



NEMO|etc.

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ENGINEER

EVALUATE

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

Westlake Royal Roofing, LLC

7575 Irvine Center Drive, Suite 100
Irvine, CA. 92618
(801) 380-6091

PEER-WRRS-001.A.R18

FL14317-R15 (NON-HVHZ)

Date of Issuance: 12/21/2010

Revision 18: 09/28/2023

SCOPE:

This P.E. Evaluation Report (henceforth 'PEER') is issued under **F.A.C. Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The products described herein have been evaluated for compliance with the **8th Edition (2023) Florida Building Code** [sections noted herein](#).

DESCRIPTION: Westlake Royal Roof Underlayments (NON-HVHZ)

LABELING: Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein and [FBC 1507.1.1](#).

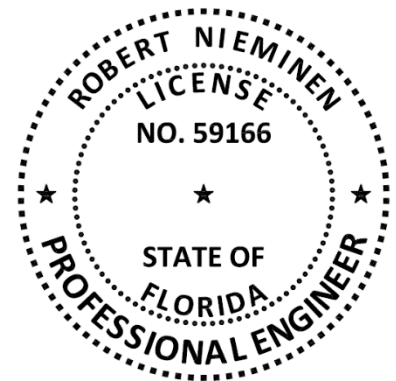
CONTINUED COMPLIANCE: This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify NEMO ETC, LLC of any changes to the product(s), the Quality Assurance, or the production facility location(s). NEMO ETC, LLC requires a complete review of its PEER relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The Florida Product Approval Number (FL#) preceded by the words "NEMO P.E. Evaluated" may be displayed in advertising literature. If any portion of the PEER is displayed, then it shall be done in its entirety.

INSPECTION: Upon request, a copy of this entire PEER 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 PEER consists of pages 1 through 6.

Prepared by:



CERTIFICATION OF INDEPENDENCE:

1. NEMO ETC, LLC does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. NEMO ETC, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the PEERs are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this PEER, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

ROOFING COMPONENT EVALUATION:
1. SCOPE:

Product Category: Roofing
Sub-Category: Underlayment
Product Approval Method: Method 1, Option D: Codified Material – Evaluation by Engineer
Compliance Statement: Westlake Royal Roof Underlayments, as marketed by Westlake Royal Roofing, LLC, have demonstrated compliance with the following sections of the **8th Edition (2023) Florida Building Code** through testing in accordance with the following Standards. Compliance is subject to the [Installation Requirements](#) and [Limitations of Use](#) set forth herein.

2. STANDARDS:

SECTION	PROPERTY	STANDARD	YEAR
1504.2.1.4, 1504.3.1	Wind resistance	UL 1897	2015
1507.1.1, 1507.2.9.2 / R905.1.1, R905.2.8.2	Material standard	ASTM D1970	2017
1507.3.3 / R905.3.3	Material standard	FRSA/TRI, Seventh Edition	2023
TAS 110	Material standard	TAS 103	2020 (from 2023 Code)

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
ERD (TST6049)	UL1897	BRLRF-SC16250.11.17	11/28/2017
NEMO (TST6049)	ASTM D1970 & TAS 103 (tensile adhesion)	4j-BRLRF-21-SSUDL-1.A	10/20/2021
NEMO (TST6049)	ASTM D1623 & D4798	4j-BRLRF-21-SSUDL-1.B	10/20/2021
OC (PDM1838)	Physical Properties	Equivalency statement	11/02/2017
PRI (CER12639)	ASTM D1970, Citadel Plus	Certification	Current
PRI (TST5878)	UL1897	BORR-005-02-01	06/24/2015
PRI (TST5878)	TAS 103-20 (tensile adhesion)	DAPF-002-02-01	03/08/2018
PRI (TST5878)	FRSA/TRI	OCF-356-02-02	03/22/2018
PRI (TST5878)	TAS 103-20 (tensile adhesion)	OCF-356-02-04	03/22/2018
PRI (TST5878)	ASTM D1970	OCF-356-02-01	03/23/2018
PRI (TST5878)	ASTM D1970 (adhesion)	OCF-443-02-01	10/11/2018
PRI (TST5878)	TAS 103-20 (tile slippage clarification)	OCF-356-02-02.1	02/03/2021
PRI CMT (QUA9110)	Quality Assurance	Service Confirmation	04/14/2022

4. PRODUCT DESCRIPTION:

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
Westlake Royal TileSeal HT	ASTM D1970 and FRSA/TRI	Brentwood, NH	nominal 60-mil thick, polyester-surfaced, self-adhering SBS modified bitumen roof underlayment
Westlake Royal MetalSeal HT	ASTM D1970 and FRSA/TRI	Brentwood, NH	nominal 60-mil thick, polyester-surfaced, self-adhering SBS modified bitumen roof underlayment
Westlake Royal GatorSeal	ASTM D1970	Brentwood, NH	nominal 55-mil thick, granule-surfaced, fiberglass reinforced, self-adhering SBS modified bitumen roof underlayment
Westlake Royal Citadel Plus	ASTM D1970	Brentwood, NH	nominal 48-mil thick, fabric-surfaced, fiberglass reinforced, self-adhering SBS modified bitumen roofing underlayment for use as a base-layer in multi-ply underlayment systems

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither NEMO ETC, LLC nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this PEER, or previous versions thereof, is/was used for permitting or design guidance. PEERs are not to be construed as representing any attributes not specifically listed, nor are PEERs to be construed as an endorsement of the subject, or a recommendation for its use. There is no warranty by NEMO ETC, LLC or Robert Nieminen, P.E., express or implied, as to any finding or other matter in this PEER, or as to any product covered by the PEER.
- 5.2 This PEER is not for use in FBC High Velocity Hurricane Zone jurisdictions, as defined in FBC Chapter 2 (Broward and Miami-Dade Counties).
- 5.3 This PEER pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction.
- 5.4 This PEER does not include evaluation of fire classification. Refer to **FBC 1505** for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.
- 5.5 **Westlake Royal Roof Underlayments** may be used with any prepared roof cover where the product is specifically referenced within FBC approval documents. If not listed, a request may be made to the Authority Having Jurisdiction for approval based on this evaluation combined with supporting data for the prepared roof covering.
- 5.6 Allowable Roof Covers: Table 2 pertains to use of each listed underlayment by-itself beneath the stated roof covers. Refer to the [installation instructions](#) for multi-ply underlayment options.

TABLE 2: ROOF COVER OPTIONS						
<u>FBC NON-HVHZ:</u>	1507.2	1507.3		1507.4 & 1507.5	1507.7	1507.8 & 1507.9
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL PANELS OR SHINGLES	SLATE OR SLATE-TYPE SHINGLES	WOOD SHINGLES OR SHAKES
		MECHANICAL ATTACH	ADHESIVE- OR MORTAR-SET			
Westlake Royal TileSeal HT	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes ⁱ
Westlake Royal MetalSeal HT	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes ⁱ
Westlake Royal GatorSeal	Yes	No	No	No	Yes	Yes ⁱ

- 5.6.1 Adhesive-set is limited to use of following underlayment / tile-adhesive combinations.

TABLE 2A: ALLOWABLE UNDERLAYMENT / TILE-ADHESIVE COMBINATIONS ⁱⁱ			
UNDERLAYMENT	ADHESIVE		
	By	PRODUCT	FBC
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	DAP Global, Inc.	Touch 'n Seal Storm Bond Roof Tile Adhesive or Touch 'n Seal Storm Bond 2 Roof Tile Adhesive	FL14506
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	Dupont de Nemours, Inc.	Tile Bond Roof Tile Adhesive	FL22525
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	ICP Construction, Inc.	Polyset AH-160	FL6332
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	ICP Construction, Inc.	APOC Polyset RTA-1	FL6276

5.7 Allowable Substrates:

TABLE 3: SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS			
UNDERLAYMENT	APPLICATION	PRIMER	SUBSTRATES
Westlake Royal Citadel Plus	self-adhering	(Optional) ASTM D41	plywood
		ASTM D41	metal (flashing metal, valley metal, etc.)
Westlake Royal TileSeal HT, Westlake Royal MetalSeal HT	self-adhering	(Optional) ASTM D41	plywood
		(Optional) ASTM D41	OSB
		(Optional) ASTM D41	Huber “Zip Deck”
		none	ASTM D226 Type II felt or Westlake Royal Citadel Plus
		ASTM D41	metal (flashing metal, valley metal, etc.)
Westlake Royal GatorSeal	self-adhering	(Optional) ASTM D41	plywood
		none	ASTM D226 Type II felt
		ASTM D41	metal (flashing metal, valley metal, etc.)

5.8 Attachment Limitations:

5.8.1 For use under mechanically attached NON-TILE prepared roof coverings, attachment shall be in accordance with the manufacturer’s installation instructions, but – for mechanically attached underlayments or base sheets - not less than **FBC 1507.1.1** or **R905.1.1**.

5.8.2 Wind Resistance for Underlayment Systems in Tile Roof Applications:

The following wind uplift limitations apply to underlayment systems. The Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **FBC 1504.9** has already been applied).

5.8.2.1 Direct-to-Deck:

The maximum design pressure for the selected assembly shall meet or exceed that required under **FRSA/TRI Manual 7th Edition** or the critical (highest) design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**.

TABLE 4: ALLOWABLE DESIGN PRESSURES, DIRECT-TO-DECK UNDERLAYMENT IN TILE ROOF APPLICATIONS					
SYSTEM No.	DECK	PRIMER	BASE PLY	CAP PLY	MAX. DESIGN PRESSURE (PSF)
UDL-1.	Min. 15/32-inch plywood	(Optional) ASTM D41	Westlake Royal Citadel Plus, self-adhered	Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT, self-adhered and back-nailed within the selvage-edge side laps using 12 ga. x 1¼” ring shank nails through 32 ga., 1-5/8” diameter tin caps spaced 12-inch o.c.	-120.0
UDL-2.	Min. 15/32-inch plywood	None	None	Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT, self-adhered and back-nailed within the selvage-edge side laps using 12 ga. x 1¼” ring shank nails through 32 ga., 1-5/8” diameter tin caps spaced 12-inch o.c.	-142.5
UDL-3.	Min. 15/32-inch plywood	Tropical Roofing Products #410 Quick Dry Primer (FL16648) or other ASTM D41 primer	None	Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT, self-adhered, and back-nailed within the selvage-edge side laps using 12 ga. x 1¼” ring shank nails through 32 ga., 1-5/8” diameter tin caps spaced 12-inch o.c.	-202.5
UDL-4.	Min. 15/32-inch plywood	KARNAK #89 Sta-Tak Primer (FL1026)	None	Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT, self-adhered, and back-nailed within the selvage-edge side laps using 12 ga. x 1¼” ring shank nails through 32 ga., 1-5/8” diameter tin caps spaced 12-inch o.c.	-210.0

TABLE 4: ALLOWABLE DESIGN PRESSURES, DIRECT-TO-DECK UNDERLAYMENT IN TILE ROOF APPLICATIONS					
SYSTEM No.	DECK	PRIMER	BASE PLY	CAP PLY	MAX. DESIGN PRESSURE (PSF)
UDL-5.	Structural concrete	ASTM D41	(Optional) Westlake Royal Citadel Plus, self-adhered	Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT, self-adhered and back-nailed within the selvedge-edge side laps in accordance with Westlake Royal published installation requirements, but not less than FRSA/TRI Manual requirements.	-120.0

5.9 Exposure Limitations:

TABLE 5: EXPOSURE LIMITATIONS		
UNDERLAYMENT	PREPARED ROOF COVER INSTALLATION TYPE	MAXIMUM EXPOSURE (DAYS)
Westlake Royal GatorSeal	Mechanically attached	30
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	Adhesive-set tile roof system	180
	Mechanically attached	180
Westlake Royal Citadel Plus (<i>base ply in multi-ply underlayment systems only</i>)	N/A (<i>prior to placement of Cap Ply</i>)	180

5.10 Tile Slippage Limitations: When loading roof tiles on the underlayment, the maximum roof pitch shall be as follows. These pitch limitations can only be exceeded by using battens or loading boards during loading of the roof tiles.

TABLE 6: TILE SLIPPAGE LIMITATIONS			
UNDERLAYMENT	TILE PROFILE	STAGING METHOD	MAXIMUM STAGING PITCH
Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT	Flat or Lugged	Max. 10-tile stack	6:12

5.11 All components in the roof assembly shall have quality assurance audit in accordance with F.A.C. [Rule 61G20-3](#). Refer to the Product Approval of the component manufacturer for components mentioned herein that are produced by a Product Manufacturer other than the report holder on [Page 1](#) of this PEER.

6. INSTALLATION:

6.1 **Westlake Royal Roof Underlayments** shall be installed in accordance with **Westlake Royal Roofing, LLC** published installation instructions subject to the [Limitations of Use](#) herein and the specifics noted below.

6.1.1 Consult **Westlake Royal Roofing** requirements for back-nailing at pitch of 2:12 or greater.

6.2 Re-fasten any loose decking panels, and check for protruding nail heads. Sweep the substrate thoroughly to remove any dust and debris prior to application, and prime the substrate (if applicable).

6.3 Westlake Royal GatorSeal:

6.3.1 Non-Tile Applications:

Shall be installed in compliance with requirements for an approved self-adhering underlayment (ASTM D1970) in **FBC 1507.1.1.1** or **FBC Residential R905.1.1.1** for the type of prepared roof covering to be installed, and the manufacturer's installation instructions.

When installed over a mechanically attached, FBC Approved ASTM D226 Type II felt, the felt shall be fastened in accordance with **FBC 1507.1.1** or **R905.1.1**.

6.4 Westlake Royal TileSeal HT or Westlake Royal MetalSeal HT:

6.4.1 Non-Tile Applications:

Shall be installed in compliance with requirements for an approved self-adhering underlayment (ASTM D1970) in **FBC 1507.1.1.1** or **FBC Residential R905.1.1.1** for the type of prepared roof covering to be installed, and the manufacturer's installation instructions.

When installed over a mechanically attached, FBC Approved ASTM D226 Type II felt, the felt shall be fastened in accordance with **FBC 1507.1.1** or **R905.1.1**.

One ply of **Westlake Royal Citadel Plus** followed by **Westlake Royal TileSeal HT** or **Westlake Royal MetalSeal HT** is allowable for use under mechanically attached, non-tile prepared roof systems. Limits of use are those associated with the top-layer material. This is not a requirement, but is allowable if a multi-ply underlayment system is desired.

6.4.2 Tile Applications:

Shall be installed in compliance with requirements for a Self-Adhered Membrane in the **FRSA/TRI Manual 7th Edition**, and the manufacturer's installation instructions.

Refer to [Section 5.8.2](#) for attachment limitations.

Refer to [Table 6](#) for tile staging limitations.

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction to properly evaluate the installation of this product.

8. MANUFACTURING PLANTS:

Contact the named QA entity for manufacturing facilities covered by **F.A.C. Rule 61G20-3** QA requirements. Refer to [Section 4](#) herein for products and production locations having met codified material standards.

9. QUALITY ASSURANCE ENTITY:

[PRI CMT](#) (QUA9110); (813) 621-5777; brian.wilson@pri-group.com

- END OF PEER -

ⁱ Used as min. 3 ¼-inch wide joint-strips per FBC 1507.1.1.1(2) / FBC R905.1.1.1(2) or installed in full-coverage atop ASTM D226, Type II felt mechanically attached in accordance with FBC Table 1507.1.1.1 or FBC Residential Table R905.1.1.1.

ⁱⁱ Refer to Tile Manufacturer's or Adhesive Manufacturer's Florida Product Approval for Overturning Moment Resistance Performance.