



NEMO|etc.

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ENGINEER

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

APOC, sub of Gardner Asphalt Corp.

4161 E. 7th Avenue
Tampa, FL 33605
(813) 248-2101

PEER-GG-001.B.R6

FL26482-R10 (HVHZ)

Date of Issuance: 06/19/2019

Revision 6: 12/19/2024

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 products described herein have been evaluated for compliance with the **8th Edition (2023) Florida Building Code, High Velocity Hurricane Zone** [sections noted herein](#).

DESCRIPTION: Gardner® Roof Underlayments (HVHZ)

LABELING: Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein and [FBC 1518.2](#).

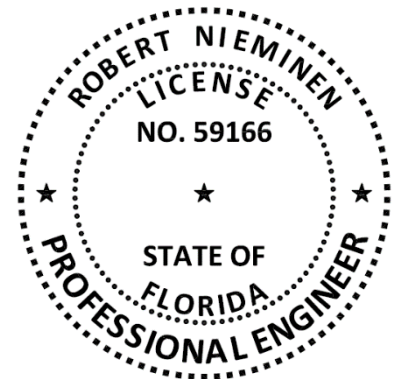
CONTINUED COMPLIANCE: This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify NEMO 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 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:



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: Gardner® Roof Underlayments, as produced by APOC, sub of Gardner Asphalt Corp., have demonstrated compliance with the following sections of the **8th Edition (2023) Florida Building Code, High Velocity Hurricane Zone** 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
TAS 110	Material standard	ASTM D226
TAS 110	Material standard	ASTM D1970
TAS 110	Material standard	TAS 103

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
NEMO (TST6049)	ASTM D226, Type II	4j-GG-SSUDL-001.A	12/16/2024
PRI (TST5878)	ASTM D1970, D4798	GGI-178-02-01	10/24/2016
PRI (TST5878)	TAS 103	GGI-196-02-01	07/26/2017
PRI (TST5878)	ASTM D1623, TAS 103	GGI-201-02-01	01/26/2018
PRI (TST5878)	ASTM D226, Type II	GGI-207-02-02	03/05/2018
PRI (TST5878)	ASTM D226, Type II	GGI-207-02-03	03/08/2018
PRI (TST5878)	ASTM D226, Type II	GGI-207-02-04	03/08/2018
PRI (TST5878)	ASTM D903, D1970	GGI-211-02-01	06/06/2018
PRI (TST5878)	ASTM D1623, TAS 103	GGI-202-02-01	08/09/2018
PRI (TST5878)	ASTM D1623, D4798	397T0018	10/16/2020
PRI (TST5878)	ASTM D1623, D4798	397T0018.R1	05/28/2021
PRI (TST5878)	UL1897	2639T0004	10/22/2024
PRI (TST5878)	UL1897	2639T0005	10/22/2024
NEMO	Traceability	FBC PCL	12/15/2020
NEMO	Traceability	SPE	12/18/2024
UL, LLC. (QUA9625)	Quality Assurance	Service Confirmation	02/12/2020
UL, LLC. (QUA9625)	Quality Assurance	Florida BCIS	Current

4. PRODUCT DESCRIPTION:

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
APOC® 26 #30 Tuff-Felt™	ASTM D226, Type II	Eutaw, AL	asphalt-saturated organic felt
No. 30 ASTM	ASTM D226, Type II	Eutaw, AL	asphalt-saturated organic felt
TRI-BUILT TB-9F25UR	ASTM D226, Type II	Eutaw, AL	asphalt-saturated organic felt
United FGUR 20	ASTM D226, Type II	Eutaw, AL	asphalt-saturated organic felt
United FGUR 70	ASTM D226, Type II	Eutaw, AL	asphalt-saturated organic felt
Weather-Armor® FT ³ Fleece-Top Roof Underlayment	TAS 103	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement
Eagle-Armor by Apoc	TAS 103	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement

TABLE 1: EVALUATED UNDERLAYMENTS			
PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
TriBuilt Fleece Tile Underlayment	TAS 103	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement
Weather-Armor® SB-1 Self-Bond® Roof Underlayment	ASTM D1970 ¹	Springville, AL	nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering underlayment
TriBuilt Ice and Water Underlayment	ASTM D1970 ¹	Springville, AL	nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering 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 exclusively 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 HVHZ 1516** 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 **Gardner® 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.

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.

5.6 Allowable Roof Covers:

TABLE 2: ROOF COVER OPTIONS						
FBC HVHZ:	RAS 115, 1518.2.1	RAS 118, 119 & 120		RAS 133, 1518.2.1	1518.2.1	RAS 130, 1518.10
UNDERLAYMENT	ASPHALT SHINGLES	CLAY AND CONCRETE TILE		METAL	SLATE OR SLATE- TYPE SHINGLES	WOOD SHINGLES OR SHAKES
		MECHANICAL ATTACH	ADHESIVE-SET			
APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20 or United FGUR 70	Yes	No	No	Yes	Yes	Yes
Weather-Armor® FT³ Fleece-Top Roof Underlayment	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes (per RAS 130)
Eagle-Armor by Apoc	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes (per RAS 130)
TriBuilt Fleece Tile Underlayment	Yes	Yes	Yes (Table 2A)	Yes	Yes	Yes (per RAS 130)
Weather-Armor® SB-1 Self-Bond® Roof Underlayment	Yes	No	No	No	Yes	Yes (per RAS 130)
TriBuilt Ice and Water Underlayment	Yes	No	No	No	Yes	Yes (per RAS 130)

5.6.1 Allowable Tile Adhesives:

TABLE 2A: ALLOWABLE UNDERLAYMENT / TILE-ADHESIVE COMBINATIONS ²		
UNDERLAYMENT	ADHESIVE	HVHZ PRODUCT APPROVAL
Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment	DAP "StormBond® Roof Tile Adhesive"	NOA 23-0327.12
	Dupont de Nemours "TILE BOND™ Roof Tile Adhesive"	FL22525 and NOA 22-0614.05
	ICP Adhesives "APOC® Polyset® AH-160 (HFC)"	NOA 23-0614.01

5.7 Allowable Substrates:

TABLE 3: SUBSTRATE OPTIONS FOR ADHERED UNDERLAYMENTS	
UNDERLAYMENT	SUBSTRATES
Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment, TriBuilt Ice and Water Underlayment	ASTM D226 felt
	plywood
	Structural concrete*

*Note: minimum 73°F ambient application temperature for structural concrete

² Refer to Tile Manufacturer's Florida HVHZ Product Approval or NOA for Attachment Resistance Expressed as a Moment Performance.

5.8 **Attachment Limitations:**

5.8.1 Refer to [Section 6](#) for codified prescriptive systems.

5.8.2 Refer to [Table 4](#) for underlayment systems which have documented compliance with Section 7 of [TAS 103](#). 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 has already been applied).

TABLE 4: ALLOWABLE DESIGN PRESSURES, ADHERED, DIRECT-TO-DECK UNDERLAYMENT SYSTEMS						
*For wood deck, referenced back-nailing shall utilize corrosion resistant “nails and tin caps” meeting the specifications set forth in FBC HVHZ 1517.5 .						
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	None	None	None	Weather-Armor® SB-1 Self-Bond Roof Underlayment or TriBuilt Ice and Water Underlayment, self-adhered with 3.5-inch side laps. Note: Not for use as tile underlayment per Table 2 herein.	-135.0
UDL-2.	Plywood , APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category	None	None	None	Weather-Armor® FT ³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile underlayment, self-adhered and back-nailed* within 3-inch side laps, max. 12-inch o.c.	-150.0

5.9 **Exposure Limitations:**

Underlayment shall not be left exposed longer than the lesser of the manufacturer’s published recommendations of the maximum exposure limitations noted in Table 5.

TABLE 5: EXPOSURE LIMITATIONS		
UNDERLAYMENT	PREPARED ROOF COVER INSTALLATION TYPE	MAXIMUM EXPOSURE (DAYS)
APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20 or United FGUR 70	Mechanically attached	30
Weather-Armor® SB-1 Self-Bond® Roof Underlayment or TriBuilt Ice and Water Underlayment	Mechanically attached	90
Weather-Armor® FT ³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment	Mechanically attached roof cover or adhesive-set tile roof system	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 FOR DIRECT-DECK TILE INSTALLATIONS			
UNDERLAYMENT	TILE PROFILE	STAGING METHOD	MAXIMUM PITCH
Weather-Armor® FT ³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment	Flat or Lugged	Max. 10-tile stack	6:12

6. INSTALLATION:

6.1 **Gardner® Roof Underlayments** shall be installed in accordance with **APOC, sub of Gardner Asphalt Corp.** published installation requirements subject to the [Limitations of Use](#) herein and the specifics noted below.

6.1.1 Consult Gardner® Asphalt Corp. 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 attachment or [Table 4](#) for underlayment systems having maximum design pressures, determined in accordance with Section 7 of [TAS 103](#).

6.4 **Underlayment Assemblies with Prescriptive Minimum Attachment for use in NON-TILE applications:**

6.4.1	CODE REFERENCE:	1518.2.1, Option 1: Underlayment adhered to deck
	DECK DESCRIPTION:	Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to Table 3 for specific underlayment/substrate combinations)
	UNDERLAYMENT:	Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment or TriBuilt Ice and Water Underlayment , self-adhered in accordance with FBC HVHZ 1518.2.1(1) and back-nailed, if applicable, max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5) or FBC HVHZ Approved concrete fasteners and plates.
	SURFACING:	FBC HVHZ 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:	1518.2.1, 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:	Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment or TriBuilt Ice and Water Underlayment self-adhered over deck joints prior to installation of subsequent layer(s) in accordance with FBC HVHZ 1518.2.1(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:	APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70 or other FBC HVHZ Approved ASTM D226, Type II felt, in accordance with FBC HVHZ Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap, mechanically fastened to deck
	FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC HVHZ Table 1518.2.1.
	SURFACING:	FBC HVHZ 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:	1518.2.1, 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 APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20 or United FGUR 70 in accordance with FBC HVHZ 1518.2.1(3).
	FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5) in accordance with FBC HVHZ 1518.2.1(3).
	SURFACING:	FBC HVHZ 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:	1518.2.1, 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) Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment or TriBuilt Ice and Water Underlayment self-adhered over deck joints prior to installation of subsequent layer(s) in accordance with FBC HVHZ 1518.2.1(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 APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70 or other FBC HVHZ Approved ASTM D226, Type II felt, in accordance with FBC Table 1518.2.1, with a minimum 4-inch side lap and 6-inch end lap or two (2) layers of APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70 or other FBC HVHZ Approved ASTM D226, Type II felt in accordance with FBC Section 1518.2.1(3), mechanically fastened to deck.
	FASTENING:	FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC HVHZ Table 1518.2.1.
	UNDERLAYMENT:	Weather-Armor® FT³ Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment , self-adhered in accordance with FBC HVHZ 1518.2.1(1) and back-nailed, if applicable, max. 12-inch o.c. using FBC HVHZ Approved nails and tin caps (FBC HVHZ 1517.5).
	SURFACING:	FBC HVHZ 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 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 -