



MIAMI-DADE COUNTY, FLORIDA
METRO-DADE FLAGLER BUILDING

BUILDING CODE COMPLIANCE OFFICE
METRO-DADE FLAGLER BUILDING
140 WEST FLAGLER STREET, SUITE 1603
MIAMI, FLORIDA 33130-1563
(305) 375-2901 FAX (305) 375-2908

PRODUCT CONTROL NOTICE OF ACCEPTANCE

Cellular Concrete LLC
220 W. Westfield Avenue
Roselle Park NJ 07204

CONTRACTOR LICENSING SECTION
(305) 375-2527 FAX (305) 375-2558

CONTRACTOR ENFORCEMENT SECTION
(305) 375-2966 FAX (305) 375-2908

PRODUCT CONTROL DIVISION
(305) 375-2902 FAX (305) 372-6339

Your application for Product Approval of:

Mearlcrete Insulating Concrete Roof Decks

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 approval shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at anytime 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 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.: 00-0218.01 (Revises No.: 96-0919.01)

Expires: 07/31/2003

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 Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.
Director

Miami-Dade County
Building Code Compliance Office

Approved: 04/21/2000

1 of 8



ROOFING COMPONENT APPROVAL

Applicant:
Cellular Concrete
 220 W. Westfield Avenue
 Roselle Park, NJ 07204

Product Control No.: 00-0218.01

Approved: April 21, 2000

Expires: July 31, 2003

Category: Roofing
Sub-Category: Lightweight Insulating Concrete

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
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

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>	<u>Manufacturer</u>
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 (with current NOA)
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	PA 114 PA 117(A) PA 117(B)	Steel base sheet fastener for lightweight concrete with integral plate	Olympic Mfg. Group (with current NOA)
FM-90 Base Ply Fastener	1.7" Standard	PA 114 PA 117(A) PA 117(B)	Steel base sheet fastener for lightweight concrete with 2.7" integral plate	ES Products Inc. (with current NOA)
FM-45 Base Ply Fastener and FM-30 disc	1" NVS	PA 114 PA 117(A) PA 117(B)	Steel base sheet fastener for lightweight concrete with separate 2.7" round plate	ES Products Inc. (with current NOA)
Base-Lok Fastener	1.75" long 3" head diameter	PA 117(A) PA 117(B)	Nylon 66, screw-in base sheet fastener for lightweight concrete decks	Simplex, Inc. (with current NOA)
Lite Weight Concrete Fastener	1.76" long	PA 114 PA 117(A) PA 117(B)	Steel base sheet fastener for lightweight concrete decks	ITW Buildex, Inc. (with current NOA)


 Frank Zuloaga, Roofing Product Control Examiner
 Product Control Div.

Tri-Fix Fastner 3" diameter PA 114 Steel base sheet fastener for Soprema, Inc
 PA 117(A) lightweight concrete decks (with current NOA)
 PA 117(B)

EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Factory Mutual Research Corporation	J.I. 0P3A6.AM	Uplift Resistance (FMRC 4454 - PA 114)	03/15/89
Factory Mutual Research Corporation	J.I. 2P3A9.AM	Uplift Resistance (FMRC 4454 - PA 114)	03/07/89
Factory Mutual Research Corporation	J.I. DOAO.AM	Uplift Resistance (FMRC 4454 - PA 114)	09/28/99
Factory Mutual Research Corporation	J.I. 3001331	Uplift Resistance (FMRC 4454 - PA 114)	12/31/99
Exterior Research & Design, LLC. - Trinity Engineering	#4852.07.96-1	Uplift Resistance (PA 114, Appendix D)	07/10/96

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 Time MCRF (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 ft³ preformed foam
 Water (max chloride level 250 ppm):5 gal./sack

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. 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.

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

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 Chapter 25 of the South Florida Building Code.

Steel Deck: Minimum 22 gage galvanized G-90 in compliance with the SFBC. (See Table 2 herein for maximum design pressures and attachments)

New Construction:

Steel: Minimum 22 ga. galvanized G-90 attached to supports in compliance with Chapter 26 and 28 of the South Florida Building Code. (See maximum design pressures for limitations on deck gauge.)

Concrete: Structurally designed in compliance with Chapter 25 of the South Florida Building Code.

Existing Construction:

- Concrete:* Broom cleaned and free of any materials or covering that may impede bonding. Substrate shall be in compliance with Chapter 25 of the South Florida Building Code.
- Gravel Surfaced BUR:* Loose gravel shall be removed, and adhesion of existing roof system shall be tested in compliance with Metro-Dade County Protocol PA 124 to meet the design pressure requirements determined in compliance with Chapter 23 of the South Florida Building Code.
- Smooth Surface BUR:* Adhesion of existing roof system shall be tested in compliance with Metro-Dade County Protocol PA 124 to meet the design pressure requirements determined in compliance with Chapter 23 of the South Florida Building Code.
- Granule Surface Cap:* Adhesion of existing roof system shall be tested in compliance with Metro-Dade County Protocol PA 124 to meet the design pressure requirements determined in compliance with Chapter 23 of the South Florida Building Code.

MAXIMUM DESIGN PRESSURES:

Table 2 NEW CONSTRUCTION				
Substrate	Substrate Treatment	Min. Compressive Strength	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 "BarrierGard" 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
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.
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 ¼ lb. and be accurately calibrated to 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 "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 a specific roof membrane manufacturers 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 Engineer or Architect may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Miami-Dade County Protocol TAS 105 and calculations in compliance with Miami-Dade 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. If a denser fastening pattern is required for elevated pressure zones, a Professional Engineer shall recalculate perimeter and corner spacing in compliance with Metro-Dade County Roofing Application Standard PA 117.
6. Roofing contractor shall consult with roofing system 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 the Miami-Dade County Notice of Acceptance.
8. Maximum Design Pressures noted in this NOA shall be used in conjunction with those maximum design pressures published in the Roof Assembly Product Control Notice of Acceptance for Approved Systems over lightweight concrete decks.
9. Any areas where fasteners will not hold a minimum 40 lbs. after 5 days of cure shall be removed and recast.
10. All coatings or surface preparation materials applied to the lightweight concrete shall be listed as an approved interface material with the roof membrane manufacturer.
11. 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.

Engelhard Corporation
220 West Westfield Avenue
Roselle Park, NJ 07204

ACCEPTANCE NO.: 00-0218.01
APPROVED: April 21, 2000
EXPIRES: July 31, 2003

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: "Metro-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 Metro-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 8

END OF THIS ACCEPTANCE

