

TEST REPORT

Report No.: C9429.01-301-44

Rendered to:

ALL WEATHER ARCHITECTURAL ALUMINUM
Vacaville, California

SERIES/MODEL: 5000 Series

PRODUCT TYPE: Thermally Broken Aluminum Combination Window
Stacked Outswing Awnings / Fixed / Inswing Hopper

SPECIFICATION: AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*
AND
AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

Title	Summary of Results
Primary Product Designator, AAMA/WDMA/CSA 101/I.S.2/A440-08	Class C – PG50: Size Tested 1206 x 3257 (48 x 128) – Type AP
Primary Product Designator, AAMA/WDMA/CSA 101/I.S.2/A440-05	AP – C50 1206 x 3257 (48 x 128)
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	0.00 L/s/m ² (0.00 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Test Completion Date: 07/23/2013

Reference must be made to Report No. C9429.01-301-44, dated 01/23/14 for complete test specimen description and detailed test results.

1.0 Report Issued To: All Weather Architectural Aluminum
777 Aldridge Road
Vacaville, California 95688

2.0 Test Laboratory: Architectural Testing, Inc.
2524 East Jensen Avenue
Fresno, California 93706
559-233-8705

3.0 Project Summary:

3.1 Series/Model: 5000 Series

3.2 Product Type: Thermally Broken Aluminum Combination Window
Stacked Outswing Awnings / Fixed / Inswing Hopper

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimen tested successfully met the performance requirements for an AAMA/WDMA/CSA 101/I.S.2/A440-08 rating of **Class C – PG50: Size Tested 1206 x 3257 (48 x 128) – Type C**, and an AAMA/WDMA/CSA 101/I.S.2/A440-05 rating of **C – C50 1206 x 3257 (48 x 128)**.

3.4 Test Dates: 06/19/2013 – 07/23/2013

3.5 Test Record Retention End Date: All test records for this report will be retained until July 23, 2017.

3.6 Test Location: Architectural Testing, Inc. test facility in Fresno, California.

3.7 Test Sample Source: The test specimen was provided by the client.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix B. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Seamus Porter	All Weather Architectural Aluminum
Jay Ratliff	Architectural Testing, Inc.
Jarod Hardman	Architectural Testing, Inc.
Jeff Osugi	Architectural Testing, Inc.
David Douglass	Architectural Testing, Inc.

4.0 Test Specifications:

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights*.

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 3.92 m ² (42.2 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1206	47-1/2	3257	128-1/4
Awning Panels (2)	1194	47	807	31-3/4
Hopper Panel (1)	1156	45-1/2	768	30-1/4

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill and jambs	Aluminum	Extruded aluminum with poured and de-bridged thermal break.
Mullions	Aluminum	Extruded aluminum with poured and de-bridged thermal break.
Invert bar	Aluminum	Extruded aluminum with poured and de-bridged thermal break.

	Joinery Type	Detail
Frame corners	Mitered	Corners were welded; sealed with seam sealer.
Horizontal Mullion joints	Coped	Mullion ends were coped and staked at tabs through slots in jambs; sealed with seam sealer.
Invert bar	Snap-fit and fastened	Fastened to frame members at perimeter of inswing vent opening using #10 x 1" square-drive self-drilling screws at mid-span and 4-1/2" from each end, pan heads in the horizontal members and flat heads in the jambs; sealed to the frame at the ends with seam sealer; horizontal members held back 7/8" from each corner.

5.0 Test Specimen Description: (Continued)

5.3 Panel Construction:

Panel/Member	Material	Description
Awning/All	Aluminum	Extruded aluminum with poured and de-bridged thermal break.
Hopper/All	Aluminum	Extruded aluminum with poured and de-bridged thermal break.

	Joinery Type	Detail
All Panel Corners	Miter	Joined with aluminum corner keys crimped in place; sealed with seam sealer.

5.4 Weatherstripping:

Description	Quantity	Location
Hollow bulb vinyl	1 row	Awning stiles and rails.
Hollow bulb vinyl	1 row	Hopper stiles and rails.
Hollow bulb vinyl	1 row	Frame at all vent opening perimeters.

5.5 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
1" IG	Aluminum	1/8" clear annealed	1/8" clear annealed	Glazing was set from the exterior onto 3/8" wide double-sided foam tape sealed at the corners with silicone; secured using a snap-fit glazing bead with a rubber gasket against the glass.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Awning	2	1083 x 695	42-5/8 x 27-3/8	9/16"
Fixed	1	1137 x 752	44-3/4 x 29-5/8	9/16"
Hopper	1	1036 x 648	40-13/16 x 25-1/2	5/8"

5.0 Test Specimen Description: (Continued)

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weep Notch	5/8" x 1/8"	2	Horizontal mullion exterior glazing track leg at fixed lite, 7/8" from each end.
Weep Notch	5/8" x 1/8"	6	Exterior glazing track leg all bottom rails, 7/8" from each end.
Weep slot	5/8" x 1/8"	4	Horizontal mullion exterior leg at bottom of each awning vent, 7/8" from each end.
Weatherstripping gap	1" Gap	2	Awning bottom rails, 1" from each end.
Weatherstripping gap	1/4" Gap	2	Awning stiles, 1" from top end.

5.7 Hardware:

Description	Quantity	Location
Locking handle assembly	4	14-1/2" from each end of awning bottom rails each attached with four #10-24 x 5/8" Phillips flat head screws.
Strike plate	4	Interior face of horizontal lock mullions, each attached with two #10-24 x 5/8" Phillips flat head screws.
Locking handle assembly	2	13-1/4" from each end of hopper top rail each attached with four #10-24 x 5/8" Phillips flat head screws.
Keeper	2	Inner face of horizontal lock mullion, each attached with two #10-24 x 5/16" Phillips flat head screws.

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a Douglas fir buck. The rough opening allowed for a 1/4" shim space. The exterior perimeter of the window was sealed with silicone.

Location	Anchor Description	Anchor Location
Nail fin	1/4" x 2" Phillips flat head screw	2-1/2" from each corner, spaced 9" – 16" on center.

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

Title of Test	Results	Allowed	Note
Operating Force , per ASTM E 2068 Awning	Initiate motion: 95 N (21.3 lbf) Maintain motion: 76 N (17.0 lbf) Locks: 17 N (3.8 lbf)	N/A 135 N (30.3 lbf) max. 100 N (22.5 lbf) max.	
Operating Force , per ASTM E 2068 Hopper	Initiate motion: 36 N (8.0 lbf) Maintain motion: 76 N (17.0 lbf) Locks: 12 N (2.8 lbf)	N/A 135 N (30.3 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage , Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.00 L/s/m ² (0.00 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Water Penetration , per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	2

**7.0 Test Results:** (Continued)

Title of Test	Results	Allowed	Note
Uniform Load Deflection, per ASTM E 330 <u>Awning lock rail</u> +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf) <u>Awning lock horizontal mullion</u> +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf) <u>Hopper lock horizontal mullion</u> +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf) <u>Hopper hinge rail</u> +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf)	1.6 mm (0.07") 1.7 mm (0.08") 2.3 mm (0.13") 3.4 mm (0.18") 2.4 mm (0.08") 2.1 mm (0.11") 1.2 mm (0.04") 1.0 mm (0.04")	6.8 mm (0.27") max. 6.8 mm (0.27") max. 6.6 mm (0.26") max. 6.6 mm (0.26") max. 6.6 mm (0.26") max. 6.6 mm (0.26") max. 6.8 mm (0.27") max. 6.8 mm (0.27") max.	3, 4, 5
Uniform Load Structural, per ASTM E 330 <u>Awning lock rail</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf) <u>Awning lock horizontal mullion</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf) <u>Hopper lock horizontal mullion</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf) <u>Hopper hinge rail</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	0.2 mm (0.01") 0.0 mm (0.00") 0.2 mm (0.01") 0.0 mm (0.00") 0.0 mm (0.00") 0.0 mm (0.00") 0.0 mm (0.00") 0.0 mm (0.00")	3.6 mm (0.14") max. 3.6 mm (0.14") max. 3.5 mm (0.14") max. 3.5 mm (0.14") max. 3.5 mm (0.14") max. 3.5 mm (0.14") max. 3.6 mm (0.14") max. 3.6 mm (0.14") max.	4, 5
Forced Entry Resistance, per ASTM F 588, Type B, Grade 10 and per CAWM-301, Type II Awning Hopper	Pass Pass	No entry	
Awning, Hopper, Projected Hardware Load Test Awning, 140 N (31.5 lbf) Hopper, 140 N (31.5 lbf)	5.3 mm (0.21") 2.3 mm (0.09")	33.4 mm (1.31") max. 29.4 mm (1.16") max.	

7.0 Test Results: (Continued)

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

Note 2: *Without insect screen.*

Note 3: *The deflections are not limited for the product designation shown according to AAMA/WDMA/CSA 101/I.S.2/A440-05. The deflection limits reported are applicable to the product designation shown per AAMA/WDMA/CSA 101/I.S.2/A440-08.*

Note 4: *Loads were held for 10 seconds.*

Note 5: *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.*

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

For ARCHITECTURAL TESTING, Inc.



Digitally Signed by: David Douglass

David Douglass
Project Manager



Digitally Signed by: Leaton Kirk

Leaton Kirk
Director – Regional Operations

DD: ms

Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1)

Appendix-B: Drawings (7)