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November 16, 2023

PRODUCT EVALUATION REPORT

- Product Manufacturer: BlackStar IP, LLC
- Manufacturer Address: 10017 Kingshyre Way
Tampa, FL 33610-7118
Phone 615 856-0839
email address les@bscsgi.com

- Evaluation entity David F Ramsey, Professional Engineer 15307
R&S Engineering and Construction Corporation CA 26032
434 Skinner Boulevard, Suite 105
Dunedin, FL 34698
Phone 727 409-4639
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- Test Laboratory Construction Testing Corporation
4815 Pembroke Road
Hollywood, Florida 33021
Phone 786 399-2600
email address dotzletg@hotmail.com

- Product Name: BlackStar Wall Panel (SIP)

- Product Description: SIP constructed of two (2) 7/16" OSB Board sheets
attached on either side of a 5 3/4" Polystyrene Foam Core with
Dow Chemical Mor-AD 650 (moisture activated) adhesive.

SCOPE OF VALUATION:

This Product Evaluation Report is being issued by David F Ramsey, Professional Engineer 15307 President of R&S Engineering and Construction Corporation, in accordance with FAC 61G20-3 and the requirements of the Florida Department of Business and Professional Regulation for Product Evaluation and Quality Assurance for State Approval. The Code Compliance Method being followed is Method 1 d.

The product listed above has been tested and/or evaluated as summarized in this report to show compliance with the 2023 Florida Building Code EIGHTH EDITION and is to the best of our knowledge at least equivalent to that required by the Code, for the purpose intended. Continuing re-evaluation of this product shall be completed as required following pertinent Florida Building Code modifications or revisions.

COMPONENT SPECIFICATIONS:

OSB BOARD:

The approved manufacturer's OSB shall be 7/16-inch thickness with a 24/16 span rating and Exposure 1 bond performance in accordance with PS 2 under a TECO inspection and testing program. Both the International Residential Code and International Building Code require wood structural panels such as OSB, when used for structural purposes, to conform to U.S. Department of Commerce Voluntary Product Standards, PS 2, Performance Standard for Wood-Based Structural-Use Panels (DOC PS 2), and to be identified by the mark of an approved testing and grading agency. TECO maintains accreditations as an inspection, testing, and certification agency. Copies of our accreditation certificates as a recognized Inspection Agency (AA-654) and Test Laboratory (TL-207 & TL-306) can be downloaded from the IAS website at www.iasonline.org, or contact TECO. A non combustible (ASTM E136) and approved for fire-resistance rated construction (ASTM E11) and flame spread index of 0 (ASTM E84).

POLYSTYRENE:

Description

InsulFoam XV is a high-performance insulation consisting of a superior closed-cell, lightweight and resilient expanded polystyrene (EPS). InsulFoam XV meets or exceeds the requirements of ASTM C578, Type XV, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation. InsulFoam XV has a nominal density of 3.0 lb/ft³. In addition, InsulFoam XV offers a long-term stable R-Value and has excellent dimensional stability, compressive strength and water resistance properties.



InsulFoam® XV

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Uses

InsulFoam XV is a high-performance EPS product and is used in numerous applications requiring an insulation or fill material with a high compressive strength.

Construction Applications: InsulFoam XV is used in below-slab, perimeter and plaza deck applications; road-fill, bridge approaches and numerous other geof foam applications; pre-stressed and pre-cast structural concrete panels, siding backer board, building sheathing, and numerous other construction applications.

Roofing Applications: InsulFoam XV is well suited for single ply roof applications employing mechanically fastened or ballasted TPO, PVC, EPDM and CSPE as well as low-sloped built-up, modified bitumen and fully adhered single ply roofs incorporating a cover board or slip sheet. InsulFoam XV can be provided in flat and tapered panels as well as a custom cut flute-fill piece. Please consult local building codes and membrane manufacturers for system requirements.

Advantages

- InsulFoam XV contains no formaldehyde or ozone-depleting CFC's or HCFC's, contains recycled material and is 100% recyclable if ever removed or replaced.
- Designers are well served knowing the product's thermal properties will remain stable over the entire service-life. There is no thermal "drift" so the product is eligible for an Insulfoam 20-year thermal performance warranty.
- The same fundamental EPS chemistry has been in use since the mid-1950s so the actual performance of the product is well known.
- InsulFoam XV does not readily absorb moisture from the environment.
- InsulFoam XV has numerous code approvals. Please contact your local Insulfoam representative for details.



Sizes

InsulFoam XV is typically available in 4' x 4' and 4' x 8' sizes with thickness from 1/4" to 40" and readily available in custom lengths and widths with little or no impact on lead time.

Typical Tested Physical Properties*

Property	Test Method	Value
Density (nom. pcf)	ASTM C303	3.0
C-Value (Conductance) - per inch BTU/(hr·ft ² ·°F) @ 25 °F @ 40 °F @ 75 °F	ASTM C518 or ASTM C177	0.196 0.198 0.217
R-Value (Resistance) - per inch (hr·ft ² ·°F)/BTU @ 25 °F @ 40 °F @ 75 °F	ASTM C518 or ASTM C177	5.10 5.05 4.60
Compressive Strength (psi, 10% deformation)	ASTM D1621	60
Flexural Strength (min. psi)	ASTM C203	75
Dimensional Stability (maximum %)	ASTM D2126	2.0
Water Vapor Permeance (max. perm., 1 inch)	ASTM E96	2.5
Water Absorption (max. % vol.)	ASTM C272	2.0
Capillarity	—	none
Flame Spread	ASTM E84	< 20
Smoke Developed	ASTM E84	150-300

*Properties are based on data provided by resin manufacturers, independent test agencies and InsulFoam.

ADHESIVE DOW CHEMICALS MOR-AD 650:



Home > MOR-AD™ M-600 Series > MOR-AD™ M-650 > Product Detail

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MOR-AD™ M-650 One-component moisture-curing laminate adhesive for application with a roll coater

DESCRIPTION:

Use MOR-AD™ M-650 one-component moisture-curing laminate adhesive in roll coater applications.

USED IN:

- Adhesive materials

ADVANTAGES:

- Solvent-free liquid
- Good flow and transfer properties
- Strong bonds to a wide variety of materials
- Excellent resistance to heat, cold, and moisture



Highlighted regions indicate where this product is available.

PROPERTIES:

Typical Properties

These properties are typical but do not constitute specifications.

Appearance	Syrupy liquid
Color	Light straw
Solids, %	100
Viscosity (Brookfield RVT, #4 Spindle, 10 rpm), Cps @ 25°C	4500 nominal
Working and cure time	Refer to enclosed schedule
Weight/gallon, lbs./gal.	9.59 (1.15 Kg/L)
Flash point (Setaflash), °F	>200 (93°C)
Shipping Classification	Resin compound, Non-flammable

SUBSTANTIATING DATA:

Test Reports: Tests were performed on the subject product according to the guidelines laid out in ASTM standards as outlined in the Engineering Methodology below. The testing and subsequent reports were completed and/or prepared by Construction Testing Corporation, 4815 Pembroke Road, Hollywood, Florida 333021 phone number 786 399-2600, email dotzletg@hotmail.com.

The test report conclusions:

- | | | |
|---|---------------------|------------------------|
| • ASTM E1886-05& E1996-05/FBC TAS 201 Impacts | Roof Mockup 24'x12' | No Impact Failure |
| • ASTM E1886-05 & E1996-05: Cyclic Wind PSF | Roof Mockup 24'x12' | DL +69.3 PSF & -69.3 |
| • ASTM E330-02/FBC TAS 202 Wind+ PSF | Roof Mockup 24'x4' | Max Test Load -135.2 |
| • ASTM E 330-02/FBC TAS 202 Wind+ PSF | Roof Mockup 24'x4' | Max Test Load -104.0 |
| • ASTM E 72-05 Racking Load | Roof Mockup 24'x12' | Max Test Load 5000 Lbs |

Product Installation Instructions: Drawings and instructions prepared, signed, and sealed by David F Ramsey, Florida Professional Engineer 15307, President R&S Engineering and Construction Corporation are included as data in support of this report.

Engineering Methodology: The methodology used to design the test program for this product was based on the results from initial test and performance data used to qualify for the Florida Product Number. These initial results prompted further investigation into the following areas:

- **Boundary Conditions:** The boundary conditions were changed from the initial configuration in order to better resemble the end conditions that are employed in actual construction details.
- **In-Plane Shear Load:** Additional testing was completed to verify the behavior of the panels subjected to this load type.
- **Vertical Compressive and Tensile Load:** Additional testing was completed to verify the behavior of the panels subjected to this load type.

All further testing was conducted according to the guidelines outlined in ASTM E1803 and ASTM E72, including testing for bending, transverse load/racking, compression, and tension.

WIND LOAD RESISTANCE:

The subject wall panels have been designed to resist wind loads as indicated in the pressure test data in the Testing Reports.

IMPACT RESISTANCE:

The subject wall panels were qualified by this testing to meet impact resistance criteria.

INSTALLATION:

The subject product shall be installed in strict compliance with the Installation Instructions included as supporting documentation with this Evaluation Report. All components or connections related to this product shall also be installed accordingly.

This product component shall be of the material specified in the Installation Instructions and verified by the results of the testing, disclosed in the Testing Report. All relevant documents have been included with the product approval application.

LIMITATIONS AND CONDITIONS OF USE:

Use of this product shall be in strict accordance with the Evaluation Report, Installation Instructions, and all other supporting documentation as noted herein. All supporting host structures shall be designed to resist all superimposed loads and shall be of a material listed in each product's respective guidelines.

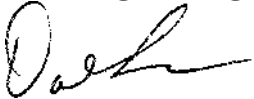
Individual project usage of this product shall be designed on a site-specific basis by a registered professional engineer. All components that are permanently installed shall be protected against corrosion, contamination and all other such damage at all times. This product has been designed for use outside of the High Velocity Hurricane Zone (HVHZ) which is Broward County and Miami-Dade County but acceptable to use in other area of Florida.

CERTIFICATE OF INDEPENDENCE:

David F Ramsey, Florida Professional Engineer 15307, President of R&S Engineering and Construction Corporation (the Engineer) does not have nor will acquire any financial interest in BlackStar IP, LLC, nor in any other manufacturer or distribution entities affiliated with the above-named product for which an evaluation report or validation certification has been prepared.

The Engineer is not owned, operated, or controlled by the manufacturer or distributor named herein and does not have any financial interest in any other entity involved in the approval process of the above-named product.

R&S Engineering and Construction Corporation, CA 26032



**David F Ramsey, P E, PSM
Florida Engineer 15307
General Contractor
Dated 11-16-23**

