

ALL WEATHER ARCHITECTURAL ALUMINUM TEST REPORT

SCOPE OF WORK

AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES 6100 CASEMENT WINDOW

REPORT NUMBER

M0351.01-301-44-R1

TEST DATE

04/22/21

ISSUE DATE

07/30/21

REVISION 1 DATE

09/01/21

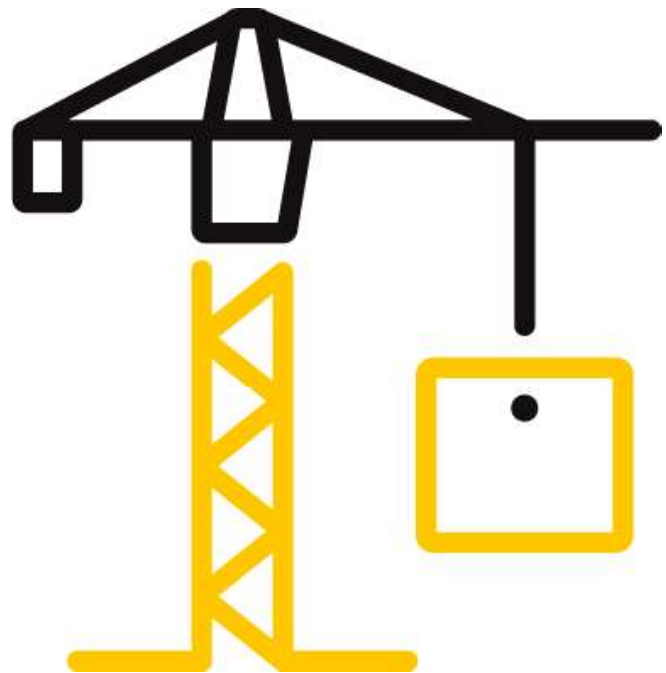
PAGES

19

DOCUMENT CONTROL NUMBER

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TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

REPORT ISSUED TO

ALL WEATHER ARCHITECTURAL ALUMINUM

777 Aldridge Road
Vacaville, CA 95688

SECTION 1

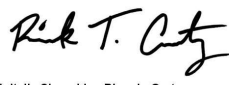

SCOPE

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 Casement Window. 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

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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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TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

SECTION 2

SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class C – PG60 Size Tested: 800 x 1500 mm (32 x 59 in) Type C
Air Infiltration	0.2 L/s/m ² (<0.03 cfm/ft ²)
Canadian Air Infiltration/Exfiltration Level	A3
Water Penetration Resistance Test Pressure	440 Pa (9.19 psf)
Design Pressure	±1920 Pa (±40.10 psf)

Reference must be made to Intertek B&C Report No. M0351.01-301-44 R1, dated 09/01/21 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*

TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

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, 12" 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: Casement

Series/Model: Series 6100 Casement Window

Product Size(s):

OVERALL AREA:	WIDTH		HEIGHT	
	Millimeters	Inches	Millimeters	Inches
1.20 m ² (12.9 ft ²)				
Overall size	800	31-1/2	1500	59-1/16
Vent	773	30-7/16	1475	58-1/16

Frame Construction:

MEMBER	MATERIAL	DESCRIPTION
Head, Jambs, Sill	Aluminum	Thermally broken
	JOINERY TYPE	DETAIL
All corners	Mitered	Corner Keys, Screwed, Sealed
Vent to Frame	Multi-Arm Hinge	Screwed, Sealed

TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

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

Hardware:

DESCRIPTION	QUANTITY	LOCATION
Roto-dial	1	Frame sill – 5-1/2" from hinge jamb
Multi arm hinge	2	Frame head/sill @ hinge jamb corner
Latch w/ lock arm	1	Frame lock jamb 10" from sill
Lock arm	1	Frame lock jamb full span

Screen Construction: *No screen was utilized.*

TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

SECTION 7

TEST RESULTS

The temperature during testing was 24°C (75.4°F). The results are tabulated as follows:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Operating Force, per ASTM E2068	Initiate Motion: 40 N (8.9 lbf) Maintain Motion: 22 N (5.0 lbf) Latches: 58 N (13.15 lbf)	60 N (13.49 lbf) max 30 N (6.74 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 (0.03 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 440 Pa (9.19 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E330 Deflections taken <u>Between vent snubbers</u> +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	0.1 mm (0.01") 0.1 mm (0.01")	1.7 mm (0.07") max. 1.7 mm (0.07") max.	3,4
Uniform Load Structural, per ASTM E330 Permanent set taken <u>Between vent snubbers</u> +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	0.1 mm (0.01") 0.1 mm (0.01")	1.2 mm (0.05") max. 1.2 mm (0.05") max.	3,4
Forced Entry Resistance, per ASTM F588, Type: B - Grade: 20	Pass	No entry	
Sash Vertical Deflection 200 N (45 lbf)	7.0 mm (0.28")	15.5 mm (0.61") max.	
Distributed Load 300 Pa (6.27 psf)	Pass	No Damage	

TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

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 04/22/21 , Time: 10:00 AM

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.

TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

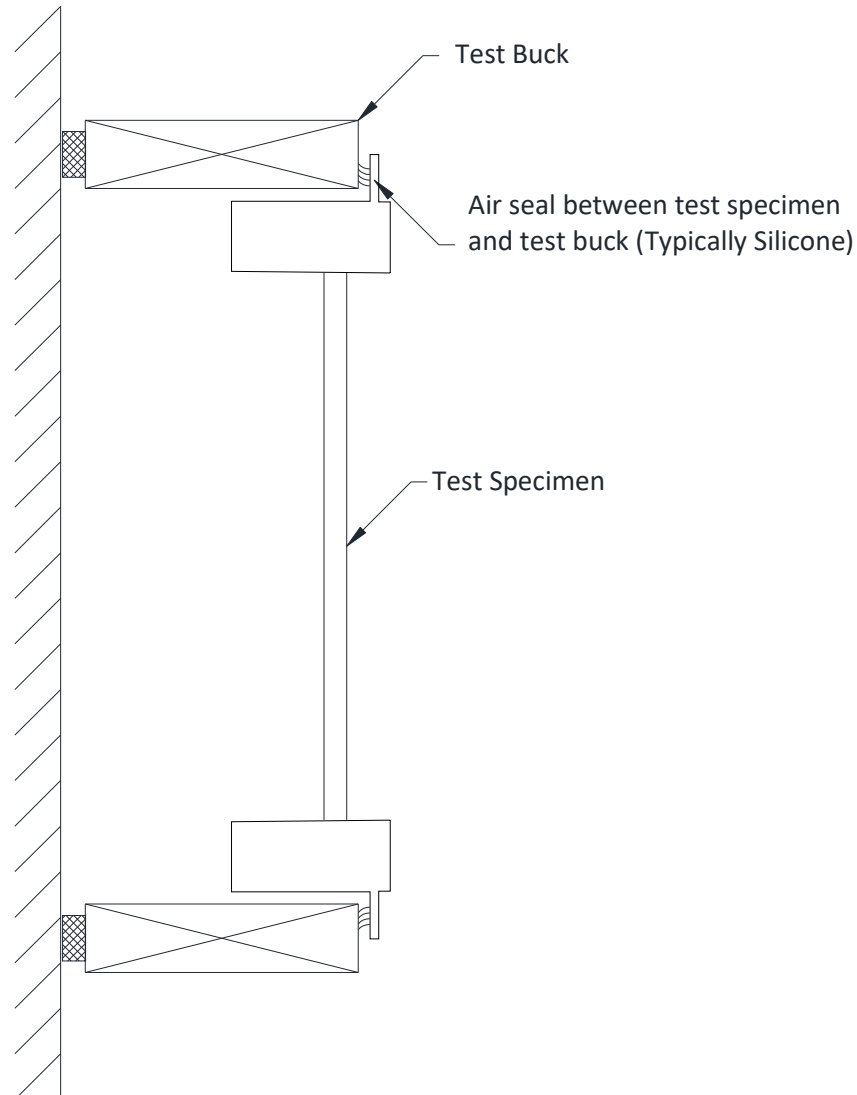
Report No.: M0351.01-301-44-R1

Date: 09/01/21

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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TEST REPORT FOR ALL WEATHER ARCHITECTURAL ALUMINUM

Report No.: M0351.01-301-44-R1

Date: 09/01/21

SECTION 10

CONCLUSION

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

Class C – PG60 , Size Tested: 800 x 1500 mm (32 x 59 in) Type C



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Report No.: M0351.01-301-44-R1

Date: 09/01/21

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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Report No.: M0351.01-301-44-R1

Date: 09/01/21

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