TEST REPORT

Report No.: F2861.01-301-44

Rendered to:

INTERNATIONAL WINDOW
Fullerton, California

PRODUCT TYPE: Polyvinyl Chloride (PVC) O/X Awning Projected Window
SERIES/MODEL: 5321

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

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class LC – PG25 1524 x 2436 (60 x 96) – Type AP
Design Pressure	±1200 Pa (±25.06 psf)
Air Infiltration	0.4 L/s/m^2 (0.07 cfm/ft^2)
Water Penetration Resistance	Test Pressure: 220 Pa (4.59 psf)

Test Completion Date: 4/25/2016

Reference must be made to Report No. F2861.01-301-44, dated 06/01/16 for complete test specimen description and detailed test results.

1.0 Report Issued To: International Window
1551 East Orangethorpe Avenue
Fullerton, California 92831

2.0 Test Laboratory: Intertek-ATI
2524 East Jensen Avenue
Fresno, California 93706
559-233-8705

3.0 Project Summary:

3.1 Product Type: Polyvinyl Chloride (PVC) O/X Awning Projected Window

3.2 Series/Model: 5321

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

Class LC – PG25 1524 x 2436 (60 x 96) – Type AP

3.4 Test Dates: 3/22/2016 – 4/25/2016

3.5 Test Record Retention End Date: All test records for this report will be retained until April 25, 2020.

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

3.7 Test Specimen Source: The test specimen was provided by the client. Representative samples of the test specimen will be retained by Intertek-ATI for a minimum of four years from the test completion date.

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

3.9 List of Official Observers:

Name	Company
Gino Vitali	Intertek-ATI
Dennis Janzen	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:

5.1 Product Sizes:

Overall Area: 3.71 m^2 (39.9 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall Frame	1524	60	2436	95-7/8
Active Panel	1488	58-9/16	1193	46-15/16
Fixed Panel	1487	58-9/16	1188	46-3/4

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, Sill, Jambs, Mullion	PVC	Extruded; white.

Joint	**Joinery Type**	**Detail**
All Corners	Mitered	Fully welded.
Horizontal Mullion	Notched and coped	Attached to frame using three #10 x 2-1/2" Phillips flat head screws through the frame with heads sealed in place.

5.0 Test Specimen Description: (Continued)

5.3 Vent and Panel Construction:

Member	Material	Description
Rails, Stiles	PVC	Extruded; white.

Joint	Joinery Type	Detail
Rails and Stiles	Mitered	Fully welded.
Active Panel	Mitered	Additional corner bracket attached to glazing track corners with two #6 x 3/4" Phillips flat head self-drilling screws into each reinforcement.

5.4 Weatherstripping:

Description	Quantity	Location
Hollow Bulb Gasket	2 Rows	Coextruded with jambs, head, sill.
Hollow Bulb Gasket	4 Rows	Coextruded with mullion.
Single Leaf Gasket	1 Row	Coextruded with stiles, rails.

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 Type	Glazing Method
3/4" IG	Steel Intercept	Set against 3/8" wide x 1/16" thick glazing tape; sealed at butted corner; secured with snap-fit exterior PVC bead.

Location	Interior/ Exterior Glass	Daylight Opening		Bite
		millimeters	inches	
Active Panel	3/32" annealed	1178 x 1987	46-3/8 x 78-1/4	3/8"
Fixed Panel	1/8" annealed	1178 x 1986	46-3/8 x 78-3/16	3/8"

5.0 Test Specimen Description: (Continued)

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weatherstripping Notch	1" wide	2	The exterior bulb gasket at the sill was notched 1-5/8" from jambs.

5.7 Hardware:

Description	Quantity	Location
Rotary Operator	1	Assembled through sill and reinforcement at midspan using two Phillips head screws; operator clip attached to bottom rail with two #6 x 1/2" Phillips flat head self-drilling screws into reinforcement.
Locking Handle	2	Jambs; 9-1/4" from sill; assembled through backing plate with two Phillips head screws.
Keeper	2	Active stiles; attached opposite locks using two #8 x 1" Phillips truss head screws into reinforcement.
Hinges	3	Fastened to hinge stile with four #6 x 1" Phillips flat head self-drilling screws into reinforcement; to horizontal mullion and sill with three #6 x 1/2" Phillips flat head.
Fixed Panel Anchor Spacer, 3" Long	9	Jambs midspan and 6" – 8" from corners; horizontal mullion midspan and 4" – 6" from ends; spacers fastened to frame with two #6 x 1/2" Phillips flat head screws; panel anchored through glazing track and each spacer with one #9 x 2" Phillips truss head screw.

5.0 Test Specimen Description: (Continued)

5.8 Reinforcement:

Drawing Number	Location	Material
50201	Horizontal Mullion	Extruded aluminum
50218	Active Stiles and Rails Exterior Hollow	Extruded aluminum
Allmetal Air Spacer	Active Stiles and Rails Exterior Hollow	Roll-formed aluminum

5.9 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a nominal 2x8 Douglas fir wood test buck. The rough opening allowed for a 3/8" shim space. A continuous nominal 2x2 wood furring strip was placed over the mounting fin on all sides. The exterior perimeter of the window was sealed with silicone between the mounting fin and test buck.

Location	Anchor Description	Anchor Spacing
Head, Sill, Jambs	#8 x 3" Phillips flat head screws through furring strip and mounting fin into test buck.	4" from corners; 16" on center.

7.0 Test Results: The temperature during testing was 18°C (65°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force per ASTM E 2068 Initiate motion Maintain motion Latches	 7 N (1.5 lbf) 7 N (1.5 lbf) 49 N (11.0 lbf)	 Report Only 30 N (6.7 lbf) max. 100 N (22 lbf) max.	
Air Leakage per ASTM E 283 75 Pa (1.57 psf) Infiltration	 0.4 L/s/m^2 (0.07 cfm/ft^2)	 <u>Maximum</u> 1.5 L/s/m^2(0.3 cfm/ft^2)	 1
Water Penetration per ASTM E 547 180 Pa (3.76 psf) – Cyclic	 Pass	 No leakage	
Uniform Load Deflection per ASTM E 330 <u>Horizontal Mullion</u> +1440 Pa (+30.08 psf) –1440 Pa (–30.08 psf) <u>Active Bottom Rail</u> +1440 Pa (+30.08 psf) –1440 Pa (–30.08 psf)	 <u>Deflections</u> 11.9 mm (0.47") 5.8 mm (0.23") 2.0 mm (0.08") 22.2 mm (0.88")	 Report Only	 2, 3, 4
Uniform Load Structural per ASTM E 330 <u>Horizontal Mullion</u> +1800 Pa (+37.59 psf) –1800 Pa (–37.59 psf) <u>Active Bottom Rail</u> +1800 Pa (+37.59 psf) –1800 Pa (–37.59 psf)	 <u>Permanent Sets</u> 0.3 mm (0.01") 0.3 mm (0.01") <0.1 mm (<0.01") 1.5 mm (0.06")	 <u>Maximum</u> 5.8 mm (0.23") 5.8 mm (0.23") 5.8 mm (0.23") 5.8 mm (0.23")	 3, 4
Thermoplastic Corner Weld	Pass	Meets as stated	
Awning, Hopper, Projected Hardware Load 70 N (15 lbf)	 20.6 mm (0.81")	 Report Only	
Forced Entry Resistance per ASTM F 588, Type B	 Grade 10	 No entry	
Optional Performance			
Water Penetration per ASTM E 547 220 Pa (4.59 psf) – Cyclic	 Pass	 No leakage	

7.0 Test Results: (Continued)

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 deflections reported are not limited by AAMA/WDMA/CSA 101/I.S.2/A440 for this product designation. The results are reported for special code compliance and information only.*

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

Note 4: *The use of tape and film to seal against air leakage during uniform load testing did not, in the opinion of the Intertek – ATI witness, influence the test results.*

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 (17)

This report produced from controlled document template ATI 00438, revised 06/27/14.