

PERFORMANCE TEST REPORT

Rendered to:

TUBELITE, INC.

SERIES/MODEL: Therml=Block®

PRODUCT TYPE: Aluminum Open-Out Side-Hinged Door

Title	Test Specimen #1	Test Specimen #2
Force To Latch	9.0 lbf	9.0 lbf
Air Infiltration	0.30 cfm/ft ²	0.16 cfm/ft ²
Water Resistance Test Pressure	0.0 psf	4.60 psf
Uniform Load Deflection Test Pressure	±30.09 psf	±30.09 psf
Uniform Structural Load Test Pressure	±45.14 psf	±45.14 psf

Reference should be made to Architectural Testing, Inc. Report No. 80992.01-109-44 for complete test specimen description and data.

PERFORMANCE TEST REPORT

Rendered to:

TUBELITE, INC.
3056 Walker Ridge Drive
NW Suite G
Walker, Michigan 49544

Report No.: 80992.01-109-44
Test Date: 02/21/08
And: 02/22/08
Report Date: 04/24/08
Expiration Date: 02/22/12

Project Summary: Architectural Testing, Inc. was contracted by Tubelite, Inc. to perform testing on a Series/Model Therml=Block®, aluminum open-out side-hinge door. Test specimen description and results are reported herein. The sample was provided by the client.

Test Methods: The test specimens were evaluated in accordance with the following:

ASTM E 283-04, Test Method for Determining Rate of Airflow Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen.

ASTM E 330-02, Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

ASTM E 331-00, Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference.

ASTM E 547-00, Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Difference.

ANSI BHMA A156.2, American National Standard for Bored and Preassembled Locks and Latches.

Test Specimen Description:

Series/Model: Therml=Block®

Product Type: Aluminum Open-Out Side-Hinged Door

Test Specimen Description: (Continued)

Test Specimen #1:

Overall Size: 3' 4" wide by 7' 2" high

Panel Size: 2' 11-3/4" wide by 6' 11-3/8" high

Overall Area: 23.9 ft²

Test Specimen #2:

Overall Size: 3' 4" wide by 7' 2" high

Panel Size: 2' 11-3/4" wide by 6' 11-3/8" high

Overall Area: 23.9 ft²

The following descriptions apply to all specimens.

Finish: All aluminum members were anodized.

Glazing Details: The unit was glazed with 1" thick insulating glass constructed using two sheets of 1/4" thick clear tempered glass with an aluminum thermally broken spacer system. The glass was dry glazed and secured from the interior and exterior using aluminum snap-fit glazing beads with a bulb seal against the glass.

Weatherstripping: (Specimen #1)

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.270" backed by 0.300" high polypile with fin	1 Row	Head and jambs
Vinyl flap seal	1 Row	Interior side of the bottom rail

Weatherstripping: (Specimen #2)

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
0.270" backed by 0.300" high vinyl bulb seal with fin	1 Row	Head and jambs
0.187" backed by 0.300" high vinyl bulb seal	1 Row	Threshold
Vinyl flap seal	1 Row	Exterior side of the bottom rail

Test Specimen Description: (Continued)

Frame Construction: Frame members were constructed of thermally improved dual strutted extruded aluminum. The head and jamb corners were butted and sealed and were secured using three #10 x 1" screws. The threshold corners were coped, butted, sealed, and secured using a metal clip, with two #12 x 1/2" screws into the jamb and one #12 x 1/2" screw to the threshold. Each jamb utilized a thermally improved poured and debridged aluminum exterior snap-on cover plate that created a hollow. A snap-on aluminum adaptor was utilized at the head and both jambs to hold this weatherstripping. The hinge jamb utilized a hinge mounting plate at each hinge location. The plate was secured to the jamb using four #12 x 1/2" screws.

Panel Construction: Panel members were constructed of thermally improved dual strutted extruded aluminum. Each corner was sealed and secured using an aluminum clip that was snapped into the glazing grooves of each stile end with a 3/8" diameter threaded rod running through each clip along the full length of the top and bottom rails with a metal clip and hex nut at each end inside the stile hollow. A full length vinyl cap was utilized at the top and bottom rails. Specimen #1 utilized a metal sweep with a vinyl flap, secured to the interior side of the bottom rail using four #6 x 1/2" screws, located 2" from each end and spaced 10" on center. Specimen #2 utilized a metal sweep with a vinyl flap, secured to the exterior side of the bottom rail using four #6 x 1/2" screws, located 2" from each end and spaced 10" on center.

Hardware:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
Deadbolt	1	Lock stile, 34" from the threshold secured using two #10 x 3/4" screws
Hinges	3	Hinge stile, 5" from each end and midspan, secured to the stile using four #12 x 3/4" screws and to the jamb hinge plate with four #12 x 1/2" screws
Pull handle	1	Exterior side of pull stile
Push bar	1	Interior side of pull stile
Door closure	1	Midspan of the top rail

Test Specimen Description: (Continued)

Drainage (Specimen #1): A sloped threshold was utilized.

Drainage (Specimen #2): A step down and sloped threshold was utilized.

Reinforcement: No reinforcement was utilized.

Installation: The door was installed in a Spruce-Pine-Fir wood buck. The frame was set into the buck and secured at the sill utilizing 1/4" x 2" screws, located 5" from each end and spaced 10" on center through the threshold into the wood buck. Both jambs utilized

Test Results: The temperature during testing was 65°F. The results are tabulated as follows:

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
<u>Test Specimen #1:</u>		
ANSI-BHMA A156.2	Force to Latch Side-Hinged Door System Deadbolt	9.0 lbf
ASTM E 283	Air Infiltration 1.60 psf (25 mph)	0.30 cfm/ft ²
ASTM E 331	Water Resistance (without screen) 0.0 psf	No leakage
ASTM E 330	Uniform Load Deflection (Deflections were taken on the hinge stile) (Loads were held for 10 seconds) 30.09 psf (positive) 30.09 psf (negative)	0.01" 0.02"
ASTM E 330	Uniform Load Deflection (Deflections were taken from the top hinge to the deadbolt) (Loads were held for 10 seconds) 30.09 psf (positive) 30.09 psf (negative)	0.06" 1.13"

Test Results: (Continued)

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
<u>Test Specimen #1:</u> (Continued)		
ASTM E 330	Uniform Load Structural (Permanent sets were taken on the hinge stile) (Loads were held for 10 seconds) 45.14 psf (positive) 45.14 psf (negative)	<0.01" <0.01"
ASTM E 330	Uniform Load Structural (Permanent sets were taken from the top hinge to the deadbolt) (Loads were held for 10 seconds) 45.14 psf (positive) 45.14 psf (negative)	0.02" 0.08"
<u>Test Specimen #2:</u>		
ANSI-BHMA A156.2	Force to Latch Side-Hinged Door System Deadbolt	9.0 lbf
ASTM E 283	Air Infiltration 1.60 psf (25 mph)	0.16 cfm/ft ²
ASTM E 547	Water Resistance (without screen) 4.60 psf	No leakage
ASTM E 330	Uniform Load Deflection (Deflections were taken on the hinge stile) (Loads were held for 10 seconds) 30.09 psf (positive) 30.09 psf (negative)	0.01" 0.02"
ASTM E 330	Uniform Load Deflection (Deflections were taken from the top hinge to the deadbolt) (Loads were held for 10 seconds) 30.09 psf (positive) 30.09 psf (negative)	0.06" 1.13"

Test Results: (Continued)

<u>Test Method</u>	<u>Title of Test</u>	<u>Results</u>
<u>Test Specimen #2:</u> (Continued)		
ASTM E 330	Uniform Load Structural (Permanent sets were taken on the hinge stile) (Loads were held for 10 seconds)	
	45.14 psf (positive)	<0.01"
	45.14 psf (negative)	<0.01"
ASTM E 330	Uniform Load Structural (Permanent sets were taken from the top hinge to the deadbolt) (Loads were held for 10 seconds)	
	45.14 psf (positive)	0.02"
	45.14 psf (negative)	0.08"

General Note: All testing was performed in accordance with the referenced standards.

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.

List of Official Observers:

<u>Name</u>	<u>Company</u>
Nancy Kennedy	Tubelite, Inc.
Jack Johnson	Tubelite, Inc.
Michael D. Stremmel, P.E.	Architectural Testing, Inc.
Scott Gill	Architectural Testing, Inc.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. No conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen can be made. 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 specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Scott Gill
Senior Technician

Michael D. Stremmel, P.E
Senior Project Engineer

SG:vlm

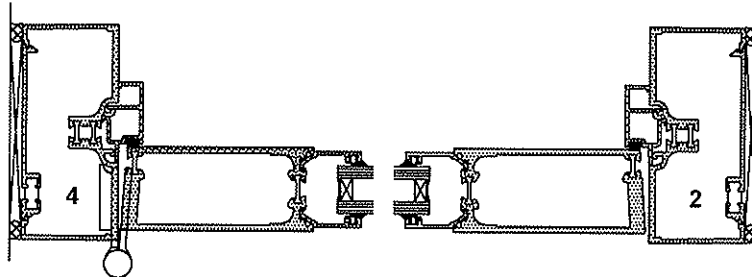
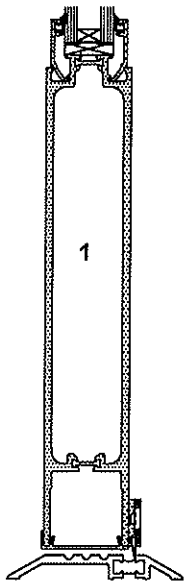
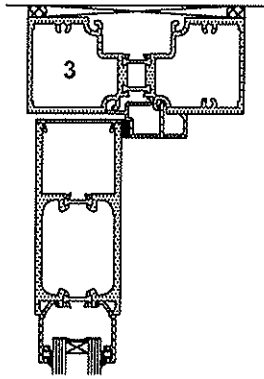
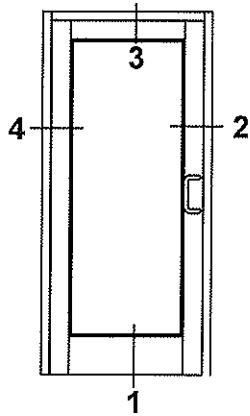
Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Drawings (1)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	04/24/08	N/A	Original report issue

Appendix A

Drawings



Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 80992.01.109-44

Date 4/24/08 Tech SG

*SEALANT, ROD, & ANCHORS NOT BY TUBELITE