

**Evaluation Report**  
**“Perennial Porcelain Roofing Tile”**  
**Tile Roof Assembly**

**Manufacturer:**

**Dal-Tile Corporation**  
7834 C.F. Hawn Freeway  
Dallas, TX 75217  
(800) 933-TILE

*for*

**Florida Product Approval**

**# FL 29479.1**

**Florida Building Code 6th Edition (2017)**

**Method: 2 - B**

**Category: Roofing**

**Sub - Category: Roofing Tiles**

**Product:** Perennial Porcelain Roofing Tile  
**Material:** Glazed Porcelain  
**Support:** Wood Deck

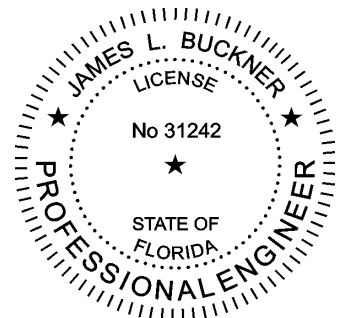
Facsimile of digital copy signed by  
James L. Buckner, P.E.  
Electronically signed and sealed documents shall  
comply with the provisions of FAC Rule 61G15-23.

**Prepared by:**

James L. Buckner, P.E., S.E.C.B.  
Florida Professional Engineer # 31242  
Florida Evaluation ANE ID: 1916  
Report No. 19-104-Tile-ER  
Date: 05 / 6 / 19

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A handwritten signature in blue ink, appearing to read "James L. Buckner".

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<b>Manufacturer:</b>	<b>Dal-Tile Corporation</b> 7834 C.F. Hawn Freeway Dallas, TX 75217 (800) 933-TILE <a href="http://www.daltile.com/roofing">http://www.daltile.com/roofing</a>
<b>Product Name:</b>	<b>“Perennial Porcelain Roof Tile”</b>
<b>Product Category:</b>	Roofing
<b>Product Sub-Category</b>	Roofing Tile
<b>Compliance Method:</b>	State Product Approval Rule 61G20-3.005 (2) (b)
<b>Product/ System Description:</b>	Low profile Porcelain Roofing Tile, mechanically attached to wood support Decks with roofing nails
<b>Evaluated Support:</b>	<b>Type:</b> Wood Deck (Design of support and its attachment to roof framing is outside the scope of this evaluation.)  <b>Description:</b> <ul style="list-style-type: none"> <li>• 15/32” (min.) or greater plywood,</li> <li>• or Wood plank (min. specific gravity of 0.42)</li> </ul>
<b>Slope:</b>	Minimum slope shall be in compliance with FBC Chapter 15 Section 1507.3.2, applicable code sections and in accordance with manufacturer’s recommendations.
<b>Performance:</b>	Refer to Engineering properties on page 4 of this report for further detailed info.
<b>Performance Standards:</b>	The following test protocol was performed to demonstrate compliance with the intent of the code: <ul style="list-style-type: none"> <li>• SSTD 11-99, Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles</li> </ul>
<b>Standards Equivalency:</b>	<ul style="list-style-type: none"> <li>• The SSTD 11-99 standard version used to test the evaluated product assembly is equivalent to SSTD 11-97 standard version adopted by the Florida Building Code 6th Edition (2017).</li> </ul>

<p><b>Code Compliance:</b></p>	<p>The product assembly described herein has demonstrated compliance with the Florida Building Code 6th Edition (2017), Section 1708.2.</p>
<p><b>Evaluation Report Scope:</b></p>	<p>This product evaluation is limited to compliance with the structural requirements of the Florida Building Code, as related to the scope section to Florida Product Approval Rule 61G20-3.001.</p>
<p><b>Limitations and Conditions of Use:</b></p>	<ul style="list-style-type: none"> <li>• <u>Scope of “Limitations and Conditions of Use” for this evaluation:</u> This evaluation report for “Optional Statewide Approval” contains technical documentation, specifications and installation method(s) which include “Limitations and Conditions of Use” throughout the report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under “Optional Statewide Approval”.</li> <li>• <u>Option for application outside “Limitations and Conditions of Use”</u> Rule 61G20-3.005(1)(e) allows engineering analysis for “project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code”. Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.</li> <li>• This report is a building code product evaluation per FLPE rule (FAC) 61G15-36 to comply with Florida product approval rule (FAC) 61G20-3. This evaluation report is part of the Florida Building Commission approval for the listed code related criteria. This report by James Buckner, P.E. and CBUCK Engineering is not a design certification of code compliance construction submittal documentation, per FBC section 107, for any individual structure, site specific or permit design.</li> <li>• All metal components and fasteners shall be corrosion resistant in accordance with applicable sections of FBC.</li> <li>• Design of support system is outside the scope of this report. Support shall be designed by others and shall comply with Chapter 16 for structural loading.</li> <li>• Fire Classification is outside the scope of Rule 61G20-3 and is therefore not included in this evaluation.</li> <li>• This evaluation report does not evaluate the use of this product for use in the High Velocity Hurricane Zone (HVHZ) code section. (Dade &amp; Broward Counties)</li> </ul>
<p><b>Quality Assurance:</b></p>	<p>The manufacturer has demonstrated compliance of wall panel products in accordance with the Florida Building Code and Rule 61G20-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through <b>Intertek Testing Services NA, Inc. – QA Entity (FBC Organization #: QUA 1673)</b>.</p>

<b>Components/Materials:</b>	<b>Roof Tile:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Product Name:</td> <td>Perennial Porcelain Roof Tile</td> </tr> <tr> <td>251Material:</td> <td>Composite (made of clay, sand &amp; feldspar)</td> </tr> <tr> <td>Nominal Dimensions:</td> <td>11-1/4" (Long) × 22-1/2" (Wide)</td> </tr> <tr> <td>Nominal Thickness:</td> <td>5/16" (8 – 9 mm)</td> </tr> </table>		Product Name:	Perennial Porcelain Roof Tile	251Material:	Composite (made of clay, sand & feldspar)	Nominal Dimensions:	11-1/4" (Long) × 22-1/2" (Wide)	Nominal Thickness:	5/16" (8 – 9 mm)		
Product Name:	Perennial Porcelain Roof Tile											
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Nominal Thickness:	5/16" (8 – 9 mm)											
	<b>Hip/Ridge Tile</b> Hip/Ridge Tile comprises of two separate halves held together by a plastic mesh backing. Each half of the tile is a trapezoid shape mechanically attached two screws at pre-punched holes.											
	<b>Roof Tile Fasteners:</b> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Type:</td> <td>Annular Ring Shank Roofing Nails</td> </tr> <tr> <td>Size:</td> <td>8d (× length to meet min. penetration through deck)</td> </tr> <tr> <td>Penetration Through:</td> <td>3/4" min. through wood deck</td> </tr> <tr> <td>Corrosion Resistance:</td> <td>Per FBC Section 1506.5</td> </tr> <tr> <td>Standard:</td> <td>Per ASTM F1667</td> </tr> </table>		Type:	Annular Ring Shank Roofing Nails	Size:	8d (× length to meet min. penetration through deck)	Penetration Through:	3/4" min. through wood deck	Corrosion Resistance:	Per FBC Section 1506.5	Standard:	Per ASTM F1667
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Corrosion Resistance:	Per FBC Section 1506.6 and 1507.4.4											
Standard:	Per ANSI/ASME B18.6.4											
<b>Underlayment:</b>	underlayment shall be per FBC, Section 1507.3.3.											
<b>Installation:</b>	Attached Install the "Perennial Porcelain Roofing Tile" assembly in compliance with the installation method listed in this report and applicable code sections of FBC 6th Edition (2017). The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer's installation instructions as a supplemental guide for attachment.											
<b>Referenced Data:</b>	<ol style="list-style-type: none"> <li>1. SSTD 11-99 – Overturning Resistance                      Performed by: Intertek Building &amp; Construction                      FBC Organization Intertek-Plano (ATI) #TST ID:1910                      Report #: i1644.01-801-44-R0, Report Date: 4/17/19                      Report #: j4515.01-801-44-R0 Report Date: 4/18/19</li> <li>2. Quality Assurance                      Intertek Testing Services NA Inc. (FBC Organization #: QUA 1673).</li> <li>4. Equivalency of Test Standard Certification                      By James L. Buckner, P.E. @ CBUCK Engineering                      (FBC Organization # ANE 1916)</li> <li>3. Certification of Independence                      By James L. Buckner, P.E. @ CBUCK Engineering                      (FBC Organization # ANE 1916)</li> </ol>											

## Dal-Tile Corporation

### Perennial Porcelain Roof Tile Mechanically Attached to Plywood Deck

#### ENGINEERING PROPERTIES

TABLE 1 : Average Weight (W) and Dimensions (l x w) From Test			
Tile Profile	Weight-W (lbf)	Length-l (in.)	Width-w (in.)
Perennial	7.85	11.25	22.5

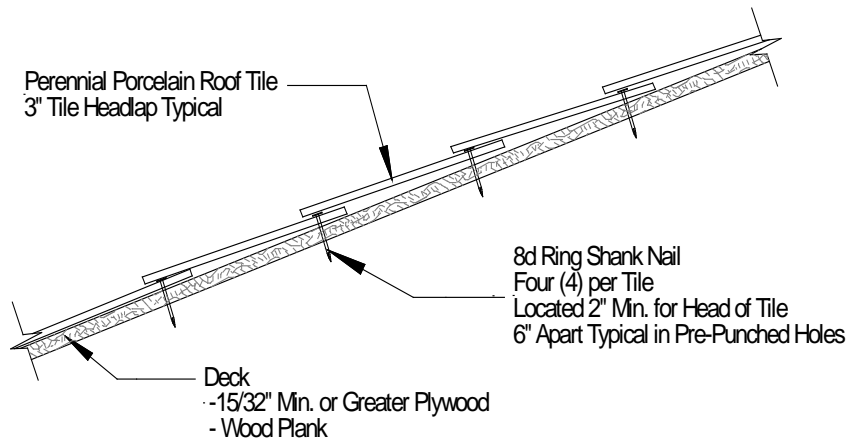
TABLE 2: Aerodynamic Multiplier – $\lambda$ (ft <sup>3</sup> )	
Tile Profile	$\lambda$ (ft <sup>3</sup> ) Direct Deck Application
Perennial	0.377

TABLE 3 : Restoring Moments due to Gravity - $M_g$ (ft-lbf)				
Tile Profile	4" : 12"	5" : 12"	6" : 12"	7" : 12" or greater
Perennial	Direct Deck	Direct Deck	Direct Deck	Direct Deck
	3.561	3.475	3.378	3.272

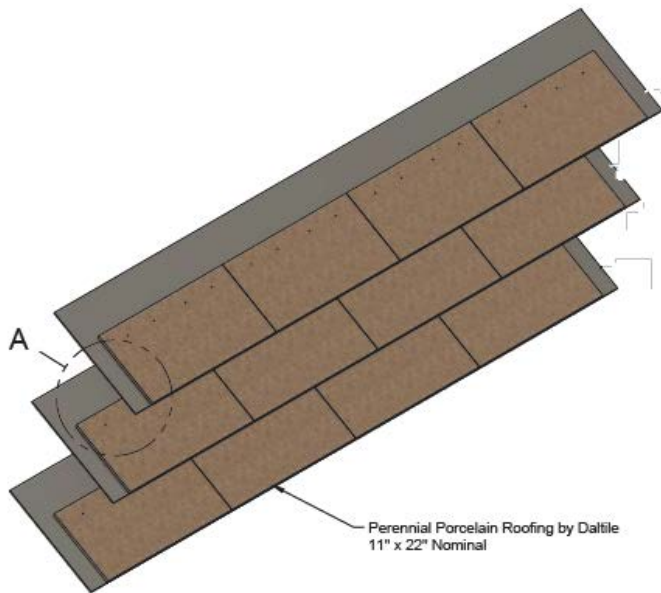
TABLE 4: Attachment Resistance Expressed as a Moment – $M_f$ (ft-lbf) For Nail-On Systems		
Tile Profile	Fastener Type	Direct Deck (min. 15/32" Plywood)
Perennial	4 – 8d Ring Shank Nails 6" apart	12.98

Installation with 3" tile headlap and fasteners are located a minimum of 2" from head of tile

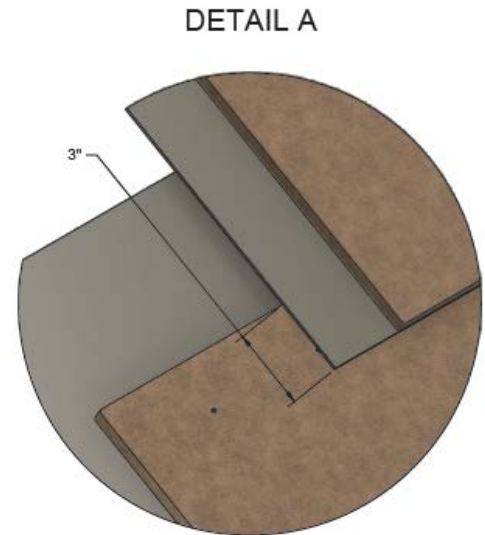
**Installation Method**  
**Dal-Tile Corporation**  
**Perennial Porcelain Roof Tile Mechanically Attached to Plywood Deck**



**Typical Assembly Section View**  
**(Not to Scale)**

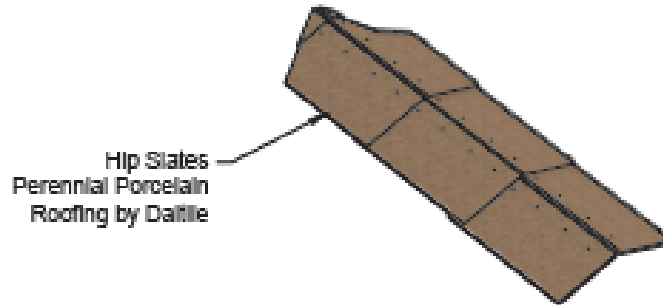


**Typical Assembly Layout**  
**(Not to Scale)**



**Installation Method**

**Dal-Tile Corporation**  
**Perennial Porcelain Roof Tile Mechanically Attached to Plywood Deck**



**Typical Hip/Ridge Detail**  
**(Not to Scale)**

Note: Hip & Ridge Tiles

Attach 2 part Tiles at Hip/Ridge Tiles  
with FOUR (4) # 6 x 1 5/8 " minimum  
Phillips Bugle Head screws  
Two per each Part,  
Located in factory Pre-Punched Holes