



TEST REPORT

Report No.: E7256.01-301-44

Rendered to:

INTERNATIONAL WINDOW
Fullerton, California

PRODUCT TYPE: Single Hung Window
SERIES/MODEL: 8220

SPECIFICATION(S): 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 Size Tested: 1220 x 2130 mm (48-1/32 x 82-27/32 in.) - Type H
Design Pressure	±1200 Pa (±25.06 psf)
Air Infiltration	1.5 L/s/m ² (0.29 cfm/ft ²)
Water Penetration Resistance Test Pressure	180 Pa (3.76 psf)

Test Completion Date: 07/21/15

Reference must be made to Report No. E7256.01-301-44, dated 09/22/15 for complete test specimen description and detailed test results.

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

2.0 Test Laboratory: Architectural Testing, Inc.
an Intertek company ("Intertek-ATI")
4 Rancho Circle
Lake Forest, California 92630
949-460-9600

3.0 Project Summary:

3.1 Product Type: Single Hung Window

3.2 Series/Model: 8220

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 a **Class LC - PG25 Size Tested: 1220 x 2130 mm (48-1/32 x 82-27/32 in.) - Type H** rating.

3.4 Test Dates: 04/23/15 - 07/21/15

3.5 Test Record Retention End Date: All test records for this report will be retained until July 21, 2019.

3.6 Test Location: Intertek-ATI test facility in Lake Forest, 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 reported herein. Test specimen construction was verified by Intertek-ATI per the drawings located in Appendix C. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Abe Peralta	International Window
Jarod S. Hardman	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: 2.60 m ² (27.97 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1220	48-1/32	2130	83-27/32
Sash	1170	46-1/16	1070	42-1/8
Screen	1156	45-1/2	1031	40-19/32

5.2 Frame Construction:

Frame Member	Material	Description
Head	Aluminum	See attached drawings Die No. 50493 and Die No. 50494, joined together with thermal break <i>(see attached Drawing No. 8220-028)</i> .
Jambs	Aluminum	See attached drawings Die No. 50497 and Die No. 50498, joined together with thermal break <i>(see attached Drawing No. 8220-028)</i> .
Sill	Aluminum	See attached drawings Die No. 50495 and Die No. 50496, joined together with thermal break <i>(see attached Drawing No. 8220-028)</i> .
Fixed interlock	Aluminum	See attached drawings Die No. 50591 and Die No. 50592, joined together with thermal break <i>(see attached Drawing No. 8220-028)</i> .
Jambs	Vinyl	Thermo isolator, <i>see attached Drawing No. 8220-020, snap fit over jamb extrusion center leg on the interior side.</i>
Sill	Vinyl	Thermo isolator, <i>see attached Drawing No. 8220-022, snap fit over sill extrusion center leg on the interior side.</i>
Jambs	Aluminum	Vent stop, snap in installed to head of jambs; <i>see attached drawing Die No. 50153.</i>

5.0 Test Specimen Description: (Continued)

5.2 Frame Construction: (Continued)

	Joinery Type	Detail
All Frame Corners	Coped	Secured through jambs on either side of nail fin with two #6 x 5/8" Phillips round head screws at each corner and sealed with silicone sealant.
Interlock	Coped	Secured through exterior face of jamb with one #6 x 1/2" Robertson head Tek screw at each end of interlock and sealed with silicone sealant.

5.3 Sash Construction:

Sash Member	Material	Description
Top Rail Interlock	Aluminum	See attached drawings Die No. 50489 and Die No. 50490, joined together with thermal break <i>(see attached Drawing No. 8220-029)</i> .
Bottom Rail	Aluminum	See attached drawings Die No. 50501 and Die No. 50502, joined together with thermal break <i>(see attached Drawing No. 8220-029)</i> .
Stiles	Aluminum	See attached drawings Die No. 50499 and Die No. 50500, joined together with thermal break <i>(see attached Drawing No. 8220-029)</i> .

	Joinery Type	Detail
Bottom Rail Corners	Coped	Secured through pivot bar and stiles with #6 x 1-1/2" Phillips round head screw and sealed with silicone sealant.
Top Rail Corners	Coped	Secured through top rail #6 x 1-1/2" Phillips flat head screws and sealed with silicone sealant.

5.4 Weatherstripping:

Description	Quantity	Location
0.187 x 0.220 pile with fin	1 row	Around full interior perimeter of sash in weather strip channel
0.187 x 0.220 pile with fin	1 row	Full span of bottom rail on underside of bottom rail in weather strip channel

5.0 Test Specimen Description: (Continued)

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	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Intercept Spacer (CU)	1/8" clear annealed	1/8" clear annealed	Channel glazed with vinyl gasket, fixed lite gasket Part No. VY2743 and sash gasket Part No. VY2328.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Sash	1	1120 x 1005	44-3/32 x 39-9/16	1/2"
Fixed Lite	1	1123 x 1002	44-7/32 x 39-7/16	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weep Hole	1-3/4" x 1/4"	2	Centered 4-1/8" from each corner of sill through the face of exterior leg of sill extrusion and fitted with weep cover.
Weep Hole	1/4" diameter	2	Centered 3" from each corner of bottom rail of sash to drain glazing pocket into sill.

5.7 Hardware:

Description	Quantity	Location
Pivot Block And Tackle Balance Part No. SP2348	2	Secured to each jamb at the head with one #6 x 5/8" Phillips round head Tek screw and secured at base of balance with Pivot Shoe, Part No. SP2330.
Pivot Bar Part No. SP2331	2	Secured to bottom rail of sash at each end with one #6 x 1-1/2" Phillips round head screw and one #6 x 5/8" Phillips round head Tek screw.
Sash Wing Clip Latch Part No. SP2332	2	Secured to top rail of sash at each end with two #8 x 3/4" Phillips flat head Tek screws.

5.0 Test Specimen Description: (Continued)

5.7 Hardware: (Continued)

Description	Quantity	Location
Sweep Lock	1	Centered on top rail of sash and secured to sash with two #8 x 1/2" Robertson head Tek screws.

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Aluminum	Plastic corner key	Fabric	Hollow spline

6.0 Installation:

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

Location	Anchor Description	Anchor Location
Through nail fin full perimeter	#8 x 1-5/8" drywall screw	6" from corner and 12" on center spacing

7.0 Test Results: The temperature during testing was 20°C (68°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 106.8 N (24.0 lbf) Maintain motion: 142.3 N (32.0 lbf) Latches: 8.9 N (2.0 lbf) Locks: 8.9 N (2.0 lbf)	Report Only 180 N (40.47 lbf) max. 100 N (22.5 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	1.5 L/s/m ² (0.29 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Water Penetration, per ASTM E 547 at 140 Pa (2.92 psf)	N/A	N/A	3
Uniform Load Deflection, per ASTM E 330 Deflections taken at interlock +720 Pa (+15.04 psf) -720 Pa (-15.04 psf)	N/A	N/A	3
Uniform Load Structural, per ASTM E 330 Permanent sets taken at interlock +1080 Pa (+22.56 psf) -1080 Pa (-22.56 psf)	N/A	N/A	3
Forced Entry Resistance, per ASTM F 588, Type: A - Grade: 10	Pass	No entry	
Forced Entry Resistance, per CAWM 301, Type: I	Pass	No entry	
Deglazing, per ASTM E 987 Operating direction, 320 N (70 lbf) Remaining direction, 230 N (50 lbf)	Pass Pass	Meets as stated Meets as stated	
Optional Performance			
Water Penetration, per ASTM E 547 at 180 Pa (3.76 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 Deflections taken at interlock +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	4.8 mm (0.19") 5.6 mm (0.22")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 Permanent sets taken at interlock +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	0.3 mm (0.01") 0.3 mm (0.01")	4.3 mm (0.17") max. 4.3 mm (0.17") max.	5, 6

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: *With and without insect screen.*

Note 3: *The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.*

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: *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.*

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 tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For Intertek-ATI


Digitally Signed by: Jarod Hardman

Jarod S. Hardman
Laboratory Manager


Digitally Signed by: Kenny C. White

Kenny White
Laboratory Manager

JSH: ms

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 (24)

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