



NEMO|etc.

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ENGINEER

EVALUATE

TEST

CONSULT

P.E. EVALUATION REPORT (PEER)

Altenloh, Brinck & Co. U.S., Inc.

02105 Williams County Road 12-C
Bryan, OH 43506
(419) 636-6715

PEER-AB-001.A.R3

FL4500-R7 (NON-HVHZ)

Date of Issuance: 05/15/2012

Revision 3: 08/29/2023

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 designed to comply with the **8th Edition (2023) Florida Building Code** [sections noted herein](#).

DESCRIPTION: Trufast Roof Fastening Components (NON-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 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 PEER by the named client constitutes agreement to notify Robert Nieminen, P.E. of any changes to the product(s), the Quality Assurance, or the production facility location(s). NEMO|etc. requires a complete review of this PEER relative to updated Code requirements with each Code Cycle.

ADVERTISEMENT: The PEER number 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 7

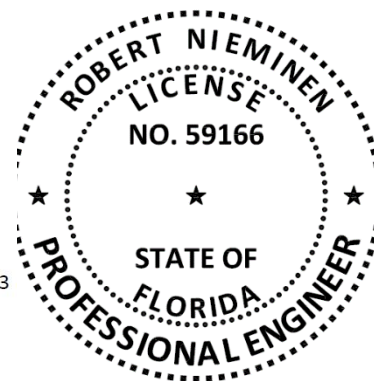
Prepared by:

Digitally signed by
Robert Nieminen
Date: 2023.08.29
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This item has been digitally signed and sealed by Robert Nieminen, P.E.

Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.

Robert Nieminen, Florida P.E. 59166, FBC ANE1983
NEMO ETC, LLC, Florida CA #32455



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. 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 COMPONENT EVALUATION:
1. SCOPE:

Product Category: Roofing
Sub-Category: Roofing Fasteners
Product Approval Method: Method 1, Option D – Codified Material, Evaluation by Engineer
Compliance Statement: Trufast Roof Fastening Components, as produced by Altenloh, Brinck & Co. U.S., Inc., have demonstrated compliance 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:

<u>Sections</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1506.6(2), 1513.1, 1520.4, 1523.6.5.2.9	Corrosion Resistance	TAS 114(E)	2011 (from 2023 Code)
1520.4, 1523.6.5.2.9	Withdrawal & Rupture	TAS 117(A), (B), (C)	1995 (from 2023 Code)

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
FM (TST 1867)	Withdrawal	0V7A4.AM	06/10/1992
FM (TST 1867)	Corrosion Resistance	0W4A1.AM	01/07/1993
FM (TST 1867)	Withdrawal	3030926	08/07/2007
FM (TST 1867)	Corrosion Resistance	3031797	05/19/2008
FM (TST 1867)	Corrosion Resistance	3061446	03/22/2018
FM (TST 1867)	Corrosion Resistance	PR449339	06/01/2018
FM (TST 1867)	Corrosion Resistance	3040205	06/08/2010
FM (TST 1867)	Corrosion Resistance	PR451159	05/09/2019
FM (TST 1867)	Corrosion Resistance	PR451160	03/12/2020
NEMO (TST 6049)	Withdrawal & Rupture	4-AB-18-001.05.18	05/08/2018
NEMO (TST 6049)	Withdrawal	4S-AB-18-001.08.18	08/01/2018
NEMO (TST 6049)	Withdrawal & Rupture	4u-AB-22-SSMFP-01.A	01/31/2023
FM (QUA 1860)	Quality Assurance	Inspection Report	11/12/2019

4. PRODUCT DESCRIPTION:
4.1 Fasteners:

<u>Part Name</u>	<u>Substrates</u>	<u>Head Style</u>	<u>Drive</u>
Trufast #12 DP Fastener	Wood, Steel	Truss	#3 Phillips
Trufast #12 DPH Fastener	Wood, Steel	Hex Washer	¼" Hex
Trufast #14 HD Fastener	Wood, Steel, Concrete	Truss	#3 Phillips
Trufast #14 HD Stainless Steel Bi-Metal Fastener	Wood, Steel	Truss	#3 Phillips
Trufast #14 Stainless Steel HD Fastener	Wood, Steel, Concrete	Truss	#3 Phillips
Trufast #15 EHD Fastener	Wood, Steel	Truss	#3 Phillips
Trufast #12 Purlin Fastener (square drive)	Steel	Pancake	#3 Square
Trufast ¼" Concrete Spike	Concrete	Pancake	N/A
Trufast SIP TP Fastener	Wood	Pancake	T-30 6 Lobe
Trufast SIP LD Fastener	Wood, Steel, Concrete	Pancake	T-30 6 Lobe
Trufast SIP HD Fastener	Steel	Pancake	T-30 6 Lobe
Trufast TL Fastener	CWF, Gypsum	Round	#4 Square
Trufast Versa-Fast Fastener	Wood, LWC, Gypsum	Lathe	#2 Phillips

4.2 Plates & Bars:

<u>Part Name</u>	<u>Dimensions</u>
Trufast 2" Metal Seam Plate	0.030" x 2" diameter Galvalume®
Trufast 2" Barbed Metal Seam Plate	0.030" x 2" diameter Galvalume®
Trufast 2.4" Barbed Metal Seam Plate	0.040" x 2.4" diameter Galvalume®
Trufast 2.4" Barbed Metal Seam Plate (14 Barb)	0.040" x 2.4" diameter Galvalume®
Trufast 2.4" Scoop Seam Plate	0.040" x 2.4" diameter Galvalume®
Trufast 2-3/4" Barbed Metal Seam Plate (EHD)	0.040" x 2.75" diameter Galvalume®
Trufast 2-3/4" Barbed Metal Seam Plate (SHD)	0.040" x 2.75" diameter Galvalume®
Trufast 3" Metal Insulation Plate	0.018" x 3" diameter Galvalume®
Trufast 3" Recessed Metal Insulation Plate	0.018" x 3" diameter Galvalume®
Trufast TL 3 in. Insulation Plate	0.017" x 3" diameter Galvalume®
Trufast PVC IW Plate	0.030" x 3.36" diameter AZ-50 Galvanized steel with a proprietary heat-activated adhesive coating; for use with PVC and KEE membranes.
Trufast TPO IW Plate	0.030" x 3.36" diameter AZ-50 Galvanized steel with a proprietary heat-activated adhesive coating; for use with TPO membranes
Trufast Versa-Fast Metal Plate	0.017" x 3" diameter Galvalume®; The plate has one center hole and 8 radially placed holes, each having a minimum 0.255-inch diameter. The plate is intended for use with one or more Trufast Versa-Fast Fasteners.
Trufast Flat Batten Bar	0.047" x 121" long bar or 220 ft long coil; Galvalume®; holes at 6 or 12" o.c.
Trufast Recessed Batten Bar	0.047" x 121" long bar; Galvalume®; holes at 6 or 12" o.c., recessed 1/8"

4.3 Pre-Assembled Components:

<u>Part Name</u>	<u>Substrates</u>	<u>Description</u>
Trufast 3" Pre-Assembled Insulation Plate	Wood, Steel	Trufast #12 DP with Trufast 3" Metal Insulation Plate or Trufast #12 DPH with Trufast 3" Recessed Metal Insulation Plate
Trufast FM-75 Base Sheet Fastener	Aggregate lightweight concrete, gypsum	Two piece factory assembled fastener and plate formed from stamped and folded steel. The fastener consists of dual 1.2 in. long rectangular gripping legs and a square cap that is formed from 0.013 in. thick G-90 hot dipped galvanized steel or cold rolled steel that is coated with a black urethane coating. The 2.7 in. diameter plate is formed from 0.013 in. thick Galvalume steel. The fasteners are designed for use in minimum 1 in. thick lightweight vermiculite, perlite or cellular concrete decks but may be used in sound existing poured gypsum decks if they can be driven without damage to the fastener or deck. The fasteners are designed to be installed through a base sheet into roof decks using a Magnetic Driver or Twin Loc Driver.
Trufast FM-90 Base Sheet Fastener	Cellular or aggregate lightweight concrete, gypsum	Two piece factory assembled fastener and plate formed from stamped and folded steel. The fastener consists of dual 1.7 in. long rectangular gripping legs and a square cap that is formed from 0.013 in. thick G-90 hot dipped galvanized steel or cold rolled steel that is coated with a black urethane coating. The 2.7 in. diameter plate is formed from 0.013 in. thick Galvalume steel. The fasteners are designed for use in minimum 2 in. thick lightweight vermiculite, perlite or cellular concrete decks but may be used in sound existing poured gypsum decks if they can be driven without damage to the fastener or deck. The fasteners are designed to be installed through a base sheet into roof decks using a Magnetic Driver or Twin Loc Driver.

4.3 Pre-Assembled Components:

Part Name	Substrates	Description
Trufast Twin Loc-Nail Assembled Fastener	Cementitious wood fiber, cellular or aggregate lightweight concrete, gypsum	Two piece factory assembled fastener and plate formed from stamped and folded steel. The fastener consists of a 1.4 in., 1.8 in., 2.8 in., 3.8 in. or 4.8 in. long tapered oval Galvalume or G-90 galvanized steel tube factory assembled to a 2.7 in. diameter Galvalume steel plate and a 0.080 in. diameter carbon or stainless steel locking staple. The fasteners are driven with a Twin Loc-Nail Driver by placing a fastener on the face of the driver with the exposed locking staple positioned in the slot in the face of the driver and driving the fastener into the roof deck with a single impact. A second impact drives the locking staple through the tube/plate assembly until it is flush with the top of the plate, forcing the legs of the locking staple out of the bottom of the tube and into the deck.

TABLE 1A: TYPICAL PERFORMANCE, STATIC WITHDRAWAL, ULTIMATE LOAD (LBF)
WOOD, STEEL AND STRUCTURAL CONCRETE

FASTENER	SUBSTRATE						
	19/32" OSB	19/32" PLYWOOD	22 GA., GRADE 40 STEEL	16 GA. GRADE 50 STEEL	1/8" THICK, GRADE 50 STEEL	1/4" THICK STEEL	3,000 PSI CONCRETE
Trufast #12 DP or DPH	475	565	471	N/A	N/A	N/A	N/A
Trufast #14 HD	N/A	586	492	N/A	N/A	N/A	636 (1.25" embed)
Trufast #14 HD Stainless Steel Bi-Metal Fastener	N/A	608	519	N/A	N/A	N/A	867 (1.25" embed)
Trufast #14 Stainless Steel HD	N/A	N/A	527	N/A	N/A	N/A	563 (1" embed)
Trufast #15 EHD	N/A	618	668	N/A	N/A	N/A	475 (1.25" embed)
Trufast #12 Purlin Fastener (square drive)	N/A	N/A	N/A	808	1,942	3,753	N/A
Trufast SIP TP Fastener	432	533	N/A	N/A	N/A	N/A	N/A
Trufast SIP LD Fastener	418	616	483	N/A	N/A	N/A	1,293 (1.25" embed)
Trufast SIP HD Fastener	N/A	N/A	N/A	559	1,643	5,320	N/A
Trufast 1/4" Concrete Spike	N/A	N/A	N/A	N/A	N/A	N/A	800 (1.25" embed)

TABLE 1B: TYPICAL PERFORMANCE, STATIC WITHDRAWAL, ULTIMATE LOAD (LBF)
LIGHTWEIGHT CONCRETE, TECTUM AND POURED GYPSUM DECK

FASTENER	SUBSTRATE		
	CELLULAR LIGHTWEIGHT CONCRETE (~300 PSI)	TECTUM®	POURED GYPSUM (~500 PSI)
Trufast TL	N/A	191 (1.5" embedment)	279 (1.5" embedment)
Trufast FM-75 Base Sheet Fastener	51	N/A	124
Trufast FM-90 Base Sheet Fastener	58	N/A	165
Trufast Twin Loc-Nail Assembled Fastener	92 (1.8" embedment)	123 (1.8" embedment)	88 (1.4" embedment)
Trufast Versa-Fast Fastener through Versa-Fast Metal Plate [one (1) 2.25" long screw per plate]	216	N/A	143

**TABLE 2A: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFast 3" METAL INSULATION PLATE OR TRUFast TL 3 IN. INSULATION PLATE**

MANUFACTURER	BASE SHEET	OVERLYING APPLICATION	RUPTURE (LBF)
Generic	ASTM D226, Type II Felt	Hot-asphalt	224
CertainTeed, LLC	Glasbase Base Sheet	Hot-asphalt	189
	All Weather/Empire Base Sheet	Hot-asphalt	215
	Flintlastic 20 Base	Hot-asphalt	303
	Flintlastic Poly SMS Base	Hot-asphalt	372
	Flintlastic SA NailBase	Self-adhering	278
GAF	GAFLAS #75 Base Sheet	Hot-asphalt	180
	GAFLAS #80 Ultima Base Sheet	Hot-asphalt	152
	GAFLAS Stratavent Eliminator (Nailable)	Hot-asphalt	155
	GAFLAS FlexPly 6	Hot-asphalt	209
	Liberty MA Mechanically Attached Base Sheet	Self-adhering	300
Holcim Solutions and Products U.S. LLC	Elevate MB Base M	Hot-asphalt	180
	Elevate SBS Base	Hot-asphalt	270
Johns Manville	PermaPly 28	Hot-asphalt	197
	Ventsulation	Hot-asphalt	258
	GlasPly Premier	Hot-asphalt	216
	DynaBase	Hot-asphalt	266
	JM APP Base	Torch-applied	208
Performance Roof Systems, A SOPREMA Group Company	PRS Glass Base	Hot-asphalt	228
	PRS Modified Base Sheet	Hot-asphalt	230
	PRS Vented Base	Hot-asphalt	202
	Derbibase	Torch-applied	241
	Derbibase Ultra	Torch-applied	232
Siplast	Parabase	Hot-asphalt	251
	Parabase Plus	Hot-asphalt	254
SOPREMA	Modified SOPRA-G	Hot-asphalt	222
	Soprabase	Hot-asphalt	380
The Garland Company	HPR Glasbase	Hot-asphalt	186
	HPR Premium Glasbase	Hot-asphalt	224
	HPR Tri-Base Plus	Hot-asphalt	463
Tremco CPG	BURmastic Composite Ply HT	Hot-asphalt	438

**TABLE 2B: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFast FM-75 OR FM-90 BASE SHEET FASTENER**

MANUFACTURER	BASE SHEET	OVERLYING APPLICATION	RUPTURE (LBF)
CertainTeed, LLC	Glasbase Base Sheet	Hot-asphalt	131
	Flintlastic Poly SMS Base	Hot-asphalt	222
GAF	GAFLAS #75 Base Sheet	Hot-asphalt	161
	GAFLAS Stratavent Eliminator (Nailable)	Hot-asphalt	178
Holcim Solutions and Products U.S. LLC	Elevate MB Base M	Hot-asphalt	164
Johns Manville	PermaPly 28	Hot-asphalt	194
	Ventsulation	Hot-asphalt	218
Siplast	Parabase	Hot-asphalt	202
	Parabase Plus	Hot-asphalt	200
SOPREMA	Modified SOPRA-G	Hot-asphalt	207
	Sopralene 180 Sanded 2.2	Hot-asphalt	214

TABLE 2B: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFAST FM-75 OR FM-90 BASE SHEET FASTENER

MANUFACTURER	BASE SHEET	OVERLYING APPLICATION	RUPTURE (LBF)
The Garland Company	HPR Glasbase	Hot-asphalt	212
Tremco CPG	BURMastic Glass Ply	Hot-asphalt	228
	BURMastic Composite Ply HT	Hot-asphalt	236

TABLE 2C: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFAST TWIN LOC-NAIL ASSEMBLED FASTENER

MANUFACTURER	BASE SHEET	OVERLYING APPLICATION	RUPTURE (LBF)
CertainTeed, LLC	Glasbase Base Sheet	Hot-asphalt	160
	All Weather / Empire Base Sheet	Hot-asphalt	249
GAF	GAFLAS #75 Base Sheet	Hot-asphalt	212
	GAFLAS Stratavent Eliminator (Nailable)	Hot-asphalt	238
Holcim Solutions and Products U.S. LLC	Elevate MB Base M	Hot-asphalt	207
Johns Manville	PermaPly 28	Hot-asphalt	206
	Ventsulation	Hot-asphalt	228
	DynaBase	Hot-asphalt	302
Siplast	Parabase	Hot-asphalt	217
	Parabase Plus	Hot-asphalt	279
SOPREMA	Modified SOPRA-G	Hot-asphalt	233
The Garland Company	HPR Glasbase	Hot-asphalt	242
Tremco CPG	BURmastic Composite Ply HT	Hot-asphalt	381

TABLE 2D: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFAST VERSA-FAST FASTENER THROUGH VERSA-FAST METAL PLATE (1 SCREW PER PLATE)

MANUFACTURER	BASE SHEET	OVERLYING APPLICATION	RUPTURE (LBF)
GAF	GAFLAS #75 Base Sheet	None	147
SOPREMA	SOPRAPHIX Base 613	None	329
	SOPRAPHIX Base 613	Heat-welded	427
Tremco CPG	POWERply Heavy Duty Base Sheet	None	467

TABLE 2E: TYPICAL PERFORMANCE, BASE SHEET RUPTURE (PULL-THROUGH), ULTIMATE LOAD (LBF)
TRUFAST 2" BARBED METAL SEAM PLATES OR TRUFAST 2.4" BARBED METAL SEAM PLATE
WITHIN HEAT-WELDED SIDE LAP

TRUFAST #15 EHD WITH....	MANUFACTURER	BASE MEMBRANE	OVERLYING APPLICATION	RUPTURE (LBF)
Trufast 2" Barbed Metal Seam Plate	CertainTeed, LLC	Flintlastic Ultra Poly SMS Base Sheet	4-inch wide heat-welded sidelap	435
	Johns Manville	DynaFast 180 HW		565
	SOPREMA	SOPRAPHIX Base 612		559
Trufast 2.4" Barbed Metal Seam Plate	CertainTeed, LLC	Flintlastic Ultra Poly SMS Base Sheet	5-inch wide heat-welded sidelap	541
	Johns Manville	DynaFast 180 HW		693
	SOPREMA	SOPRAPHIX Base 612		585

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 not for use in FBC High Velocity Hurricane Zone jurisdictions, as defined in FBC Chapter 2 (Broward and Miami-Dade Counties).
- 5.3 **Trufast Roof Fastening Components** are used within roofing systems holding Florida Statewide Product Approval. The products are for use in those roof assemblies that call-out the products listed herein by name. The performance data noted herein may be used by a qualified design professional in conjunction with system performance data for rational analysis and product substitution purposes on a project-by-project, Local Approval basis.
- 5.4 For mechanically attached insulation or membrane over existing roof substrates, fasteners shall be tested in the existing substrate 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 [ANSI/SPRI FX-1](#) or [Testing Application Standard TAS 105](#).
- 5.5 All products in the roof assembly shall have quality assurance audit in accordance with [F.A.C. Rule 61G20-3](#).

6. INSTALLATION:

Fasteners, plates and batten bars shall be installed in accordance the manufacturer's published installation instructions and the roof assembly Florida Statewide or Local Product Approval.

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 LOCATIONS:

Bryan, OH

9. QUALITY ASSURANCE ENTITY:

FM Approvals – QUA1860; (781) 255-4783

- END OF PEER -