



DEPARTMENT OF PERMITTING, ENVIRONMENT, AND REGULATORY AFFAIRS (PERA)
BOARD AND CODE ADMINISTRATION DIVISION

MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION

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www.miamidade.gov/pera

NOTICE OF ACCEPTANCE (NOA)

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 PERA - 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. PERA 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: Villa 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 revises NOA# 11-0714.02 and consists of pages 1 through 7.
The submitted documentation was reviewed by Alex Tigera.



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Expiration Date: 11/02/16
Approval Date: 06/21/12
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ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub Category: Roofing Tiles
Material: Concrete

1. SCOPE

This renews a system using Villa Concrete Roof Tile, as manufactured by Boral Roofing, LLC in Katy, TX. and 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> |
|----------------------------------|---|----------------------------|--|
| Villa Tile | l = 16½" w = 13" ½" thick | TAS 112 | Low profile, interlocking, high pressure extruded concrete roof tile equipped with one 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. |

2.1 MANUFACTURING LOCATION

2.1.1. Katy, TX

2.2 EVIDENCE SUBMITTED

| <u>Test Agency</u> | <u>Test Identifier</u> | <u>Test Name/Report</u> | <u>Date</u> |
|---|---------------------------|---|-------------|
| Nutting Engineers | 13343.1 | TAS 112 | 06/15/06 |
| Redland Technologies | 7161-03 | Static Uplift Testing | Dec. 1991 |
| Redland Technologies | Appendix III 7161-03 | TAS 102 & TAS 102(A) Wind Tunnel Testing | Dec. 1991 |
| Redland Technologies | Appendix II P0402 | TAS 108 (Nail-On) Withdrawal Resistance Testing of screw vs. smooth shank nails | Sept. 1993 |
| The Center for Applied Engineering, Inc. | 94-060B | Static Uplift Testing | March, 1994 |
| The Center for Applied Engineering, Inc. | 94-084 | TAS 101 (Adhesive Set) Static Uplift Testing | May 1994 |
| Redland Technologies | P0631-01 | TAS 101 (Mortar Set) Wind Tunnel Testing | July 1994 |
| Redland Technologies | Letter Dated Aug. 1, 1994 | TAS 108 (Mortar Set) Wind Tunnel Testing TAS 108 (Nail-On) | Aug. 1994 |



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2.2 EVIDENCE SUBMITTED

| <u>Test Agency</u> | <u>Test Identifier</u> | <u>Test Name/Report</u> | <u>Date</u> |
|--|------------------------------------|--|---------------|
| Professional Service Industries, Inc. | 224-47099 | Physical Properties TAS 112 | Sept. 1994 |
| The Center for Applied Engineering, Inc. | 25-7094-1 | Static Uplift Testing TAS 102 (4" Headlap, Nails, Direct Deck, New Construction) | Oct. 1994 |
| The Center for Applied Engineering, Inc. | 25-7094-7 | Static Uplift Testing TAS 102 (4" Headlap, Nails, Battens) | Oct. 1994 |
| The Center for Applied Engineering, Inc. | 25-7094-4 | Static Uplift Testing TAS 102 (4" Headlap, Nails, Direct Deck, Recover/Reroof) | Oct. 1994 |
| The Center for Applied Engineering, Inc. | Project No. 307025 Test #MDC-76 | Wind Driven Rain TAS 100 | Feb. 1995 |
| The Center for Applied Engineering, Inc. | 25-7183-1 | Static Uplift Testing TAS 102 (2 Quik-Drive Screws, Direct Deck) | Feb. 1995 |
| The Center for Applied Engineering, Inc. | 25-7183-2 | Static Uplift Testing TAS 102 (2 Quik-Drive Screws, Battens) | March, 1995 |
| The Center for Applied Engineering, Inc. | 25-7214-2 25-7214-6 | Static Uplift Testing TAS 102 (1 Quik-Drive Screw, Direct Deck) (1 Quik-Drive Screw, Battens) | Sep. 1998 |
| Celotex Corporation | 528454-2-1 | Static Uplift Testing | Dec. 1998 |
| Testing Services | 520109-2 | TAS 101 | March 1999 |
| Walker Engineering, Inc. | Calculations | Aerodynamic Multiplier | March 1995 |
| Walker Engineering, Inc. | Evaluation Calculations | 25-7183 | February 1996 |
| Walker Engineering, Inc. | Evaluation Calculations | 25-7094 | April 1996 |
| Walker Engineering, Inc. | Evaluation Calculations | 25-7496 | December 1996 |
| Walker Engineering, Inc. | Evaluation Calculations | 25-7584 | |
| | | 25-7804b-8 | |
| | | 25-7804-4 & 5 | |
| | | 25-7848-6 | |
| Walker Engineering, Inc. | Evaluation Calculations | Aerodynamic Multipliers | April 1999 |
| Walker Engineering, Inc. | Evaluation Calculations | Two Patty Adhesive Set System | April 1999 |



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 underlayment 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 applicable building code.

4. INSTALLATION

- 4.1 Villa 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) |
| Villa Tile | 10.4 | 1.375 | 1.08 |

| Table 2: Aerodynamic Multipliers - λ (ft ³) | | |
|---|--|---|
| Tile Profile | λ (ft ³) Batten Application | λ (ft ³) Direct Deck Application |
| Villa 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" | | 7":12" or greater | |
| | Battens | Direct Deck | Battens | Direct Deck | Battens | Direct Deck | Battens | Direct Deck | Battens | Direct Deck |
| Villa Tile | 5.57 | 6.30 | 5.48 | 6.18 | 5.37 | 6.05 | 5.24 | 5.90 | 5.09 | 5.73 |



**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 |
|--------------|---|-------------------------------------|--------------------------------------|---------|
| Villa Tile | 2-10d Ring Shank Nails | 27.8 | 37.4 | 28.8 |
| | 1-10d Smooth or Screw Shank Nail | 8.8 | 11.8 | 4.1 |
| | 2-10d Smooth or Screw Shank Nails | 16.4 | 21.9 | 7.1 |
| | 1 #8 Screw | 25.8 | 25.8 | 22.9 |
| | 2 #8 Screw | 47.1 | 47.1 | 49.1 |
| | 1-10d Smooth or Screw Shank Nail (Field Clip) | 24.3 | 24.3 | 24.2 |
| | 1-10d Smooth or Screw Shank Nail (Eave Clip) | 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.

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

| Tile Profile | Tile Application | Minimum Attachment Resistance |
|--------------|-----------------------|----------------------------------|
| Villa Tile | Adhesive ² | 26.1 ³ |

² See manufactures component approval for installation requirements.

³ Flexible Products Company TileBond Average weight per patty 11.4 grams.

3M™ 2-Component Foam Roof Tile Adhesive AH-160 Average weight per patty 8 grams.

**Table 7: Attachment Resistance Expressed as a Moment - M_f (ft-lbf)
for Single Patty Adhesive Set Systems**

| Tile Profile | Tile Application | Minimum Attachment Resistance |
|--------------|--|----------------------------------|
| Villa Tile | 3M™ 2-Component Foam Roof Tile Adhesive AH-160 | 86.61 ⁴ |
| | 3M™ 2-Component Foam Roof Tile Adhesive AH-160 | 45.5 ⁵ |

⁴ Large paddy placement of 54grams

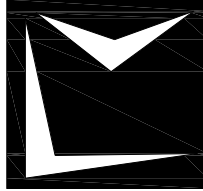
⁵ Medium paddy placement of 24grams



| Table 8: Attachment Resistance Expressed as a Moment - M_f (ft-lbf) for Mortar Set Systems | | |
|--|-------------------------|------------------------------|
| Tile Profile | Tile Application | Attachment Resistance |
| Villa Tile | Mortar Set ¹ | 20.60 |

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".



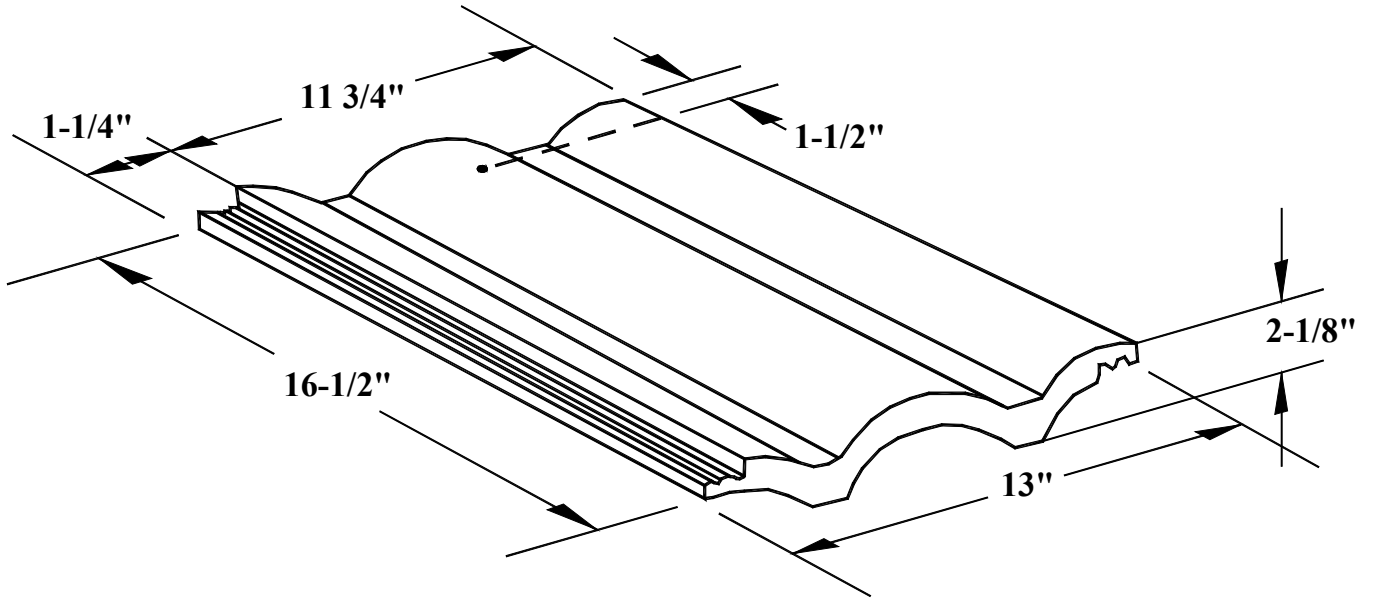
**BORAL ROOFING LLC, VILLA TILE (KATY, TX)
LOCATED UNDERNEATH TILE**

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.



PROFILE DRAWING



VILLA CONCRETE ROOF TILE

END OF THIS ACCEPTANCE



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