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)

Elastizell Corporation of America
P.O. Box 1462
Ann Arbor, MI 48106

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: Elastizell 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 revises NOA #08-0331.03 and consists of pages 1 through 13.
The submitted documentation was reviewed by Alex Tigera.

MIAMI-DADE COUNTY APPROVED

ROOFING COMPONENT APPROVAL

Category: Roofing
Sub-Category: Lightweight Insulating Concrete

Materials: Cellular, Hybrid
Maximum Design Pressure -542.5 psf.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

Product	Dimensions	Test Specifications	Product Description
Elastizell Foam Concentrate	various	ASTM C 869 ASTM C 796	Foaming agent to produce pre-formed foam for use in lightweight cellular concrete.
Zell-Crete Fibers	15 Denier - ¾" long	ASTM Standards Denier: D 1577 Tensile: D 2256 Elongation: D 2104 Spec. Gravity: D 792 Melt Point: D 3418	Polyester fiber used in lightweight cellular concrete to improve tensile and shear performance.
ZIP Superplasticizer / water-reducer	Dosage: 4 oz./100# cement	ASTM D 494-Type A	Additive to lightweight cellular concrete to reduce mix water and improve strength while maintaining fluidity of mix.
Zell-Erator	Dosage: 200 sq. ft./gal.	N/A	Water based, sodium silicate solution applied to top surface of lightweight cellular concrete deck to enhance curing and sealing.
Zell 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:

Product	Dimensions	Test Specifications	Product Description	Manufacturer (with current NOA)
Portland Cement	Various	ASTM C 150	Portland Cement	Generic
Vermiculite Aggregate	Various	ASTM C 332	Vermiculite Aggregate	Generic
Maxima Bonding Agent 10-V-1	Various	ASTM C 190	Admixture to lightweight concrete slurry coat.	Coatings, Material & Technology, Inc.
Apache Holey Board	2' x 4' x 1"-4" or 4' x 4' x 1"-4"	ASTM C 578	Expanded polystyrene board with six 2-7/8" dia. holes per 8 sq. ft. and eight to eleven holes per 16 sq. ft. Top and bottom surfaces are smooth.	Apache
Apache Corrugated E.P.S.	2' x 4' x 1"-4" or 4' x 4' x 1"-4"	ASTM C 578	Expanded polystyrene board with six 2-7/8" dia. holes per 8 sq. ft. and eight to eleven holes per 16 sq. ft. Board is cut such that top surface has ¼" high x 1" wide ridges and bottom surface has ¼" deep x 1" wide grooves running the length of the board.	Apache Products Company
Star-R-Foam Smooth, Star-R-Foam Gripper, or Gripper HB Smooth	2' x 4' x 1"-4"	ASTM C 578	Min. 1.0 pcf expanded polystyrene board with six 3" dia. holes per board. Boards are smooth on both sides, smooth on one side with ¼" deep grooves spaced ½" apart on other side or grooved on both sides.	Starfoam Mfg., Inc.
Carpenter Grip-Board	2' x 4' x 1"-4"	ASTM C 578	Min. 1.0 pcf expanded polystyrene board with six 3" dia. holes per board. Boards are grooved on both sides with ½" deep grooves spaced ½" apart.	Carpenter Mfg.

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Test Name/Report	Date
Florida Testing Engineering and Consulting	GL0811-01DN	TAS 114	11/10/08
Factory Mutual Research Corp.	J.I. 2Z9A6.AM	Uplift Resistance	11/06/96
	J.I. 0D3A3.AM	(FM 4470/4454 - TAS 114)	04/04/97
IRT Consulting of S. Florida, Inc.	99027	TAS 114	9/30/99
	99028		9/30/99
	99029		9/30/99
	99030		9/30/99
	99033		9/30/99
	99034		9/30/99
	00001		03/30/00
Atlantic & Caribbean Roof Consulting, LLC	ACRC 03012	TAS 114	12/04/03
Trynity/ERD	4453.10.96-1	TAS 114	10/30/96
	2003.02.97-1	FM 4470/4454 - TAS 114	02/06/97
	2003-2.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	3953-2.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	4217.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	4361-2.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	4504.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	4611.04.97-1	FM 4470/4454 - TAS 114	04/24/97
	01090.01.03-1	TAS 114	01/22/03
	E9490.03.08	FM 4470/4454 - TAS 114	03/25/08

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

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 pre-formed foam
Water (max chloride level 250 ppm):	5 gal./sack
Zell-Crete Fibers (optional):	1.8 lb./cubic yd.
Maxima Bonding Agent 10-V-1 (optional):	1.2 gallon/cubic yd.
Other Approved admixtures (optional):	see manufacturer's instructions

Wet and Dry Density Ranges Resulting from Range of Proportioned Ingredients						
			Proportions for a Cubic Yard			
Compressive Strength (psi)	Cast Density Range (pcf)	Dry Density Range (pcf)	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

System B: Cellular/Hybrid

Cast Density Range: 42-55 PCF

Dry Density Range: 30-44 PCF

28 Day Compressive Strength Range: 200-350 psi

Minimum Characteristic Resistance Force with Approved Fasteners:

Cure Time	MCRF (lbf)
3-5 days	40 lbf

Components:

Portland Cement ASTM C 150:	94 lbs. bag
Foaming Agent ASTM C 869:	40:1 Dilution (Water:Concentrate)
	3.0 ft^3 pre-formed foam
Water (max chloride level 250 ppm):	7-8 gal./sack
Vermiculite Aggregate ASTM C332	1-1.5 cubic feet/sack of cement
Zell-Crete Fibers (optional):	1-2 lbs./cubic yd.
Other Approved admixtures (optional):	see manufacturer's instructions

Wet and Dry Density Ranges Resulting from Range of Proportioned Ingredients							
			Proportions for a Cubic Yard				
Compressive Strength (psi	Cast Density Range (pcf)	Dry Density Range (pcf)	Foam (ft^3)	Cement Range (lbs)	Mix Water (gallons)	Vermiculite Aggregate (ft^3)	Minimum Thickness (inches)
200-249	42-48	32-38	19.70 - 17.70	600	48-54	8	2
250-+350	48-54	38-44	17.70 - 15.60	650	48-54	8	2

Deck Type 1: Lightweight Insulating Concrete

System C: Cellular/Hybrid

Cast Density Range: 50 PCF

Dry Density Range: 40-46 PCF

28 Day Compressive Strength Range: minimum 350 psi

Components:

Portland Cement ASTM C 150:	94 lbs. bag
Foaming Agent ASTM C 869:	40:1 D ilution (Water:Concentrate) 3.0 ft³ pre-formed foam
Water (max chloride level 250 ppm):	7-8 gal./sack
Vermiculite Aggregate ASTM C332	1-1.5 cubic feet/sack of cement
Zell-Crete Fibers:	1-2 lbs./cubic yd.
Elastizell RIP polymer admixture:	1% x (cement weight)
Elastizell Zell-Erator Sealer:	3 applications at min. 12 hour intervals
Elastizell Super ZIP (optional):	see manufacturer's instructions

Wet and Dry Density Ranges Resulting from Range of Proportioned Ingredients							
			Proportions for a Cubic Yard				
Compressive Strength (psi)	**Cast Density Range (pcf)**	**Dry Density Range (pcf)**	**Foam (ft^3)**	**Cement Range (lbs)**	**Mix Water (gallons)**	**Vermiculite Aggregate (ft^3)**	**Minimum Thickness (inches)**
350	50	40-46	!15	650	!51	8	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's 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 Dimension: 1"x 2'x 4'
Holes for keying: Minimum 6 holes at minimum 2-7/8" diameter per 8 sq. ft. or 8 to 11 holes at a minimum 2-7/8" diameter per 16 sq. ft. Boards may be flat corrugated or grooved. See Approved polystyrene noted in the Trade Names and Maximum Design Pressures Sections 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, and shall be covered with a minimum 2" topcoat cast within 24 hours of placement of the insulation panels.

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:

Steel:	Minimum 22 ga. galvanized G-90 attached to supports in compliance with applicable Building Code. *(See maximum design pressures for limitations on deck gauge.)*
Concrete:	Structurally designed in compliance with applicable Building Code.

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

Maximum Design Pressures:

Substructure	Admixtures (Top Coat)	Substrate Treatment	Min. Compressive Strength	Polystyrene Insulation Board	Maximum Design Pressure
NEW CONSTRUCTION					
Min. 22 ga., type B, grade D slotted steel deck welded to steel supports at every flute with 5/8" puddle welds. Deck side laps fastened with 3 self tapping fasteners evenly divided within the 5 ft spacing.	none	none	200 psi	(Optional) Minimum 2" thick & 1.0 pcf flat, corrugated or grooved board.	45 psf
Min. 22 ga., type B, grade E, slotted steel deck secured to open bar joists spaced max. 5' o.c. staggering at every flute with 1/2" welds and weld washers. Deck side laps are fastened with 3 self tapping fasteners evenly divided within the 5 ft purlin spacing.	none	none	200 psi	Min. 2" thick Star-R-Foam Gripper Board with grooves on both sides.	52.5 psf
Min. 22 ga., type B, grade 80 slotted steel deck welded to steel supports spaced 5' o.c. at every flute with 5/8" puddle welds or Traxx/5 fasteners. Deck side laps are fastened with 3 self tapping fasteners evenly divided within the 5 ft spacing.	none	(Optional) Zell Bonding Agent to steel deck or Sealobase Powerpack mixed in slurry coat	200 psi cellular	(Optional) Minimum 1" thick & 1.0 pcf. Optional Zell Bonding Agent is applied to the bottom of insulation boards.	60 psf
Min. 22 ga., type B, grade 80, slotted steel deck secured to steel supports spaced max. 5' o.c. at every flute with Traxx/5 fasteners. Deck side laps are fastened with 3 self tapping fasteners evenly divided within the 5 ft spacing.	Zell Fibers	Maxima Bonding Agent 10-V-1 mixed in slurry coat at a rate of 1.2 gallons per yd^3	300 psi	Minimum 2" " thick & 1.0 pcf Corrugated.	75 psf
Min. 22 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 5' o.c. with 5/8" puddle welds every flute. Deck side laps are fastened with #10 TEK screws at 15" o.c.	(Optional) Zee-Crete Fibers	none	min. 250 psi 3" thick Range II	Minimum 2" " thick & 1.0 pcf.	112.5 psf

Substructure	Admixtures (Top Coat)	Substrate Treatment	Min. Compressive Strength	Polystyrene Insulation Board	Maximum Design Pressure
NEW CONSTRUCTION					
Min. 20 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 6'-3" o.c. with 5/8" puddle welds or Traxx/5 fasteners every flute. Deck side laps are fastened with #10 TEK screws at 18" o.c.	(Optional) Zell-Crete Fibers	none	min. 200 psi 2" thick Range II	Minimum 2" thick & 1.0 pcf flat, corrugated or grooved board.	52.5 psf
Min. 22 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 5' o.c. with 5/8" puddle welds every flute. Deck side laps are fastened with #10 TEK screws at 15" o.c.	(Optional) Zell-Crete Fibers	none	min. 250 psi 2" thick Range II	Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	97.5 psf
Min. 22 ga., 1.5" type B, Grade 33 steel deck welded to supports spaced max. 6' o.c. with 5/8" puddle welds or Traxx/5 fasteners every flute. Deck side laps are fastened with four self tapping #10 TEK screws evenly divided within the 6 ft spacing.	Zell-Crete Fibers	none	min. 250 psi	Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	52.5 psf
Min. 22 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max 6' o.c. with 5/8" puddle welds or Traxx/5 fasteners every flute. Deck side laps are fastened with #10 TEK screws at 15" o.c.	none	none	Min. 250 psi 2" thick EVM Hybrid or min. 200 psi 2" thick Range II	Minimum 2" thick & 1.0 pcf flat, corrugated or grooved board.	75 psf
Min. 22 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 6' o.c. with 5/8" puddle welds every flute. Deck side laps are fastened with #10 TEK screws at 18" o.c.	(Optional) Zell-Crete Fibers	none	min. 200 psi 2" thick Range II	Minimum 2" thick & 1.0 pcf flat, corrugated or grooved board.	82.5 psf
Min. 22 ga., 1.5" type B, Grade 33 steel deck welded to supports spaced max. 6' o.c. with 5/8" puddle welds or Traxx/5 fasteners every flute. Deck side laps are fastened with four self tapping #10 TEK screws evenly divided within the 6 ft spacing.	Zell-Crete Fibers	none	min. 250 psi	Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	90 psf* *(Deck Only no roof cover)*
Min. 22 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 6' o.c. with 5/8" puddle welds every flute. Deck side laps are fastened with #14 TEK screws at 6" o.c.	Zee-Crete Fibers	none	min. 200 psi 2" thick Range II	(Optional) Minimum 2" " thick & 1.0 pcf.	105 psf

Substructure	Admixtures (Top Coat)	Substrate Treatment	Min. Compressive Strength	Polystyrene Insulation Board	Maximum Design Pressure
NEW CONSTRUCTION					
Min. 26 ga., 1.5" type BV, G-90 steel deck welded to supports spaced max. 5' o.c. with 5/8" puddle welds or Traxx/5 fasteners every flute. Deck side laps are fastened with 3 #10 TEK screws evenly divided within the 5 ft purlin spacing.	Zell-Crete Fibers	none	Min. 350 psi 2" thick Cellular/ Hybrid	Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	112.5 psf
NEW CONSTRUCTION OR REROOF (TEAR-OFF)					
Structural concrete deck	none	none	200 psi	(Optional) Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	240 psf
Structural concrete deck	none	Zell Bonding Agent to deck	250 psi	(Optional) Minimum 2" thick & 1.0 pcf . Zell Bonding Agent applied to both sides of board	230 psf
Structural concrete deck	none	none	250psi	(Optional) Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	205 psf
Structural concrete deck	none	none	300 psi	none	542.5 psf
Structural concrete deck	none	ASTM D41 primed followed by torch applied ASTM D6162, D6163, or D6164, Grade G modified bitumen dry in sheet.	300 psi	none	302.5 psf
NEW CONSTRUCTION OR REROOF (TEAR-OFF)					
RECOVER					
Existing structural concrete deck with existing asphaltic BUR roof cover	none	none	200 psi	(Optional) Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	112 psf
Existing structural concrete deck with existing asphaltic BUR roof cover	none	none	250 psi	(Optional) Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	342 psf
Existing structural concrete deck with existing asphaltic smooth BUR roof cover	none	none	250 psi	(Optional) Minimum 1" thick & 1.0 pcf flat, corrugated or grooved board.	367.5 psf

Note: Maximum Design Pressures noted herein shall be used in conjunction with those maximum design pressures published in the Roof System Assembly Notice of Acceptance for Approved 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 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. Roofing contractor shall consult with roofing system 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.
7. Maximum Design Pressures noted in this NOA shall be used in conjunction with the maximum design pressures published in the Roof Assembly Product Control Notice of Acceptance for Approved Systems over lightweight concrete decks.
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 slurry coat lightweight insulating concrete shall be applied with insulation boards immediately adhered in the minimum 1/8" slurry coat. Slurry coat and insulation boards shall be left undisturbed to cure overnight before the application of the topcoat. If installation is interrupted due to inclement weather or other situations beyond the control of the contractor, the installed insulation board shall be inspected to confirm adhesion to the substrate. Over solid substrates, topping installation shall not be delayed over 24 hours.
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 9B-72 of the Florida Administrative Code.

END OF THIS ACCEPTANCE