

TEST REPORT

Report No.: B3259.01-109-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Gratz, Pennsylvania

PRODUCT TYPE: PVC Awning Window (Finless)
SERIES/MODEL: 9660

SPECIFICATION: AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
Primary Product Designator	Class LC-PG50 1219 x 1016 (48 x 40)-AP
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	0.2 L/s/m ² (0.03 cfm/ft ²)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Test Completion Date: 09/22/2011

Reference must be made to Report No. B3259.01-109-47, dated 10/14/11 for complete test specimen description and detailed test results.

1.0 Report Issued To: MI Windows and Doors, Inc.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

2.0 Test Laboratory: Architectural Testing, Inc.
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Project Summary:

3.1 Product Type: PVC Awning Window (Finless)

3.2 Series/Model: 9660

3.2.1 This product also labeled under the following names: 1665 and CTAWN

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test method(s). The specimen tested successfully met the performance requirements for a **Class LC-PG50 1219 x 1016 (48 x 40)-AP** rating.

3.4 Test Dates: 09/19/2011 - 09/22/2011

3.5 Test Location: MI Windows and Doors, Inc. test facility in Gratz, Pennsylvania. Calibration of test equipment was performed by Architectural Testing in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.6 Test Sample Source: The test specimen was provided by the client. Representative samples of the test specimen(s) will be retained by Architectural Testing for a minimum of four years from the test completion date.

3.7 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Architectural Testing per the drawings on file with Architectural Testing. Any deviations are documented herein or on the drawings.

3.8 List of Official Observers:

<u>Name</u>	<u>Company</u>
Rick Sawdey	MI Windows and Doors, Inc.
Jeremy R. Bender	Architectural Testing, Inc.

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 1.2 m ² (13.3 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1219	48	1016	40
Vent	1176	46-5/16	976	38-7/16

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill, and jambs	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.3 Vent Construction:

Vent Member	Material	Description
Rails and stiles	PVC	Extruded

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.4 Weatherstripping:

Description	Quantity	Location
0.187" backed by 0.350" high polypile with center fin	1 Row	All vent members
0.187" backed by 0.300" high foam-filled bulb seal	2 Rows	All vent members

5.0 Test Specimen Description: (Continued)

5.5 Glazing:

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Metal reinforced butyl	1/8" clear annealed	1/8" clear annealed	Exterior glazed against a bead of silicone and secured with PVC snap-in glazing beads

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Sash daylight opening	1	1048 x 838	41-1/4 x 33	1/2"

5.6 Drainage: A step-down sill was utilized.

Drainage Method	Size	Quantity	Location
Weepslot	1/2" wide by 5/32" high	2	3-1/2" from ends of glazing bead at sash bottom rail

5.7 Hardware:

Description	Quantity	Location
Roto-operator	1	Midspan of sill
Metal snubbers	2	14-1/2" from each end of head/top rail
Single point lever lock	2	Each jamb, 6" from sill
Two-bar hinge	2	Top of each jamb

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Roll-formed aluminum	Square-cut and keyed	Fiberglass	Flexible vinyl spline

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/16" shim space. The exterior perimeter of the window was sealed with sealant.

Location	Anchor Description	Anchor Location
Head	#8 x 1-1/4" long pan head screw	2" from each end and 14" on center through the head into the wood buck
Jambs	#8 x 1-1/4" long pan head screw	3" from corners and one at midspan through the jambs into the wood buck

7.0 Test Results: The temperature during testing was 21°C (70°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 18 N (4 lbf) Maintain motion: 18 N (4 lbf) Locks: 22 N (5 lbf)	Report Only 30 N (7 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.2 L/s/m ² (0.03 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1
Water Penetration, per ASTM E 547	N/A	N/A	3
Uniform Load Deflection, per ASTM E 330	N/A	N/A	3
Uniform Load Structural, per ASTM E 330	N/A	N/A	3
Forced Entry Resistance, per ASTM F 588, Type: B - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Awning, Hopper, Projected Hardware Load Test 70 N (15 lbf)	22.4 mm (0.88")	Report Only	

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 547 at 580 Pa (12.11 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at bottom rail +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	5.3 mm (0.21") 16.8 mm (0.66")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at bottom rail +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	0.5 mm (0.02") 0.5 mm (0.02")	4.8 mm (0.19") max. 4.8 mm (0.19") max.	5, 6

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.



The service life of this report will expire on the stated Test Record Retention End Date, at which time such materials as drawings, data sheets, samples of test specimens, copies of this report, and any other pertinent project documentation, shall be discarded without notice.

If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made. 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.

Jeremy R. Bender
Technician

Michael D. Stremmel, P.E.
Senior Project Engineer

JRB:dem

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

Appendix-A: Alteration Addendum (1)

Appendix-B: Complete drawings packet on file with Architectural Testing, Inc.



Architectural Testing

Test Report No.: B3259.01-109-47
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Appendix A

Alteration Addendum

***Note:** No alterations were required.*



Architectural Testing

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Appendix B

Drawings

***Note:** Complete drawings packet on file with Architectural Testing, Inc.*