



NEMO|etc.

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ENGINEER

EVALUATE

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CONSULT

EVALUATION REPORT

APOC, sub of Gardner Asphalt Corp.

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

Evaluation Report 1-GG-18-001.02.18-R4

FL26482-R6 (NON-HVHZ)

Date of Issuance: 02/27/2018

Revision 4: 12/17/2020

SCOPE:

This Evaluation Report is issued under **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 **7th Edition (2020) Florida Building Code** sections noted herein.

DESCRIPTION: Gardner® Roof Underlayments, for use in FBC non-HVHZ jurisdictions

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 Evaluation Report 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 Evaluation Reports 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 Evaluation Report relative to updated Code requirements with each Code Cycle.

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

INSPECTION: Upon request, a copy of this entire Evaluation Report 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 Evaluation Report consists of pages 1 through 7.

Prepared by:

Robert J.M. Nieminen, P.E.

Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 12/17/2020. This does not serve as an electronically signed document.

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 evaluation reports 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 Evaluation Report, 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

Compliance Statement: Gardner® Roof Underlayments, as produced by Gardner Asphalt Corp., have demonstrated compliance with the following sections of the 7th Edition (2020) Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

2. STANDARDS:

Section	Property	Standard	Year
1504.3.1	Wind resistance	UL1897	2015
1507.1.1, 1507.2.4, 1507.2.9.2 / R905.1.1, R905.2.8.2	Material standard	ASTM D1970	2015
1507.1.1.1(2&3, Exception), 1507.1.1.1(5) / R905.1.1.1(2&3, Exception), R905.1.1.1(5)	Tear strength	ASTM D4533	2015
1507.1.1.1(2&3, Exception), 1507.1.1.1(5) / R905.1.1.1(2&3, Exception), R905.1.1.1(5)	Tensile strength	ASTM D5035	2011
1507.1.1.1(5) / R905.1.1.1(5)	Liquid water transmission	ASTM D4869	2016
1507.3.3 / R905.3.3	Material standard	FRSA/TRI, Sixth Edition	2018
TAS 110	Accelerated Weathering	ASTM D4798	2011

3. REFERENCES:

Entity	Examination	Reference	Date
NEMO	Traceability	FBC Cross-Listing	12/10/2020
PRI (TST5878)	ASTM D226 (physicals)	GGI-176-02-01	9/26/2016
PRI (TST5878)	ASTM D1970, D4798	GGI-178-02-01	10/24/2016
PRI (TST5878)	ASTM D1970, D4798	GGI-194-02-01	4/19/2017
PRI (TST5878)	FRSA/TRI, ASTM D4798, TAS 103	GGI-196-02-01	7/26/2017
PRI (TST5878)	ASTM D226, D4533, D4869	GGI-132-02-06	12/11/2017
PRI (TST5878)	ASTM D226, D4533, D4869	GGI-199-02-02	12/11/2017
PRI (TST5878)	ASTM D1970, D4798	GGI-178-02-01	1/26/2018
PRI (TST5878)	ASTM D4798	GGI-178-02-02	1/26/2018
PRI (TST5878)	ASTM D1623, TAS 103	GGI-201-02-01	1/26/2018
PRI (TST5878)	UL1897	GGI-212-02-01	5/9/2018
PRI (TST5878)	Criticality, ASTM D1876	GGI-209-02-01	5/18/2018
PRI (TST5878)	ASTM D903, D1970	GGI-211-02-01	6/6/2018
PRI (TST5878)	ASTM D1623, TAS 103	GGI-202-02-01	8/9/2018
PRI (TST5878)	UL1897	GGI-243-02-01	5/29/2019
PRI (TST5878)	ASTM D1970	397T0016	12/16/2020
PRI (TST5878)	ASTM D1623, D4798	397T0018	12/16/2020
UL, LLC. (QUA9625)	Quality Assurance	Service Confirmation	02/12/2020
UL, LLC. (QUA9625)	Quality Assurance	Florida BCIS	Current

4. PRODUCT DESCRIPTION:

	Product	Material Standard	Plant(s)	Description
4.1	Gardner® Gard-Lock	ASTM D1970	Springville, AL	nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering underlayment
4.2	Weather-Armor® FT ³ Tile Underlayment	FRSA/TRI 09-18	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement

	Product	Material Standard	Plant(s)	Description
4.3	Eagle-Armor by Apoc	FRSA/TRI 09-18	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement
4.4	TriBuilt Fleece Tile Underlayment	FRSA/TRI 09-18	Springville, AL	nominal 60-mil thick, self-adhering membrane of elastic polymers, bitumen and polyester and glass reinforcement
4.5	Weather-Armor® HT ² High Temp Premium Roof Underlayment	ASTM D1970	Springville, AL	nominal 60-mil thick, self-adhering membrane composed of elastic polymers, bitumen, glass reinforcement and a cross-laminated sheet surface, gray in color
4.6	Weather-Armor® HT ³ High Temp Premium Roof Underlayment	ASTM D1970	Springville, AL	nominal 60-mil thick, self-adhering membrane composed of elastic polymers, bitumen, glass reinforcement and a cross-laminated sheet surface, black/yellow in color
4.7	Weather-Armor® SB-1 Self-Bond® Roof Underlayment	ASTM D1970	Springville, AL	nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering underlayment
4.8	TriBuilt Ice and Water Underlayment	ASTM D1970	Springville, AL	nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering underlayment
4.9	Gator-Skin™ Synthetic Roof Underlayment	1507.1.1.1(2&3, Exception), 1507.1.1.1(5) / R905.1.1.1(2&3, Exception), R905.1.1.1(5)	Hangzhou, China	synthetic roof underlayment comprised of layers of polyolefin film
4.10	Gator-Skin 10™ Synthetic Roof Underlayment	1507.1.1.1(2&3, Exception), 1507.1.1.1(5) / R905.1.1.1(2&3, Exception), R905.1.1.1(5)	Guijarat, India	synthetic roof underlayment comprised of layers of polypropylene film
4.11	Weather-Armor® CrossOver CX-L Premium Hybrid Roof Underlayment	1507.1.1.1(2&3, Exception), 1507.1.1.1(5) / R905.1.1.1(2&3, Exception), R905.1.1.1(5)	Hangzhou, China	hybrid underlayment comprised of two layers of polyolefin and polyester synthetic fabric with a layer of modified bitumen between the two

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 Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in FBC High Velocity Hurricane Zone jurisdictions (i.e., Broward and Miami-Dade Counties).
- 5.3 This Evaluation Report 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 Evaluation Report 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 **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.

5.6 Allowable Roof Covers:

TABLE 1: ROOF COVER OPTIONS						
<i>FBC Section:</i>	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-Set			
Gardner® Gard-Lock	YES	NO	NO	NO	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Weather-Armor® FT ³ Tile Underlayment	YES	YES	Yes (See 5.6.1)	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Eagle-Armor by Apoc	YES	YES	Yes (See 5.6.1)	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
TriBuilt Fleece Tile Underlayment	YES	YES	Yes (See 5.6.1)	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Weather-Armor® HT ² High Temp Premium Roof Underlayment	YES	NO	NO	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Weather-Armor® HT ³ High Temp Premium Roof Underlayment	YES	NO	NO	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
TriBuilt High Temp Metal Underlayment	YES	NO	NO	YES	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Weather-Armor® SB-1 Self-Bond® Roof Underlayment	YES	NO	NO	NO	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
TriBuilt Ice and Water Underlayment	YES	NO	NO	NO	YES	YES (joint strips, 1507.1.1.3 / R905.1.1.3)
Gator-Skin™ Synthetic Roof Underlayment	YES	NO	NO	YES	YES	NO
Gator-Skin 10™ Synthetic Roof Underlayment	YES	NO	NO	YES	YES	NO
Weather-Armor® CrossOver CX-L Premium Hybrid Roof Underlayment	YES	NO	NO	YES	YES	NO

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

TABLE 1A: ALLOWABLE UNDERLAYMENT / TILE-ADHESIVE COMBINATIONS¹		
Underlayment	Adhesive	Florida Product Approval
Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment	DAP "Touch 'n Seal StormBond Roof Tile Adhesive"	FL14506
	Dupont "Tile Bond™ Roof Tile Adhesive"	FL22525
	ICP Adhesives "Polyset® AH-160"	FL6332

¹ Refer to Tile Manufacturer's or Adhesive Manufacturer's Florida Product Approval for Overturning Moment Resistance Performance.

5.7 Allowable Substrates:

TABLE 2: SUBSTRATE OPTIONS	
Underlayment	Substrates
Gardner® Gard-Lock, Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® HT ² High Temp Premium Roof Underlayment, Weather-Armor® HT ³ High Temp Premium Roof Underlayment, TriBuilt High Temp Metal Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment, TriBuilt Ice and Water Underlayment	Plywood
Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® HT ² High Temp Premium Roof Underlayment, Weather-Armor® HT ³ High Temp Premium Roof Underlayment, TriBuilt High Temp Metal Underlayment	OSB
Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment, Weather-Armor® HT ² High Temp Premium Roof Underlayment, Weather-Armor® HT ³ High Temp Premium Roof Underlayment, TriBuilt High Temp Metal Underlayment. <i>*Note: minimum 73°F ambient application temperature for structural concrete.</i>	Structural concrete*

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 For use under tile roof systems, attachment shall be in accordance with the manufacturer’s installation instructions, but not less than Section 5.8.3 herein.

5.8.3 Wind Resistance for Underlayment Systems in Tile Roof Applications:

The following wind uplift limitations apply to underlayment systems that are not prescriptive in the **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition. 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).

5.8.3.1 Direct-to-Deck:

The maximum design pressure for the selected assembly shall meet or exceed that required under **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition, Appendix A, Table 1A or the critical (highest) design pressure determined in accordance with **FBC 1609** or **FBC Residential Chapter 3**.

#1 Maximum Design Pressure = -52.5 psf:

- Deck: Min. 15/32-inch plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
- Primer: None
- Underlayment: Weather-Armor® FT³ Tile Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment, self-adhered.

#2 Maximum Design Pressure = -135.0 psf:

- Deck: Min. 19/32-inch APA span-rated CDX plywood to meet project requirements to satisfaction of Authority Having Jurisdiction.
- Primer: None.
- Underlayment: Weather-Armor® FT³ Tile Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment, self-adhered.

#3 All other direct-deck, adhered underlayment systems beneath tile roof systems carry a Maximum Design Pressure of -45 psf.

5.9 Exposure Limitations:

TABLE 3: EXPOSURE LIMITATIONS		
Underlayment	Prepared Roof Cover Installation Type	Maximum Exposure (days)
Gator-Skin™ Synthetic Roof Underlayment, Gator-Skin 10™ Synthetic Roof Underlayment, Weather-Armor® HT ² High Temp Premium Roof Underlayment or Weather-Armor® CrossOver CX-L Premium Hybrid Roof Underlayment	Mechanically attached	30
Gardner® Gard-Lock, Weather-Armor® SB-1 Self-Bond® Roof Underlayment, TriBuilt Ice and Water Underlayment	Mechanically attached	90
Weather-Armor® HT ³ High Temp Premium Roof Underlayment, TriBuilt High Temp Metal Underlayment	Mechanically attached	180
Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc, TriBuilt Fleece Tile Underlayment	Adhesive-set tile (Polyset® AH-160)	30
	Adhesive-set tile (Tile Bond™ Roof Tile Adhesive or Touch 'n Seal StormBond Roof Tile Adhesive)	90
	Mechanically attached	180

5.10 Tile Slippage Limitations: When loading roof tiles on the underlayment in direct-deck tile roof assemblies, the maximum roof slope shall be as follows. These slope limitations can only be exceeded by using battens during loading of the roof tiles.

TABLE 4: TILE SLIPPAGE LIMITATIONS FOR DIRECT-DECK TILE INSTALLATIONS			
Underlayment	Tile Profile	Staging Method	Maximum Slope
Weather-Armor® FT ³ Tile Underlayment, Eagle-Armor by Apoc, 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 **Gardner® Asphalt Corp.** published installation requirements subject to the Limitations set forth in Section 5 herein and the specifics noted below.
- 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 Gardner® Gard-Lock, Weather-Armor® HT² High Temp Premium Roof Underlayment, Weather-Armor® HT³ High Temp Premium Roof Underlayment, TriBuilt High Temp Metal Underlayment, Weather-Armor® SB-1 Self-Bond® Roof Underlayment or TriBuilt Ice and Water Underlayment:

- 6.3.1 Shall be installed in compliance with requirements for an approved self-adhering underlayment (ASTM D1970) in **FBC 1507.1.1.1** or **1507.1.1.3** or **FBC Residential R905.1.1.1** or **R905.1.1.3** 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**.

6.3.2 Multi-Ply Underlayment Systems:

Weather-Armor® HT³ High Temp Premium Roof Underlayment or TriBuilt High Temp Metal Underlayment followed by Weather-Armor® FT³ Tile Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment (per Section 6.4) is allowable for use under mechanically attached 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 Weather-Armor® FT³ Tile Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment:**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 **1507.1.1.3** or **FBC Residential R905.1.1.1** or **R905.1.1.3** 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**.

6.4.2 Tile Applications:

Shall be installed in compliance with requirements for a Self-Adhered Membrane in the **FRSA/TRI Florida High Wind Concrete and Clay Roof Tile Installation Manual**, Sixth Edition, and the manufacturer's installation instructions.

Refer to Section 5.8.2 for attachment limitations.

Refer to Table 4 for tile staging limitations.

6.5 Gator-Skin™ Synthetic Roof Underlayment, Gator-Skin 10™ Synthetic Roof Underlayment or Weather-Armor® CrossOver CX-L Premium Hybrid Roof Underlayment:

Shall be installed in compliance with requirements for a synthetic underlayment in **FBC 1507.1.1.1(2, Exception)**, **1507.1.1.1(3, Exception)** or **1507.1.1.1(5)** or **FBC Residential R905.1.1.1(2, Exception)**, **R905.1.1.1(3, Exception)** or **R905.1.1.1(5)** for the type of prepared roof covering to be installed, and the manufacturer's installation instructions. FBC requirements take precedence over the manufacturer's installation instructions.

6.5.2 Fasteners:

Minimum fasteners shall be corrosion resistant, ring-shank cap nails shall be as set forth in **FBC 1507.1.1.1** or **FBC Residential R905.1.1.1**.

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); (414) 248-6409; karen.buchmann@ul.com

- END OF EVALUATION REPORT -