

INTERNATIONAL WINDOW TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440-08 AND -11 TESTING ON 7223 O/X AWNING WINDOW

REPORT NUMBER

H5789.01-301-44 R1

TEST DATE(S)

09/13/17 - 09/18/17

ISSUE DATE

11/09/17

REVISION 1 DATE

11/21/17

RECORD RETENTION END DATE

09/18/22

PAGES

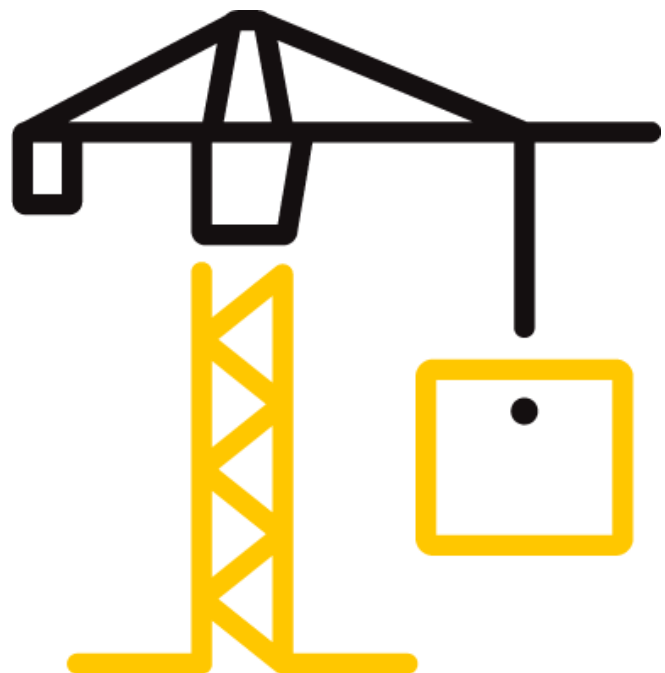
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TEST REPORT FOR INTERNATIONAL WINDOW

Report No.: H5789.01-301-44 R1

Date: 11/09/17

REPORT ISSUED TO INTERNATIONAL WINDOW

1551 E. Orangethorpe Ave.
Fullerton, California 92831

SECTION 1 SCOPE

Intertek Building & Construction (B&C) was contracted by International Window, Fullerton, California to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*, on their 7223 O/X Awning Window. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at Intertek-ATI test facility in Fresno, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

SECTION 2 SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11	Class CW – PG 40: Size Tested 1220 x 2435 mm (48 x 96 in) – Type AP*
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²)
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)

For INTERTEK B&C:

COMPLETED BY:	Erick Caldera	REVIEWED BY:	Tyler Westerling, P.E.
TITLE:	Technician	TITLE:	Senior Project Engineer
SIGNATURE:		SIGNATURE:	
DATE:	11/21/17	DATE:	11/21/17

EC:ms

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SECTION 3

TEST METHOD(S)

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-08 and -11, NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights

CAWM 301-90 – Forced entry resistance tests for windows

SECTION 4

MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek B&C for a minimum of four years from the test completion date.

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

ANCHOR DESCRIPTION	LOCATION	ANCHOR LOCATION
#6 x 1-5/8" Phillips Flat Head Screws	Nail Fin	10-1/2" from corners; 12" on center in sets of 5-1/2".

SECTION 5

EQUIPMENT

Type	Manufacturer	Asset Number
Control Panel	Intertek-ATI	005724, 005062
Micro MULE	Intertek-ATI	005722
Lab Conditions Monitor	Comet	63304
Load Cell – 1 k	Interface	63196,005135
Load Cell – 3k	Interface	65472
Digital Force Gauge	Wagner	65863
Spray Rack – Lab	Intertek-ATI	004047
Linear Transducer	Celesco	003346, 003427, 004485, 004488, 003430, 63350

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SECTION 6 GATEWAY

Reference Intertek B&C Report No. E8779.01-301-44, dated 06/02/16 for complete *Gateway* test specimen description and test results.

SECTION 7 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
William Jay Ratliff	Intertek B&C
Erick Caldera	Intertek B&C

SECTION 8 TEST SPECIMEN DESCRIPTION

Product Type: Awning

Series/Model: 7223 O/X Awning Window

Product Size:

OVERALL AREA: 2.97 m ² (32.0 ft ²)	WIDTH		HEIGHT	
	millimeters	inches	millimeters	inches
Overall Size	1220	48-1/16	2435	95-7/8
Vent	1195	47	1470	57-7/8

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Head, Sill, Jambs, and Mullion	Thermally Broken Aluminum	Extruded aluminum with poured and debridged thermal break.
Glazing Adapter	Aluminum	Extruded; snap-fit.
Glazing Stop	Aluminum	Extruded; snap fit.

JOINT	JOINERY TYPE	DETAIL
Head, Sill, and Jambs	Mitered	Fastened and sealed with two Phillips pan head screws.
Mullion	Butted	Fastened and sealed with two Phillips pan head screws.

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Vent Construction:

MEMBER	MATERIAL	DESCRIPTION
Rails and Stiles	Thermally Broken Aluminum	Extruded aluminum with poured and debridged thermal break.
Glazing Stop	Aluminum	Extruded; snap fit.
JOINT	JOINERY TYPE	DETAIL
All Corners	Mitered	Fastened and sealed with two Phillips pan head screws into a corner key.

Reinforcement: *No reinforcement was utilized.*

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Foam Filled Vinyl Bulb	1 row	Head, jambs, mullion, rails, and stiles.

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	Steel Interceptor	1/8" Annealed	1/8" Annealed	Exterior set with 1/16" x 1/2" glazing tape and interior snap-fit glazing stop with wedge gasket.

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Vent	1	1060 x 1400	41-3/4 x 55-1/8	1/2"
Fixed	1	1130 x 805	44-1/2 x 31-11/16	1/2"

Drainage:

DRAINAGE METHOD	SIZE	QUANTITY	LOCATION
Weephole with Cover	1-1/2" wide by 1/4" high	2	3-1/2" from corners on front face of sill

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Hardware:

DESCRIPTION	QUANTITY	LOCATION
Lock (Truth)	2	12-1/2" from corner on jambs secured by two Phillips flat head screws.
Lock Keeper (Truth)	2	12-1/2" from corner on stiles secured by two Phillips flat head screws.
Wing Clip	4	2" from corners.
Friction Hinge	2	Secured by three Phillips pan head screws into the stiles and two into the jambs.

Screen Construction: No screen was utilized.

SECTION 9

TEST RESULTS

The temperature during testing was 22°C (72°F). The results are tabulated as follows:

Test Specimen:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Operating Force per ASTM E2068 Initiate Motion Maintain Motion Locks	52 N (12 lbf) 44 N (10 lbf) 19 N (4.5 lbf)	Report only 100 N (22.5 lbf) max 100 N (22.5 lbf) max	
Air Leakage per ASTM E283 75 Pa (1.57 psf) Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²)	<u>Maximum</u> 1.5 L/s/m ² (0.3 cfm/ft ²)	1, 2
Water Penetration, per ASTM E547 - Cyclic	Pass 290 Pa (6.06 psf)	No leakage	3
Uniform Loads per ASTM E330 <u>Deflections</u> +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf) <u>Permanent sets</u> +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	<u>Mullion</u> 2.4 mm (0.10") 1.9 mm (0.08") 0.8 mm (0.03") 3.2 mm (0.13")	<u>Maximum</u> 6.6 mm (0.26") 6.6 mm (0.26") 8.4 mm (0.33") 8.4 mm (0.33")	 3, 4, 5, 6

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Test Specimen:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Uniform Loads per ASTM E330 <u>Deflections</u> +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf) <u>Permanent Sets</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	<u>Stile</u> 0.8 mm (0.03") 3.2 mm (0.13") <0.1 mm (<0.01") <0.1 mm (<0.01")	<u>Maximum</u> 8.4 mm (0.33") 8.4 mm (0.33") 4.3 mm (0.17") 4.3 mm (0.17")	3, 5, 6
Forced Entry Resistance, per ASTM F588, Type B per CAWM 301, Type II	Pass Grade: 20 Pass	No entry No entry	
Blocked Sash Operation 140 N (31.4 lbf) load	<u>Deflection</u> 18.5mm (0.73")	<u>Maximum</u> 68.8 mm (2.71")	

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: Test Date 10/13/17 Time: 01:15 PM

Note 3: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 4: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Note 5: Loads were held for 10 seconds.

Note 6: 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.

**SECTION 10
ALTERATIONS**

Alteration #1: Date - 09/13/17
Cause for alteration – Water penetration failure
Remedial action taken – Resealed frame corner

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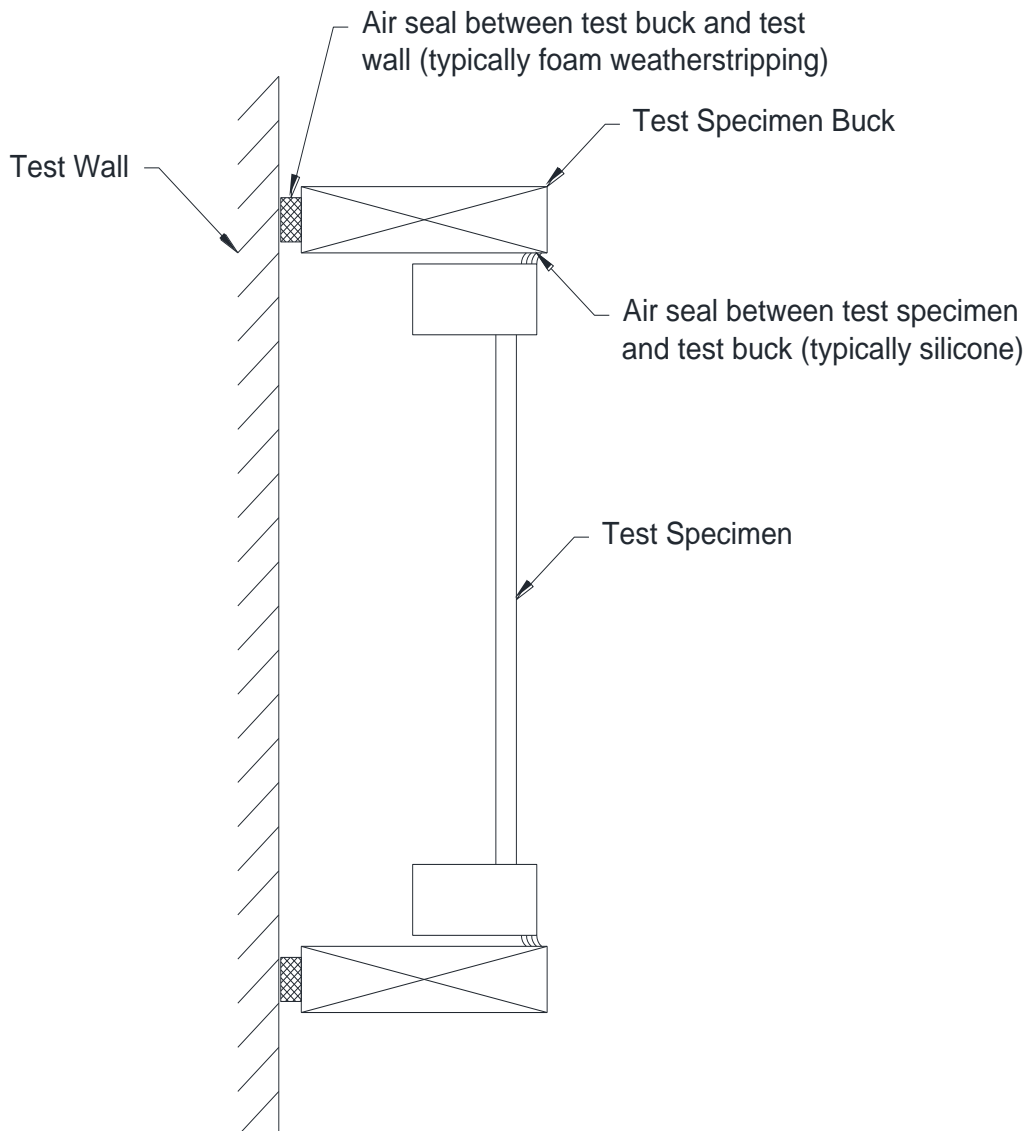
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SECTION 11

LOCATION OF AIR SEAL

The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



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SECTION 12

CONCLUSION

The specimen tested successfully met the performance requirements for a **Class CW – PG 40: Size Tested 1220 x 2435 mm (48 x 96 in) – Type AP*** rating.

Reference Intertek-ATI Report No. E8779.01-301-44, dated 06/02/16 for complete *Gateway* test specimen description and test results.

General Note: *An asterisk (*) next to the size designation indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.*

SECTION 13

DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.

Note: *Complete drawings packet on file with Intertek B&C.*



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SECTION 14

REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	11/09/17	N/A	Original Report Issue
1	11/21/17	4	Updated Product Size
1	11/21/17	5	Updated Glazing