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NEMO EVALUATION REPORT (NER)

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SUBJECT:	**PanelShield™ SA**
SCOPE:	This NEMO Evaluation Report (henceforth 'NER') is issued under ISO/IEC 17065 via NEMO|cert. NEMO Evaluations has evaluated the product described herein for compliance with the Code sections noted herein.
CODE:	2024 International Building Code (IBC) 2024 International Residential Code (IRC)
CATEGORY:	Barrier
CSI DIVISION:	07 00 00 Thermal and Moisture Protection 07 25 00 Water-Resistive Barriers / Weather Barriers 07 27 00 Air Barrier
EVALUATED PROPERTIES:	Physical properties Water resistance Air leakage Heat-release, heat-of-combustion characteristics Surface-burning characteristics
COMPLIANCE STATEMENT:	**PanelShield™ SA**, as produced by **VaproShield LLC**, 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:	The NEMO Evaluation Report (henceforth '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

ISO/IEC 17065 PCA-145

ISO/IEC 17020 AA-779

1. CODES, PROPERTIES AND STANDARDS:

CODE	SECTION	PROPERTY	STANDARD
2024 International Building Code (IBC) 2024 International Residential Code (IRC)	104.2.3, 1403.2(5), R104.2.2, R703.2(5)	Provision for alternative materials; Water-resistive barrier	ICC-ES AC38
	1402.6(2)	Heat and visible smoke release rates	ASTM E1354
	1402.6(2)	Surface burning characteristics	ASTM E84
2024 International Energy Conservation Code (IECC)	C402.6.2.3.1	Air leakage	ASTM E2178
	C402.6.2.3.2	Air leakage	ASTM E2357

2. PRODUCTS:

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

TYPE	PRODUCT	EVALUATION STANDARD	DESCRIPTION	USE
BARRIER, SHEET-APPLIED:	PanelShield™ SA	ICC-ES AC38 (June 2024)	A vapor-permeable, self-adhered membrane comprised of a polyacrylic coating on spun-bond polyester fabric and bottom side surfaced with a pressure-sensitive adhesive (PSA) and release film	The sheet-applied membrane serves as an alternative to the water-resistive barrier specified in IBC 1402.6 (Exceptions 1 and 2), 1403.2(5), 2510.6.1(2) and 2510.6.2(1) and IRC R703.2(5), R703.7.3.1(2) and R703.7.3.2(1)

TABLE 1B: EVALUATED VAPROSHIELD ACCESSORIES
(Contact contact@nemocert.com for production location(s) of non-Certified products)

TYPE	PRODUCT	EVALUATION STANDARD	DESCRIPTION	USE
FLASHING:	PanelFlashing™ SA	ICC-ES AC38 (June 2024)	PanelShield™ SA, cut to 11 ¾-inch wide rolls	Accessory product for use in conjunction with PanelShield™ SA
JOINT-TREATMENT / FLASHING:	VaproLiqui-Flash™	ICC-ES AC38 (June 2024) Section 3.7, ASTM E2357	Liquid-applied flashing material	Accessory product for use in conjunction with PanelShield™ SA

TABLE 1C: TYPICAL NOMINAL PROPERTIES
PANELSHIELD™ SA

PROPERTY		STANDARD	RESULTS	
Thickness		TAPPIT 441	14	mils
Dry breaking force	MD	ASTM D5034	125	lbf
	XMD		85	lbf
Water resistance	Control	AATCC TM 127	Pass	No leakage on underside of specimens at 55-cm hydrostatic head for 5-hours
	Weathered (per AC38, 4.1)		Pass	
Water Vapor	Transmission	ASTM E96, Procedure A (desiccant)	53	grams/m² per 24 hrs.
	Permeance		8	perms
Water Vapor	Transmission	ASTM E96, Procedure B (water)	158	grams/m² per 24 hrs.
	Permeance		23	perms
Surface burning characteristics	Flame-spread index	ASTM E84	0	Class A
	Smoke developed index		0	Class A
Fire response characteristics	Peak heat release rate	ASTM E1354	35	kW/m²
	Total heat released		1.6	MJ/m²
	Effective heat of combustion		1.4	MJ/kg
Air leakage rate	*As air barrier material*	ASTM E2178	0.002	L/(s·m²) @75 Pa

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TABLE 1C: TYPICAL NOMINAL PROPERTIES PANELSHIELD™ SA				
PROPERTY		STANDARD	RESULTS	
Air leakage rate	*As air barrier assembly with VaproLiqui-Flash™*	ASTM E2357	0.027	L/(s·m²) @75 Pa
90° Peel adhesion *(control condition)*	to aluminum	ASTM E3330, Method F	2.7	lbf/in.
	to glass-faced gypsum-board		3.0	
	to OSB		1.5	
	to plywood		2.7	
	to vinyl		2.3	
	to itself		1.7	

3. INSTALLATION:

3.1 General:

3.1.1 **PanelShield™ SA** shall be installed in accordance with **VaproShield**, published installation instructions, subject to the Limitations of Use noted herein. Published installation instructions and a copy of this NER shall be available onsite at all times during installation.

3.1.2 Surface Preparation:

The substrate bonding surface shall be clean, dry, free of voids, oils, wax, dust or other bond-breaking substances. Consult **VaproShield** for appropriate surface treatment options when deemed appropriate by the installer or Authority Having Jurisdiction.

Cracks, corners, joints, fasteners, vertical-to-horizontal junctures and penetrations of the walls to which **PanelShield™ SA** is applied shall be made watertight in accordance with the applicable code, to the satisfaction of **VaproShield** and the Authority Having Jurisdiction, prior to installation.

3.1.3 Sequencing:

PanelShield™ SA is installed after wall sheathing is installed and before windows and doors are installed. The water-resistive barrier shall be covered with an exterior wall covering in accordance with the applicable Code to the satisfaction of the Authority Having Jurisdiction.

3.2 PanelShield™ SA:

3.2.1 **PanelShield™ SA** shall be installed in compliance with requirements for an approved water-resistive barrier material in IBC 1402.6 (Exceptions 1 and 2), 1403.2(5), 2510.6.1(2) and 2510.6.2(1) and IRC R703.2(5), R703.7.3.1(2) and R703.7.3.2(1) for the type of exterior wall covering to be installed, subject to the Limitations of Use herein and the manufacturer's published installation instructions.

3.2.2 Wall Substrate Application:

Starting at the low point of the wall area, position the sheet in place on the prepared wall substrate, ensuring sheets are aligned with adjacent sheets to provide min. 3-inch laps. Inside and outside vertical corner overlaps shall be min. 6-inch in both directions.

Partially remove the release film from the back side and adhere the leading edge in place. Slowly remove the release film while applying pressure to the surface of the sheet, preventing air pockets from forming beneath the sheet.

Once the sheet is in place, use a hard-roller to roll-in the entire sheet and remove all residual air bubbles and wrinkles.

3.2.3 Flashings and Sealants:

Measure, cut and install **PanelFlashing™** SA such that each piece extends min. 9-inch beyond the rough opening on each side.

Post-apply **VaproLiqui-Flash™** using a sausage-pack sealant gun at all **PanelShield™ SA** sheet terminations within 24-hours, and before exposure to inclement weather.

Apply **VaproLiqui-Flash™** in a zig-zag pattern, and use a flat blade putty knife to spread uniformly to the thickness required for each respective **VaproShield** detail; 12 to 15-wet mils. Ensure **VaproLiqui-Flash™** overlaps min. 1-inch onto the **PanelShield™ SA** surface.

4. LIMITATIONS OF USE:

4.1 Evaluation Scope:

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 In the event of conflict between this NER and the manufacturer's published instructions, this report governs.

4.1.3 The NER scope is limited to the water-resistive / air barrier materials.

4.1.4 Quality Assurance: All components in the wall assembly shall have quality assurance surveillance to the satisfaction of the Authority Having Jurisdiction. For Florida Product Approval, this shall be 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 supporting evidence held by the component manufacturer.

4.2 PanelShield™ SA:

4.2.1 **PanelShield™ SA** serves as an alternative to the water-resistive barriers specified in IBC 1402.6 (Exceptions 1 and 2), 1403.2(5), 2510.6.1(2) and 2510.6.2(1) and IRC R703.2(5), R703.7.3.1(2) and R703.7.3.2(1).

4.2.2 Application Temperature:

PanelShield™ SA is to be applied only when ambient air and surface temperatures are above 20°F and below 120°F.

- **PanelShield™ SA** has qualified "Level 3" (176°F) through the elevated temperature exposure tests set forth in Section 6 of AAMA 711.

VaproLiqui-Flash™ is to be applied only when ambient air and surface temperatures are above 35°F and below 95°F.

4.2.3 Allowable Substrates:

TABLE 4: ALLOWABLE SUBSTRATES

BARRIER		SUBSTRATE	
PRODUCT	APPLICATION	TYPE	MATERIAL
PanelShield™ SA or PanelFlashing™ SA	self-adhered	Barrier	PanelShield™ SA
		Wall / sheathing	• fiberglass-faced gypsum sheathing meeting ASTM C1177, • Oriented strand board (OSB) meeting U.S. DOC PS-2 or • Plywood, Exposure 1 exterior grade meeting U.S. DOC PS-1
		Windows / flashings	• aluminum (anodized) or • Rigid vinyl

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4.2.4 Combustibility / Height Limitations (IBC 1402.6):

When used in buildings of Types I, II, III, or IV construction, the maximum height above grade-plane shall be 40 feet, unless the water-resistive barrier is the only combustible component in the wall assembly, as permitted **IBC 1402.6, Exceptions 1 and 2**.

4.2.5 Exterior Plaster Applications (IBC 2510.6.2 and IRC R703.7.3):

When used over wood based sheathing in exterior plaster applications, the water-resistive barrier shall be separated from the stucco by:

For Dry-Climate Zones: a non-water-absorbing layer or a drainage space in accordance with IBC 2510.6.1(2) or IRC R703.7.3.1(2)

For Moist- or Marine-Climate Zones: a drainage space or drainage material in accordance with IBC 2510.6.2(1) or IRC R703.7.3.2(1)

4.2.6 Air Barrier Material (C402.6.2.3.1):

PanelShield™ SA has an air leakage rate not exceeding 0.02 L/s/m^2 at 75 Pa (0.004 cfm/ft^2 at 1.57 psf), and has qualified as an air barrier material in accordance with IECC C402.6.2.3.1.

4.2.7 Air Barrier Assembly (C402.6.2.3.2):

An air barrier assembly, comprised of **PanelShield™ SA, PanelFlashing™ SA and VaproLiqui-Flash™,** has an air leakage rate not exceeding 0.2 L/(s·m^2) at 75 Pa (0.04 cfm/ft^2 at 1.57 psf), and has qualified as an air barrier assembly in accordance with IECC C402.6.2.3.2.

4.2.8 Maximum Exposure:

VaproShield limits the exposure of **PanelShield™ SA and PanelFlashing™ SA** to max. 12-months after installation.

VaproShield limits the exposure of **VaproLiqui-Flash™** to max. 6-months after installation.

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