Architectural Testing

AAMA/WDMA/CSA 101/I.S.2/A440-05
TEST REPORT

Rendered to:

UNITED STATES ALUMINUM

SERIES/MODEL: 7500
PRODUCT TYPE: Project-Out at Bottom (P.O.B.)

Title	Summary of Results
Primary Product Designator	AP-C75 1657 x 975 (65 x 38)
Design Pressure	3591 Pa (75.0 psf)
Negative Design Pressure	3591 Pa (75.0 psf)
Operating Force (in motion)	22 N (5 lbf)
Air Infiltration	0.20 L/s/m^2 (0.04 cfm/ft^2)
Water Penetration Resistance Test Pressure	718 Pa (15.00 psf)
Uniform Load Structural Test Pressure	±5387 Pa (±112.5 psf)
Forced Entry Resistance	Grade 10

Test Completion Date: 09/20/07

Reference must be made to Report No. 71709.02-801-44, dated 11/07/07 for complete test specimen description and data.

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Southlake, Texas 76092
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AAMA/WDMA/CSA 101/I.S.2/A440-05 TEST REPORT

Rendered to:

UNITED STATES ALUMINUM
200 Singleton Drive
Waxahachie, Texas 75165

Report No.:	71709.02-801-44
Test Dates:	04/27/07
Through:	09/20/07
Report Date:	11/07/07
Expiration Date:	09/20/11

Project Summary: Architectural Testing, Inc. was contracted by United States Aluminum to perform testing on a Series/Model 7500, Projected (POB) window. The sample tested successfully met the performance requirements for an AP-C75 1657 x 975 (65 x 38) rating. Test specimen description and results are reported herein. The sample was provided by the client.

Test Specification: The test specimen was evaluated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

Test Specimen Description:

Series/Model: 7500

Product Type: Projected (POB)

Overall Size: 1657 mm (65-1/4") wide by 975 mm (38-3/8") high

Rough Opening Size: 1664 mm (65-1/2") wide by 981 mm (38-5/8") high

Vent Size: 1518 mm (59-3/4") wide by 797 mm (31-3/4") high

Overall Area: 1.62 m^2 (17.39 ft^2)

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Test Specimen Description: (Continued)

Glazing Type: Sealed insulating glass with an exterior sheet of 3/16" heat strengthened glass, 3/8" aluminum spacer and an interior sheet of laminated glass. The laminated glass was constructed from two sheets of 3/16" heat strengthened glass with a 0.090" thick DuPont SentryGlas® Plus interlayer. The glazing had a 1" overall thickness, an overall glass size of 58-1/2" wide by 30-9/16" high and a 7/8" glazing bite.

Reinforcement: No reinforcement was utilized.

Finish: Painted aluminum

IG600 Frame Construction: IG 626 and IG 675 frame corners were square cut and secured with two #12 x 1" screws. An IG100 filler was snapped into the jambs and head at the lateral face. A J-175 modified tube filler was sealed in the intermediate channel full perimeter. An ID663 glass stop was snapped at the exterior of the sill. The sill was sealed to an IG570 sill flashing at the base of the interior sill flashing leg full length. An aluminum EC801 end dam was located at each end of the sill flashing and sealed to the sill flashing and jamb full perimeter. The end dam was secured to the sill flashing with two #10 x 1" screws. Screw heads were sealed with seam sealer. The 7500 projected frame was secured to the IG600 frame with 1/4" x 1-1/2" screws located 3-9/16" from each end and 13" on center thereafter. The screw heads were sealed in the sill.

7500 Projected Frame Construction: The 7500 frame was coped, butted, and the corners were sealed with Tremsil-600 at the exterior. The frame corners were secured with two ST193 #8 x 3/4"screws. The 7500 frame was sealed to the IG600 frame at the exterior full perimeter.

Test Specimen Description: (Continued)

IG600 Frame Component Parts List:

Description	Quantity	Part #	Manufacturer
Head/jamb	3	IG626	US Aluminum
Lateral head jamb filler	3	IG100	US Aluminum
Sill	1	IG672	US Aluminum
Tube filler	4	J175	US Aluminum
Sill Glass Stop	1	IG663	US Aluminum
Sill Flashing	1	IG570	US Aluminum
Sill flashing end dam	2	EC801	US Aluminum

7500 Frame Component Parts List:

Description	Quantity	Part #	Manufacturer
Frame jamb	2	WN503	US Aluminum
Frame head and sill	2	WN501	US Aluminum

Vent Construction: Thermally broken aluminum vent. Corners were mitered, crimped to an aluminum corner key and sealed with Tremsil-600.

Sash Component Parts List:

Description	Quantity	Part #	Manufacturer
Stile/Rail	4	WN510 (new sash)	US Aluminum

Weatherstripping: All weatherstripping was placed in an extruded slot and retained with a stake.

Description	Quantity	Location	Part #	Manufacturer
3/8" tall one finger vinyl leaf	1 row on all sides	Exterior leg of vent full perimeter	NP801	Tremco #TR-15076P (no chord)
1/4" diameter foam filled vinyl bulb	1 row on all sides	Interior leg of frame full perimeter	WH342	Amesbury
1/4" diameter foam filled vinyl bulb	1 row on all sides	Interior leg of vent full perimeter	WH342	Amesbury

Glazing Details: The vent was glazed with tape and structural silicone glazing at the interior and structural silicone glazing at the lateral face.

Test Specimen Description: (Continued)

Drainage:

Description	Quantity	Location
3/8" hole	2	6" from each end of the IG672 top face of the intermediate channel
3/8" hole	2	6" from each end of the IG672 top face of the exterior channel
3/8" hole	2	6" from each end of the IG570 top face of the exterior cavity
3/8" hole	2	6" from each end of the IG572 exterior face of the exterior cavity

Hardware: All hardware was secured with two (2) #10 x 1/2" screws.

Description	Quantity	Location	Part #	Manufacturer
4 bar hinge (16" Hinge)	2	Jambs	316	AMC
Impact handle	2	6-15/16" from outside edge of jamb frame	BC-162-201 (Yellow Bronze)	Bronze Craft
Impact keeper	2	6-15/16" from outside edge of jamb frame	BC-208-043 (Yellow Bronze)	Bronze Craft
Angle base for handle	2	6-15/16" from outside edge of jamb frame	WH-040	AMC
Snubbers	3	6-15/16" from outside edge of jamb frame and the midpoint	616 & 617-625	AMC

Installation: The unit was sealed into a 2x10 test buck and secured at the head through the frame using 3/8" x 4-1/2" lag bolts with washers located 4-1/8" from each end and 13" on center thereafter. At each jamb, it was secured through the frame using 3/8" x 4-1/2" lag bolts with washers located 4" from each end and 14" on center thereafter. At the sill, it was secured through the frame using 3/8" x 4-1/2" lag bolts with washers located 2-3/4" from each end and 12" on center thereafter. Screw heads in the sill were sealed with seam sealer.

Test Results: The temperature during testing was 24°C (76°F). The results are tabulated as follows:

Paragraph	Title of Test - Test Method	Results	Allowed
5.3.1	Operating Force per ASTM E 2068		
	Initiate motion	22 N (5 lbf)	Report Only
	Maintain motion	22 N (5 lbf)	100 N (22.5 lbf)
	Latches	22 N (5 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Leakage Resistance per ASTM E 283		
	75 Pa (1.6 psf)	0.22 L/s/m^2 (0.04 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.

***Note #1**: The tested specimen meets (or exceeds) the performance levels specified in AAMA/WDMA/CSA 101/I.S.2/A440-05 for air leakage resistance.*

5.3.3.2	Water Penetration Resistance per ASTM E 547 and E 331	See Note #1
5.3.4.2	Uniform Load Deflection per ASTM E 330	See Note #1
5.3.4.3	Uniform Load Structural per ASTM E 330	See Note #1

***Note #1**: The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".*

Test Results: (Continued)

Paragraph	Title of Test - Test Method	Results	Allowed
5.3.5	Forced Entry Resistance per ASTM F 588 Type: B	Grade: 10	
	Disassembly Test	No entry	No entry
	Test B1	No entry	No entry
	Test B2	No entry	No entry
	Test B3	No entry	No entry
5.3.6.6.7	Awning, Hopper, Projected Hardware Load Test 140 N (30 lbf)	8 mm (0.30")	502 mm (19.76")
	Optional Performance		
4.4.2.6	Water Penetration Resistance per ASTM E 547 and E 331 (without insect screen) 718 Pa (15.00 psf)	No leakage	No leakage
4.4.2.6	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the top rail between snubbers) (Loads were held for 30 seconds) 3591 Pa (75.0 psf) (positive) 3591 Pa (75.0 psf) (negative)	1 mm (.05") 3 mm (.10")	See Note #2
4.4.2.6	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the top rail between snubbers) (Loads were held for 30 seconds) 5387 Pa (112.5 psf) (positive) 5387 Pa (112.5 psf) (negative)	<1 mm (.01") <1 mm (<.01")	3 mm (.14") max. 3 mm (.14") max.

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.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing, Inc. and are representative of the test specimen reported herein.

List of Official Observers:

Andy Cost 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 specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC.

Digitally Signed by: Andy Cost

Andy Cost
Laboratory Manager

Digitally Signed by: John H. Waskow

John H. Waskow, P.E.
Director – Regional Operations

AC:ay

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (13)