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)

Siplast, Inc.
100 E. Rochelle Blvd.
Irving, TX 75062-3940

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 High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Siplast 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 13.
The submitted documentation was reviewed by Frank Zuloaga, RRC

ROOFING COMPONENT APPROVAL

Category: Roofing
Sub-Category: Lightweight Insulating Concrete
Materials: Aggregate, Cellular, Hybrid
Maximum Design Pressure -345 psf.

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

Product	Dimensions	Test Specifications	Product Description
Insulcel-PB™ Liquid Foam Concentrate	various	ASTM C 869	Foaming agents used in making preformed foam for use in lightweight cellular concrete.
Insulperm®	1" to 12" thick 2' x 4'	ASTM C 578	Expanded polystyrene with 3.0% open area (holes and/or slots).
NVS®	N/A	ASTM C332	Vermiculite aggregate for use in lightweight insulating concrete
ZIC Aggregate	N/A	ASTM C 332	Vermiculite aggregate for use in lightweight insulating concrete.
Zono-tite® Fastener	1.75"	PA 114	Steel base sheet fastener for lightweight concrete with intergal plate.
NVS® Fastener	1.2"	PA 114	Steel base sheet fastener for lightweight concrete with intergal plate.

TRADE NAMES OF PRODUCTS MANUFACTURED BY OTHERS:

Product	Dimensions	Test Specifications	Product Description	Manufacturer
Portland Cement	N/A	ASTM C 150	Portland Cement	Generic (With current NOA)
C-R Base Felt Fastener	1.75" Standard 1.2" NVS	PA 114	Steel base sheet fastener for light weight concrete with intergal plate	Olympic Mfg. Group (With current NOA)
FM-90 Base Ply Fastener	1.7" Standard	PA 114	Steel base sheet fastener for light weight concrete with 2.7" intergal plate	ES Products Inc. (With current NOA
FM-75 Base Ply Fastener and FM-30 disc	1.2" NVS	PA 114	Steel base sheet fastener for light weight concrete with separate 2.7" round plate	ES Products Inc. (With current NOA

EVIDENCE SUBMITTED:

Test Agency	Test Identifier	Test Name/Report	Date
Factory Mutual Research Corp.	Wind Uplift Classification	J.I. 2Y1A1.AM	04/15/96
Factory Mutual Research Corp.	Wind Uplift Classification	J.I. 3Z3A7.AM	03/26/96
Factory Mutual Research Corp.	Wind Uplift Classification	J.I. 3Z8A6.AM	06/23/96
Factory Mutual Research Corp.	Wind Uplift Classification	J.I. OB9A4.AM	05/29/97
Trinity Engineering Inc	PA 114	4701-09.96-1	10/01/96
Trinity Engineering Inc	PA 114	4701-09.96-2	10/01/96
Factory Mutual Research Corp.	Wind Uplift Classification	Current Approval Guide	2000
Factory Mutual Research Corp.	Class 4454	3005387	04/26/00
IRT of S. Florida, Inc.	PA 114	00026	11/28/2000
Factory Mutual Research Corp.	Class 4470	3008210	04/10/01
Factory Mutual Research Corp.	Class 4470	3011768	02/14/02

APPROVED SYSTEMS:

Deck Type 1: Lightweight Insulating Concrete

System A: Insulcel-PB® / Cellular

Cast Density Range: 38 - 48 PCF

Dry Density Range: Minimum 30 PCF

28 Day Compressive Strength: Minimum 200 psi

Minimum Characteristic Resistance Force with Approved Fasteners:
2-4 Days:46 lbf
15 Days:77 lbf
21 Days:112 lbf
28 Days:141 lbf

Components:

Portland Cement ASTM C 150: 6.3 - 9.4 94 lb. sacks; see table below
Foaming Agent ASTM C 869: (40:1 Water/Concentrate) 3.0 lbs/ft³ preformed foam
Water (max chloride level 250 ppm): 5 gal./sack

Wet densities and dry densities using the following range of proportioned ingredients (per yd³):

PSI Range	Wet Density Range	Dry Density Range	Foam	Cement Range	Mixing Water Range	Min. Thickness
Min 200	38-48 pcf	30-36 pcf	19.70-17.70 ft³/yd³	590-730 lbs	267-350 lbs	2"

Table 1: Maximum Design Pressures for INSULCEL Applications

Substrate	Substrate Treatment	Min. Compressive Strength	Insulperm Board	Maximum Design Pressure
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c.	None	200 psi	None	-60 psf
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-75 psf
Wheeling Corrugating Co. Tensilvent 125, Min. 24 ga, vented steel deck attached with 3/8" puddle welds at 6" o.c. to steel supports spaced a maximum of 6 ft o.c.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-75 psf

Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 6 ft o.c. One layer 5/8" thick Dens Deck fastened to deck with Parafast XHD and Parafast 3" Metal plates, Olympic XHD with 3" Metal Plates or Tru-Fast HD with MP-3 Plates at a fastener density of 1:1.6 ft^2. A two-ply ASTM D 2178 Type IV fully adhered to Dens Deck with Siplast PA-100 roofing asphalt.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-75psf
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c. Deck side laps fastened at 24" o.c. with #10 TEK screws. One layer ½" thick Dens Deck fastened to deck with GAFTITE (Drill-Tec) STD 3-¼"fasteners and 3" dia. plates at a fastener density of 1:1.33 ft^2. A two-ply ASTM D 2178 Type IV fully adhered to Dens Deck with Siplast PA-100 roofing asphalt.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-82.5psf
NEW CONSTRUCTION OR REROOF (TEAR-OFF)				
Concrete	None	200 psi	None	-247.5 psf
Concrete	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-345 psf
RECOVER				
Gravel surface BUR	None	200 psi	None	-212 psf
Gravel surface BUR	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-237.5 psf
Mineral surface cap sheet	None	200 psi	None	-60 psf
Mineral surface cap sheet	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-60 psf

Deck Type 1: Lightweight Insulating Concrete

System B: ZIC / Aggregate

Cast Density Range: 44 - 60 PCF

Dry Density Range: Minimum 22 PCF

28 Day Compressive Strength Range:minimum 125 psi

Minimum Characteristic Resistance Force with Approved Fasteners:
2-4 Days:40 lbf
15 Days: 46 lbf
21 Days:76 lbf
28 Days:88 lbf

Components: 1:6 mix

Portland Cement ASTM C 150	4 - 94 lb. sacks
Vermiculite Aggregate	6 - 4 ft.³ bags
Water (max chloride level 250 ppm):	17 gal./sack

Wet densities and dry densities using the following range of proportioned ingredients (per 24 cubic foot batch):

PSI Range	Wet Density Range	Dry Density Range	Aggregate by Volume	Cement Range	Mixing Water Range	Min. Thickness
min.125	44-60 pcf	Min 22 pcf	1:6 mix	376 lbs	800-900 lbs	2"

Components: 1:4 mix

Portland Cement ASTM C 150	6 - 94 lb. sacks
Vermiculite Aggregate	6 - 4 ft.³ bags
Water (max chloride level 250 ppm):	17 gal./sack

Wet densities and dry densities using the following range of proportioned ingredients:

PSI Range	Wet Density Range	Dry Density Range	Aggregate by Volume	Cement Range	Mixing Water Range	Min. Thickness
Min. 200	53-63 pcf	31-37 pcf	1:4 mix	564 lbs	800-900 lbs	2"

Table 3: Maximum Design Pressures for ZIC Applications (Both 1:4 and 1:6 mix designs)

Substrate	Substrate Treatment	Min. Compressive Strength	Insulperm Board	Maximum Design Pressure
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c.	None	125 psi	None	-45 psf
Same as Above.	None	125 psi	Min. 1" thick Nom. 1.0 pcf	-45 psf

Table 4: Maximum Design Pressures for ZIC Applications (1:4 mix designs only)				
Substrate	**Substrate Treatment**	**Min. Compressive Strength**	**Insulperm Board**	**Maximum Design Pressure**
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-60 psf

Table 5: Maximum Design Pressures for Insulcel/ZIC Applications (1:4(ZIC) mix designs only)				
Substrate	**Substrate Treatment**	**Min. Compressive Strength**	**Insulperm Board**	**Maximum Design Pressure**
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c. Insulcel used as base slurry coat followed by ZIC as top coat over insulperm board.	None	300 psi (Insulcel) 200 psi (ZIC)	Min. 1" thick Nom. 1.0 pcf	-75 psf

Deck Type 1: Lightweight Insulating Concrete

System C: NVS® / Aggregate

Cast Density Range: 60-68 PCF

Dry Density Range: min 35 PCF

28 Day Compressive Strength Range: min. 300 psi

Minimum Characteristic Resistance Force with Approved Fasteners:
2-4 Days:41 lbf
15 Days:57 lbf
21 Days:79 lbf
28 Days:117 lbf

Components: 1:3.5 mix

Portland Cement ASTM C 150	7 - 94 lb. sacks
Vermiculite Aggregate	7 - 3.5 ft.³ bags (Cement/Aggregate
Water (max chloride level 250 ppm):	17 gal./sack

Wet densities and dry densities using the following range of proportioned ingredients:

PSI Range	Wet Density Range	Dry Density Range	Aggregate by Volume	Cement Range	Mixing Water Range	Min. Thickness
min. 300	60 - 68 pcf	min 35 pcf	1:3.5 mix	658 lbs	850 - 950 lbs	1"

Table: Maximum Design Pressures for NVS Applications

Substrate	Substrate Treatment	Min. Compressive Strength	Insulperm Board	Maximum Design Pressure
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8" puddle welds at every corrugation to steel supports spaced a maximum of 6 ft o.c. Deck side laps fastened at 24" o.c. with #10 TEK screws. One layer 5/8" thick Dens Deck fastened to deck with Siplast Parafst XHD or Olympic XHD Fasteners with 3" Metal Plates or Tru-Fast HD Fasterner with MP-3 Plates at a fastener density of 1:1.6 ft^2. A two-ply ASTM D 2178 Type IV fully adhered to Dens Deck with Siplast PA-100 roofing asphalt.	None	200 psi	Min. 1" thick Nom. 1.0 pcf	-75 psf

NEW CONSTRUCTION OR REROOF (TEAR-OFF)				
concrete	none	300 psi	none	-312.5 psf
concrete	none	300 psi	min. 1" thick nom. 1.0 pcf	-347.5 psf
RECOVER				
gravel surface BUR	none	300 psi	none	-232.5 psf
gravel surface BUR	none	300 psi	min. 1" thick nom. 1.0 pcf	-232.5 psf
mineral surface cap sheet	none	300 psi	none	-222.5 psf
mineral surface cap sheet	none	300 psi	min. 1" thick nom. 1.0 pcf	-222.5 psf

Deck Type 1: Lightweight Insulating Concrete

System D: Zonocel™

Cast Density Range: 43 - 53 PCF

Dry Density Range: Minimum 30 PCF

28 Day Compressive Strength Range:Minimum 200 psi

Minimum Characteristic Resistance Force with Approved Fasteners:
2-4 Days:37 lbf
15 Days:51 lbf
21 Days:74 lbf
28 Days:104 lbf

Components:

Portland Cement ASTM C 150 — 7 - 94 lb. sacks
Foaming Agent ASTM C 869: — (40:1 Water/Concentrate) 3.0 lbs/ft³ preformed foam
Vermiculite Aggregate — 2-4 ft.³ bags (Cement/Aggregate
Water (max chloride level 250 ppm): — 5 gal./sack

Wet densities and dry densities using the following range of proportioned ingredients per yd³:

PSI Range	Wet Density Range	Dry Density Range	Aggregate by Volume	Cement Range	Foam	Mixing Water Range	Min. Thickness
Min. 200	43-53 pcf	Min. 30 pcf	1:1.2	650 lbs	10-15 ft³ / yd³	350-432 lbs	2"

Table 3: Maximum Design Pressures for Zonocel Applications				
Substrate	**Substrate Treatment**	**Min. Compressive Strength**	**Insulperm Board**	**Maximum Design Pressure**
NEW CONSTRUCTION				
Min. 22 ga, vented steel deck attached with 3/8 puddle welds at every corrugation to steel supports spaced a maximum of 5 ft o.c.	none	200 psi	None	-60 psf
Same as above	none	200 psi	Min. 1" thick Min. 1.0 pcf	-60 psf

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: 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 inch slurry-coat of insulating concrete, while the material is still in a plastic state and shall be covered with a minimum 2 inch topcoat cast within the next working day 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.

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. 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