TEST REPORT

Report No.: F1134.01-109-44

Rendered to:

BRINC BUILDING PRODUCTS
New Bethlehem, Pennsylvania

PRODUCT TYPE: Coated Foam Curb System (Sealed)
SERIES/MODEL: ThermalBuck

Title	Summary of Results
Design Pressure	±2880 Pa (±60.15 psf)
Uniform Load Structural Test Pressure	+5520 Pa (+115.29 psf)
Negative Uniform Load Structural Test Pressure	-4320 Pa (-90.23 psf)

Reference must be made to Report No. F1134.01-109-44, dated 11/10/15 for complete test specimen description and detailed test results.

1.0 Report Issued To: Brinc Building Products
1270 Route 66
New Bethlehem, Pennsylvania 16242

2.0 Test Laboratory: Architectural Testing, Inc., an Intertek company ("Intertek-ATI")
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Project Summary:

3.1 Product Type: Coated Foam Curb System (Sealed)

3.2 Series/Model: ThermalBuck

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). Test specimen description and results are reported herein.

3.4 Test Date(s): 09/28/15 – 10/05/15

3.5 Test Record Retention End Date: All test records for this report will be retained until October 5, 2019.

3.6 Test Location: Intertek-ATI test facility in York, Pennsylvania.

3.7 Test Specimen Source: The test specimen(s) was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek-ATI for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Intertek-ATI and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek-ATI per the drawings located in Appendix D. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

Name	Company
John Brooks	Brinc Building Products
Carol McQuaide	Brinc Building Products
Timothy J. McGill	Intertek-ATI
Ken R. Stough	Intertek-ATI

4.0 Test Method(s):

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*

ASTM E330/E330M-14, *Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

AAMA 501.5-07, *Test Method for Thermal Cycling of Exterior Walls*

5.0 Test Specimen Description:

5.1 Product Sizes:

Crack Length: 20.2 m (66.2 ft)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	64	2-1/2	127	5

5.2 Curb Construction: The curb was constructed of high density foam with a spray coat of 25 mils or greater in thickness.

5.3 Wood window blank construction: The wood window blank measured 8' 0" wide by 8' 0" high and was constructed of #2 Spruce-Pine-Fir nominal 2x4 lumber. Five studs were spaced 16" on center (six spans) and were attached to the top and bottom plates with 3" long drywall screws. A sheet of nominal 7/16" thick plywood was secured to the studs with #8 x 1-5/8" long drywall screws. Silicone was utilized on the backside of the test panel to seal the perimeter. The plywood was sealed on the exterior with paint to prevent water penetration. A 2" by 2" by 1/8" thick continuous aluminum angle was utilized around the perimeter of the wood blank to simulate a window fin. The angle was secured to the wood blank with #8 x 1-1/2" long pan head screws located 3" from each end and spaced 16" on center, through the angle and into the wood blank. Steel weights were added to the interior side of the framing to add additional weight to the window blank. 430 pounds was added to the 170-pound window blank for a total of 600 pounds.

5.0 Test Specimen Description: (Continued)

5.4 Test buck construction: The test buck measured 10' 0" wide by 10' 0" high and was constructed of #2 Spruce-Pine-Fir nominal 2x6 lumber. Seven studs were spaced 16" on center (eight spans) and were attached to the top and bottom plates with 3" long drywall screws. A rough opening, measuring 8' 1-1/2" wide by 8' 1-1/2" high, was centered in the framing of the buck and utilized double nominal 2x6 lumber framing around the rough opening. Nominal 1/2" thick OSB was secured to the studs with #8 x 1-5/8" long drywall screws. The OSB was covered with housewrap with all seams taped. Silicone was utilized on the backside of the test panel to seal the perimeter. All button cap nails and exterior perimeter of the house wrap were sealed with silicone.

5.5 Test Specimen assembly: The ThermalBuck system was installed into the wood test buck rough opening with mitered corners and was secured to the wood buck with 1/8" shank diameter, 7/16" head, 2" long roofing nails. The nails were located 2" from each corner and spaced 16" on center, through the curb, and into the studs. The wood window blank was then installed into the rough opening and secured to the curb system with #10 x 4-1/2" long wood screws, located 6" from each corner and spaced 16" on center through the aluminum angle, through the curb system, and into the wood framing of the test buck. The rough opening allowed for a 1/8" shim space. No sealant was utilized under the aluminum angle or around the curb system. The curb was sealed to the rough opening frame. The window blank aluminum flange was sealed between the flange and curb system with customer supplied sealant. Additionally, house wrap tape was utilized to create a flashing to seal between the house wrap and the outer edge of the curb system.

6.0 Test Results: The temperature during testing was 21°C (69°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Before Thermal			
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	Report only	
Air Leakage, Infiltration per ASTM E 283 at 300 Pa (6.24 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	Report only	
Air Leakage, Exfiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m^2 (0.01 cfm/ft^2)	Report only	
Air Leakage, Exfiltration per ASTM E 283 at 300 Pa (6.24 psf)	0.1 L/s/m^2 (0.02 cfm/ft^2)	Report only	
Uniform Load Deflection, per ASTM E330 Deflections taken at sill +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	<0.3 mm (<0.01") 0.3 mm (0.01")	Report only	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken at jamb +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.8 mm (0.03") 3.3 mm (0.13")	Report only	1, 2
Uniform Load Structural, per ASTM E330 Permanent sets taken at sill +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	<0.3 mm (<0.01") <0.3 mm (<0.01")	Report only	1, 2
Uniform Load Structural, per ASTM E330 Permanent sets taken at jamb +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	<0.3 mm (<0.01") 0.5 mm (0.02")	Report only	1, 2
Thermal Cycling, Six, eight-hour cycles	See Chart 1 in Appendix B for data		

6.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
After Thermal			
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	<0.1 L/s/m^2 (<0.01 cfm/ft^2)	Report only	
Air Leakage, Infiltration per ASTM E 283 at 300 Pa (6.24 psf)	0.1 L/s/m^2 (0.01 cfm/ft^2)	Report only	
Air Leakage, Exfiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m^2 (0.02 cfm/ft^2)	Report only	
Air Leakage, Exfiltration per ASTM E 283 at 300 Pa (6.24 psf)	0.3 L/s/m^2 (0.06 cfm/ft^2)	Report only	
Uniform Load Deflection, per ASTM E330 Deflections taken at sill +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.5 mm (0.02") 0.5 mm (0.02")	Report only	1, 2
Uniform Load Deflection, per ASTM E330 Deflections taken at jamb +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	2.8 mm (0.11") 3.0 mm (0.12")	Report only	1, 2
Uniform Load Structural, per ASTM E330 Permanent sets taken at sill +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	<0.3 mm (<0.01") 0.5 mm (0.02")	Report only	1, 2
Uniform Load Structural, per ASTM E330 Permanent sets taken at jamb +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	0.8 mm (0.03") 0.3 mm (0.01")	Report only	1, 2

6.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Uniform Load Structural, per ASTM E330 Permanent sets taken at sill +5520 Pa (+115.29 psf)	2.3 mm (0.09")	Report only	1, 2
Uniform Load Structural, per ASTM E330 Permanent sets taken at jamb +5520 Pa (+115.29 psf)	1.0 mm (0.04")	Report only	1, 2

***General Note**: All testing was performed in accordance with the referenced standard(s).*

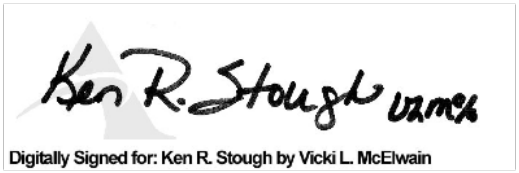
Note 1: Loads were held for 10 seconds.

Note 2: Tape and film were used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For ARCHITECTURAL TESTING, INC.:



Ken R. Stough
Lead Technician

Timothy J. McGill
Manager - Product Testing

KRS:asm

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix A: Location of air seal (1)
- Appendix B: Chart(s) (1)
- Appendix C: Photograph(s) (1)
- Appendix D: Drawing(s) (1)

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