



NEMO | etc.

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ENGINEER

EVALUATE

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

Tuff Industries, Inc.

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Lake Country, BC V4V 1S7 Canada
(877) 860-9333

**PEER-TUFF-001.A.R6
FL13993-R6**

Date of Issuance: 08/12/2010
Revision 6: 11/29/2023

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 product described herein has been evaluated for compliance with the **8th Edition (2023) Florida Building Code** [sections noted herein](#).

DESCRIPTION: Tufdek Waterproofing Systems

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

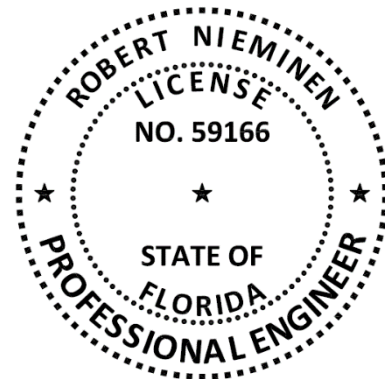
CONTINUED COMPLIANCE: This PEER is valid until such time as the named product(s) changes, the referenced Quality Assurance or production facility location(s) changes, or Code provisions that relate to the product(s) change. Acceptance of our PEERs by the named client constitutes agreement to notify NEMO 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: The Florida Product Approval Number (FL#) preceded by the words "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 4, 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.

ROOFING SYSTEMS EVALUATION:
1. SCOPE:

Product Category: Roofing
Sub-Category: Single Ply Roof Systems
Product Approval Method: Method 1, Option D – Codified Material, Evaluation by Engineer
Compliance Statement: Tufdek Waterproofing Systems, as produced by Tuff Industries, Inc., have demonstrated compliance with the following sections of the 8th Edition (2023) Florida Building Code 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
1504.3.1	Wind resistance	FM 4474
1504.6	Physical properties	ASTM G154
1504.7	Impact resistance	FM 4470
1507.12.2 & TAS 110	Material standard	ASTM D4434
TAS 110	Resistance to Foot Traffic	TAS 114, Section 8.9
TAS 110	Wind resistance	TAS 114, Appendix C, D or J
TAS 110	Susceptibility Hail Damage	TAS 114, Appendix F
TAS 110	Susceptibility to Leakage	TAS 114, Appendix G

3. REFERENCES:

ENTITY	EXAMINATION	REFERENCE	DATE
ERD (TST6049)	FM 4470/4474 / TAS 114	T32800.08.10-R1	08/10/2010
NEMO (TST6049)	ASTM D4434 / G154	4r-DL-19-SSTHP-01.A	04/29/2020
ITS (QUA1673)	Quality Control	Service confirmation	11/17/2020
ITS (QUA1673)	Quality Control	Listing Report	Current
ITS (QUA1673)	Quality Control	Florida BCIS	Current

4. PRODUCT DESCRIPTION:

This PEER covers Tufdek Waterproofing Systems installed in accordance with Tuff Industries, Inc. published installation instructions and the [Limitations of Use](#) herein.

TABLE 1: EVALUATED MEMBRANES

PRODUCT	MATERIAL STANDARD	PLANT(S)	DESCRIPTION
Tufdek	ASTM D4434, Type III	Saginaw, MI	Nominal 60-mil (1.5 mm) thick, polyester scrim reinforced, PVC single-ply roof membranes with two surface conditions; “Designer” and “Supreme”.

5. LIMITATIONS:

5.1 General:

- 5.1.1 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..
- 5.1.2 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.
- 5.1.3 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.

5.2 Non-HVHZ Jurisdictions:

- 5.2.1 This PEER 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.
- 5.2.2 This PEER does not include evaluation of roof edge termination. Refer to **FBC 1504.5** for requirements and limitations regarding edge securement for low-slope roofs.
- 5.2.3 Refer to **FBC 1511** for requirements and limitations regarding recover installations.
- 5.2.3.1 For bonded membrane over existing substrates in a re-roof (tear off) installation, the existing deck 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 [ANSI/SPRI IA-1](#), [ASTM E907](#), [FM Loss Prevention Data Sheet 1-52](#) or [Testing Application Standard TAS 124](#) shall be conducted on mock-ups of the proposed new roof assembly.
- 5.2.4 Refer to Appendix 1 for system attachment requirements for wind load resistance.
- 5.2.4.1 “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.
- 5.2.4.2 For assemblies with all components fully bonded in place, 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.

5.3 HVHZ Jurisdictions (i.e., Broward and Miami-Dade Counties):

- 5.3.1 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.
- 5.3.2 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.
- 5.3.3 Refer to **FBC HVHZ 1521** for requirements and limitations regarding recover installations.
- 5.3.3.1 For bonded membrane over existing substrates in a re-roof (tear off), the existing deck 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.

- 5.3.4 Refer to Appendix 1 for system attachment requirements for wind load resistance.
- 5.3.4.1 “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.
- 5.3.4.2 For assemblies marked with an asterisk*, the maximum design pressure (MDP) limitation shall be applicable to all roof pressure zones. Rational analysis is not permitted.
- 5.3.4.3 Direct-bonding to wood decks is not permitted in **FBC HVHZ** jurisdictions. Only the concrete deck assembly in Appendix 1 is permissible for use in **FBC HVHZ**.

6. INSTALLATION:

Tufdek Waterproofing Systems shall be installed in accordance with **Tuff Industries, Inc.** published installation instructions, subject to the [Limitations of Use](#) noted 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:

[Intertek Testing Services NA Inc.](#) – QUA1673; (312) 906-7779; maura.norlander@intertek.com

- THE 2-PAGES THAT FOLLOW FORM PART OF THIS PEER -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

TABLE	DECK	APPLICATION	TYPE	DESCRIPTION	PAGE
1	Wood	New, Reroof (Tear-Off)	F	Non-Insulated, Bonded Roof Cover	2
2	Concrete	New, Reroof (Tear Off)	F	Non-Insulated, Bonded Roof Cover	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 requirements to the satisfaction of the Authority Having Jurisdiction.
- For assemblies with all components fully bonded, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with **FBC 1609 (non-HVHZ jurisdictions)** or **FBC HVHZ 1620** or [Roofing Application Standard RAS 128 \(HVHZ jurisdictions\)](#). No rational analysis is permitted for these systems.
- For bonded insulation or membrane over existing substrates in a re-roof (tear off) installation, the existing deck 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 shall be conducted on mock-ups of the proposed new roof assembly. Field uplift testing shall be in accordance with ASTM E907, [FM Loss Prevention Data Sheet 1-52](#) or [Testing Application Standard TAS 124](#), as directed by the Authority Having Jurisdiction.
- Membrane adhesive application rates are as follows:
 - Tuff Trowel On applied to substrate only using a 1/16" x 1/16" x 1/16" U-notch trowel at 115-140 ft²/gal.
 - Tuff Roll-On applied to substrate only using Tufdek 6 mm solvent resistant adhesive roller 160 ft²/gal.
 - Tuff Low VOC Contact Adhesive applied to both the substrate and the bottom side of the roof cover at 50-70 ft²/gal (2.0 to 2.5 dry mils coated both sides).
- "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to **FBC 1609 (non-HVHZ jurisdictions)** or **FBC HVHZ 1620** or [Roofing Application Standard RAS 128 \(HVHZ jurisdictions\)](#) for determination of design wind pressures.

TABLE 1: WOOD DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER
NOT FOR USE IN HVHZ

System No.	Deck (Note 1)		Roof Cover (Note 4)		MDP (psf)
	Type / Attachment	Joint Treatment	Type	Application	
W-1	Minimum 5/8-inch thick T&G plywood mechanically attached 6-inch o.c. with #8 wood screws and bonded with LePage Bulldog Grip PL 400 Heavy-Duty Sub-Floor Adhesive to wood structural supports spaced max. 16-inch o.c.	Plywood joints are filled / leveled with Tuff Deck-Patch	Tufdek	Tuff Trowel-On, Tuff Roll-On or Tuff Low VOC Contact Adhesive	-172.5 NO HVHZ

TABLE 2: CONCRETE DECKS - NEW CONSTRUCTION or REROOF (Tear-Off)
SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER

System No.	Deck (Note 1)	Roof Cover (Note 4)		MDP (psf)
		Type	Application	
C-1.	Min. 2,500 psi structural concrete	Tufdek	Tuff Trowel On, Tuff Roll-On or Tuff Low VOC Contact Adhesive	-630.0