TEST REPORT

Report No.: E6042.01-301-44

Rendered to:

INTERNATIONAL WINDOW
Fullerton, California

PRODUCT TYPE: Polyvinyl Chloride (PVC) Single Hung Window
SERIES/MODEL: 9320

AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-05	H-LC25 1420 x 2314 (56 x 91)
Design Pressure	±1200 Pa (±25.06 psf)
Air Infiltration	0.3 L/s/m^2 (0.05 cfm/ft^2)
Water Penetration Resistance Test Pressure	290Pa (6.06 psf)

Test Completion Date: 03/10/15

Reference must be made to Report No. E6042.01-301-44-R0, dated 04/07/16 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: Architectural Testing, Inc.
2524 East Jensen Avenue
Fresno, California
559-233-8705

3.0 Project Summary:

3.1 Product Type: Polyvinyl Chloride (PVC) Single Hung Window

3.2 Series/Model: 9320

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimen tested successfully met the performance requirements for a H-LC25 1420 x 2314 (56 x 91) rating.

3.4 Test Dates: 03/05/15 - 03/10/15

3.5 Test Record Retention End Date: All test records for this report will be retained until March 10, 2019.

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 Architectural Testing for a minimum of four years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

Name	Company
Gino Vitali	Architectural Testing, Inc.

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 3.29 m^2 (35.4 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1420	55-7/8	2314	91-1/8
Exterior panel	1350	53-1/8	1144	45-1/16
Middle panel	1350	53-1/8	1144	45-1/16
Interior panel	1350	53-1/8	1144	45-1/16

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill and jambs	PVC	See drawings

	Joinery Type	**Detail**
All corners	Mitered	Fully welded

5.3 Panel Construction:

Panel Member	**Material**	**Description**
Top rail, bottom rail and stiles	PVC	See drawings

	Joinery Type	**Detail**
All corners	Mitered	Fully welded

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping:

Description	Quantity	Location
3/16" high x 3/8" backed polypile with center fin	1 Row	Exterior meeting rail.
3/16" high x 1/4" backed polypile with center fin	1 Row	All members of each panel. Each side of middle panel meeting rail.

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.*

Fixed lite and exterior panel

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	U shaped coated steel	1/8" Annealed	3/16" Annealed	Exterior glazed onto glazing tape and secured with a snap in PVC glazing bead.

Middle and interior panels

Glass Type	Glazing	Glazing Method
Monolithic	3/16" Annealed	Exterior glazed onto glazing tape and secured with a snap in PVC glazing bead.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed lite	1	840 x 1730	33-1/16 x 68-1/8	1/2"
Exterior panel	1	820 x 1680	32-5/16 x 66-1/8	1/2"
Middle panel	1	820 x 1680	32-5/16 x 66-1/8	1/2"
Interior panel	1	820 x 1680	32-5/16 x 66-1/8	1/2"

5.0 Test Specimen Description: (Continued)

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weephole with cover	1-1/2" x 1/4" (1-1/16" x 3/16" Effective)	2	2-1/8" from each end through exterior sill face and one layer of internal webbing.
Weephole	5/8" x 3/16"	2	3-1/8" from each end through exterior panel sill track.

5.7 Hardware:

Description	Quantity	Location
Lock	1 per panel	34-1/2" from bottom rail secured with two #6 x 3/8 screws and two #8 x 1" screws.
Keepers	3	Opposite each lock secured to jamb with two #6 x 3/8 screws.
Handle	1 per panel	6" from bottom rail secured to lock stile with two #8 x 3/4" screws.

5.8 Reinforcement:

Drawing Number	Location	Material
50302	Mullion	Aluminum
1122	Interlock	Steel
50465	Mullion	Aluminum

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type
Roll formed aluminum	Plastic corner key	Fiberglass

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/4" shim space. The exterior perimeter of the window was sealed with silicone.

Location	Anchor Description	Anchor Spacing
Head, sill and jambs through mounting fin	#10 x 3" wood screws	16" on center through 2 x 2 wood blocking

7.0 Test Results: The temperature during testing was 26-27°C (79-81°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068 Initiate motion Maintain motion Lock	 59 N (13.3 lbf) 36 N (8.0 lbf) 18 N (4.0 lbf)	 100 N (22.5 lbf) max.	
Air Leakage, per ASTM E 283 Infiltration at 75 Pa (1.57 psf)	 0.3 L/s/m^2 (0.05 cfm/ft^2)	 Maximum 1.5 L/s/m^2 (0.3 cfm/ft^2	 1
Summer Mode – Secondary Sash Open/Removed			
Water Penetration, per ASTM E 547 290 Pa (6.06 psf) – Cyclic	 Pass	 No leakage	 2
Uniform Load Deflection, per ASTM E 330 Exterior Meeting Stile +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	 Deflections 15.1 mm (0.60") 15.6 mm (0.62")	 Report Only	 3, 4, 5
Uniform Load Structural, per ASTM E 330 Exterior Meeting Stile +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	 Permanent Sets 0.6 mm (0.03") 0.1 mm (0.01")	 Maximum 5.5 mm (0.22") 5.5 mm (0.22")	 4, 5
Winter Mode – All Sash Closed			
Water Penetration, per ASTM E 547 290 Pa (6.06 psf) – Cyclic	 Pass	 No leakage	 2
Uniform Load Deflection, per ASTM E 330 Exterior Meeting Stile +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	 Deflections 13.7 mm (0.54") 15.7 mm (0.62")	 Report Only	 3, 4, 5
Uniform Load Structural, per ASTM E 330 Exterior Meeting Stile +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	 Permanent Sets 0.4 mm (0.02") 0.5 mm (0.02")	 Maximum 5.5 mm (0.22") 5.5 mm (0.22")	 4, 5, 6

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Forced Entry Resistance, per ASTM F 588, Type A per CAWM 301, Type I	 Grade 10 Pass	 No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Deglazing, per ASTM E 987 <u>All Sash</u> Rails at 320 N (70 lbf) Stiles at 230 N (50 lbf)	 Pass Pass	 Meets as stated 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: With and without insect screen.

Note 3: The client opted to start this test at an Optional Performance test pressure, higher than the minimum required for this product designation.

Note 4: 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 5: Loads were held for 10 seconds.

Note 6: In the opinion of the Intertek – ATI test witness, the use of tape and film to reduce extraneous air leakage during uniform load testing did not influence test results.

Architectural Testing 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 Architectural Testing, Inc. 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 Architectural Testing, Inc.

For ARCHITECTURAL TESTING, Inc.

Digitally Signed by: David Douglass

David Douglass
Project Manager

Digitally Signed by: Tyler Westerling

Tyler Westerling, P.E.
Senior Project Engineer

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Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Location of Air Seal (1)
Appendix-C: Drawings (15) Complete drawings packet on file with Architectural Testing, Inc.