NEMO|etc.
Certificate of Authorization #32455
353 Christian Street, Unit #13
Oxford, CT 06478
(203) 262-9245

ENGINEER TEST CONSULT

P.E. EVALUATION REPORT (PEER)

Beacon Sales Acquisition, Inc.
505 Huntmar Park Drive, Suite 300
Herndon, VA 20170
(571) 323-3939

PEER-CCWBSA-001.A-R2
FL46762-R2 (NON-HVHZ)
Date of Issuance: 05/13/2024
Revision 2: 12/03/2024

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 compliance with the **8th Edition (2023) Florida Building Code** sections noted herein.

DESCRIPTION: TRI-BUILT 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: "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 5.

Prepared by:

Digitally signed by Robert Nieminen
Date: 2024.12.03 '10:33:07 -05'00

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

ROBERT NIEMINEN LICENSE NO. 59166 STATE OF FLORIDA PROFESSIONAL ENGINEER

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: **TRI-BUILT Roof Underlayments**, as produced by **Beacon Sales Acquisition**, 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
1507.1.1, 1507.2.9.2 / R905.1.1, R905.2.8.2	Material standard	ASTM D1970
1507.3.3 / R905.3.3	Material standard	FRSA/TRI, Seventh Edition
1523.6.5.2.1, TAS 110	Material standard	TAS 103
TAS 110	Accelerated Weathering	ASTM D4798

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
NEMO	Traceability	FBC CLA	12/02/2024
UL, LLC. (QUA9625)	Quality Control	Service Confirmation	05/07/2024

4. PRODUCT DESCRIPTION:

TABLE 1: EVALUATED MEMBRANES

PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
TRI-BUILT® 100[1]	ASTM D1970	Carlisle, PA	self-adhering, fiberglass reinforced, granule surfaced, rubberized asphalt roof underlayment
TRI-BUILT® 100SG	ASTM D1970	Carlisle, PA	Self-adhering, fiberglass reinforced, granule surfaced, rubberized asphalt roof underlayment
TRI-BUILT® 250 HT[1]	ASTMD D1970, FRSA/TRI and TAS 103 (partial)	Carlisle, PA	self-adhering, fiberglass reinforced, film surfaced, rubberized asphalt roof underlayment
TRI-BUILT® 300 HT[1]	ASTM D1970, FRSA/TRI and TAS 103 (partial)	Terrell, TX	self-adhering, coated-polyolefin-composite film surfaced, rubberized asphalt roof underlayment

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.

[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.*

5.5 **TRI-BUILT 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: ROOF COVER OPTIONS

FBC NON-HVHZ:	*1507.2*	*1507.3*		*1507.4 AND 1507.5*	*1507.7*	*1507.8 AND 1507.9*	*1507.17*
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL	SLATE OR SLATE-TYPE SHINGLES	WOOD	PHOTOVOLTAIC SHINGLES
		MECHANICAL ATTACH	ADHESIVE-SET				
TRI-BUILT 100	Yes	No	No	No	No	Yes[2]	Yes[2]
TRI-BUILT 100SG	Yes	No	No	No	No	Yes[2]	Yes[2]
TRI-BUILT 250 HT	Yes	Yes	No	Yes	No	Yes[2]	Yes[2]
TRI-BUILT 300 HT	Yes	Yes	No	Yes	Yes	Yes[2]	Yes[2]

5.7 **Allowable Substrates:**

TABLE 3: SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS

UNDERLAYMENT	SUBSTRATES (DESIGNED TO MEET WIND LOADS FOR PROJECT)		
	TYPE	PRIMER	SUBSTRATES
TRI-BUILT 100 or TRI-BUILT 250 HT	Deck / Sheathing	(Optional) CCW-702 or CAV-GRIP	Plywood
	Base Sheet	None	ASTM D226, Type II felt
TRI-BUILT 100SG	Deck / Sheathing	CCW-702 or CAV-GRIP	Plywood
	Base Sheet	None	ASTM D226, Type II felt
TRI-BUILT 300 HT	Deck / Sheathing	(Optional) CCW-702 or CAV-GRIP	Plywood or OSB
	Insulation	CAV-GRIP	H-Shield, H-Shield CG, H-Shield HD, H-Shield HD Composite, DensDeck Prime or SECUROCK Gypsum-Fiber Roof Board
	Base Sheet	(Optional) CCW-702 or CAV-GRIP	ASTM D226, Type II felt

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 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).

[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 ASTM D226, Type II felt mechanically attached in accordance with FBC Table 1507.1.1.1 or FBC Residential Table R905.1.1.1.*

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

TABLE 4: ALLOWABLE DESIGN PRESSURES, ADHERED, DIRECT-TO-DECK UNDERLAYMENT SYSTEMS

SYSTEM NO.	DECK	PRIMER	JOINT TREATMENT	BASE PLY	CAP PLY	MDP (PSF)
UDL-1.	**Plywood**, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	(Optional) CCW 702 or CAV-GRIP	None	None	TRI-BUILT 250 HT or TRI-BUILT 300 HT, self-adhered and back-nailed in accordance with Beacon installation instructions, max. 12-inch o.c.	-45.0

5.9 **Exposure Limitations:**

TABLE 5: EXPOSURE LIMITATIONS

UNDERLAYMENT	MAXIMUM EXPOSURE (DAYS)
TRI-BUILT 100, TRI-BUILT 100SG or TRI-BUILT 300 HT	30
TRI-BUILT 250 HT	180

5.10 **Tile Slippage Limitations:**
When loading roof tiles atop TRI-BUILT 250 HT or TRI-BUILT 300 HT, the tile shall be staged atop a fastened battens or loading boards, regardless of pitch.

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 **TRI-BUILT Roof Underlayments** shall be installed in accordance with **Beacon Sales** installation instructions subject to the Limitations of Use herein and the specifics noted below.

6.1.1 Consult **Beacon Sales** 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 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
UNDERLAYMENT:	**TRI-BUILT 100, TRI-BUILT 100 SG, TRI-BUILT 250 HT or TRI-BUILT 300 HT** 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:	Min. 3 ¾-inch wide strips of **TRI-BUILT 100, TRI-BUILT 100 SG, TRI-BUILT 250 HT or TRI-BUILT 300 HT** self-adhered over joints of the 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.
	UNDERLAYMENT:	FBC Approved underlayment with a minimum 4-inch side lap and 6-inch end lap, mechanically fastened to deck in accordance with the manufacturer's Florida Product Approval and 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 to the allowable roof covers for the underlayment manufacturer.
6.4.3	**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) Min. 3 ¾-inch wide strips of **TRI-BUILT 100, TRI-BUILT 100 SG, TRI-BUILT 250 HT or TRI-BUILT 300 HT** or other FBC Approved joint-strip product self-adhered over joints of the 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 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 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. *Note: Metal caps are required where the ultimate design wind speed, V_{ult}, equals or exceeds 170 mph. **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:	**TRI-BUILT 100, TRI-BUILT 100 SG, TRI-BUILT 250 HT or TRI-BUILT 300 HT** 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 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 -