



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION
NOTICE OF ACCEPTANCE (NOA)

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION
11805 SW 26 Street, Room 208
Miami, Florida 33175-2474
T (786) 315-2590 F (786) 315-2599
www.miamidade.gov/economy

Boral Roofing, LLC
7575 Irvine Center Drive, Suite 100
Irvine, CA 92618

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER -Product Control Section 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 Section (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. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section 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: Estate "S" 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 revises NOA No. 19-1021.03 and consists of pages 1 through 9.
The submitted documentation was reviewed by *Freddy Semino*



NOA No. 21-0107.03
Expiration Date: 08/23/21
Approval Date: 03/04/21
Page 1 of 9

ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub Category: Roofing Tiles
Material: Concrete

1. SCOPE

This approves a roofing system using **Boral Estate “S” Concrete Roof Tile**, as manufactured by Boral Roofing, LLC in Okeechobee, FL as described in Section 2 of this Notice of Acceptance, designed to comply with the Florida Building Code for High Velocity Hurricane Zone. For use in locations where the pressure requirements, as determined by applicable Building Code, do not exceed the design pressure values obtain by calculations in compliance with RAS 127 using the values listed in section 4 herein. The attachment calculations shall be prepared as a moment based system.

2. PRODUCT DESCRIPTION

<u>Manufactured by Applicant</u>	<u>Dimensions</u>	<u>Test Specifications</u>	<u>Product Description</u>
Boral Estate ‘S’ Roof Tile	Length = 16-1/2" Width = 13"	TAS 112 Type 1b Class III	Low profile, interlocking, extruded concrete roof tile equipped with two nail hole and double roll ribs. For direct deck or battened nail-on, mortar or adhesive set applications.
Trim Pieces	l = varies w = varies varying thickness	TAS 112	Accessory trim, concrete roof pieces for use at hips, rakes, ridges and valley terminations. Manufactured for each tile profile.

2.1 MANUFACTURING LOCATION

1. Okeechobee, FL

2.2 PRODUCTS MANUFACTURED BY OTHERS

<u>Product Name</u>	<u>Product Description</u>	<u>Manufacturer (With Current NOA)</u>
ICP Adhesives Polysyet® AH-160	Two component polyurethane foam adhesive.	ICP Adhesives and Sealants, Inc.
TILE BOND™ Roof Tile Adhesive	Single component polyurethane foam roof tile adhesive.	DuPont de Nemours, Inc.
Touch ‘N Seal StormBond® 2 Two-Component Polyurethane Roof Tile Adhesive	Two component polyurethane foam adhesive.	DAP Foam, Inc.



2.3 EVIDENCE SUBMITTED:

<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Redland Technologies	7161-03	PA 102	Dec. 1991
	7161-03	PA 102(A)	Dec. 1991
	7161-03	PA 108	Dec. 1991
	P0402	Withdrawal Resistance Testing of screw vs. smooth shank nails	Sept. 1993
	P0631-01 Letter Dated Aug. 1, 1994	PA 108 PA 108	July 1994 Aug. 1994
Professional Service Industries, Inc.	224-47099	PA 112	Sept. 1994
The Center for Applied Engineering, Inc.	94-060B	PA 101	March, 1994
	94-084	PA 101	May 1994
	25-7094-1	PA 102	Oct. 1994
	25-7094-7	PA 102	Oct. 1994
	25-7094-4	PA 102	Oct. 1994
	Project No. 307025	PA 100	Oct. 1994
	Test #MDC-76		
	25-7183-1	PA 102	Feb. 1995
25-7183-2	PA 102	Feb. 1995	
25-7214-2	PA 102	March, 1995	
25-7214-6	PA 102	March, 1995	
Celotex Corporation Testing Services	528454-2-1	PA 101	Sep. 1998
	520109-2		Dec. 1998
Walker Engineering, Inc.	Calculations	Aerodynamic Multiplier	March 1999
IBA Consultants, Inc.	2381-264	TAS 112	01/08/08
American Test Lab of South Florida	RT1210.03-15	TAS 112	12/17/15
PRI Construction Material Technologies	DAPF-004-02-05	TAS 101	07/26/18
	DAPF-004-02-07	Static Uplift Resistance (Adhesive Set)	07/26/18
NEMO ETC, LLC	4c-DPBS-20-LSOTM-01.C.R1	TAS 101	12/17/20

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 in accordance with TAS 106 may required, refer to applicable building code.
- 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 Miami-Dade Product Control Section for review.
- 3.4 Minimum underlayment shall be in compliance with the applicable Roofing Applications Standards listed section 4.1 herein.
- 3.5 Minimum slope 4/12 for mechanically attached tile.



- 3.6 30/90 hot mopped underlayment applications may be installed perpendicular to the roof slope unless stated otherwise by the underlayment material manufacturers published literature.
- 3.7 This acceptance is for wood deck applications. Minimum deck requirements shall be in compliance with applicable building code.
- 3.7 All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 61G20-3 of the Florida Administrative Code.

4. INSTALLATION

- 4.1 Boral Estate “S” Concrete Roof Tile and its components shall be installed in strict compliance with Miami Dade County 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.)
Boral Estate 'S' Roof Tile	10.0	1.375	1.08

Table 2: Aerodynamic Multipliers - λ (ft ³)		
Tile Profile	λ (ft ³) Batten Application	λ (ft ³) Direct Deck Application
Boral Estate 'S' Roof Tile	0.267	0.289

Table 3: Restoring Moments due to Gravity - M_g (ft.-lbf)										
Tile Profile	3":12"		4":12"		5":12"		6":12"		Greater than 7":12"	
	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck	Battens	Direct Deck
Boral Estate 'S' Roof Tile	N/A	6.74	5.82	6.64	5.70	6.50	5.56	6.33	5.40	6.14

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
Boral Estate 'S' Roof Tile	2-10d Ring Shank Nails	27.8	37.4	28.8
	1-10d Smooth or Screw Shank Nail ²	8.8	11.8	4.1
	2-10d Smooth or Screw Shank Nails	16.4	21.9	7.1
	1 #8 Screw ²	25.8	25.8	22.9
	2 #8 Screw	47.1	47.1	49.1
	1-10d Smooth or Screw Shank Nail (Field Clip) ²	24.3	24.3	24.2
	1-10d Smooth or Screw Shank Nail (Eave Clip) ²	19.0	19.0	22.1
	2-10d Smooth or Screw Shank Nails (Field Clip)	35.5	35.5	34.8



	2-10d Smooth or Screw Shank Nails (Eave Clip)	31.9	31.9	32.2
	2-10d Ring Shank Nails ¹	43.0	67.5	50.9

- 1 Installation with a 4" tile headlap and fasteners are located a min. of 2½" from head of tile.
2 When using only one fastener use the hole that is approximately 4-3/4" away from interlocking edge.

Table 5: Attachment Resistance Expressed as a Moment M_f (ft.-lbf) for Two Patty Adhesive Set Systems

Tile Profile	Tile Application	Minimum Attachment Resistance
Boral Estate 'S' Roof Tile	Adhesive ³	
3 See manufactures component approval for installation requirements.		
4 Dupont de Nemours, Inc, TILE BOND™ Roof Tile Adhesive weight per patty 8 grams. * SEE NOTE* 2a		35
5 ICP Adhesives and Sealants, Inc, ICP Adhesve Polyset® AH-160 two-component foam weight per patty 8 grams		26.1
6 DAP Foam, Inc. Touch 'N Seal StormBond® 2 Two-Component Polyurethane Roof Tile Adhesive two-component foam weight per paddy 8 grams.		35
7 Dupont de Nemours, TILE BOND™ Roof Tile Adhesive weight per patty 16 grams. * SEE NOTE* 2b		67

NOTE
SEE 2A- page 8 of 9 for details/data.
SEE 2b- page 9 of 9 for details/data.

Table 6: Attachment Resistance Expressed as a Moment - M_f (ft.-lbf) for Single Patty Adhesive Set Systems

Tile Profile	Tile Application	Minimum Attachment Resistance
Boral Estate 'S' Roof Tile	Adhesive ⁷	
8 See manufactures component approval for installation requirements.		
9 ICP Adhesives and Sealants, Inc, ICP Adhesve Polyset® AH-160 two-component foam weight per patty 54 grams.		86.6
10 ICP Adhesives and Sealants, Inc, ICP Adhesve Polyset® AH-160 two-component foam weight per patty 24 grams		45.5
11 DAP Foam, Inc.Touch 'N Seal StormBond® 2 Two-Component Polyurethane Roof Tile Adhesive two-component foam weight per paddy 60 grams.		60

Table 7: Attachment Resistance Expressed as a Moment - M_f (ft.-lbf) for Mortar or Adhesive Set Systems

Tile Profile	Tile Application	Minimum Attachment Resistance
Boral Estate 'S' Roof Tile	Mortar Set	20.6

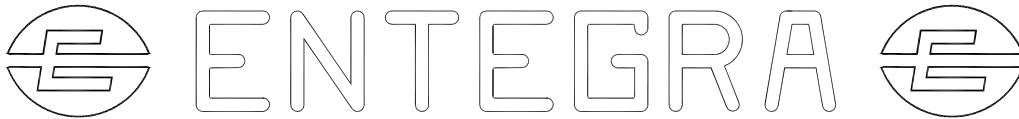


5. LABELING

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



OR



BORAL ESTATE "S" TILE LABEL (LOCATED ON UNDERSIDE OF TILE)

6. BUILDING PERMIT REQUIREMENTS:

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

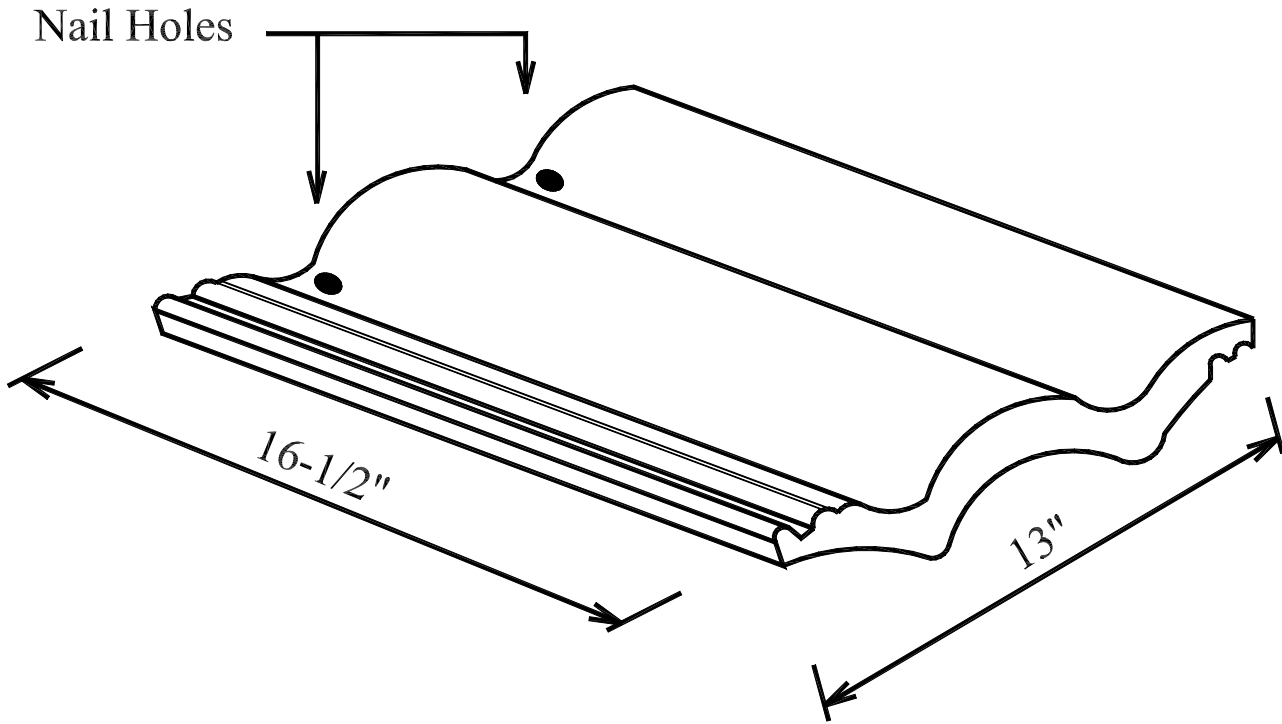
6.1.1 This Notice of Acceptance.

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




NOA No. 21-0107.03
Expiration Date: 08/23/21
Approval Date: 03/04/21
Page 6 of 9

PROFILE DRAWING



BORAL ESTATE "S" CONCRETE ROOF TILE



Set No.: 2a	Photograph
Attachment: Interdependent: Two (2) beads/paddys, minimum 1" x 1" x 8" minimum contact area of 16 in ² each	



SET 2A

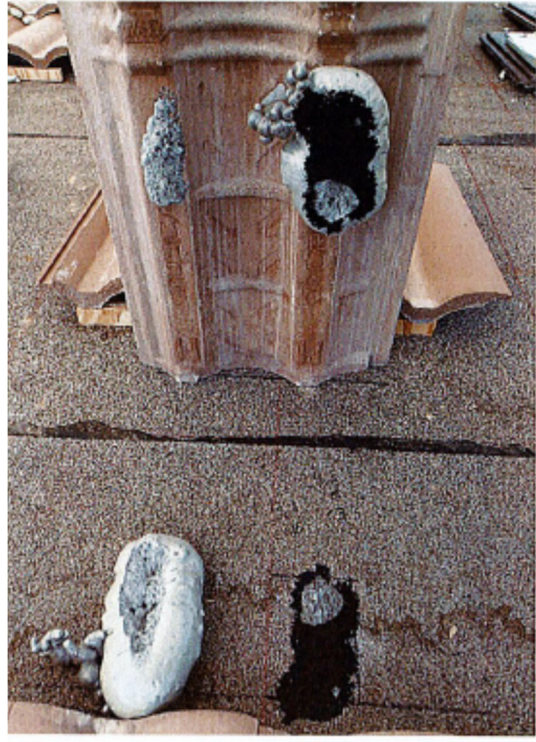
Type	Paddy		Minimum Characteristic Resistance Force, lbf	Attachment Resistance Expressed as a Moment, ft-lbf
	Placement	Min. Tile Contact Area, in ² per Tile		
Interdependent	Attachment: Two (2) beads/paddys, minimum 1-in. x 1-in. x 8-in. Adhesive Rates: 8 gram/paddy	32	33	35

BORAL ESTATE "S" CONCRETE ROOF TILE



Set No.: 2b	Photograph
-------------	------------

Attachment: Independent: Two (2) beads/paddys, minimum 2" x 2" x 4", starting 1' back from head of underlying tile, minimum contact area of 8 in² each



SET 2B

Type	Paddy		Minimum Characteristic Resistance Force, lbf	Attachment Resistance Expressed as a Moment, ft-lbf
	Placement	Min. Tile Contact Area, in ² per Tile		
Independent	Attachment: Two (2) beads/paddys, minimum 2-in. x 2-in. x 4-in., starting 1" back from head of underlying tile Adhesive Rates: 16 gram/paddy	16	61	67

BORAL ESTATE "S" CONCRETE ROOF TILE

END OF THIS ACCEPTANCE

