



**NEMO | etc.**

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ENGINEER

TEST

CONSULT

## P.E. EVALUATION REPORT (PEER)

[\*\*APOC, sub of Gardner Asphalt Corp.\*\*](#)

4161 E. 7<sup>th</sup> 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 **8<sup>th</sup> Edition (2023) Florida Building Code, High Velocity Hurricane Zone** [\*\*sections noted herein\*\*](#).

**DESCRIPTION: Gardner® Roof Underlays (HVHZ)**

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

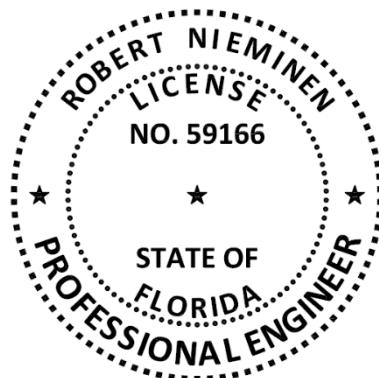
**CONTINUED COMPLIANCE:** This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify 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 Underlays, as produced by APOC, sub of Gardner Asphalt Corp., have demonstrated compliance with the following sections of the 8<sup>th</sup> 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 <sup>3</sup> 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 <sup>1</sup> | Springville, AL | nominal 60-mil thick, glass-fiber reinforced, polymer modified asphalt, granulated self-adhering underlayment   |
| TriBuilt Ice and Water Underlayment              | ASTM D1970 <sup>1</sup> | 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 Underlays** 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.

<sup>1</sup> 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.



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## 5.6 Allowable Roof Covers:

TABLE 2: ROOF COVER OPTIONS

| <u>FBC HVHZ:</u>  | <u>RAS 115, 1518.2.1</u> | <u>RAS 118, 119 &amp; 120</u> |                     | <u>RAS 133, 1518.2.1</u> | <u>1518.2.1</u>                     | <u>RAS 130, 1518.10</u>        |
|---|--------------------------|-------------------------------|---------------------|--------------------------|-------------------------------------|--------------------------------|
| <u>UNDERLayment</u>   | <u>ASPHALT SHINGLES</u>  | <u>CLAY AND CONCRETE TILE</u> |                     | <u>METAL</u>             | <u>SLATE OR SLATE-TYPE SHINGLES</u> | <u>WOOD SHINGLES OR SHAKES</u> |
|   |                          | <u>MECHANICAL ATTACH</u>      | <u>ADHESIVE-SET</u> |                          |                                     |                                |
| 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<br>(Table 2A)   | Yes                      | Yes                                 | Yes<br>(per RAS 130)           |
| Eagle-Armor by Apoc   | Yes                      | Yes                           | Yes<br>(Table 2A)   | Yes                      | Yes                                 | Yes<br>(per RAS 130)           |
| TriBuilt Fleece Tile Underlayment   | Yes                      | Yes                           | Yes<br>(Table 2A)   | Yes                      | Yes                                 | Yes<br>(per RAS 130)           |
| Weather-Armor® SB-1 Self-Bond® Roof Underlayment  | Yes                      | No                            | No                  | No                       | Yes                                 | Yes<br>(per RAS 130)           |
| TriBuilt Ice and Water Underlayment   | Yes                      | No                            | No                  | No                       | Yes                                 | Yes<br>(per RAS 130)           |

## 5.6.1 Allowable Tile Adhesives:

TABLE 2A: ALLOWABLE UNDERLayment / TILE-ADHESIVE COMBINATIONS<sup>2</sup>

| <u>UNDERLayment</u>   | <u>ADHESIVE</u>                                   | <u>HVHZ PRODUCT APPROVAL</u> |
|---|---|------------------------------|
| 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

| <u>UNDERLayment</u>  | <u>SUBSTRATES</u>    |
|--|----------------------|
| 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

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



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#### 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.<br>Note: Not for use as tile underlayment per <a href="#">Table 2</a> herein. | -135.0    |
| UDL-2.     | Plywood, APA rated sheathing, 40/20, Exposure 1, PS1, 19/32 category | None   | None            | None     | Weather-Armor® FT <sup>3</sup> 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 <sup>3</sup> 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 <sup>3</sup> 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 Underlays** 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 underlays 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 | <b>CODE REFERENCE:</b> <a href="#">1518.2.1, Option 1</a> : Underlayment adhered to deck   |
|       | DECK DESCRIPTION: Code-minimum wood or structural concrete deck to the satisfaction of the Authority Having Jurisdiction (refer to <a href="#">Table 3</a> for specific underlayment/substrate combinations)   |
|       | UNDERLAYMENT: <b>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</b> , 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 ( <a href="#">FBC HVHZ 1517.5</a> ) 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 <a href="#">Table 2</a> herein.  |
| 6.4.2 | <b>CODE REFERENCE:</b> <a href="#">1518.2.1, Option 2</a> : 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: <b>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</b> 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: <b>APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70</b> 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 ( <a href="#">FBC HVHZ 1517.5</a> ), 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 <a href="#">Table 2</a> herein.  |
| 6.4.3 | <b>CODE REFERENCE:</b> <a href="#">1518.2.1, Option 3</a> : 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 <b>APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20 or United FGUR 70</b> in accordance with FBC HVHZ 1518.2.1(3).  |
|       | FASTENING: FBC HVHZ Approved nails and tin caps ( <a href="#">FBC HVHZ 1517.5</a> ) 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 <a href="#">Table 2</a> herein.  |



|       |   |
|-------|---|
| 6.4.4 | <b>CODE REFERENCE:</b> <b>1518.2.1, Option 1 combined with Option 2 or 3:</b> Optional self-adhering strips to deck-joints followed by base sheet mechanically fastened to deck followed by underlayment adhered to base sheet  |
|       | <b>DECK DESCRIPTION:</b> Code-minimum wood deck to the satisfaction of the Authority Having Jurisdiction  |
|       | <b>SECONDARY WATER BARRIER:</b> (Optional) <b>Weather-Armor® FT<sup>3</sup> 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</b> 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.   |
|       | <b>BASE SHEET:</b> One (1) layer of <b>APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70</b> 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 <b>APOC® 26 #30 Tuff-Felt™, No. 30 ASTM, TRI-BUILT TB-9F25UR, United FGUR 20, United FGUR 70</b> or other FBC HVHZ Approved ASTM D226, Type II felt in accordance with FBC Section 1518.2.1(3), mechanically fastened to deck. |
|       | <b>FASTENING:</b> FBC HVHZ Approved nails and tin caps ( <a href="#">FBC HVHZ 1517.5</a> ), grid pattern of 12-inches between the overlaps and 6-inch spacing at the overlaps, in accordance with FBC HVHZ Table 1518.2.1.  |
|       | <b>UNDERLAYMENT:</b> <b>Weather-Armor® FT<sup>3</sup> Fleece-Top Roof Underlayment, Eagle-Armor by Apoc or TriBuilt Fleece Tile Underlayment</b> , 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 ( <a href="#">FBC HVHZ 1517.5</a> ).   |
|       | <b>SURFACING:</b> FBC HVHZ Approved asphalt shingles, metal roof panels or metal shingles, slate or slate type shingles, subject to the allowable roof covers in <a href="#">Table 2</a> 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](mailto:bsai.inspections@ul.com)

- END OF PEER -