



**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)

**Ludowici Roof Tile, Inc.
4757 Tile Plant Road
New Lexington, OH 43764**

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 Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: Americana, Classic, Williamsburg, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab' Clay 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 renews NOA 02-1211.01 and consists of pages 1 through 10.
The submitted documentation was reviewed by Alex Tigera.



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ROOFING ASSEMBLY APPROVAL

Category: Roofing
Sub-Category: Flat Profile Roofing Tiles
Material: Clay

1. SCOPE

This renews a roofing system using Ludowici ‘Americana, Classic, Williamsburg, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab’ Clay Roof Tile, as manufactured Ludowici Roof Tile, Inc. 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>
Ludowici Americana, Classic Williamsburg, and Lanai Roof Tile		ASTM C 1167	Flat, interlocking, vitrified clay roof tile equipped with two nail holes. For direct deck or battened, nail-on, mortar set or adhesive set applications.
Ludowici Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique Crude and Flat Slab Roof Tile		ASTM C 1167	Flat, vitrified clay roof tile equipped with two nail holes. For direct deck or battened, nail-on, mortar set or adhesive set applications.
Trim Pieces	l = varies w = varies varying thickness	ASTM C 1167	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>
IBA Consultants, Inc.	2376-285	ASTM C 1167 Physical Properties	Sept 2007
Redland Technologies	7161-03	Static Uplift Testing	Dec. 1991
The Center for Applied Engineering, Inc.	Appendix III	PA 102 & PA 102(A)	
	94-060B	Static Uplift Testing	March, 1994
Redland Technologies	94-084	PA 101 (Adhesive Set) (Mortar Set)	May 1994
	7161-03	Wind Tunnel Testing	Dec. 1991
Redland Technologies	Appendix II	PA 108 (Nail-On)	
	Letter Dated Aug. 1, 1994	Wind Tunnel Testing	Aug. 1994
		PA 108 (Nail-On)	



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<u>Test Agency</u>	<u>Test Identifier</u>	<u>Test Name/Report</u>	<u>Date</u>
Redland Technologies	P0631-01	Wind Tunnel Testing PA 108 (Mortar Set)	July 1994
Redland Technologies	P0402	Withdrawal Resistance Testing of screw vs. smooth shank nails	Sept. 1993
The Center for Applied Engineering, Inc.	Project No. 307025 Test #MDC-76	Wind Driven Rain PA 100	Oct. 1994
Walker Engineering, Inc.	Calculations	Aerodynamic Multiplier	March 1999 April 1999
Walker Engineering, Inc.	Calculations	25-7183 25-7094 25-7496	March 1995 February 1996 April 1996
Walker Engineering, Inc.	Calculations	25-7584 25-7804b-8 25-7804-4 & 5 25-7848-6	December 1996
Walker Engineering, Inc.	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 RAS 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 Ludowici 'Americana, Classic, Williamsburg, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab' Clay 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)
Americana, Classic, Williamsburg and Lanai Roof Tile	5.06	1.17	0.75
Norman, Calais and Provincial Roof Tile	5.05	1.25	0.583
Georgian Roof Tile	2.58	1.25	0.667
Colonial Roof Tile	5.65	1.22	0.615
Brittany Roof Tile	4.51	1	0.583
Antique Roof Tile	4.0	1	0.583
Crude Roof Tile	4.03	1	0.5
Flat Slab Roof Tile	3.71	1	0.5

Table 2: Aerodynamic Multipliers - λ (ft³)		
Tile Profile	λ (ft³) Batten Application	λ (ft³) Direct Deck Application
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	0.187	0.203

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						
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	2.61	3.05	2.57	3.00	2.52	2.94	2.46	2.87	2.39	N/A



Table 4: Attachment Resistance Expressed as a Moment - M_r (ft-lbf) for Nail-On Systems				
Tile Profile	Fastener Type	Direct Deck (min 15/32" plywood)	Direct Deck (min. 19/32" plywood)	Battens
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	2-10d Ring Shank Nails	30.9	38.1	17.2
	1-10d Smooth or Screw Shank Nail	7.3	9.8	4.9
	2-10d Smooth or Screw Shank Nails	14.0	18.8	7.4
	1 #8 Screw	30.8	30.8	18.2
	2 #8 Screw	51.7	51.7	24.4
	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	50.3	65.5	48.3
	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_r (ft-lbf) for Two Patty Adhesive Set Systems		
Tile Profile	Tile Application	Minimum Attachment Resistance
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	Adhesive	31.3 ³
² See manufactures component approval for installation requirements.		
³ Flexible Products Company TileBond Average weight per patty 13.9 grams. Polyfoam Product, Inc. Average weight per patty 8 grams.		



Table 7: Attachment Resistance Expressed as a Moment - M_r (ft-lbf) for Single Patty Adhesive Set Systems		
Tile Profile	Tile Application	Minimum Attachment Resistance
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	PolyPro™	118.9 ⁴
	PolyPro™	40.4 ⁵
4 Large paddy placement of 45 grams of PolyPro™.		
5 Medium paddy placement of 24 grams of PolyPro™.		

Table 8: Attachment Resistance Expressed as a Moment - M_r (ft-lbf) for Mortar Set Systems		
Tile Profile	Tile Application	Attachment Resistance
Americana, Classic, Williamsburg, Lanai, Norman, Calais, Provincial, Georgian, Colonial, Brittany, Antique, Crude and Flat Slab Roof Tile	Mortar Set	39.00

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".

LUDOWICI ASTM C1167 GRADE I

**IDENTIFICATION MARK FOR AMERICANA, CLASSIC, WILLIAMSBURG, NORMAN, CALAIS, PROVINCIAL, GEORGIAN, COLONIAL, BRITTANY, ANTIQUE, CRUDE AND FLAT SLAB' CLAY ROOF TILES
(LOCATED UNDERNEATH TILE)**

6. BUILDING PERMIT REQUIREMENTS

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

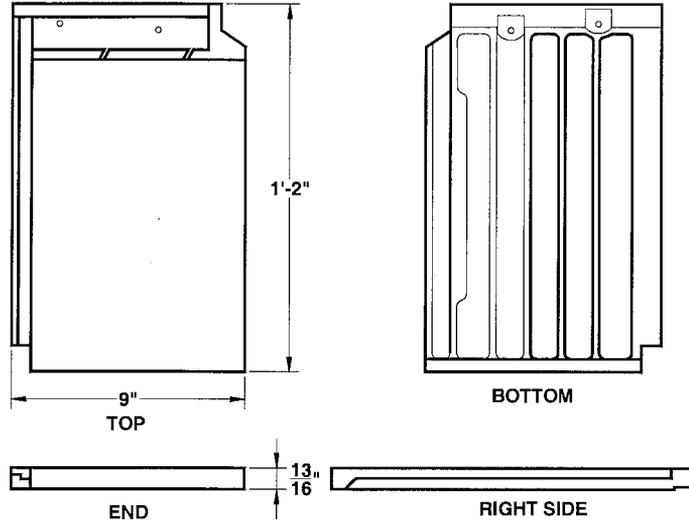
- 6.1.1 This Notice of Acceptance.
- 6.1.2 Any other documents required by the Building Official or applicable building code in order to properly evaluate the installation of this system.



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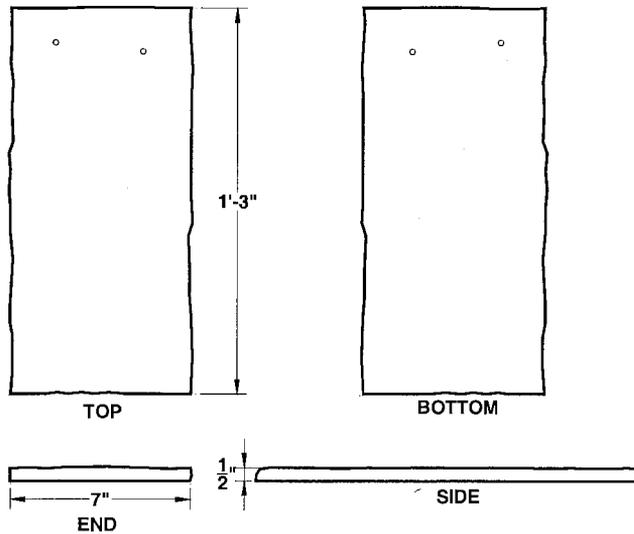
PROFILE DRAWING

INTERLOCKING SHINGLE
(CLASSIC, AMERICANA, WILLIAMSBURG AND LANAI)



AMERICANA, CLASSIC, WILLIAMSBURG, AND LANAI CLAY ROOF TILES

NORMAN AND CALAIS

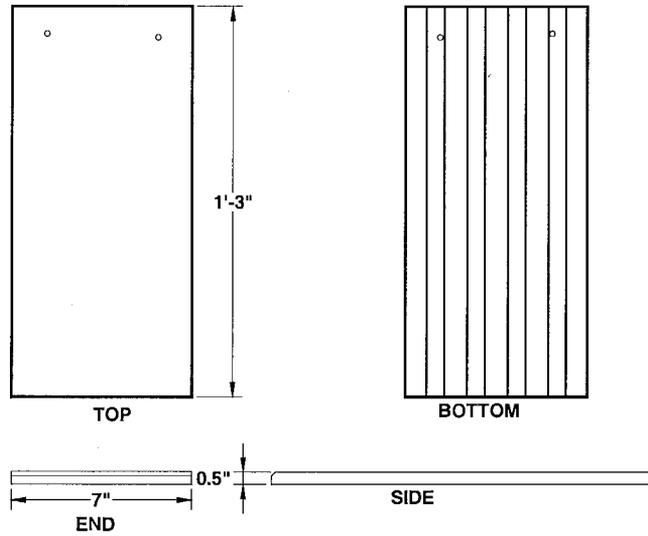


NORMAN AND CALAIS CLAY ROOF TILE



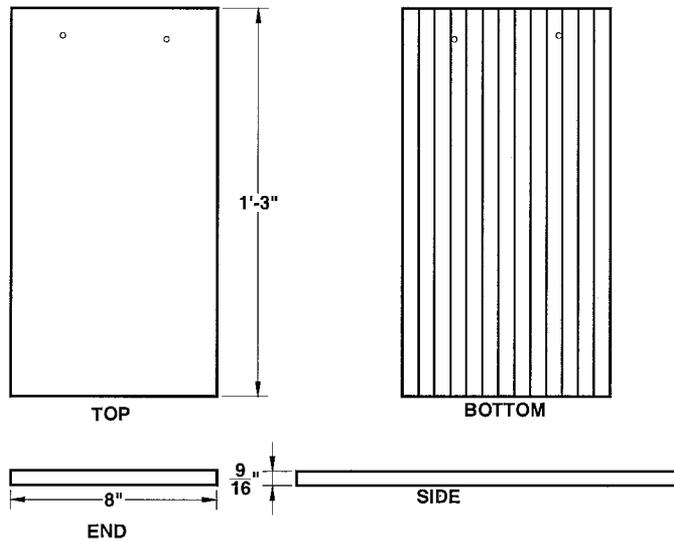
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PROVINCIAL



PROVINCIAL CLAY ROOF TILE

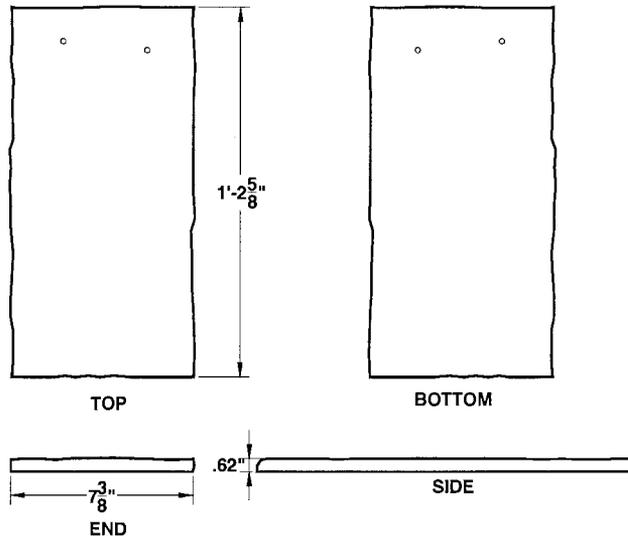
GEORGIAN



GEORGIAN CLAY ROOF TILE

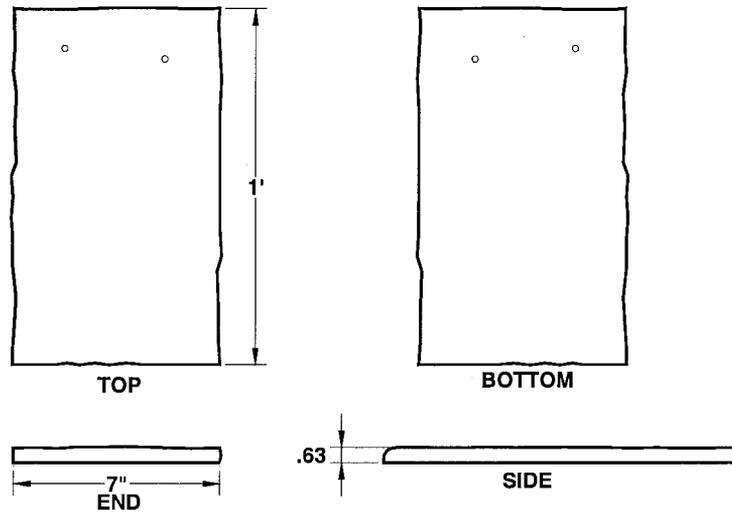


COLONIAL



COLONIAL CLAY ROOF TILE

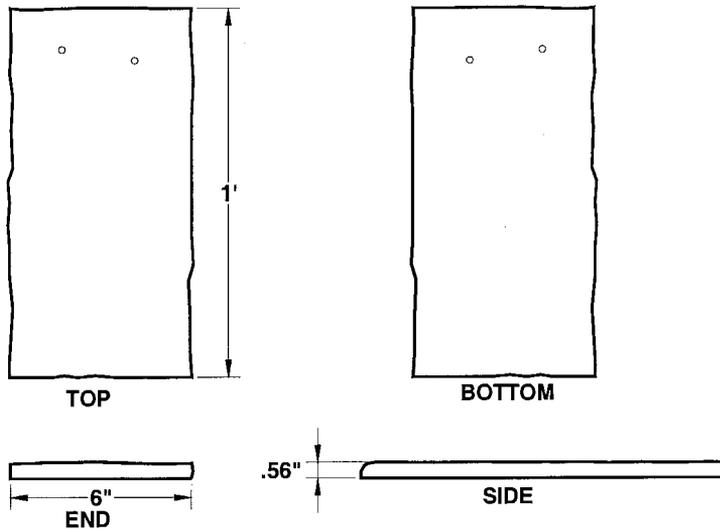
BRITTANY OR ANTIQUE



BRITTANY AND ANTIQUE CLAY ROOF TILES

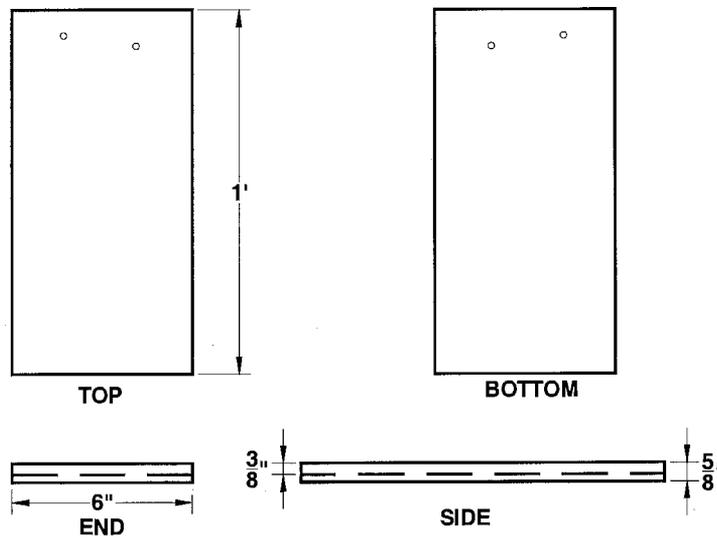


CRUDE



CRUDE CLAY ROOF TILE

FLAT SLAB



FLAT SLAB CLAY ROOF TILE

END OF THIS ACCEPTANCE

