



TEST REPORT

Report No.: E8779.01-301-44

Rendered to:

INTERNATIONAL WINDOW
Hayward, California

PRODUCT TYPES:

Specimen #1: Fixed Window

Specimen #2: Combination Mullered Side-By-Side Fixed Window

SERIES/MODEL: 7223

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

Summary of Results

Title	Test Specimen #1 - Fixed	Test Specimen #2 - Mullered
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class C – PG50: 1830 x 1830 mm (72 x 72 in) – Fixed	Class C – PG60: 2443 x 1835 mm* (96 x 72 in*) – Fixed
Design Pressure	±2400 Pa (±50.13 psf)	±2880 Pa (±60.15 psf)
Air Infiltration	<0.1 L/s/m ² (<0.01 cfm/ft ²)	<0.1 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance	Test Pressure: 580 Pa (12.11 psf)	Test Pressure: 580 Pa (12.11 psf)

Test Completion Date: 03/23/16

Reference must be made to Report No. E8779.01-301-44, dated 06/02/16 for complete test specimen description and detailed test results.

1.0 Report Issued To: International Window
30526 San Antonio Street
Hayward, CA 94544

2.0 Test Laboratory: Architectural Testing, Inc., an Intertek company (Intertek – ATI)
2524 East Jensen Avenue
Fresno, CA 93706
559.233.8705

3.0 Project Summary:

3.1 Product Type:

Specimen #1: Fixed Window

Specimen #2: Combination Muller Side-By-Side Fixed Window

3.2 Series/Model: 7223

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimens tested successfully met the performance requirements for the following ratings:

Specimen #1: Class C – PG50: Size tested 1830 x 1830 mm (72 x 72 in) – Fixed

Specimen #2: Class C – PG60: Size tested 2443 x 1835 mm* (96 x 72 in*) – Fixed

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.*

3.4 Test Dates: 01/19/15 – 03/23/16

3.5 Test Record Retention End Date: All test records for this report will be retained until March 23, 2020.

3.6 Test Location: Intertek – ATI test facility in Fresno, California.

3.7 Test Specimen Source: The test specimens were provided by the client.

3.8 Drawing Reference: Test specimen construction was verified by Intertek – ATI per the drawings located in Appendix B. The test specimen drawings have been reviewed by Intertek – ATI and are representative of the test specimen(s) reported herein. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Jay Ratliff	Intertek – ATI
Dmitry Palms	Intertek – ATI
David Douglass	Intertek – ATI

4.0 Test Specification:

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

5.0 Test Specimen Description:

General Note: *Unless otherwise noted, descriptions apply to all specimens.*

5.1 Product Sizes:

	Overall Area		Frame Width		Frame Height	
	m ²	ft ²	mm	in	mm	in
Specimen #1	3.35	36.1	1830	72-1/16	1830	72-1/16
Specimen #2	4.48	48.3	2443	96-3/16	1835	72-1/4

5.2 Mullion Construction – Specimen #2 only:

Member	Material	Description
Vertical Mullion	Aluminum	Extruded; mill finish; with dual crimped isobar thermal break.

Joint Location	Joinery Type	Detail
Mullion to Frame	Sealed and fastened	Fastened through frame beneath exterior glazing bead using #8 x 2" Phillips pan head screws into both sides of mullion; sealed in place; spaced 18" on center.
Mullion End Plate	Sealed and fastened	End plate sealed and fastened to mullion using four #8 x 1" Phillips pan head screws sealed in place.

5.3 Frame Construction:

Frame Member	Material	Description
Head, Sill, Jambs	Aluminum	Extruded; mill finish; with poured and debridged thermal break

Joint Location	Joinery Type	Detail
Frame Corners	Mitered	Sealed and fastened with two #8 x 1-1/4" Phillips pan head self-drilling screws.

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping: No weatherstripping was utilized.

5.5 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	Interior/Exterior Glass	Glazing Method
1" IG	Stainless steel	1/4" clear annealed	Wet glazed to frame; secured with aluminum bead and wedge gasket.

Location	Quantity	Daylight Opening		Bite
		millimeters	inches	
Specimen 1	1	1725 x 1725	67-15/16 x 67-15/16	1/2"
Specimen 2	2	1110 x 1732	43-11/16 x 68-3/16	1/2"

5.6 Drainage:

Method	Size	Quantity	Location
Rectangular Slot with Cover	1-3/8" x 1/8" (effective)	2	Exterior sill face; 2-3/4" from frame and mullion corners.
Notch	1-3/4" wide by leg height	4	Sill glazing track; two legs notched; aligned with exterior weeps

5.7 Hardware: No hardware was utilized.

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction: No screen was utilized

6.0 Installation:

The specimens were installed into a test buck fabricated from Douglas fir nominal 2x10 lumber. The rough opening allowed for a 1/4" shim space. The exterior perimeter of the window was sealed with silicone between the mounting fin and test buck.

Location	Anchor Description	Anchor Spacing
Through 2x2 wood block and mounting fin into test buck	#10 x 3" Phillips flat head screws	4" from corners; 15" - 16" on center

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

Specimen #1 - Fixed

Title of Test	Results	Allowed	Note
Air Leakage per ASTM E 283 75 Pa (1.57 psf) Infiltration	<0.1 L/s/m ² (<0.01 cfm/ft ²)	<u>Maximum</u> 1.5 L/s/m ² (0.30 cfm/ft ²)	1
Water Penetration per ASTM E 547 580 Pa (12.11 psf) - Cyclic	Pass	No leakage	2
Uniform Load Deflection per ASTM E 330 <u>Frame Between Anchors</u> +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf)	<u>Deflections</u> <0.1 mm (<0.01") 0.3 mm (0.01")	<u>Maximum</u> 2.3 mm (0.09") 2.3 mm (0.09")	2, 3, 4, 5
Uniform Load Structural per ASTM E 330 <u>Frame Between Anchors</u> +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	<u>Permanent Sets</u> <0.1 mm (<0.01") <0.1 mm (<0.01")	<u>Maximum</u> 1.2 mm (0.05") 1.2 mm (0.05")	2, 4, 5
Forced Entry Resistance per ASTM F 588 Type D	Grade 40	No entry	

7.0 Test Results: (Continued)

Specimen #2 - Muller

Title of Test	Results	Allowed	Note
Air Leakage per ASTM E 283 75 Pa (1.57 psf) Infiltration	<0.1 L/s/m ² (<0.01 cfm/ft ²)	<u>Maximum</u> 1.5 L/s/m ² (0.30 cfm/ft ²)	1
Water Penetration per ASTM E 547 580 Pa (12.11 psf) - Cyclic	Pass	No leakage	2
Uniform Load Deflection per ASTM E 330 <u>Vertical Mullion</u> +2880 Pa (+60.15 psf) -2880 Pa (-60.15 psf)	<u>Deflections</u> 5.2 mm (0.21") 5.6 mm (0.22")	<u>Maximum</u> 10.5 mm (0.41") 10.5 mm (0.41")	2, 4, 5
Uniform Load Structural per ASTM E 330 <u>Vertical Mullion</u> +4320 Pa (+90.23 psf) -4320 Pa (-90.23 psf)	<u>Permanent Sets</u> 0.1 mm (0.01") 0.1 mm (0.01")	<u>Maximum</u> 5.5 mm (0.22") 5.5 mm (0.22")	2, 4, 5
Forced Entry Resistance per ASTM F 588 Type D	Pass	No entry	

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: The client opted to start with Optional Performance test pressure, higher than the minimum required.

Note 3: The deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation, and are reported herein for special code compliance and information only.

Note 4: Loads were held for 10 seconds.

Note 5: Tape and film were not used during structural testing.

Intertek – ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek – ATI for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Intertek – ATI

For Intertek – ATI



Digitally Signed by: David Douglass

David Douglass
Project Manager



Digitally Signed by: Leaton Kirk

Leaton Kirk
Director – Regional Operations

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Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1)

Appendix-B: Drawings (6)