" weld washers or with ITW-Buildex Traxx-5 fasteners, at a spacing of 6" o.c. Side-laps fastened 18" on center with ITW-Buildex Traxx 1 #10 self tapping screws.	Steel deck shall be washed with distilled vinegar prior to pour.	300	min. 1" thick min. 1.0 pcf Apache Corrugated E.P.S.	52.5
Min. 22 ga , type B Grade E slotted deck, welded to steel supports spaced 5 ft o.c. with 3/8" weld washers or with ITW-Buildex Traxx-5 fasteners, at a spacing of 6" o.c. Side-laps fastened 18" on center with ITW-Buildex Traxx 1 #10 self tapping screws.	Steel deck shall be primed with Mearl Bonding agent.	300	min. 1" thick min. 1.0 pcf Apache Corrugated E.P.S. **Insulation shall be allowed to sit undisturbed for 24 hours prior to topcoat pour.**	75
Min. 22 ga., Deep Vented, Marlyn Type G-90 finish steel deck, welded to steel supports spaced 6 ft o.c. with 5/8" puddle welds and washers or with ITW-Buildex Traxx-5 fasteners, at a spacing of 6" o.c. Side-laps fastened 12" on center with ITW-Buildex Traxx 1 #10 self tapping screws.	none	300	**Optional:** Min 1" thick Min. 1.0 pcf	90

NEW CONSTRUCTION OR REROOF (TEAR-OFF)

Substrate	Substrate Treatment	Min. Compressive Strength	Polystyrene Insulation Board	Maximum Design Pressure (psf.)

concrete	none	200 psi	min. 1" thick min. 1.0 pcf	90.0
concrete	none	200 psi	none	152.5
concrete	Deck shall either be covered with an asphaltic vapor retarder or moistened with water. No standing water shall be present at time of pour.	200 psi	min. 1" thick min. 1.0 pcf Apache Corrugated E.P.S.	270

RECOVER

Substrate	Substrate Treatment	Min. Compressive Strength	Polystyrene Insulation Board	Maximum Design Pressure
gravel surface BUR*	none	200 psi	none	165.0 psf
gravel surface BUR*	none	200 psi	min. 1" thick min. 1.0 pcf	90.0 psf
smooth surface BUR	none	200 psi	none	45.0 psf
smooth surface BUR	none	200 psi	min. 1" thick min. 1.0 pcf	45.0 psf
mineral surface cap sheet*	none	200 psi	none	82.5 psf
mineral surface cap sheet*	none	200 psi	min. 1" thick min. 1.0 pcf	82.5 psf

*** Existing BUR over concrete deck substrate**

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.

GENERAL LIMITATIONS:

1. Any excess water on the lightweight concrete shall be removed prior to roof installation.

   1. 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 ¼ lb. and be accurately calibrated to $^{1}/_{16}$ lb.
      b. The measuring bucket shall be of 5 quarts or larger

   2. 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.

   3. 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.

   4. 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.

   5. Roofing contractor shall consult with roofing assembly manufacturer for compatibility with all surface coatings or treatments listed in this NOA.

   6. Direct-adhered single ply systems shall be installed in strict compliance with membrane manufacturer's specifications and roof assembly manufacturer NOA. 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.

   7. 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.

   8. For steel deck applications the slurry coat and insulation boards shall be left undisturbed to cure for a minimum of 24 hours before the application of the topcoat.

END OF THIS ACCEPTANCE