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NEMO EVALUATION REPORT (NER)

ALTENLOH, BRINCK & CO. U.S., INC.
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Bryan, OH 43506
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SUBJECT:	**TRUFAST® Roofing Adhesives**
SCOPE:	This NEMO Evaluation Report (henceforth 'NER') is issued under F.A.C. Rule 61G20-3 and the applicable rules and regulations governing Product Approval of construction materials in the State of Florida and ISO/IEC 17065 via NEMO|cert. NEMO Evaluations has evaluated the product described herein for compliance with the Code sections noted herein.
CODE:	2023 Florida Building Code, 8th Edition
JURISDICTION:	Non-HVHZ and HVHZ
NEMO CATEGORY:	Adhesives-Cements
FBC CATEGORY:	Roofing
FBC SUB-CATEGORY:	Cements-Adhesives-Coatings
CSI DIVISION:	07 00 00 Thermal and Moisture Protection
METHOD:	Method 2, Option A – Non-Codified Material, Evaluation by Evaluation Entity
COMPLIANCE STATEMENT:	**TRUFAST® Roofing Adhesives**, as produced by **ALTENLOH, BRINCK & CO. U.S., INC.**, has demonstrated compliance with the Code sections noted herein through testing in accordance with the referenced Standards, rational analysis and an ongoing quality assurance program. Compliance is subject to the Installation Requirements and Limitations of Use set forth herein.
QUALITY ASSURANCE:	Evidence of current quality assurance shall be listing and/or labeling in accordance with the requirements of NEMO|cert.
CONTINUED COMPLIANCE:	This NER is valid until such time the named product(s) change, the referenced Quality Assurance changes, or the evaluated Code provisions change. NEMO Evaluations requires, at minimum, a complete review of this NER with each 3-year Code Cycle.
BUILDING PERMIT REQUIREMENTS:	As required by the Building Official or Authority Having Jurisdiction to evaluate the installation of this product.
ADVERTISEMENT:	"NEMO Evaluated" may be displayed in advertising literature. If any portion of the NER is displayed, it shall be displayed in its entirety.
CERTIFICATION OF INDEPENDENCE:	✓ NEMO CERT, LLC has not, nor does it intend to acquire or will they acquire, a financial interest in any company manufacturing or distributing products it evaluates. ✓ NEMO CERT, LLC is not owned, operated or controlled by any company manufacturing or distributing products it evaluates. ✓ This is a building code evaluation. NEMO CERT, LLC is not, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance.

LINK TO TOP OF ATTACHMENT REQUIREMENTS

ISO/IEC 17065 PCA-145

ISO/IEC 17020 AA-779

1. CODES, PROPERTIES AND STANDARDS:

Code	Section	Property	Standard
2023 Florida Building Code, 8th Edition	1504.3.1	Wind resistance	FM 4474
	TAS 110	Wind resistance	TAS 114(D)

2. PRODUCTS:

TABLE 1A: EVALUATED ADHESIVES
(NEMO Certified. Consult Directory of Certified Products for production location(s))

TRADE NAME	NOMINAL DIMENSIONS	DESCRIPTION
TRUFAST® Roofing Adhesive	1,500 ml cartridge, pressurized tank or 15 or 50 gallon drum	Two-component, polyurethane foam adhesive for securement of insulations, thermal barriers, coverboards and fleece-backed membranes to acceptable substrates
TRUFAST® Roofing Adhesive Tanks	Pressurized tank	Two-component, polyurethane foam adhesive for securement of insulations, thermal barriers, coverboards and fleece-backed membranes to acceptable substrates

TABLE 1B: TYPICAL NOMINAL PROPERTIES

PROPERTY		STANDARD	RESULT
TRUFAST® Roofing Adhesive	Density at 73°F, lb/ft^3	ASTM D1622	5.4
	Compressive strength at 10% deformation, psi	ASTM D1621	Parallel to rise: 27 Perpendicular to rise: 14
	Tensile strength, psi	ASTM D1623	37
	Water absorption, % by volume	ASTM D2842	3
	Flame spread index (FSI)	ASTM E84	20
	Smoke develop index (SDI)	ASTM E84	30
	Self-ignition temperature, °F	ASTM D1929	970
TRUFAST® Roofing Adhesive Tanks	Density at 73°F, lb/ft^3	ASTM D1622	2.2
	Compressive strength at 10% deformation, psi	ASTM D1621	Parallel to rise: 14
	Tensile strength, psi	ASTM D1623	25
	Water absorption, % by volume	ASTM D2842	1
	Flame spread index (FSI)	ASTM E84	35
	Smoke develop index (SDI)	ASTM E84	90 - 140
	Volatile content, % by weight	ASTM 2369	2.8
	Self-ignition temperature, °F	ASTM D1929	986

3. INSTALLATION:

3.1 **TRUFAST® Roofing Adhesives** shall be installed in accordance with **ALTENLOH, BRINCK & CO. U.S., INC.** published installation instructions, subject to the Limitations of Use noted herein.

3.1.1 Insulation Adhesives:

(a) Unless otherwise noted, insulation adhesive application rate is continuous ribbons, maximum 12-inch o.c. Ribbons shall be applied and insulation boards shall be set in accordance with the manufacturer's published instructions. When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, boards shall be staggered from layer-to-layer. The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing.

(b) Adhered Insulation, Board Size:

- Non-HVHZ: Unless otherwise noted, refer to Section 2.2.10.6.2 of FM Loss Prevention Data Sheet 1-29.
- HVHZ: Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.

3.1.2 When used as a fleece-back membrane adhesive, spatter-application is also permissible. Refer to the roof system manufacturer's Florida Product Approval or NOA for performance ratings using spatter-application techniques.

4. LIMITATIONS OF USE:

4.1 General:

4.1.1 This is a building code evaluation. NEMO CERT, LLC is not, in any way, the Designer of Record for any project on which this NER, or previous versions thereof, is/was used for permitting or design guidance. NERs are not to be construed as representing any attributes not specifically listed, nor are NERs to be construed as an endorsement of the subject of the report or a recommendation for its use. There is no warranty by NEMO CERT, LLC, express or implied, as to any finding or other matter in this report, or as to any product covered by the report.

4.1.2 Roof Decks:

(a) This NER pertains to above-deck roof components. Roof decks and structural members shall be in accordance with applicable Code requirements to the satisfaction of the Authority Having Jurisdiction.

(b) Unless otherwise noted, reference to 'structural concrete' pertains to min. 2,500 psi structural concrete, and excludes 'structural lightweight concrete'.

4.1.3 All components in the roof assembly shall have quality assurance surveillance in accordance with **F.A.C. Rule 61G20-3**. For components listed herein that are produced by a manufacturer other than the report holder on Page 1 of this NER, refer to the Florida Product Approval or NOA of the component manufacturer.

4.2 Jurisdiction Specific:

	Non-HVHZ	HVHZ
4.2.1	This NER does not include evaluation of fire classification. Refer to **FBC 1505,** UL TGFU.R40430 and the fire classification certificate for the roof cover manufacturer for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.	This NER does not include evaluation of fire classification. Refer to **FBC HVHZ 1516,** UL TGFU.R40430 and the fire classification certificate for the roof cover manufacturer for requirements and limitations regarding roof assembly fire classification. Refer to **FBC 2603** for requirements and limitations concerning the use of foam plastic insulation.
4.2.2	This NER does not include evaluation of roof edge termination. Refer to **FBC 1504.5** for requirements and limitations regarding edge securement for low-slope roofs.	This NER does not include evaluation of roof edge termination. Refer to **RAS 111** for requirements and limitations regarding edge securement for low-slope roofs.
4.2.3	Refer to **FBC 1511** for requirements and limitations regarding recover installations.	Refer to **FBC HVHZ 1521** for requirements and limitations regarding recover installations.
(a)	For adhered re-roof (tear off) installation, the existing substrate shall be examined for compatibility with the adhesive. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with **ANSI/SPRI IA-1**, **FM Loss Prevention Data Sheet 1-52** or **TAS 124** shall be conducted on mock-ups of the proposed interface.	For adhered re-roof (tear off) installation, the existing substrate 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 **TAS 124** shall be conducted on mock-ups of the proposed interface.
(b)	For adhered recover installation, the existing roof system shall meet project design pressure requirements on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing in accordance with **FM Loss Prevention Data Sheet 1-52** or **TAS 124**.	For adhered recover installation, the existing roof system shall meet project design pressure requirements on its own merit to the satisfaction of the Authority Having Jurisdiction, as documented through field uplift testing in accordance with **TAS 124**.

4.2.4 Wind Load Resistance:

(a) Refer to Section 4.3 for a tabulated summary of sub-assembly listings and maximum allowable design pressures. The performance data therein pertains to sub-assembly interfaces involving **TRUFAST® Roofing Adhesive**. If a roof system's Product Approval documentation does not specifically include **TRUFAST® Roofing Adhesive**, the sub-assembly data herein is acceptable for comparison with the MDP limitation of the proposed roof system. The lesser of the MDP listed herein vs. that from the Roof System Product Approval documentation applies.

	Non-HVHZ	HVHZ
(b)	"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.	"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 **TAS 114** has already been applied)*. Refer to **FBC HVHZ 1620** or **RAS 128** for determination of design wind loads.
(c)	The MDP for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with **FBC Chapter 16**. Elevated pressure zones shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are **ANSI/SPRI WD1**, **FM Loss Prevention Data Sheet 1-29**, **RAS 117** and **RAS 137**. Assemblies marked with an asterisk* carry the limitations set forth in **Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29** for Zone 2/3 enhancements.	The MDP for the selected assembly shall meet or exceed at least the Zone 1 PRIME design pressure determined in accordance with **FBC HVHZ 1620** or **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 **RAS 117** or **RAS 137**.
(d)	For fully-adhered installations, the maximum design pressure for the selected assembly shall meet or exceed the critical design pressure. Rational analysis is not permitted.	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.

4.3 Sub-Assembly Listings and Allowable Design Pressures: See Section 4.2.4

TABLE 2: STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF)
SUB-ASSEMBLY TYPE A-1: DIRECT-TO-DECK, BONDED INSULATION

Sub-Assembly No.	Deck (4.1.2 and 4.2.3)	Base Insulation Layer		Top Insulation Layer		Roof Cover (4.2.4a)	MDP, PSF
		Product	Adhesive (3.1.1)	Product	Adhesive (3.1.1)		
C-1.	Structural concrete	One or more layer(s), min. 1.5-inch Atlas Roofing "ACFoam II" or "ACFoam III", GAF "EnergyGuard Polyiso Insulation" or "EnergyGuard Ultra", Holcim "ISOGARD GL" or "ISOGARD CG", Hunter Panels "H-Shield" or "H-Shield CG" or Rmax "Multi-Max FA3" or "Ultra-Max"	TRUFAST® Roofing Adhesive or TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Min. 0.5-inch Atlas Roofing "ACFoam HD CoverBoard", GAF "EnergyGuard HD Polyiso Cover Board", Holcim "ISOGARD HD" or Hunter Panels "H-Shield HD"	TRUFAST® Roofing Adhesive or TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-165.0*
C-2.	Structural concrete	One or more layer(s), min. 1.5-inch Atlas Roofing "ACFoam II" or "ACFoam III", GAF "EnergyGuard Polyiso Insulation" or "EnergyGuard Ultra", Holcim "ISOGARD GL" or "ISOGARD CG", Hunter Panels "H-Shield" or "H-Shield CG" or Rmax "Multi-Max FA3" or "Ultra-Max"	TRUFAST® Roofing Adhesive or TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Min. 0.25-inch Georgia-Pacific Gypsum "DensDeck", "DensDeck Prime" or "DensDeck StormX Prime" or United States Gypsum Company "SECUROCK Gypsum-Fiber Roof Board" or min. 7/16-inch National Gypsum "DEXcell Cement Roof Board"	TRUFAST® Roofing Adhesive or TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-195.0*
C-3.	Structural concrete	One or more layer(s), min. 1.5-inch Holcim "ISOGARD GL"	TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	None	N/A	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-262.5*
C-4.	Structural concrete	None	N/A	Min. 0.25-inch United States Gypsum Company "SECUROCK Ultralight Glass-Mat Roof Board" or "SECUROCK Gypsum-Fiber Roof Board" or Georgia-Pacific Gypsum "DensDeck", "DensDeck Prime" or "DensDeck StormX Prime" or National Gypsum "DEXcell FA Glass Mat Roof Board" or min. 7/16-inch National Gypsum "DEXcell Cement Roof Board"	TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-315.0*
C-5.	Structural concrete	One or more layer(s), Min. 1.5-inch Atlas Roofing "ACFoam II" or Hunter Panels "H-Shield"	TRUFAST® Roofing Adhesive, ribbons max. 12-inch o.c.	None	N/A	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-322.5*
C-6.	Structural concrete	One or more layer(s), min. 1.5-inch GAF "EnergyGuard Polyiso Insulation"	TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Min. 0.25-inch United States Gypsum Company "SECUROCK Gypsum-Fiber Roof Board"	TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-345.0*
C-7.	Structural concrete	One or more layer(s), min. 1.5-inch Atlas Roofing "ACFoam III", GAF "EnergyGuard Ultra", Holcim "ISOGARD CG", Hunter Panels "H-Shield CG" or Rmax "Ultra-Max"	TRUFAST® Roofing Adhesive, ribbons max. 12-inch o.c.	None	N/A	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-390.0*

TABLE 2: STRUCTURAL CONCRETE DECKS - NEW CONSTRUCTION OR REROOF (TEAR-OFF) SUB-ASSEMBLY TYPE A-1: DIRECT-TO-DECK, BONDED INSULATION							
SUB-ASSEMBLY NO.	DECK (4.1.2 AND 4.2.3)	BASE INSULATION LAYER		TOP INSULATION LAYER		ROOF COVER (4.2.4a)	MDP, PSF
		PRODUCT	ADHESIVE (3.1.1)	PRODUCT	ADHESIVE (3.1.1)		
C-8.	Structural concrete	One or more layer(s), Min. 1.5-inch Atlas Roofing "ACFoam II" or "ACFoam III" or Hunter Panels "H-Shield" or "H-Shield CG"	TRUFAST® Roofing Adhesive, ribbons max. 4-inch o.c.	(Optional) Min. 0.25-inch Georgia-Pacific Gypsum "DensDeck", "DensDeck Prime" or "DensDeck StormX Prime", National Gypsum "DEXcell FA Glass Mat Roof Board" or United States Gypsum Company "SECUROCK Gypsum-Fiber Roof Board", min. 0.5-inch Atlas Roofing "ACFoam HD CoverBoard", GAF "EnergyGuard HD Polyiso Cover Board", Holcim "ISOGARD HD" or Hunter Panels "H-Shield HD" or min. 7/16-inch National Gypsum "DEXcell Cement Roof Board"	TRUFAST® Roofing Adhesive, ribbons max. 4-inch o.c.	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-412.5*
C-9.	Structural concrete	Min. 0.5-inch Holcim "ISOGARD HD"	TRUFAST® Roofing Adhesive Tanks, ribbons max. 12-inch o.c.	None	N/A	Refer to Roof System Florida Product Approval or NOA of the Roof System Manufacturer	-472.5*