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EVALUATION REPORT**Tarco Roofing**

One Information Way, Suite 225
Little Rock, AR 72202

Evaluation Report T39820.12.11-R2**FL9487-R4****Date of Issuance: 12/09/2011****Revision 2: 12/17/2015****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 product described herein has been evaluated for compliance with the 5th Edition (2014) Florida Building Code sections noted herein.

DESCRIPTION: LeakBarrier® EasyStick™ Modified Bitumen Roof Systems

LABELING: Labeling shall be in accordance with the requirements of the Accredited Quality Assurance Agency noted herein.

CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

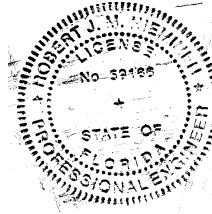
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INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 3, plus a 3-page Appendix.

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 12/17/2015. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client

CERTIFICATION OF INDEPENDENCE:

1. Exterior Research & Design, LLC. d/b/a Trinity|ERD 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. Exterior Research & Design, LLC. d/b/a Trinity|ERD 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 Trinity|ERD 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 SYSTEMS EVALUATION:

1. SCOPE:

Product Category: Roofing

Sub-Category: Modified Bitumen Roof Systems

Compliance Statement: LeakBarrier® EasyStick™ Modified Bitumen Roof Systems, as produced by Tarco Roofing, have demonstrated compliance with the following sections of the 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:

| <u>Section</u> | <u>Property</u> | <u>Standard</u> | <u>Year</u> |
|----------------|---------------------|-----------------|-------------|
| 1504.3.1 | Wind | FM 4474 | 2004 |
| 1504.7 | Impact | FM 4470 | 1992 |
| 1507.6.2 | Physical Properties | ASTM D226 | 2006 |
| 1507.11.2 | Physical Properties | ASTM D6163 | 2000 |
| 1507.11.2 | Physical Properties | ASTM D6164 | 2005 |

3. REFERENCES:

| <u>Entity</u> | <u>Examination</u> | <u>Reference</u> | <u>Date</u> |
|---------------|---------------------|----------------------|-----------------|
| PRI (TST5878) | Physical Properties | TOT-041-02-01 | 05/24/2006 |
| ERD (TST6049) | Physical Properties | T6470.08.07-R1 | 08/30/2007 |
| ERD (TST6049) | Wind - FM4470/4474 | T6460.06.07-R1 | 10/09/2007 |
| ERD (TST6049) | Wind - FM4470/4474 | TAR-SC5670.14 | 12/03/2015 |
| ERD (TST6049) | Wind - FM4470/4474 | TAR-SC7960.15 | 12/03/2015 |
| UL (QUA1743) | Quality Assurance | Service Confirmation | Exp. 10/13/2017 |

4. PRODUCT DESCRIPTION:

This Evaluation Report covers LeakBarrier® EasyStick™ Modified Bitumen Roof Systems installed in accordance with Tarco Roofing published installation instructions and the Limitations / Conditions of Use herein. The following products make up the subject systems.

| TABLE 1: ROLL-GOODS FOR LEAKBARRIER® EASYSTICK™ MODIFIED BITUMEN ROOF SYSTEMS | | | | |
|---|----------------------------|---------------------------|------|-------|
| Type | Product | Specification | | |
| | | Reference | Type | Grade |
| Base Sheets: | LeakBarrier® EasyLay™ | ASTM D226 | II | N/A |
| | LeakBarrier® EasyNailBase™ | ASTM D4601 (published) | II | N/A |
| Smooth Surfaced Membranes: | LeakBarrier® EasyBase™ | ASTM D6163 | I | S |
| Granule Surfaced Membranes: | LeakBarrier® EasyStick™ | ASTM D6164 | I | G |

5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD 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 HVHZ jurisdictions.
- 5.3 Refer to a current Roofing Materials Directory for fire ratings of this product.
- 5.4 For steel deck installations, foam plastic insulation shall be separated from the building interior in accordance with FBC 2603.4 unless the exceptions stated in FBC 2603.4.1 and 2603.6 apply.

- 5.5 The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the AHJ. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- 5.6 For recover installations, the existing roof shall be examined in accordance with FBC 1510.
- 5.7 For mechanically attached insulation or membrane or strip-bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16. Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117 and FM LPDS 1-29. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
- 5.8 For systems where all components are fully adhered, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems.
- 5.9 For mechanically attached insulation or membrane over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
- 5.10 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or TAS 124 shall be conducted on mock-ups of the proposed new roof assembly.
- 5.11 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or TAS 124.
- 5.12 Metal edge attachment (except gutters), shall be designed and installed for wind loads in accordance with FBC Chapter 16 and tested for resistance in accordance with ANSI/SPRI ES-1 or RAS 111, except the basic wind speed shall be determined from FBC Figure 1609.
- 5.13 All products in the roof assembly shall have quality assurance audit in accordance with the FBC and F.A.C. Rule 61G20-3.

6. INSTALLATION:

- 6.1 EasyStick™ Modified Bitumen Roof Systems shall be installed in accordance with Tarco Roofing published installation instructions, subject to the Limitations / Conditions of Use noted herein.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 1. "MDP" = 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). Refer to FBC 1609 for determination of design wind loads.

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.

9. QUALITY ASSURANCE ENTITY:

Underwriters Laboratories – QUA1743; (414) 248-6409; Karen.buchmann@us.ul.com

- THE THREE (3) PAGES THAT FOLLOWS FORMS PART OF THIS EVALUATION REPORT -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

| Table | Deck | Application | Type | Description | Page |
|-------|------|-----------------------------------|------|---|------|
| 1A | Wood | New, Reroof (Tear-Off) or Recover | C | Mech. Attached Insulation, Bonded Roof Cover | 2 |
| 1B | Wood | New, Reroof (Tear-Off) or Recover | D | Insulated, Mech. Attached Base Sheet, Bonded Roof Cover | 2 |
| 1C-1 | Wood | New or Reroof (Tear-Off) | E | Non-Insulated, Mech. Attached Base Sheet (nails), Bonded Roof Cover | 2 |
| 1C-2 | Wood | New, Reroof (Tear-Off) or Recover | E | Non-Insulated, Mech. Attached Base Sheet (screws & plates), Bonded Roof Cover | 3 |
| 1D | Wood | New or Reroof (Tear-Off) | F | Non-Insulated, Bonded Roof Cover | 3 |

The following notes apply to the systems outlined herein:

- The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the AHJ. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- Unless otherwise noted, fasteners and stress plates for insulation attachment shall be as follows. Fasteners shall be of sufficient length for the following engagements:
 - Wood Deck: OMG #12 or #14 HD with OMG 3 in. Galvalume Steel Plate or Tru-Fast DP or HD with MP-3 Plates. Minimum ¾-inch plywood penetration or minimum 1-inch wood plank embedment.
- Unless otherwise noted, insulation may be any one layer or combination of polyisocyanurate, polystyrene, wood fiberboard, perlite or gypsum-based roof board that meets the QA requirements of F.A.C. Rule 61G20-3 and is documented as meeting FBC 1505.1 and, for foam plastic, FBC Chapter 26, when installed with the roof cover.
- For mechanically attached components or partially bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16, and Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are RAS 117 and FM LPDS 1-29. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
- For assemblies where all components are fully adhered, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16, and no rational analysis is permitted.
- For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
- For existing substrates in a bonded recover or re-roof installation, the existing roof surface or existing roof deck shall be examined for compatibility and bond performance with the selected adhesive, and the existing roof system (for recover) shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52, ANSI/SPRI IA-1 or TAS 124.
- "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609 for determination of design wind loads.

TABLE 1A: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER

| System No. | Deck (See Note 1) | Base Insulation Layer | Top Insulation Layer | | | Roof Cover | | | MDP (psf) |
|------------|---------------------------------------|--|--|------------|-------------------------|------------|---------------------|----------------|-----------|
| | | | Type | Fasteners | Attach | Base Ply | Ply | Cap | |
| W-1. | Min. 15/32" plywood at max. 24" spans | (Optional) One or more layers, any combination, loose laid | Min. 3/8-inch SECUROCK Gypsum-Fiber Roof Board | See Note 2 | 1 per 1 ft ² | EasyBase | (Optional) EasyBase | EasyStick Plus | -52.5 |
| W-2. | Min. 15/32" plywood at max. 24" spans | (Optional) One or more layers, any combination, loose laid | Min. 2-inch ACFoam II, EnergyGuard Polyiso, ENRGY 3, H-Shield, ISO 95+ GL or Multi-Max FA3 | See Note 2 | 1 per 1 ft ² | EasyBase | (Optional) EasyBase | EasyStick Plus | -82.5 |

TABLE 1B: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE D: INSULATED, MECHANICALLY ATTACHED BASE SHEET, BONDED ROOF COVER

| System No. | Deck (See Note 1) | Insulation Layer | | Base Sheet | | | Roof Cover | | MDP (psf) |
|------------|---------------------------------------|------------------------------------|------------|--------------|------------|--|------------|----------------|-----------|
| | | Type | Attach | Type | Fasteners | Attach | Base Ply | Cap | |
| W-3. | Min. 15/32" plywood at max. 24" spans | Any type, thickness or combination | Loose laid | EasyLay | See Note 2 | 10-inch o.c. in the min. 4-inch lap and 10-inch o.c. in two (2), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -60.0 |
| W-4. | Min. 15/32" plywood at max. 24" spans | Any type, thickness or combination | Loose laid | EasyLay | See Note 2 | 8-inch o.c. in the min. 4-inch lap and 8-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -135.0 |
| W-5. | Min. 15/32" plywood at max. 24" spans | Any type, thickness or combination | Loose laid | EasyNailBase | See Note 2 | 6-inch o.c. in the min. 4-inch lap and 6-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -135.0 |

TABLE 1C-1: WOOD DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE E: NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET (nails), BONDED ROOF COVER

| System No. | Deck (See Note 1) | Base Sheet | | | Roof Cover | | MDP (psf) |
|------------|---------------------------------------|--------------|--|---|------------|----------------|-----------|
| | | Type | Fasteners | Attach | Base Ply | Cap | |
| W-6. | Min. 19/32" plywood at max. 24" spans | EasyLay | 12 ga. annular ring shank nails and min. 32 ga., 1-5/8" diameter tin-caps. (Ref: FBC 1517.5) | 7-inch o.c. in the 4-inch lap and 7-inch o.c. in three (3), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -60.0 |
| W-7. | Min. 15/32" plywood at max. 24" spans | EasyLay | Simplex MAXX Cap Fastener | 8-inch o.c. in the min. 4-inch lap and 8-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -82.5 |
| W-8. | Min. 15/32" plywood at max. 24" spans | EasyLay | 12 ga. annular ring shank nails and min. 32 ga., 1-5/8" diameter tin-caps. (Ref: FBC 1517.5) | 4-inch o.c. in the 4-inch lap and 4-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -120.0 |
| W-9. | Min. 15/32" plywood at max. 24" spans | EasyNailBase | 12 ga. annular ring shank nails and min. 32 ga., 1-5/8" diameter tin-caps. (Ref: FBC 1517.5) | 4-inch o.c. in the 4-inch lap and 4-inch o.c. in five (5), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -120.0 |

TABLE 1C-2: WOOD DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE E: NON-INSULATED, MECHANICALLY ATTACHED BASE SHEET (screws & plates), BONDED ROOF COVER

| System No. | Deck (See Note 1) | Base Sheet | | | Roof Cover | | MDP (psf) |
|------------|---------------------------------------|--------------|------------|--|------------|----------------|-----------|
| | | Type | Fasteners | Attach | Base Ply | Cap | |
| W-10. | Min. 15/32" plywood at max. 24" spans | EasyLay | See Note 2 | 10-inch o.c. in the min. 4-inch lap and 10-inch o.c. in two (2), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -60.0 |
| W-11. | Min. 15/32" plywood at max. 24" spans | EasyLay | See Note 2 | 8-inch o.c. in the min. 4-inch lap and 8-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -135.0 |
| W-12. | Min. 15/32" plywood at max. 24" spans | EasyNailBase | See Note 2 | 6-inch o.c. in the min. 4-inch lap and 6-inch o.c. in four (4), equally spaced, staggered center rows | EasyBase | EasyStick Plus | -135.0 |

TABLE 1D: WOOD DECKS – NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE F: BONDED ROOF COVER

| System No. | Deck (See Note 1) | | Roof Cover | | | MDP (psf) |
|------------|---------------------------------------|--|---------------------|---------------------|----------------|-----------|
| | Type | Joint Treatment | Base Ply | Ply | Cap | |
| W-13. | Min. 15/32" plywood at max. 24" spans | None | (Optional) EasyBase | (Optional) EasyBase | EasyStick Plus | -75.0 |
| W-14. | Min. 15/32" plywood at max. 24" spans | Plywood joints are covered with 4-inch wide strips of EasyBase, rolled into place to create continuous bond. | (Optional) EasyBase | (Optional) EasyBase | EasyStick Plus | -120.0 |