



**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

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

**CONTRACTOR ENFORCEMENT DIVISION**  
(305) 375-2966 FAX (305) 375-2908

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

**PRODUCT CONTROL NOTICE OF ACCEPTANCE**

**Siplast, Inc.**  
**1111 Highway 67 S**  
**Arkadelphia ,AR 71923**

Your application for Notice of Acceptance (NOA) of:

**Lightweight Concrete Insulating Deck**

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 NOA shall not be valid after the expiration date stated below. BCCO reserves the right to secure this product or material at any time 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 by 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.:** 00-0705.03  
**EXPIRES:** 05/13/2002

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 Miami-Dade County, Florida under the conditions set forth above.

Francisco J. Quintana, R.A.  
Director  
Miami-Dade County  
Building Code Compliance Office

**APPROVED:** 09/14/2000

**ROOFING ASSEMBLY APPROVAL**

**Category:** Roofing Approval Date: September 14, 2000  
**Sub-Category:** Lightweight Insulating Concrete Expiration Date: May 13, 2002  
**Materials:** Aggregate, Cellular, Hybrid  
**Maximum Design Pressure** -345 psf.  
**Fire Classification:**

**TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:**

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
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) with a perforated surface to provide monolithic bonding of the lightweight concrete to the insulation board.
NVS®	N/A	ASTM C332	Vermiculite aggregate for use in lightweight insulating concrete
Zonolite® 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 light weight concrete with intergal plate.
NVS® Fastener	1.2"	PA 114	Steel base sheet fastener for light weight concrete with intergal plate.

**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	N/A	ASTM C 150	Portland Cement	generic
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)



Frank Zuloaga, RRC  
 Roofing Product Control Examiner.

<u>Product</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>	<u>Manufacturer</u>
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:**

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
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
Underwriters Laboratories, Inc.	Fire and Wind Uplift Classification	R12565	11/10/87
Factory Mutual Research Corp.	Class 4454	3005387	04/26/00



Frank Zuloaga, RRC  
Roofing Product Control Examiner.

**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/ft <sup>3</sup> preformed foam
Water (max chloride level 250 ppm):	5 gal./sack

**Wet densities and dry densities using the following range of proportioned ingredients (per yd<sup>3</sup>):**

<u>PSI Range</u>	<u>Wet Density Range</u>	<u>Dry Density Range</u>	<u>Foam</u>	<u>Cement Range</u>	<u>Mixing Water Range</u>	<u>Min. Thickness</u>
min 200	38-48 pcf	29-36 pcf	19.70-17.70 ft <sup>3</sup> /yd <sup>3</sup>	590-730 lbs	267-350 lbs	2"



<b>Table 1: Maximum Design Pressures for INSULCEL Applications</b>				
<b>Substrate</b>	<b>Substrate Treatment</b>	<b>Min. Compressive Strength</b>	<b>Insulperm Board</b>	<b>Maximum Design Pressure</b>
<b>NEW CONSTRUCTION</b>				
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	-60psf
<b>NEW CONSTRUCTION OR REROOF (TEAR-OFF)</b>				
concrete	none	200 psi	none	-152.5 psf
concrete	none	200 psi	min. 1" thick nom. 1.0 pcf	-345 psf
<b>RECOVER</b>				
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



Frank Zuloaga, RRC  
Roofing Product Control Examiner.

**Deck Type 1:** Lightweight Insulating Concrete  
**System B:** Zonolite® / Aggregate  
**Cast Density Range:** 44 - 60 PCF  
**Dry Density Range:** Minimum 22 PCF  
**28 Day Compressive Strength: 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.<sup>3</sup> 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):**

<u>PSI Range</u>	<u>Wet Density Range</u>	<u>Dry Density Range</u>	<u>Aggregate by Volume</u>	<u>Cement Range</u>	<u>Mixing Water Range</u>	<u>Min. Thickness</u>
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.<sup>3</sup> bags  
 Water (max chloride level 250 ppm): 17 gal./sack

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

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

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

<u>Substrate</u>	<u>Substrate Treatment</u>	<u>Min. Compressive Strength</u>	<u>Insulperm Board</u>	<u>Maximum Design Pressure</u>
<b>NEW CONSTRUCTION</b>				
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. 1.5 pcf	45 psf

**Deck Type 1:** Lightweight Insulating Concrete  
**System C:** NVS® / Aggregate  
**Cast Density Range:** 60-68 PCF  
**Dry Density Range:** Minimum 35 PCF  
**28 Day Compressive Strength: Minimum** 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.<sup>3</sup> bags (Cement/Aggregate)  
 Water (max chloride level 250 ppm): 17 gal./sack

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

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

**Table 4: Maximum Design Pressures for NVS Applications**

Substrate	Substrate Treatment	Min. Compressive Strength	Insulperm Board	Maximum Design Pressure
<b>NEW CONSTRUCTION OR REROOF (TEAR-OFF)</b>				
concrete	none	300 psi	none	-312.5 psf
concrete	none	300 psi	min. 1" thick nom. 1.0 pcf	-347.5 psf
<b>RECOVER</b>				
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

  
 Frank Zuloaga, RRC  
 Roofing Product Control Examiner.

**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: 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:

<u>PSI Range</u>	<u>Wet Density Range</u>	<u>Dry Density Range</u>	<u>Aggregate by Volume</u>	<u>Cement Range</u>	<u>Foam</u>	<u>Mixing Water Range</u>	<u>Min. Thickness</u>
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
<b>NEW CONSTRUCTION</b>				
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

  
 Frank Zuloaga, RRC  
 Roofing Product Control Examiner.

**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 same 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 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.

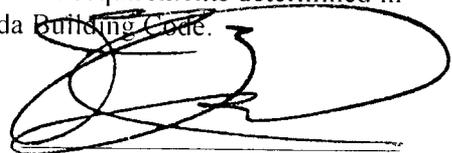
**Existing Construction:**

**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 Miami-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 Miami-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 Miami-Dade County Protocol PA 124 to meet the design pressure requirements determined in compliance with Chapter 23 of the South Florida Building Code.



Frank Zuloaga, RRC  
Roofing Product Control Examiner.

**GENERAL LIMITATIONS:**

1. 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.
3.
  - 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
4. 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.
5. 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.
6. Contractor shall consult with roofing system manufacturer for compatibility with all surface coatings or treatments listed in this NOA.
7. All coatings or surface preparation materials applied to the lightweight concrete shall be listed as an approved interface material with the roof membrane manufacturer.
8. Direct-adhered single ply systems shall be installed in strict compliance with membrane manufacturer's specifications and the Miami-Dade County Notice of Acceptance.
9. 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 Assembly over lightweight concrete decks.
10. 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.

**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: "Miami-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 Miami-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 11.

**END OF THIS ACCEPTANCE**



Frank Zuloaga, RRC  
Roofing Product Control Examiner.