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INTERNATIONAL WINDOW TEST REPORT

SCOPE OF WORK
AAMA/WDMA/CSA 101/I.S.2/A440 TESTING ON SERIES 5420, CASEMENT WINDOW

REPORT NUMBER
P8570.01-303-44 R1

TEST DATES
04/05/23 - 06/16/23

ISSUE DATE **RE-ISSUE DATE**
06/30/23 7/19/23

PAGES
28

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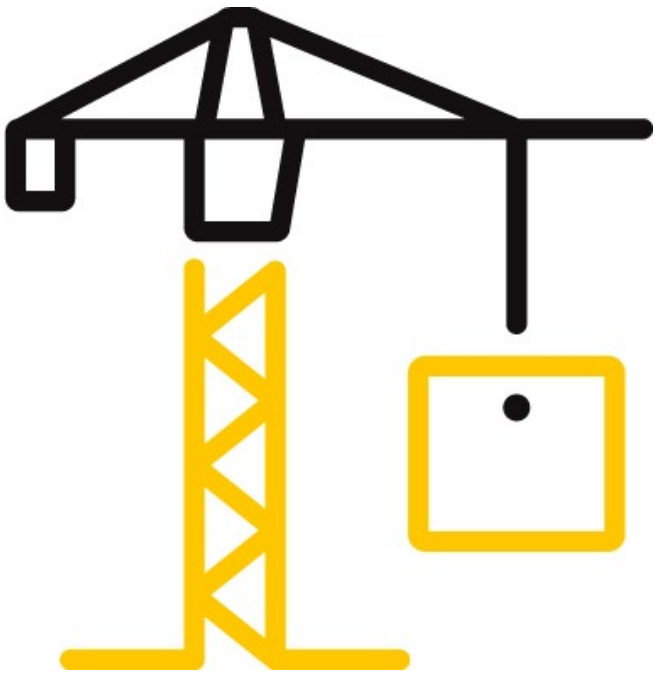


REPORT ISSUED TO

INTERNATIONAL WINDOW
2455 Wardlow Rd.
Corona, CA 92880

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by International Window, 2455 Wardlow Rd. Corona, CA 92880 to perform testing in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 on their Series 5420, Casement Window. Results obtained are tested values and were secured by using the designated test methods. Testing was conducted at the Intertek test facility in Lake Forest, CA

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 five 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 the entire test record retention period.

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:	Luis Sotelo Hernandez	**REVIEWED BY:**	Tyler Westerling P.E.
TITLE:	Lab Manager Building & Construction	**TITLE:**	Operations Manager Building & Construction
SIGNATURE:	Digitally signed by: Luis Sotelo Hernandez	**SIGNATURE:**	Digitally Signed by: Tyler Westerling
DATE:	07/19/23	**DATE:**	07/19/23

BAJ

SECTION 2
SUMMARY OF TEST RESULTS

TITLE	RESULTS
AAMA/WDMA/CSA 101/I.S.2/A440-17	Class LC PG30 Size tested 95 3/8-in. (w) x 59 3/8-in. (h) Series 5420 Casement Window
-Design Pressure	±1440 Pa (±30.08 psf)
Negative Design Pressure	-1440 Pa (-30.08 psf)
Air Infiltration	2.1 L/s/m^2 (0.02 cfm/ft^2)
Canadian Air Exfiltration Level	2.1 L/s/m2 (0.01 cfm/ft^2)
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)

SECTION 3
TEST SPECIFICATIONS/METHODS

The specimens were evaluated in accordance with the following:

AAMA/WDMA/CSA 101/I.S.2/A440:22, *North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

The following test methods were used during testing:

ASTM E283/E283M-19, *Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen*

ASTM E330/E330M-14(2021), *Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference*

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 E2068-00(2022), *Standard Test Method for Determination of Operating Force of Sliding Windows and Doors1*

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

SECTION 4
MATERIAL SOURCE/INSTALLATION

Test specimen was provided by the client. Representative samples of the test specimens 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 and the exterior perimeter of the specimen was sealed to the test buck. Installation of the tested product was performed by the Intertek.

LOCATION	ANCHOR DESCRIPTION	ANCHOR SPACING
Perimeter of Nail Fin	Phosphate Screw #8 X 3”	3” from corner and 12” in field.

SECTION 5
EQUIPMENT

Calibration of test equipment was performed by Intertek B&C in accordance with AAMA 205-15.

The following equipment was utilized to apply Forced Entry Resistance (FER) loading in accordance with ASTM F588:

EQUIPMENT	ASSET NUMBER(S)	CALIBRATION DUE DATE
Load Cell(s)	63066-63067	06/24/23-10/07/23
Force Gauge(s)	005555	07/21/23

A FER tool kit containing the following tools was also utilized:

24 gauge 0.024” thick x 0.78” wide x 3.5” long stainless steel spatula/putty knife/non-cutting tool, unwrapped
6” Phillips head screwdriver [unpowered, 6 in max]
6” standard slot-type plyers [max 6 to 7 in (150 to 175 mm) overall length]
Black annealed 16 gauge straight wire, length: X”

SECTION 6
LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Michael Richie	Intertek B&C
AJ Vogt	Intertek B&C

SECTION 7

TEST SPECIMEN DESCRIPTION

Product Type: Casement Mulled to fixed Window.
Series/Model: 5420 Casement Window

Product Size: 95-38" X 59-3/8"

Test Specimen #1

OVERALL AREA:	**WIDTH**		**HEIGHT**	
3.64 m^2 (39.25 ft^2)	**millimeters**	**inches**	**millimeters**	**inches**
Overall size	2420	95.67"	1507	59.33"
Operable sash	900	35.43"	1480	58.27"
Fixed sash	1370	53.94"	1370	53.94"

Unless otherwise noted the following descriptions apply to all specimens.

Frame Construction:

MEMBER	**MATERIAL**	**DESCRIPTION**
Head	PVC	Extruded
Sill	PVC	Extruded
Jambs	PVC	Extruded

	JOINERY TYPE	**DETAIL**
All corners	Mitred	Thermally welded.

Panel Construction:

MEMBER	**MATERIAL**	**DESCRIPTION**
head	PVC	Extruded
Jambs	PVC	Extruded
sill	PVC	Extruded

	JOINERY TYPE	**DETAIL**
All corners	Mitre	Thermally welded.

Reinforcement:

DRAWING NUMBER	LOCATION	MATERIALS
4	Casement frame stiffener	Aluminium
8	Vertical mullion support	Aluminium

Weatherstripping:

DESCRIPTION	QUANTITY	LOCATION
Q-Lon	1	Inside perimeter of operable panel
Q-Lon	1	Outside perimeter of operable panel

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

GLASS TYPE	SPACER TYPE	INTERIOR LITE	EXTERIOR LITE	GLAZING METHOD
1" IG	Aluminium	1/8	1/8	Glazing Tape with Glass Stop

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Operable Panel	1	760 x 1350	52.95” x 52.95”	1/2"

LOCATION	QUANTITY	DAYLIGHT OPENING		GLASS BITE
		millimeters	inches	
Fixed Panel	1	1345 x 1345	52.95” x 52.95”	1/2"

Drainage: *No drainage was utilized.*

Hardware:

DESCRIPTION	QUANTITY	LOCATION
Operating Crank	1	11” OC from right jamb at sill
Latch	1	12” OC from bottom Interior on left side of operable panel
keeper	3	1 @ 4-1/2” 1 @ 27” 1 @ 49-1/2” OC on the left side of the middle stile

SECTION 8
TEST RESULTS

The temperature range during testing was 15°C (59°F) - 20°C (68°F)- The results are tabulated as follows:

Test Specimen #1:

TITLE OF TEST	RESULTS	ALLOWED	NOTE
Operating Force, per ASTM E2068	Initiate Motion: 20.77 N (4.67 lbf) Maintain Motion: 192 N (3.33 lbf) Latches: 66.72 N (15 lbf)	Report only OR 70 N (15.74 lbf) max 45 N (25.85lbf) max Report only	
Air Leakage, Infiltration per ASTM E283 at 75 Pa (1.57 psf)	0.009 L/s/m^2 (0.02 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.	1, 2
Air Leakage, Exfiltration per ASTM E283 at 75 Pa (1.57 psf)	0.004 L/s/m^2 (0.01 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.	1, 2
Water Penetration, per ASTM E547 at 290 Pa (6.06 psf)	Pass	No leakage	3
Uniform Load Deflection, per ASTM E330 Deflections taken at Meeting stile +1440 Pa (+30.08 psf) -1440 Pa (-30.08psf)	 0.19 mm 4.83") 0.17mm (4.32")	 Report only	
Uniform Load Structural, per ASTM E330 Permanent set taken at meeting stile +2880 Pa (+60.15 psf) -2160 Pa (-45.11psf)	 <0.01 mm (0.0004") <0.01 mm (0.004")	 0.23 mm (0.009") max. 0.23 mm (0.009") max.	4 X, X
Forced Entry Resistance, per ASTM F588 Type: A - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	

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 04/05/23 / Time: 1:22 PM (Air Note Only)

Note 3: Without insect screen.

Note 4: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 5: 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 6: Loads were held for 10 seconds.

Note 7: 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 9
ALTERATIONS

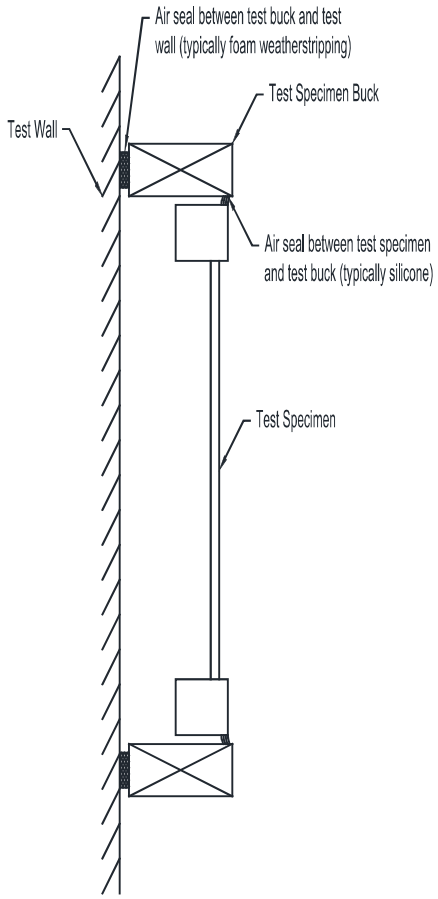
No alterations were required.

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.

SECTION 10
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.



SECTION 11
CONCLUSION

The specimen tested successfully met the performance requirements for a CLASS LC - PG 30 1220 mm x 1220 mm

TEST SPECIMEN(S)	TITLE	SUMMARY OF RESULTS
1	AAMA/WDMA/CSA 101/I.S.2/A440:22	Class LC PG30 Size tested 95 3/8-in. (w) x 59 3/8-in. (h) Series 5420 Casement Window

SECTION 2
DRAWINGS

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen 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.*