



NEMO|etc.

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ENGINEER

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

Duro-Last, a division of HOLCIM SOLUTIONS AND PRODUCTS US, LLC

525 Morley Drive
Saginaw, MI 48601
(800) 248-0280

PEER-DL-002.B
FL47091 (HVHZ)

Date of Issuance: 10/23/2024

SCOPE:

This P.E. PEER (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 product described herein has been evaluated for compliance with the **8th Edition (2023) Florida Building Code sections noted herein.**

DESCRIPTION: Duro-Shield® Waterproofing Systems (HVHZ)

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

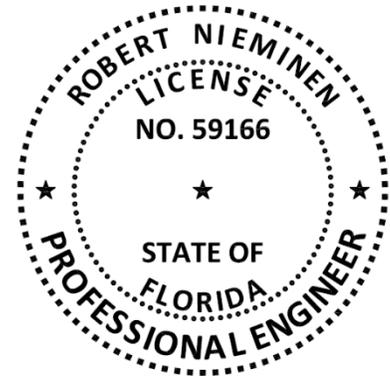
CONTINUED COMPLIANCE: This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify NEMO 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 3, plus a 2-page Appendix.

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.

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ROOFING SYSTEMS EVALUATION:

1. SCOPE:

Product Category: Roofing
Sub-Category: Waterproofing
Product Approval Method: Method 1, Option D – Codified Material, Evaluation by Engineer
Compliance Statement: Duro-Shield® Waterproofing Systems, as produced by Duro-Last, a division of HOLCIM SOLUTIONS AND PRODUCTS US, LLC, have demonstrated compliance with the following sections of the 8th Edition (2023) Florida Building Code, High Velocity Hurricane Zones (HVHZ) 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	Wind resistance	TAS 114
1507.15.2	Material standard	ASTM C957
1519.16.4	UV resistance	ASTM G154 per C1442
1519.16.4	UV resistance	ASTM G155 per C1442

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
NEMO	PEER	PEER-HSP-012.B.R1	10/16/2023
NEMO	Cross-Listing	FBC PCL	08/30/2024
UL, LLC (QUA 9625)	Quality Control	Service Confirmation Req.	10/22/2024

4. PRODUCT DESCRIPTION:

This PEER covers Duro-Shield® Waterproofing Systems applied to Approved substrates as outlined in [Limitations of Use](#) herein. The following products make up the subject systems.

TABLE 1: EVALUATED PRODUCTS			
PRODUCT	USE	MATERIAL STANDARD	PLANT(S)
Duro-Shield Urethane Base Coat	Top coat (pedestrian/traffic)	ASTM C957	Waukesha, WI
Duro-Shield Universal 2-Part Epoxy Primer	Primer		

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 The evaluation herein pertains to above-deck roof components; deck-attachment details pertain to ‘as-tested’ conditions under [Testing Application Standard TAS 114, Appendix J](#). Roof decks shall be in accordance with FBC HVHZ 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 This PEER does not include evaluation of roof edge termination. Refer to [Roofing Application Standard RAS 111](#) for requirements and limitations regarding edge securement for low-slope roofs.
- 5.6 Refer to **FBC HVHZ 1521** for requirements and limitations regarding recover installations.
- 5.6.1 For mechanically attached components 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 shall be in accordance with [Testing Application Standard TAS 105](#).
- 5.6.2 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 [Testing Application Standard TAS 124](#) shall be conducted on mock-ups of the proposed new roof assembly.
- 5.6.3 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 Authority Having Jurisdiction, as documented through field uplift testing in accordance with [Testing Application Standard TAS 124](#).
- 5.7 Refer to Appendix 1 for system attachment requirements for wind load resistance.
- 5.7.1 “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 [Testing Application Standard TAS 114](#) has already been applied). Refer to **FBC HVHZ 1620** and [Roofing Application Standard RAS 128](#) for determination of design wind loads.
- 5.7.2 For mechanically attached components, the maximum design pressure for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with **FBC HVHZ 1620** or [Roofing Application Standard RAS 128](#). Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Analysis shall be in accordance with [Roofing Application Standard RAS 117](#) or [RAS 137](#). **This extrapolation is not permitted for systems marked with an asterisk*.*
- 5.7.3 For tables and/or assemblies marked with an asterisk*, the maximum design pressure (MDP) limitation shall be applicable to all roof pressure zones. Rational analysis is not permitted.
- 5.8 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 listed in Appendix 1 that are produced by a Product Manufacturer other than the report holder on [Page 1](#) of this PEER.

6. INSTALLATION:

Duro-Shield® Waterproofing Systems shall be installed in accordance with **Duro-Last, a division of HOLCIM SOLUTIONS AND PRODUCTS US, LLC** current, published installation instructions, subject to the [Limitations of Use herein](#) noted herein. Flashing and detailing shall be in accordance with Duro-Last, a division of HOLCIM SOLUTIONS AND PRODUCTS US, LLC published installation instructions using Duro-Last, a division of HOLCIM SOLUTIONS AND PRODUCTS US, LLC specified materials to establish a watertight condition.

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

- THE TWO (2)-PAGES THAT FOLLOW FORM PART OF THIS PEER -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

TABLE	DECK	APPLICATION	TYPE	DESCRIPTOIN	PAGE
1A	Structural concrete	New or Reroof (Tear-Off)	F	Non-Insulated, Bonded Waterproofing (Pedestrian)	2
1B	Structural concrete	New or Reroof (Tear-Off)	F	Non-Insulated, Bonded Waterproofing (Vehicular)	2

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 HVHZ requirements to the satisfaction of the Authority Having Jurisdiction. Deck-attachment details pertain to 'as-tested' conditions under [Testing Application Standard](#) TAS 114, Appendix J.
- For assemblies marked with an asterisk*, 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.
- For components over existing substrates in a re-roof (tear off) installation, the existing deck shall be examined for compatibility with the components to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance shall be conducted on mock-ups of the proposed new roof assembly. Field uplift testing shall be in accordance with [Testing Application Standard](#) TAS 124.
- Unless otherwise noted, refer to the following for product uses and application rates.

WATERPROOFING COMPONENTS & APPLICATION RATES:		
PRODUCT	USE	RATE
GacoFlex U5677	Sealer	0.33 gal/square
GacoFlex E5990	Sealer	0.50 gal/square
Duro-Shield Universal 2-Part Epoxy Primer	Primer	0.40 gal/square
GacoFlex E5691	Sealer / Primer	0.33 gal/square
Duro-Shield Urethane Base Coat	Base coat	0.75 gal/square
	Intermediate Coat	0.75 gal/square GacoShell Granules broadcast per tables below.
	Top coat (pedestrian or vehicular)	0.75 gal/square

- Overburden of soil and plantings (for 'garden roofs'; root barriers, filter fabric, drainage components, EPS / XPS insulation, etc.) or concrete topping slabs, that are specified by the Designer of Record, acceptable to the Authority Having Jurisdiction and do not form part of the load path to the waterproofing system, are permissible over the assemblies noted herein with no adverse effect on the wind uplift performance of the waterproofing system. The Authority Having Jurisdiction may require integrity flood testing (ASTM D5957) or Electric Field Vector Mapping tests of all waterproofing systems prior to placement of overburden materials. Testing, if required by the Authority Having Jurisdiction, should be conducted by a qualified testing agency or professional.
- "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC (HVHZ) 1620 and [Roofing Application Standard](#) RAS 128 for determination of design wind loads.

**TABLE 1A: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE F: NON-INSULATED, BONDED WATERPROOFING (PEDESTRIAN)**

System No.	Designation	Deck (Note 1)	Sealer	Primer	Waterproofing (Note 4)			MDP (psf)*
					Base Coat	Intermediate Coat	Top Coat	
C-1.	GW-14-U91	Min. 2,500 psi structural concrete	GacoFlex U5677 or GacoFlex E5990	Duro-Shield Universal 2-Part Epoxy Primer	Duro-Shield Urethane Base Coat	Duro-Shield Urethane Base Coat with GacoShell Granule at 6-8 lbs/square	Duro-Shield Urethane Base Coat	-502.5
C-2.	GW-14-U91	Min. 2,500 psi structural concrete	(Optional) GacoFlex E5990	GacoFlex E5691	Duro-Shield Urethane Base Coat	Duro-Shield Urethane Base Coat with GacoShell Granule at 6-8 lbs/square	Duro-Shield Urethane Base Coat	-502.5

**TABLE 1B: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SYSTEM TYPE F: NON-INSULATED, BONDED WATERPROOFING (VEHICULAR)**

System No.	Designation	Deck (Note 1)	Sealer	Primer	Waterproofing (Note 4)			MDP (psf)*
					Base Coat	Intermediate Coat	Top Coat	
C-3.	GW-15-U91	Min. 2,500 psi structural concrete	GacoFlex U5677 or GacoFlex E5990	Duro-Shield Universal 2-Part Epoxy Primer	Duro-Shield Urethane Base Coat	Duro-Shield Urethane Base Coat with GacoShell Granule at 6-8 lbs/square	Duro-Shield Urethane Base Coat	-502.5
C-4.	GW-15-U91	Min. 2,500 psi structural concrete	(Optional) GacoFlex E5990	GacoFlex E5691	Duro-Shield Urethane Base Coat	Duro-Shield Urethane Base Coat with GacoShell Granule at 6-8 lbs/square	Duro-Shield Urethane Base Coat	-502.5