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TESTED FOR

ALL WEATHER

777 Aldridge Road
Vacaville, CA 95688

1.0 PURPOSE

The purpose of this report is to present the testing methods employed and the test results obtained during the performance testing of one (1) **Thermally Broken Aluminum Awning Combination Window** described in paragraph 4.0 of this report.

2.0 TEST REFERENCES

- 2.1 Standard/Specification for Windows, Doors, and Skylights AAMA/WDMA/CSA 101/ I.S.2/A440-05
AP - C75 1524 x 2438 (60 x 96)
- 2.2 CAWM 301 - 90 Forced Entry Resistance Tests for Windows.
- 2.3 ASTM F 588-07 Standard Test Method for Measuring the Forced Entry Resistance of Windows

3.0 SUMMARY

The test results in paragraphs 5.0 and 6.0 indicate that the test sample described in paragraph 4.0 of this report complied with the performance requirements of the above referenced specifications.

4.0 SAMPLE SUBMITTED

SERIES: 5000T Awning Combination Window

CONFIGURATION: Fixed / Awning / Fixed

FRAME SIZE: 1524 mm x 2438 mm (60.00" x 95.98")

VENT SIZE: 1513 mm x 814 mm (59.57" x 32.05")

FIXED SIZES: 1454 mm x 746 mm (57.24" x 29.37") Daylight Opening

GLASS: Each fixed portion of the frame and the vent panel were each glazed with a 1" overall insulated glass consisting of 1/8" clear annealed glass on both sides and a 3/4" air space.

INSULATED

GLASS SPACER: The spacer was aluminum box type 3/4" wide and single sealed.

GLAZING:

The glass lites each rested on 1" x 3" x 1/4" high setting blocks set at quarter points of their respective spans and were glazed from the exterior onto a double-sided adhesive foam tape. The lites were also adhered to the frame or vent with seam sealer applied 2" in each direction at each corner under the glazing tape.

From the exterior, the glass lites were each retained full perimeter with aluminum snap-in glazing stops containing a full length pull-in flat vinyl gasket.

WEEPAGE: The exterior face of the vent bottom rail, frame sill and each horizontal mullion contained a 7/16" x 1/8" weep slot 1.5" from each end.
 The snap-in stop at the sill, at the bottom rail of the vent, and at the upper horizontal mullion was notched around each weep allowing water to drain from the glazing pockets.

WEATHERING: The vent contained a strip of hollow bulb weather strip full perimeter facing in and the frame vent opening contained a strip full perimeter facing out. The vent bulb seal was cut away 0.75" at the top end of each vent stile and at the bottom rail in front of each weep.

The glass stops each contained a full length pull-in flat vinyl gasket.

HARDWARE: The vent panel was supported in frame with an AMC S2000 J 24" four-bar friction hinge in each jamb stile. The hinges were each fastened to the frame with four (4) #10 x 3/4" square drive pan head screws and to the vent with five (5) #10 x 3/4" square drive pan head screws.

The vent lock rail contained a metal cam latch lock 14" from each end. Each lock was fastened with a pair of #10 x 5/8" PFH screws. When closed and locked, the locks each engaged their respective metal strike fastened to the integral mullions with a pair of #10 x 5/16" PFH screws. Each strike contained a 1/4" high plastic strike pad insert.

CONSTRUCTION: All frame and vent corners were mitered and welded. The horizontal mullions were slot-fitted into the jambs and staked.
 The thermal break was poured-in and debridged. The debridged width was 0.17".

CAULKING: The following were sealed with sealer:

- 1) Frame corners full profile.
- 2) Intermediate horizontals to frame full profile.
- 3) Vent panel corners full profile.
- 4) Glass corners to frame and vent panel, 2" in each direction.
- 5) The back of all screws penetrating the frame.
- 6) All lock and strike screws
- 7) The strike plate to the horizontal mullion.

ANCHORING: The frame was mounted over a 2" x 6" wood rough opening and fastened through the nail fin with #6 x 1 5/8" screws every 12" on center. Wood furring was applied over the nail fins and screwed to the wooden buck.

5.0 TEST PROCEDURES AND RESULTS

5.1 All testing procedures were performed in accordance with the performance requirements of the test specifications referenced in paragraph 2.0 of this report.

5.2 TEST RESULTS

<u>PARAGRAPH</u>	<u>TEST DESCRIPTION</u>	<u>MEASURED</u>	<u>ALLOWED</u>
5.3.1.1.1	Operating Force (ASTM E 2068)		
	Breakaway Force	27.0 N (6.07 lbf)	Report Only
	Operating Force	13.0 N (2.92 lbf)	135N (30 lbf)
5.3.1.1.3	Latching Device		
	Open and Close Latch Device	18 N (4.00 lbf)	100 N (22.5 lbf)
5.3.2.1	Air Infiltration (ASTM E 283)		
	75 Pa	0.0 L/s•m ²	1.5 L/s•m ²
	(1.6 PSF)	0.00 CFM/ft ²	0.3 CFM/ft ²
The tested specimen exceeds the performance requirements specified in AAMA/WDMA/CSA 101 / I.S.2 / A440 for air leakage resistance.			

5.2 **TEST RESULTS (Continued)**

<u>PARAGRAPH</u>	<u>TEST DESCRIPTION</u>	<u>MEASURED</u>	<u>ALLOWED</u>
5.3.3.2	Water Penetration (ASTM E 547) 220 Pa (4.5 PSF) Interior screen	No Leakage	No Leakage
5.3.4.2	Uniform Load Deflection (ASTM E 330) (Integral mullion) 1440 Pa (30.0 PSF) POS 1440 Pa (30.0 PSF) NEG	2.50 mm (0.10") 2.25 mm (0.09")	As measured As measured
5.3.4.3	Uniform Load Structural (ASTM E 330) 2160 Pa (45.0 PSF) POS 2160 Pa (45.0 PSF) NEG	0.00 mm (0.00") 0.00 mm (0.00")	4.25 mm (0.17") Set 4.25 mm (0.17") Set
5.3.6.6.7	Hardware Load Test 140 N (30 lbf.)	3.75 mm (0.15")	47.25 mm (1.86")

5.3 **OPTIONAL PERFORMANCE GRADES**

TEST RESULTS

<u>PARAGRAPH</u>	<u>TEST DESCRIPTION</u>	<u>MEASURED</u>	<u>ALLOWED</u>
5.3.3.2	Water Penetration (ASTM E 547) 540 Pa (11.25 PSF) Interior screen	No Leakage	No Leakage
5.3.4.2	Uniform Load Deflection (ASTM E 330) Integral Mullion 3600 Pa (75.0 PSF) POS 3600 Pa (75.0 PSF) NEG	6.75 mm (0.27") 6.00 mm (0.24")	As Measured As Measured
5.3.4.3	Uniform Load Structural (ASTM E 330) 5400 Pa (112.5 PSF) POS 5400 Pa (112.5 PSF) NEG	0.00 mm (0.00") 0.00 mm (0.00")	4.25 mm (0.17") Set 4.25 mm (0.17") Set

6.0 5.3.5 **ASTM F 588 Forced Entry Resistance Test Results For Windows**

1.2.2 Type "B" Window
Table A1.1 Grade 20

<u>TEST</u>	<u>RESULTS</u>	<u>ALLOWED</u>
A2.1	Passed	Disassembly Test
A2.5.2	Passed	No Entry
A2.5.3	Passed	No Entry
A2.5.4	Passed	No Entry
A2.2	Passed	No Entry
A2.3	Passed	No Entry

6.1 5.3.5 **CAWM 301 - 90 FORCED ENTRY RESISTANCE TEST RESULTS**

2.4.2 Type "II" Window

	<u>TEST</u>	<u>RESULTS</u>	<u>ALLOWED</u>
5.2.1		Passed	Disassembly Test
5.2.2	A	Passed	No Entry
5.2.3	B	Passed	No Entry
5.2.4	C	Passed	No Entry
5.2.5	E	Passed	Hand and Tool Manipulation Test.

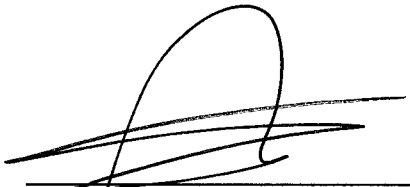
For a complete description of the tested sample refer to the attached cross section drawings.

Assembly and die drawings of frame members are on file and have been compared to the sample submitted. Test sample sections, drawings and a copy of this report will be retained at the test laboratory for four years.

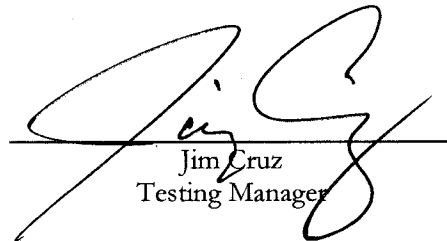
This test report may not be modified in any way without the written consent of Fenestration Testing Laboratory.

The above test results were obtained by using the applicable ASTM and CAWM Test Methods. This report does not constitute Certification of this product. Certification can only be granted by an approved Administrator and/or Validator.

Testing Completed: April 23, 2009
Report Completed: April 30, 2009



Pete Cruz
Test Engineer



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