

## PART 1. GENERAL

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### 1.01 SECTION INCLUDES

- A. ThermalBuck: Rough Opening Extension Support Element.
  - 1. Support and attachment component for windows and doors using ThermalBuck, a Rough Opening Extension Support Element (ROESE). Insulated blocking to extend the mounting points of windows & doors to meet the continuous insulation and/or rainscreen plane, intended to limit thermal bridging in the building envelope, and creates a flush plane for cladding attachment.

### 1.02 DEFINITIONS

- A. ROESE - Rough Opening Extension Support Element: An extension to the structural wall framing at the rough opening perimeter to allow attachment of the window and enable proper alignment with continuous insulation, and integration with the cladding and WRB.
- B. CONTINUOUS INSULATION - Insulation that runs continuously over structural members and is free of significant thermal bridging; such as rigid foam insulation above the ceiling deck. It is installed on the interior, exterior, or is integral to any opaque surface of the building envelope.
- C. WRB - Weather Resistive Barrier: a material installed between the sheathing and the exterior finish material. It is designed to prevent water from reaching building components that could be damaged by moisture.

### 1.03 REFERENCE STANDARDS

- A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2018.
- B. AAMA 501.5-07, Test Method for Thermal Cycling of Exterior Walls.
- C. ASTM E547-00 (2009) Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
- D. ASTM E283-04 (2012), Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
- E. ASTM E330/E330M-14, Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- F. ASTM C578-15, Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
- G. ASTM C165-07 (2012), Standard Test Methods for Measuring Compressive Properties of Thermal Insulations.
- H. FMA/AAMA/WDMA 500-16 Standard Practice for the Installation of Mounting Flange Windows into Walls Utilizing Foam Plastic Insulating Sheathing (FPIS) with a Separate Water-Resistive Barrier (WTB).
- I. ICC-ES Evaluation Report ESR-3753, issued on 01/2019; Evaluation Subject: ThermalBuck; Report Holder: BRINC Building Products, Inc.



#### **1.04 SUBMITTALS**

- A. Samples: 12 inch long of size proposed on the project, including corresponding fasteners for structural attachment of the window.
- B. Product Data: Submit manufacturer's related testing data and installation instructions.
- C. Use only manufacturer approved/recommended sealants for installation.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer:
  - 1. Obtain primary materials from a single manufacturer regularly engaged in manufacturing ThermalBuck.
  - 2. Obtain secondary materials from a source acceptable to the primary materials manufacturer.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with documented experience.
- C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

#### **1.06 MOCK-UP**

- A. Mock-up may remain as part of the Work if reviewed and approved by the Architect.
- B. Intent of mock-up is to permit review quality of workmanship, coordination, compatibility, and relationships with adjacent materials, to test air and water infiltration performance, and to provide Contractor with opportunity to coordinate Subcontractor Work.
- C. Mock-up to include all transitions and interfaces between different materials and walls to openings conditions.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Store in a well-ventilated area. Ensure storage containers (or areas) and shipping containers are adequately ventilated.
- B. Do not fully enclose in plastic to prevent material from excessive heat exposure/damage.
- C. Appearance changes to color and sheen may occur within 3 month span of full UV exposure. Store materials indoors, in a controlled environment, prior to installation and use. No loss of physical properties should occur for one year.

## **PART 2. PRODUCTS**

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#### **2.01 MANUFACTURER**

- A. BRINC Building Products, Inc.; 1270 Route 66, New Bethlehem, PA 16242; Telephone: 888 - 814 - 2825; <https://thermalbuck.com/>.

#### **2.02 PERFORMANCE CRITERIA**



PROPERTY	ASTM TESTING	VALUE	TEST METHOD
Compressive Strength	@10% Deformation	52.4 psi	ASTM C165
Design Pressure	+203.01 psf	<0.5 mm (0.02 in)	ASTM E330/E330M
Design Pressure	-203.01 psf	<0.8 mm (0.03 in)	ASTM E330/E330M
Structural Pressure	+/-300.76 psf	<0.3mm (<0.01 in)	ASTM E330/E330M
Water Penetration	9.19 psf	Pass	ASTM E547
Air Infiltration	1.57 psf	<0.01 cfm/ft2	ASTM E283
Air Infiltration	6.24 psf	<0.01 cfm/ft2	ASTM E283
Burn Test	Class A	Flame Spread <25	ASTM E84
Burn Test	Class A	Smoke Dev <450	ASTM E84
R Value	75 F°sq.ft.hr/Btu	4.40 per inch	ESR-3753

### 2.03 DIMENSIONS

- A. The width of the portion that extends past the rough opening to the exterior of the structure to be matched to the thickness of the exterior insulation and/or rainscreen. Seven available sizes: 1.0, 1.5, 2.0, 2.5, 3.0, 3.5 and 4.0 inches.
1. See Architectural drawings for details and sized required for installation.
  2. Required fastener length for window attachment varies with each size.

### 2.04 MATERIALS

- A. Coating
1. Outer coating composed of a polyurethane/polyurea hybrid to provide water resistance, strength, and durability. Outer coating to act as an additional water and air barrier at the mounting point of windows and doors when installed with recommended sealants.
  2. Coating thickness: 25-40 mil (0.040 inch)
- B. Core
1. Type XIV high density EPS (Expanded Polystyrene) combining the strength and durability of EPS with the natural water resistant properties of wax to provide a water and thermal barrier.
    - a.. Density of EPS core: 3.0 pcf
    - b.. Compressive strength, EPS core: 40 psi
    - c.. Compressive strength, assembly: 52 psi
    - d. Shear Strength, assembly: 70 pli

### 2.05 ACCESSORIES

- A. Sealant
1. Provide sealant with good adhesion to ThermalBuck coating, and compatibility to EPS core.
  2. See manufacturer tested and approved sealants at <https://thermalbuck.com/>.
- B. Fasteners
1. 2 inch Galvanized Roofing Nails for ThermalBuck



2. #10 Nails or Screws for flange (penetrate 1-1/4 inch into structure)
- C. Flashing
  1. Flashing Tape to cover window nail flange, and any butt joints in ThermalBuck pieces where the need for a seam on a horizontal plane was necessary.
  2. See Sealant above.

## 2.06 LIMITATIONS

- A. ThermalBuck must be separated from the interior of the building with an approved thermal barrier, such as 1/2 inch gypsum wall board, as required by the applicable Code.
- B. ThermalBuck must not be used as a nailing base for exterior finish or siding materials. All fastening must penetrate through ThermalBuck and into the wall framing or into structural sheathing, as required by the finish or siding manufacturer's published installation instructions.
- C. ThermalBuck must be protected by a water resistive barrier (WRB) and flashed in accordance with applicable Code.

## PART 3 EXECUTION

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### 3.01 INSPECTION

- A. Prior to installation, inspect materials to ensure each piece has no gouges in coating or significant defects that would prevent proper installation.

### 3.02 PREPARATION

- A. Ensure adequate spacing in the rough opening to accommodate the 1/2 inch tongue of ThermalBuck, and the window.
- B. Dry-fit the pieces of ThermalBuck to make sure it fits properly, adjust if needed.
- C. Split pieces of ThermalBuck may be used on the jambs. Whole pieces are preferred at the head and sill, unless the rough opening is larger than 8 feet.
- D. Consider all system components, including continuous insulation and/or rainscreen depth when preparing materials, which may affect thickness and length of ThermalBuck.

### 3.03 INSTALLATION

- A. Follow all manufacturer's guidelines regarding material use, compatibility, preparation, personal safety, and disposal. Sequence construction so ThermalBuck is not exposed to UV rays for more than one year before cladding is attached.
- B. Install ROESE only with approved sealants, see Accessories, 2.05.
- C. Coat the underside of each piece with 3 beads of sealant, and each mitered end or any joints. Miter joint split pieces on the jambs and add sealant, butt joint any split pieces at the head or sill, add sealant and wrap butt joint with flashing tape for added protection (once all 4 pieces are installed).
- D. Starting at the sill, press ThermalBuck firmly into the rough opening along the total length to ensure a good seal.
- E. Ensure 100% ooze-out at all transitions for complete air & water seal.



Add sealant if needed.

- F. Install jambs next then head piece, pressing each firmly into the rough opening, and ensuring mitered ends are sealed. Secure with 2 inch galvanized roofing nails through the 1/2 inch tongue every 10 - 12 inches (minimum 1-1/4 inch penetration into structure).
- G. Once 100% ooze-out is achieved, smooth sealant and remove excess.
- F. Clamp each corner with two roofing nails in an "x" pattern, and allow to cure for up to 24 hours. Consult sealant manufacturer's instructions for cure time.
- H. Do not install window until sealant has cured, and any butt joints have been wrapped in flashing tape for added protection.
- I. Seal three sides of window nail flange. Along the bottom flange, ensure at least two 3 inch gaps in sealant for drainage, or do not seal.
- J. Once sealant has been added, attach the nail flange for the door/window according to the window manufacturers' recommendation, directly through the ThermalBuck into the structure with nails or screws (minimum 1-1/4 inch penetration).
  - 1. Secure window attachment with screws installed at an angle to ensure penetration into the structural members.
- K. If shims are needed, preferred placement on the interior between jack stud and sill. If placed on top of ThermalBuck at the sill, 1 inch sq shim for every 40 lbs of window weight.
- L. Apply 3/8 inch bead of sealant around the perimeter of all sides of ThermalBuck at the sheathing to complete exterior air and water seal.
- M. On the interior, insert backer rod or spray foam between the window and ThermalBuck. Seal the transition of ThermalBuck to the window with recommended sealants to complete the air and water seal.
  - 1. If extension jambs are pre-installed, seal ThermalBuck to the rough opening prior to the window installation.

### 3.04 TOLERANCES

- A. Allow 1/2 inch additional room on all sides of the rough opening (1 inch overall) than recommended by window manufacturers' instructions to accommodate the 1/2 inch tongue of ThermalBuck.
- B. Angle-cut pieces 45 degree with a miter saw. Undersize each piece 1/16 - 1/8 inch to allow for sealant at corners. If a joint at the head or sill is necessary, use a butt joint, seal, and cover with flashing tape.

### 3.05 CLEANING

- A. Non-hazardous. Recycle or dispose of in a licensed facility in accordance with all federal, state and local laws and regulations.

**END OF SECTION**



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