

TEST REPORT

Report No.: B5393.01-109-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Gratz, Pennsylvania

PRODUCT TYPE: Aluminum Fixed Window
SERIES/MODEL: 185

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-PG55 2426 x 1511 (96 x 60)-FW
Design Pressure	±2640 Pa (±55.17 psf)
Air Infiltration	0.1 L/s/m ² (0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	440 Pa (9.19 psf)

Test Completion Date: 12/05/2011

Reference must be made to Report No. B5393.01-109-47, dated 01/05/12 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: Aluminum Fixed Window

3.2 Series/Model: 185

3.2.1 This product also labeled under the following names: 185PW, 185SP, and 185T.

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-PG55 2426 x 1511 (96 x 60)-FW** rating.

3.4 Test Date: 12/05/2011

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 specimens were provided by the client. Representative samples of the test specimens 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.
Aaron M. Shultz	Architectural Testing, Inc.

4.0 Test Specification:

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 Size:

Overall Area: 3.7 m ² (39.5 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	2426	95-1/2	1511	59-1/2

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill, jambs	Aluminum	Extruded

	Joinery Type	Detail
All corners	Coped and butted	Sealed with a butyl backed foam pad and secured with two #8 x 3/4" long pan head screws

5.3 Weatherstripping: No weatherstripping was utilized.

5.4 Glazing:

Glass Type	Spacer Type	Exterior Lite	Interior Lite	Glazing Method
13/16" IG	Metal reinforced butyl	5/32" annealed	5/32" annealed 0.100" Solutia Saflex HP interlayer 5/32" annealed	The glass was set from the exterior against a bead of silicone and secured with aluminum glazing beads with double-sided foam adhesive tape against the glass. The glazing bead were secured to the frame with #6 x 1-1/4" long self-tapping pan head screws, located 3" from the corners and spaced 13" on center.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	2356 x 1441	92-3/4 x 56-3/4	1/2"

5.0 Test Specimen Description: (Continued)

5.5 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	1" wide by 1/4" high	2	Sill face, 2-1/4" from each end of the glazing bead at the sill, draining the glazing pockets

5.6 Hardware: No hardware was utilized.

5.7 Reinforcement: No reinforcement was utilized.

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 nailing fin of the window was set onto a bead of sealant and secured to the wood testing buck.

Location	Anchor Description	Anchor Location
Head, sill, and jambs	#6 x 1-5/8" long pan head screw	3" from all corners and spaced 12" on center through the mounting fin into the wood buck

7.0 Test Results: The temperature during testing was 21.2°C (70.2°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.1 L/s/m ² (0.01 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: D - Grade: 10	Pass	No entry	
Optional Performance			
Water Penetration, per ASTM E 547 at 440 Pa (9.19 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at bottom rail +2640 Pa (+55.17 psf) -2640 Pa (-55.17 psf)	1.3 mm (0.05") 3.8 mm (0.15")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at bottom rail +3960 Pa (+82.71 psf) -3960 Pa (-82.71 psf)	<0.3 mm (<0.01") 1.0 mm (0.04")	9.7 mm (0.38") max. 9.7 mm (0.38") 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: 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 not used to seal against air leakage during structural testing.



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.

Aaron M. Shultz
Technician

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

AMS: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

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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.*