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ALL WEATHER ARCHITECTURAL ALUMINUM TEST REPORT

SCOPE OF WORK
AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES 6100 AWNING WINDOW WITH FAPIM HARDWARE

REPORT NUMBER
M0456.01-301-44-R1

TEST DATES
03/17/21 - 03/22/21

ISSUE DATE 07/30/21

REVISION 1 DATE 09/01/21

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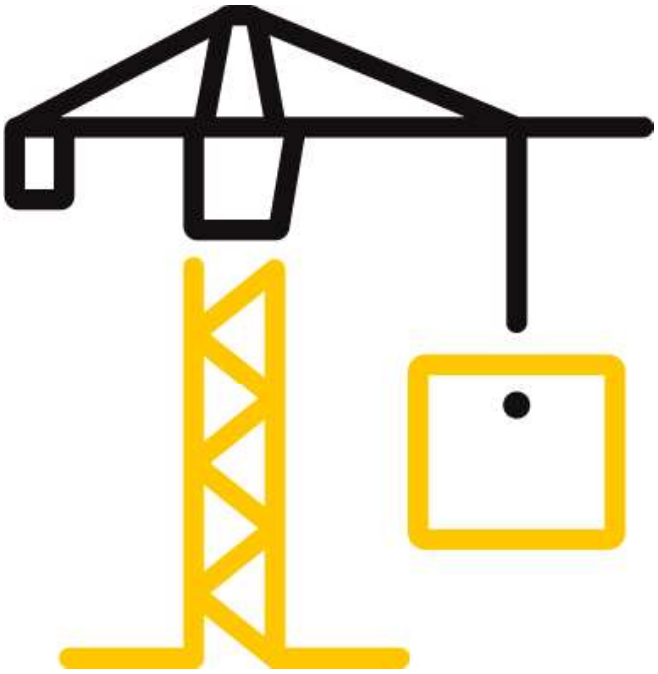

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TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0456.01-301-44-R1
Date: 09/01/21

REPORT ISSUED TO

ALL WEATHER ARCHITECTURAL ALUMINUM
777 Aldridge Road
Vacaville, CA 95688

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by All Weather Architectural Aluminum to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 on their Series 6100 Awning Window with Fapim Hardware. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in Fresno, California. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends ten years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for two years after the test date

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called “Shared Risk approach,” of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

COMPLETED BY:	Ricardo Cortez	**REVIEWED BY:**	Tyler Westerling, P.E.
TITLE:	Technician	**TITLE:**	Operations Manager
SIGNATURE:	 Digitally Signed by: Ricardo Cortez	**SIGNATURE:**	 Digitally Signed by: Tyler Westerling
DATE:	09/01/21	**DATE:**	09/01/21

RC:ms

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SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class C - PG30 Size Tested: 1200 x 800 mm (47 x 32 in) Type AP
Air Infiltration	0.1 L/s/m^2 (0.02 cfm/ft^2)
Canadian Air Infiltration/Exfiltration Level	A3
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)
Design Pressure	±1440 Pa (±30.08 psf)

Reference must be made to Intertek B&C Report No. M0456.01-301-44, dated 08/31/21 for complete test specimen description and detailed test results.

SECTION 3

TEST SPECIFICATION(S)/METHOD(S)

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440-17- *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

The following test methods were used during testing:

AAMA 205-15, *In-Plant Testing Guidelines for Manufacturers and Independent Laboratories*

ASTM E2068-00(2016), *Standard Test Method for Determination of Operating Force of Sliding Windows and Doors*

ASTM E283-04(2012), *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E547-00(2016), *Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference*

ASTM E330/E330M-14, *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

ASTM F588-17, *Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact*

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SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of two 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 and the exterior perimeter of the specimen was sealed to the test buck.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
(Nail Fin) Head, Sill	#8 x 1-5/8" flat head screw	6" from corners, 10" on center
(Nail Fin) Jambs	#8 x 1-5/8" flat head screw	6" from corners, midspan

SECTION 5
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Meng Vang	Intertek B&C
Tyler Westerling, P.E.	Intertek B&C

SECTION 6
TEST SPECIMEN DESCRIPTION

Product Type: Awning
Series/Model: Series 6100 Awning Project Window with Fapim Hardware

Product Size(s):

OVERALL AREA:	WIDTH		HEIGHT	
0.96 m² (10.3 ft²)	Millimeters	Inches	Millimeters	Inches
Overall size	1200	47-1/4	800	31-1/2
Vent	1175	46-1/4	775	30-1/2

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Heads, Jambs, Sill	Aluminum	Thermally broken
	JOINERY TYPE	DETAIL
All corners	Mitered	Corner Keys, Screwed, Sealed
Vent to Frame	Stay Arms	Screwed, Sealed

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Vent Construction:

MEMBER	MATERIAL	DESCRIPTION
Rails, Stiles	Aluminum	Thermally broken
	JOINERY TYPE	**DETAIL**
All corners	Mitered	Corner Keys, Screwed, Sealed

Reinforcement: *No reinforcement was utilized.*

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Foam gasket	1 row	Vent – rails, stiles along thermal break
Hollow vinyl bulb gasket	1 row	Frame – head, jambs, sill facing vent
Hollow vinyl bulb gasket	1 row	Vent – rails, stiles facing frame

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	LITE COMPOSITION	GLAZING METHOD	
1" IG	Kodispace 4SG Thermoplastic	3/16" tempered, Interior / Exterior	Glass set on setting blocks Exterior glazed w/ aluminum snap-in bead.	
LOCATION	**QUANTITY**	**DAYLIGHT OPENING**		**GLASS BITE**
		Millimeters	**Inches**	
Vent	1	773 x 1475	30-7/16 x 58-1/16	1/2"

Drainage:

METHOD	SIZE	QUANTITY	LOCATION
Notch	7/8" wide by 1/8" high	2	Frame sill @ glazing bead 2-1/2" from jamb
Notch	1/2" x 1/8"	2	Vent – underside of bottom rail

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Hardware:

DESCRIPTION	QUANTITY	LOCATION
Actuating Lever (with limit-arm, sliding lock arms and snubbers as a set)	1	Frame Sill – Midspan
- Limit-arm	1	Frame Sill – adjacent to lever
- Sliding lock arms	1 set	Vent – Stiles, Bottom rails
- Snubbers	1	Frame Jambs - midspan
Left / Right Vent hinges	1 set	Frame Top rail both ends, adjacent to Vent hinge corners

Screen Construction:

FRAME MATERIAL	CORNER CONSTRUCTION	MESH TYPE	MESH ATTACHMENT METHOD
Aluminum	Plastic corner keys	Vinyl	Vinyl ridged spline

SECTION 7

TEST RESULTS

The temperature during testing was 20°C (68°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Operating Force, per ASTM E2068	Initiate Motion: 26 N (5.78 lbf) Maintain Motion: 18 N (3.95 lbf) Latches: 19 N (4.25 lbf)	155 N (34.85 lbf) max 100 N (22.48 lbf) max 100 N (22.48 lbf) max	
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	0.1 L/s/m^2 (0.02 cfm/ft^2)	0.5 L/s/m^2 (0.1 cfm/ft^2) max.	1, 2
Air Leakage, Exfiltration per ASTM E283 at 75 Pa (1.57 psf)	0.1 L/s/m^2 (0.02 cfm/ft^2)	0.5 L/s/m^2 (0.1 cfm/ft^2) max.	1, 2
Canadian Air Infiltration/Exfiltration Level	A3	N/A	
Water Penetration, per ASTM E547 at 580 Pa (12.11 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E330 Deflections taken Vent top rail between hinges +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	 0.1 mm (0.01") 0.5 mm (0.02")	 6.1 mm (0.24") max. 6.1 mm (0.24") max.	 3,4

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TITLE OF TEST	RESULTS	ALLOWED	NOTE
Uniform Load Structural, per ASTM E330 Permanent set taken			
Vent top rail between hinges			
+2160 Pa (+45.11 psf)	<0.1 mm (<0.01")	1.2 mm (0.05") max.	
-2160 Pa (-45.11 psf)	<0.1 mm (<0.01")	1.2 mm (0.05") max.	3,4
Forced Entry Resistance, per ASTM F588, Type: B - Grade: 20	Pass	No entry	
Sash Vertical Deflection 270 N (60 lbf)	5.1 mm (0.20")	15.5 mm (0.61") max.	
Distributed Load 300 Pa (6.27 psf)	Pass	No Damage	

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 03/17/21 , Time: 1:15 PM

Note 3: *Loads were held for 10 seconds.*

Note 4: *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 8
ALTERATIONS

No alterations were required.

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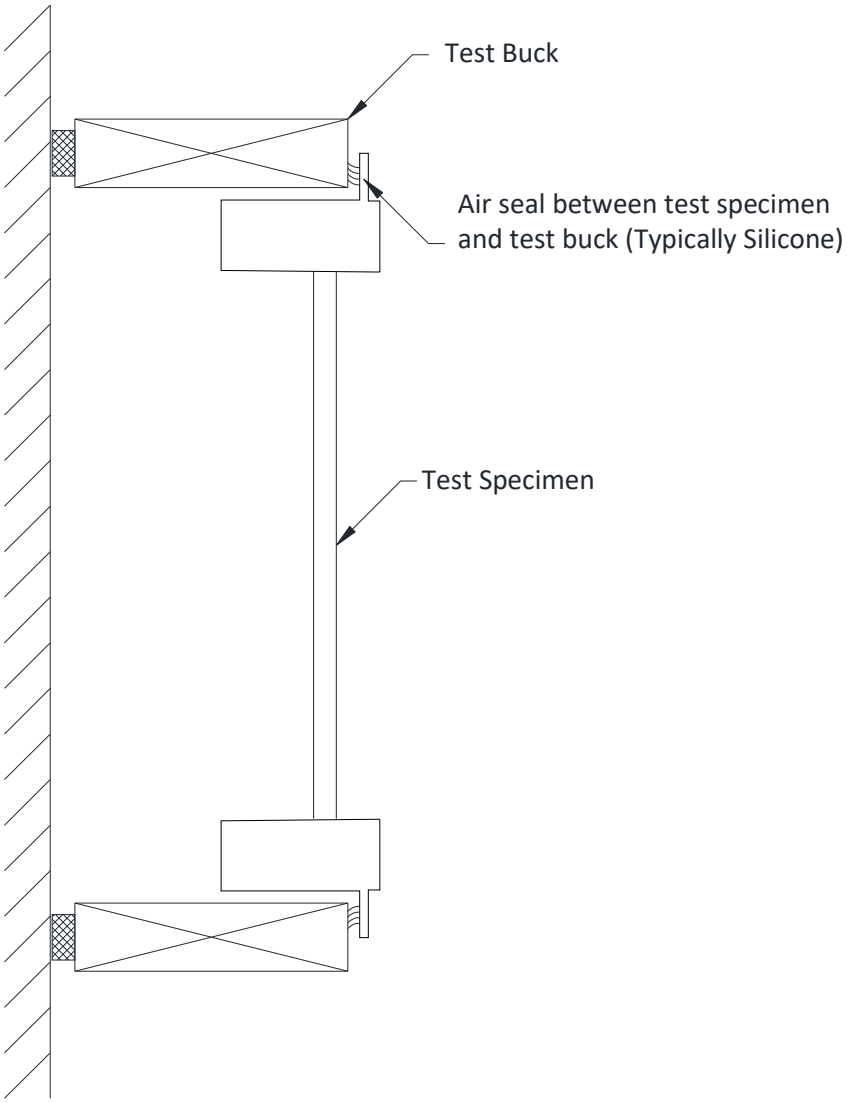
SECTION 9
LOCATION OF AIR SEAL

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 10
CONCLUSION

The specimens tested successfully met the performance requirements for the following ratings:

Class C – PG30, Size Tested: 1200 x 800 mm (47 x 32 in) Type AP

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SECTION 11
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.

All drawings are on file with Intertek-ATI.

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SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	07/30/21	N/A	Original Report Issue.
1	09/01/21	Page 5	IG Spacer Type Changed.