



NEMO|etc.

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ENGINEER

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

TAMKO Building Products LLC

PO Box 97
Galena, KS 66739
(417) 624-6644

PEER-TAM-003.A.R4

FL12328-R13 (NON-HVHZ)

Date of Issuance: 09/29/2020

Revision 4: 06/17/2024

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 product described herein has been evaluated for compliance with the **8th Edition (2023) Florida Building Code** [sections noted herein](#).

DESCRIPTION: TAMKO 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.

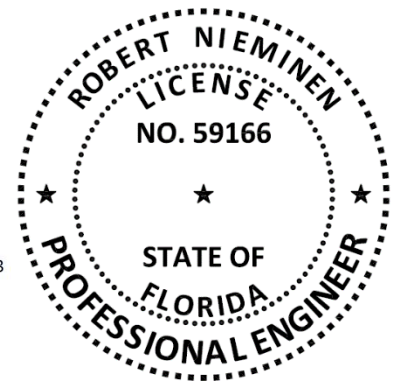
ADVERTISEMENT: The Florida Product Approval Number (FL#) preceded by the words "NEMO P.E. Evaluated" may be displayed in advertising literature. If any portion of the PEER is displayed, then it shall be done in its entirety.

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 7.

Prepared by: **Digitally signed**
by Robert
Nieminen
Date: 2024.06.17
'15:51:51 -04'00

This item has been digitally signed and sealed by Robert Nieminen, P.E.
Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.
Robert Nieminen, Florida P.E. 59166, FBC ANE1983
NEMO ETC, LLC, Florida CA #32455



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.

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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: **TAMKO Roof Underlayments**, as produced by **TAMKO Building Products 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
1504.2.1.4	Wind resistance	UL 1897
1507.1.1 / R905.1.1	Material standard	ASTM D226
1507.1.1, 1507.2.9.2 / R905.1.1, R905.2.8.2	Material standard	ASTM D1970
1507.2.9.2, 1507.6.5 / R905.2.8.2, R905.5.4	Material standard	ASTM D6380

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
MTI (TST2508)	ASTM D1970	DX24H7B	10/03/2017
PRI (TST5878)	ASTM D1970	TAP-388-02-01	10/04/2017
PRI (TST5878)	ASTM D226, Type II	TAP-420-02-01	04/19/2018
PRI (TST5878)	ASTM D6380	847T0009	12/21/2019
PRI (TST5878)	ASTM D6380	847T00010	12/21/2019
PRI (TST5878)	ASTM D226, Type II	TAP-351-02-01	04/25/2016
NEMO (TST6049)	ASTM D1970	4j-TAM-22-SSUDL-01.A	11/14/2022
NEMO (TST6049)	UL1897	4a-TAM-23-LSWUS-01.A	12/25/2023
UL LLC (QUA9625)	Quality Assurance	Service Confirmation	06/01/2023
UL LLC (QUA9625)	Quality Assurance	Florida BCIS	Current

4. PRODUCT DESCRIPTION:

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
No. 30 UL	ASTM D226, Type II	Green Cove Springs, FL	Asphalt-saturated organic felt
Moisture Guard®	ASTM D1970	Joplin, MO	Self-adhering, fiberglass reinforced SBS modified bitumen roof underlayment with a mineral top surface.
TW Underlayment	ASTM D1970 ¹	Columbus, KS	Self-adhering, SBS modified bitumen roof underlayment with a polymer-film top surface.
TW Metal and Tile Underlayment	ASTM D1970 ¹	Joplin, MO	Self-adhering, fiberglass reinforced SBS modified bitumen roof underlayment with a polymer-film top surface.
TW Seam Tape	ASTM D1970	Columbus, KS	Self-adhering, SBS modified bitumen deck seam-tape with a polymer-film top surface.

¹ Agreement between purchaser and seller, as set forth in Section 4.3, Note 1 of ASTM D1970-17, should be established as to slip resistance.

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
ASTM Slate Surfaced Roll Roofing	ASTM D6380, Class M, Type II	Green Cove Springs, FL	Asphalt-saturated organic mat, coated on both sides with asphalt and surfaced with granules.
ASTM Tile Underlayment	ASTM D6380, Class M, Type II	Green Cove Springs, FL	Asphalt-saturated organic felt, coated on both sides with asphalt and surfaced with granules.

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 **TAMKO 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 PEER combined with supporting data for the prepared roof covering.
- 5.6 Allowable Roof Covers:

TABLE 2: ROOF COVER OPTIONS						
<u>FBC NON-HVHZ:</u>	1507.2	1507.3		1507.4 AND 1507.5	1507.7	1507.8 AND 1507.9
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL	SLATE OR SLATE-TYPE SHINGLES	WOOD
		MECHANICAL ATTACH	ADHESIVE-SET			
No. 30 UL	Yes	Yes (Base Sheet in 2-ply system)	Yes (Base Sheet in 2-ply system)	Yes	Yes	Yes
Moisture Guard®	Yes	No	No	No	Yes	Yes ²
TW Underlayment	Yes	No	No	Yes	Yes	Yes ²
TW Metal and Tile Underlayment	Yes	No	No	Yes	Yes	Yes ²
TW Seam Tape	Yes ³	Yes ³	Yes ³	Yes ³	Yes ³	Yes ³
ASTM Slate Surfaced Roll Roofing	Yes (Valley Liner)	Yes (Cap Ply in 2-ply system)	No	No	No	No

² Used as min. 3 ¾-inch wide joint-strips per FBC 1507.1.1.1(2) / FBC R905.1.1.1(2) or installed in full-coverage atop TAMKO No. 30 UL or other ASTM D226, Type II or ASTM D4869 Type III or IV felt mechanically attached in accordance with FBC Table 1507.1.1.1 or FBC Residential Table R905.1.1.1.

³ Used as min. 3 ¾-inch wide joint-strips per FBC 1507.1.1.1(2) / FBC R905.1.1.1(2).

TABLE 2: ROOF COVER OPTIONS						
FBC NON-HVHZ:	1507.2	1507.3		1507.4 AND 1507.5	1507.7	1507.8 AND 1507.9
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL	SLATE OR SLATE-TYPE SHINGLES	WOOD
		MECHANICAL ATTACH	ADHESIVE-SET			
ASTM Tile Underlayment	Yes (Valley Liner)	Yes (Cap Ply in 2-ply system)	No	No	No	No

5.7 Allowable Substrates:

TABLE 3: SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS			
UNDERLAYMENT	APPLICATION	SUBSTRATES (DESIGNED TO MEET WIND LOADS FOR PROJECT)	
		PRIMER	SUBSTRATES
Moisture Guard®, TW Underlayment or TW Metal and Tile Underlayment	self-adhering	(Optional) ASTM D41	plywood
		None	No. 30 UL
TW Seam Tape	self-adhering	(Optional) ASTM D41	plywood
ASTM Slate Surfaced Roll Roofing or ASTM Tile Underlayment	hot asphalt	None	No. 30 UL

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 tile underlayment systems per **FBC 1504.2.1.4**. The Maximum Design Pressure ('MDP') 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).

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

Alternatively, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**. Elevated pressure zones shall employ an attachment density by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are [ANSI/SPRI WD1](#), [FM Loss Prevention Data Sheet](#) 1-29 or [Roofing Application Standard RAS 117](#).

TABLE 4: ALLOWABLE DESIGN PRESSURES, MECHANICALLY ATTACHED, MULTI-PLY UNDERLAYMENT SYSTEMS						
*Nails shall be corrosion resistant and be of sufficient length to penetrate through the sheathing by min. 3/16-inch						
SYSTEM NO.	DECK	JOINT TREATMENT	BASE SHEET		CAP PLY	MDP (PSF)
			TYPE	ATTACH		
UDL-1.	Plywood, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) TW Seam Tape, self-adhered	No. 30 UL	12 ga. x 3/8-inch head diameter annular ring shank roofing nails* with 32 ga., 1-5/8-inch diameter tin caps, 6-inch o.c. at the 4-inch laps and 12-inch o.c. at two (2) equally spaced center rows	ASTM Slate Surfaced Roll Roofing or ASTM Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. x 3/8-inch head diameter annular ring shank roofing nails* with 32 ga., 1-5/8-inch diameter tin caps, 12-inch o.c.	-45.0
UDL-2.	Plywood, APA rated sheathing, 32/16, Exposure 1, PS1, 15/32 category	(Optional) TW Seam Tape, self-adhered	No. 30 UL	12 ga. x 3/8-inch head diameter annular ring shank roofing nails* with 32 ga., 1-5/8-inch diameter tin caps, 6-inch o.c. at the 4-inch laps and 6-inch o.c. at two (2) equally spaced center rows	ASTM Slate Surfaced Roll Roofing or ASTM Tile Underlayment, applied in ASTM D312, Type IV hot asphalt and back-nailed using 12 ga. x 3/8-inch diameter annular ring shank roofing nails* with 32 ga., 1-5/8-inch diameter tin caps, 12-inch o.c.	-67.5

5.9 Exposure Limitations:

TABLE 5: EXPOSURE LIMITATIONS	
UNDERLAYMENT	MAXIMUM EXPOSURE (DAYS)*
No. 30 UL, Moisture Guard®, TW Underlayment, TW Metal and Tile Underlayment, TW Seam Tape, ASTM Slate Surfaced Roll Roofing, ASTM Tile Underlayment	30

*Maximum exposure shall not exceed the manufacturer's recommendations, which may be less than 30 days.

- 5.10 Tile Slippage Limitations: When loading roof tiles on ASTM Slate Surfaced Roll Roofing or ASTM Tile Underlayment, tiles shall be staged atop battens or loading boards.

6. INSTALLATION:

- 6.1 **TAMKO Roof Underlayments** shall be installed in accordance with **TAMKO Building Products LLC** installation instructions subject to the [Limitations of Use](#) set forth herein and the specifics noted below.
- 6.1.1 Consult TAMKO requirements for back-nailing of adhered underlayments at slopes 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 Refer to Section 6.4 for underlayments having prescriptive codified minimum attachment or [Table 4](#) for underlayment systems having maximum design pressures established in accordance with FBC 1504.2.1.4.
- 6.4 Underlayment Assemblies with Prescriptive Minimum Attachment for use in NON-TILE applications:

6.4.1	CODE REFERENCE:	1507.1.1.1 or R905.1.1.1, Option 1: Underlayment adhered to deck
	DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction. Refer to Table 3 for substrate limitations.
	UNDERLAYMENT:	Moisture Guard®, TW Underlayment or TW Metal and Tile Underlayment , self-adhered in accordance with FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer's requirements.
	SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.

6.4.2 CODE REFERENCE: 1507.1.1.1 or R905.1.1.1, Option 2: Self-adhering strips to deck-joints followed by underlayment mechanically attached to deck

DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction.								
SECONDARY WATER BARRIER:	TW Seam Tape or min. 3¾-inch wide strips of Moisture Guard® , TW Underlayment or TW Metal and Tile Underlayment self-adhered over joints of the plywood roof deck prior to installation of subsequent layer(s) in accordance with FBC 1507.1.1.1(2) or R905.1.1.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.								
UNDERLAYMENT:	No. 30 UL in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1, with a minimum 4-inch side lap and 6-inch end lap, mechanically fastened to deck.								
FASTENERS:	Min. 0.083-inch diameter annular ring or deformed shank nails with metal or plastic caps* with a nominal cap diameter of not less than 1-inch and minimum thickness as follows. The nail shall be of sufficient length to penetrate through the roof sheathing, or not less than 0.75-inch into the roof sheathing. *Metal caps are required where the ultimate design wind speed, V_{ult} , equals or exceeds 170 mph.								
	<table> <tr> <th><u>Cap Type</u></th><th><u>Minimum thickness</u></th></tr> <tr> <td>Metal cap</td><td>32 ga. sheet metal</td></tr> <tr> <td>Power-driven metal cap</td><td>0.010-inch</td></tr> <tr> <td>Plastic cap</td><td>0.035-inch (outside edge thickness)</td></tr> </table>	<u>Cap Type</u>	<u>Minimum thickness</u>	Metal cap	32 ga. sheet metal	Power-driven metal cap	0.010-inch	Plastic cap	0.035-inch (outside edge thickness)
<u>Cap Type</u>	<u>Minimum thickness</u>								
Metal cap	32 ga. sheet metal								
Power-driven metal cap	0.010-inch								
Plastic cap	0.035-inch (outside edge thickness)								
FASTENING:	Grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1.								
SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, wood shakes or wood shingles, subject to the allowable roof covers in Table 2 herein.								

6.4.3 CODE REFERENCE: 1507.1.1.1 or R905.1.1.1, Option 3: Two-layer underlayment mechanically fastened to deck

DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction.						
UNDERLAYMENT:	Two (2) layers of No. 30 UL in accordance with FBC Section 1507.1.1.1(3) or R905.1.1.1(3).						
FASTENERS:	Min. 0.083-inch diameter annular ring or deformed shank nails with metal or plastic caps* with a nominal cap diameter of not less than 1-inch and minimum thickness as follows. The nail shall be of sufficient length to penetrate through the roof sheathing, or not less than 0.75-inch into the roof sheathing. *Metal caps are required where the ultimate design wind speed, V_{ult} , equals or exceeds 170 mph.						
	<table> <tr> <th><u>Cap Type</u></th><th><u>Minimum thickness</u></th></tr> <tr> <td>Metal cap</td><td>32 ga. sheet metal</td></tr> <tr> <td>Plastic cap</td><td>0.035-inch (outside edge thickness)</td></tr> </table>	<u>Cap Type</u>	<u>Minimum thickness</u>	Metal cap	32 ga. sheet metal	Plastic cap	0.035-inch (outside edge thickness)
<u>Cap Type</u>	<u>Minimum thickness</u>						
Metal cap	32 ga. sheet metal						
Plastic cap	0.035-inch (outside edge thickness)						
FASTENING:	In accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1 or FBC Section 1507.1.1.1(3) or R905.1.1.1(3).						
SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, wood shakes or wood shingles, subject to the allowable roof covers in Table 2 herein.						

6.4.4

CODE REFERENCE:	1507.1.1.1 or R905.1.1.1, Option 1 combined with Option 2 or 3: Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet								
DECK DESCRIPTION:	Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction.								
SECONDARY WATER BARRIER:	(Optional) TW Seam Tape or min. 3¼-inch wide strips of Moisture Guard® , TW Underlayment or TW Metal and Tile Underlayment self-adhered over joints of the plywood roof deck prior to installation of subsequent layer(s) in accordance with FBC Section 1507.1.1.1(2) or R905.1.1.1(2). Do not overlap end-joints or T-joints. All end-joints and T-joints shall be butted firmly side by side, flush with each other but not overlapped.								
BASE SHEET:	One (1) layer of No. 30 UL or FBC Approved ASTM D226, Type II felt, in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of No. 30 UL or FBC Approved ASTM D226, Type II felt in accordance with FBC Section 1507.1.1.1(3) or R905.1.1.1(3), mechanically fastened to deck								
FASTENERS:	Min. 0.083-inch diameter annular ring or deformed shank nails with metal or plastic caps* with a nominal cap diameter of not less than 1-inch and minimum thickness as follows. The nail shall be of sufficient length to penetrate through the roof sheathing, or not less than 0.75-inch into the roof sheathing. *Metal caps are required where the ultimate design wind speed, V_{ult} , equals or exceeds 170 mph. <table><tr><th>Cap Type</th><th>Minimum thickness</th></tr><tr><td>Metal cap</td><td>32 ga. sheet metal</td></tr><tr><td>Power-driven metal cap</td><td>0.010-inch</td></tr><tr><td>Plastic cap</td><td>0.035-inch (outside edge thickness)</td></tr></table>	Cap Type	Minimum thickness	Metal cap	32 ga. sheet metal	Power-driven metal cap	0.010-inch	Plastic cap	0.035-inch (outside edge thickness)
Cap Type	Minimum thickness								
Metal cap	32 ga. sheet metal								
Power-driven metal cap	0.010-inch								
Plastic cap	0.035-inch (outside edge thickness)								
FASTENING:	Grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC Table 1507.1.1.1 or Table R905.1.1.1 or FBC Section 1507.1.1.1(3) or R905.1.1.1(3).								
UNDERLAYMENT:	Moisture Guard® , TW Underlayment or TW Metal and Tile Underlayment self-adhered in accordance to FBC Section 1507.1.1.1(1) or R905.1.1.1(1) and back-nailed in accordance with the manufacturer's requirements.								
SURFACING:	FBC Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in Table 2 herein.								

7. BUILDING PERMIT REQUIREMENTS:

As required by the Building Official or Authority Having Jurisdiction in order 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:

[UL LLC – QUA9625](#); (360) 817-5512; bsai.inspections@ul.com

- END OF PEER -