



**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)**

**Dr. Goodroof, Inc.  
11461 Tamiami Trail  
Punta Gorda, FL. 33955-9208**

**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 the BCCO and accepted by the Building Code and Product Review Committee 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: Highlander Concrete Roof Tile**

**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 7.

The submitted documentation was reviewed by Alex Tigera.



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Expiration Date: 01/04/12  
Approval Date: 01/04/07  
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## ROOFING ASSEMBLY APPROVAL

**Category:** Roofing  
**Sub-Category:** 07320 Roofing Tiles  
**Material:** Concrete  
**Deck Type:** Wood

### 1. SCOPE

This approves a roofing system using Highlander Concrete Roof Tile manufactured in Punta Gorda, Florida, as described in Section 2 of this Notice of Acceptance. For locations where the pressure requirements, as determined by applicable Building Code does not exceed the design pressure values obtained by calculations in compliance with RAS 127 using the values listed in section 4 herein. The attachment calculations shall be done as a moment based system.

### 2. PRODUCT DESCRIPTION

<u>Manufactured by Applicant</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
Highlander Concrete Roof Tile	L = 16 1/4" W = 13"	TAS-112	High profile concrete roof tile. For batten and direct deck, mechanical, and adhesive set applications.
Trim Pieces	Length: varies Width: varies varying thickness	TAS-112	Accessory trim, clay roof pieces for use at hips, rakes, ridges and valley terminations manufactured for each tile profile.

#### 2.1 SUBMITTED EVIDENCE:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
PRI Asphalt Technologies, Inc.	DGR-032-02-01	TAS-112	June 06
PRI Asphalt Technologies, Inc.	DGR-033-02-02	TAS 101	July 06
PRI Asphalt Technologies, Inc.	DGR-033-02-03	TAS 102	July 06
Redland Technologies	7161-03 Appendix III	Static Uplift Testing TAS 102 & TAS 102(A)	Dec. 1991
Redland Technologies	7161-03 Appendix II	Wind Tunnel Testing TAS 108(Nail-On)	Dec. 1991
Redland Technologies	P0402	Withdrawal Resistance Testing of screw vs. smooth shank nails	Sept. 1993
Redland Technologies	Letter Dated Aug. 1, 1994	Wind Tunnel Testing TAS 108 (Nail-On)	Aug. 1994
Redland Technologies	P0631-01	Wind Tunnel Testing TAS 108 (Mortar Set)	July 1994
Nutting Engineers.	13343.1	Roof Tile Protocol Testing	August 2005
The Center for Applied Engineering, Inc.	25-7688-3	Static Uplift Testing	June 1996
	25-7688-10	TAS 101 (Adhesive Set) TAS 101 (Mortar Set)	July 1996



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The Center for Applied Engineering, Inc.	25-7688-5	Static Uplift Testing TAS 102 (3" Headlap, Nails, Direct Deck, New Construction)□	June 1996
The Center for Applied Engineering, Inc.	25-7688-4	Static Uplift Testing TAS 102 (4" Headlap, Nails, Clips)	June 1996
Celotex Corporation Testing Services	520111-3 520191-2-1	Static Uplift Testing TAS 101	Dec. 1998 March 1999
Walker Engineering, Inc. Walker Engineering, Inc.	Calculations Evaluation Calculations	Aerodynamic Multiplier Restoring Moment Due to Gravity	August 2006 August 2006

**3. LIMITATIONS**

- 3.1 Fire classification is not part of this acceptance.
- 3.2 For mortar or adhesive set tile applications, a static field uplift test shall be performed in accordance with TAS 106.
- 3.3 Applicant shall retain the services of a Miami-Dade County Certified Laboratory to perform quarterly test in accordance with TAS 112, appendix 'A'. Such testing shall be submitted to the Building Code Compliance Office for review.
- 3.4 Minimum underlayments shall be in compliance with the applicable Roofing Applications Standards listed section 4.1 herein.
- 3.5 30/90 hot mopped underlayment applications may be installed perpendicular to the roof slope unless stated otherwise by the underlayment material manufacturers published literature.
- 3.6 This acceptance is for wood deck applications. Minimum deck requirements shall be in compliance with the applicable Building Code.



#### 4. INSTALLATION

4.1 Highlander Concrete Roof Tile and its components shall be installed in strict compliance with Roofing Application Standard RAS 118, RAS 119, and RAS 120.

4.2 Data For Attachment Calculations

Table 1: Average Weight (W) and Dimensions (l x w)			
Tile Profile	Weight-W (lbf)	Length-l (ft)	Width-w (ft)
Highlander Concrete Roof Tile	11.5	1.375	1.08

Table 2: Aerodynamic Multipliers - $\lambda$ (ft <sup>3</sup> )		
Tile Profile	$\lambda$ (ft <sup>3</sup> ) Batten Application	$\lambda$ (ft <sup>3</sup> ) Direct Deck Application
Highlander Concrete Roof Tile	0.272	0.295

Table 3: Restoring Moments due to Gravity - $M_g$ (ft-lbf)										
Tile Profile	3":12"		4":12"		5":12"		6":12"		7":12" or Greater	
	Battens	Direct Deck	Battens	Direct Deck						
Highlander Concrete Roof Tile	6.37	7.79	6.27	7.66	6.13	7.49	5.97	7.30	5.80	7.09

Table 4: Attachment Resistance Expressed as a Moment - $M_f$ (ft-lbf) for Nail-On Systems				
Tile Profile	Fastener Type	Direct Deck (min 15/32" plywood)	Direct Deck (min. 19/32" plywood)	Battens
Highlander Concrete Roof Tile	2-10d Ring Shank Nails	28.6	41.2	19.4
	1-10d Smooth or Screw Shank Nail	5.1	6.8	2.8
	2-10d Smooth or Screw Shank Nails	6.9	9.2	7.3
	1 #8 Screw	20.7	20.7	18.1
	2 #8 Screws	43.2	33.0	29.8
	1-10d Smooth or Screw Shank Nail (Field Clip)	23.1	23.1	19.0
	1-10d Smooth or Screw Shank Nail (Eave Clip)	29.3	29.3	24.0
	2-10d Smooth or Screw Shank Nails (Field Clip)	27.6	27.6	38.6
	2-10d Smooth or Screw Shank Nails (Eave Clip)	38.1	38.1	41.8
	2-10d Ring Shank Nails <sup>1</sup>	33.1	48.1	45.2

<sup>1</sup> Installation with a 4" tile headlap and fasteners are located a min. of 2½" from head of tile.



<b>Table 6: Attachment Resistance Expressed as a Moment - <math>M_f</math> (ft-lbf) for Single Patty Adhesive Set Systems</b>		
<b>Tile Profile</b>	<b>Tile Application</b>	<b>Minimum Attachment Resistance</b>
Highlander Concrete Roof Tile	Polyfoam PolyPro™	66.5 <sup>1</sup>
	Polyfoam PolyPro™	38.7 <sup>2</sup>
<sup>1</sup> Large patty placement of 65 grams of PolyPro™AH-160. <sup>2</sup> Large patty placement of 24 grams of PolyPro™AH-160.		

<b>Table 7: Attachment Resistance Expressed as a Moment <math>M_f</math> (ft-lbf) for Two Patty Adhesive Set Systems</b>		
<b>Tile Profile</b>	<b>Tile Application</b>	<b>Minimum Attachment Resistance</b>
Highlander Concrete Roof Tile	Adhesive <sup>3</sup>	29.3 <sup>4</sup>
<sup>3</sup> See manufactures component approval for installation requirements. <sup>4</sup> Flexible Products Company TileBond Average weight per patty 10.7 grams. Polyfoam Product, Inc. Average weight per patty 8 grams.		

<b>Table 8: Attachment Resistance Expressed as a Moment - <math>M_f</math> (ft-lbf) for Mortar Set Systems</b>		
<b>Tile Profile</b>	<b>Tile Application</b>	<b>Attachment Resistance</b>
Highlander Concrete Roof Tile	Mortar Set <sup>5</sup>	24.5
<sup>5</sup> Tile-Tite Roof Tile Mortar.		



**5. LABELING**

**5.1** All tiles shall bear the imprint or identifiable marking of the manufacturer's name or logo as detailed below, or following statement: "Miami-Dade County Product Control Approved".

# HIGHLANDER

**LABEL FOR HIGHLANDER CONCRETE ROOF TILE.  
(LOCATED ON THE UNDERSIDE OF TILE)**

**6. BUILDING PERMIT REQUIREMENTS**

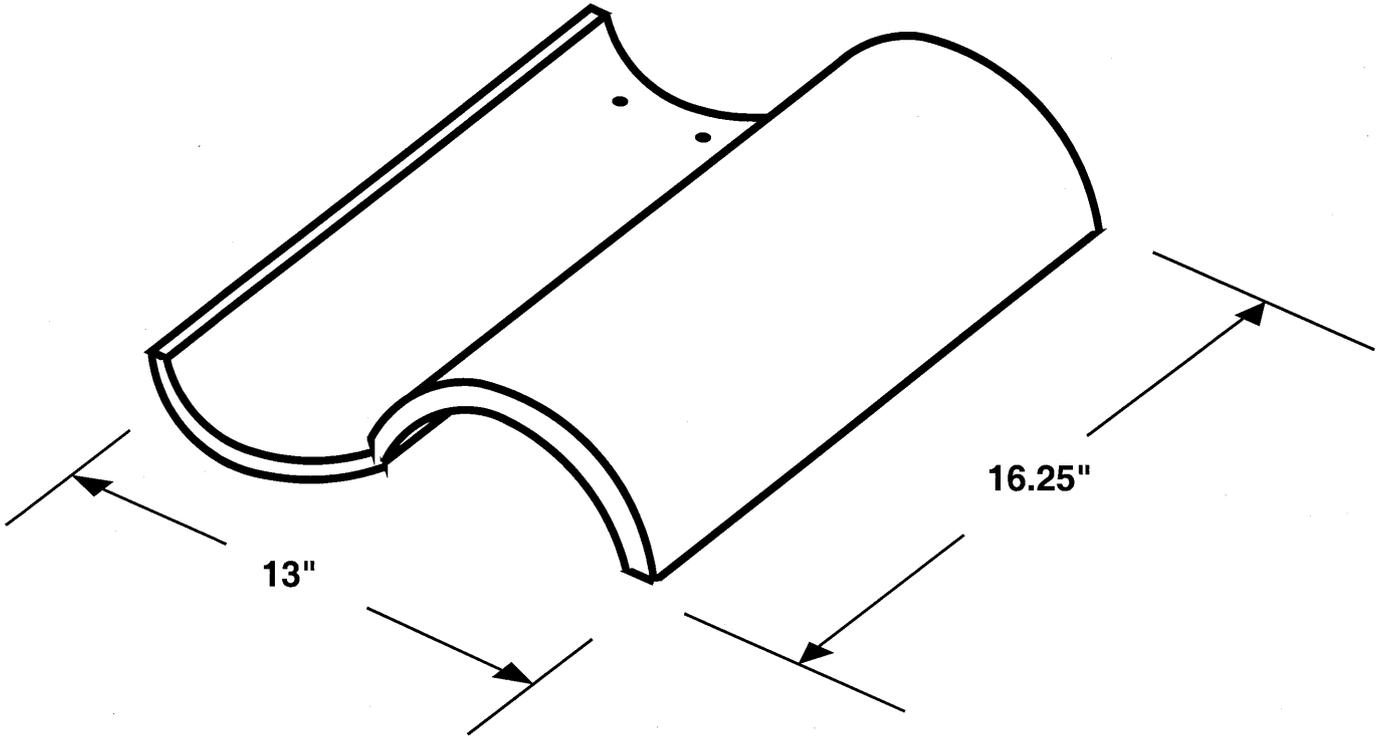
**6.1** Application for building permit shall be accompanied by copies of the following:

**6.1.1** This Notice of Acceptance.

**6.1.2** Any other documents required by the Building Official or applicable building code in order to properly evaluate the installation of this system.



**PROFILE DRAWING**



**HIGHLANDER CONCRETE ROOF TILE**

**END OF THIS ACCEPTANCE**



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