Architectural Testing

TEST REPORT

Report No.: B9397.01-301-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Prescott Valley, Arizona

PRODUCT TYPE: Polyvinyl Chloride (PVC) Fixed Window
SERIES/MODEL: Pro 5000 5610 PW

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

CAWM 301, *Forced Entry Resistance Test for Windows.*

	Summary of Results	
Title	**Test Specimen #1**	**Test Specimen #2**
Primary Product Designator	FW-LC25 1826 x 1823 (72 x 72)	FW-C35 2436 x 1519 (96 x 60)
Design Pressure	±1200 Pa (±25.06 psf)	±1680 Pa (±35.09 psf)
Air Infiltration	0.10 L/s/m^2 (0.02 cfm/ft^2)	0.15 L/s/m^2 (0.03 cfm/ft^2)
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)	360 Pa (7.52 psf)

Test Completion Date: 05/08/2012

Reference must be made to Report No. B9397.01-301-47 dated 11/11/13 for complete test specimen description and detailed test results.

1.0 Report Issued To: MI Windows and Doors, Inc.
7555 East State Route 69
Prescott Valley, Arizona 86314

2.0 Test Laboratory: Architectural Testing, Inc.
2524 East Jensen Avenue
Fresno, California 93706
(559) 233 - 8705

3.0 Project Summary:

3.1 Product Type: Polyvinyl Chloride (PVC) Fixed Window

3.2 Series/Model: Pro 5000 5610 PW

This product also labeled under the following names: 5600 and 5900

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimens tested successfully met the performance requirements for the following ratings: Test Specimen #1: **FW-LC25 1826 x 1823 (72 x 72)**; Test Specimen #2: **FW-C35 2436 x 1519 (96 x 60)**.

3.4 Test Dates: 05/08/2012 – 05/17/2012

3.5 Test Record Retention End Date: All test records for this report will be retained until May 17, 2016.

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

3.7 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.

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

3.9 List of Official Observers:

Name	Company
Russ Wilkerson	MI Windows and Doors, Inc.
Mike Maystadt	MI Windows and Doors, Inc.
Jeffrey Osugi	Architectural Testing, Inc.

4.0 Test Specifications:

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

CAWM 301, *Forced Entry Resistance Test for Windows.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Test Specimen #1:

Overall Area: 3.33 m^2 (35.83 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1826	71-7/8	1823	71-3/4

Test Specimen #2:

Overall Area: 3.70 m^2 (39.83 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	2436	95-7/8	1519	59-13/16

The following descriptions apply to all specimens unless noted.

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill and jambs - Finless	PVC	
Track filler	PVC	Employed at sill.

	Joinery Type	**Detail**
Head, sill and jambs	Mitered	Fully welded.

5.3 Sash/Vent/Panel Construction: No sash/vent/panel was utilized.

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping: No weatherstripping was utilized.

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.*

Test Specimen #1:

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Polycarbonate – butyl composite	1/8" annealed	1/8" annealed	Exterior glazed onto a 3/8" wide x 1/16" high glazing tape and secured with a snap in PVC glazing bead.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed lite	1	1750 x 1747	68-7/8 x 68-3/4	1/2"

Test Specimen #2:

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Polycarbonate – butyl composite	3/16" tempered	3/16" tempered	Exterior glazed onto a 3/8" wide x 1/16" high glazing tape and secured with a snap in PVC glazing bead.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed lite	1	2360 x 1445	92-15/16 x 56-7/8	1/2 – 5/8"

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	2-1/4" from each end through exterior sill face and first layer of internal webbing.
Weephole	5/16" x 3/16" oval	2	2" from each end through sill glazing track.
Weephole	1" x 3/16" oval	2	2" from each end through sill track.
Weephole	7/8" x 1/8"	2	Each end through second layer of internal webbing at sill.

5.7 Hardware: No hardware was utilized.

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 1/4 – 3/8" shim space. The exterior perimeter of the window was sealed with silicone.

Test Specimen #1:

Location	Anchor Description	Anchor Location
Head, sill and jambs	#8 x 1-1/2" Phillips pan head screws.	3-1/2 – 5-1/2" from each end and 9" on center at jambs and head. 17-1/4" from each end and midspan at sill through frame. The sill screws were sealed.

Test Specimen #2:

Location	Anchor Description	Anchor Location
Head, sill and jambs	#8 x 1-1/2" Phillips pan head screws.	4-1/2 – 5" from each end and 9" on center at jambs and head. 9" from each end and 19" on center at sill through frame. The sill screws were sealed.

7.0 Test Results: The temperature during testing was 18 - 24°C (64 - 75°F). The results are tabulated as follows:

Test Specimen #1:

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.10 L/s/m² (0.02 cfm/ft²)	1.5 L/s/m² (0.3 cfm/ft²) max.	1
Water Penetration, per ASTM E 547	N/A	N/A	3
Uniform Load Deflection, per ASTM E 330 taken at sill between mounting screws +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	 0.3 mm (0.01") 0.3 mm (0.01")	 Report Only	3,4,5
Uniform Load Structural, per ASTM E 330 taken at sill between mounting screws +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	 0.0 mm (0.0") 0.0 mm (0.0")	 1.8 mm (0.07") max.	4,5
Forced Entry Resistance, per ASTM F 588, Type: D	Pass	No entry	
Forced Entry Resistance, per CAWM 301, Type: V	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
Optional Performance			
Water Penetration, per ASTM E 547 at 260 Pa (5.43 psf)	Pass	No leakage	

7.0 Test Results: (Continued)

Test Specimen #2:

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.15 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 taken at sill between mounting screws +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	 0.3 mm (0.01") 0.3 mm (0.01")	 Report Only	3,4,5
Uniform Load Structural, per ASTM E 330 taken at sill between mounting screws +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	 0.0 mm (0.0") 0.0 mm (0.0")	 1.4 mm (0.06") max.	4,5
Forced Entry Resistance, per ASTM F 588, Type: D	Pass	No entry	
Forced Entry Resistance, per CAWM 301, Type: V	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	

7.0 Test Results: (Continued)

Test Specimen #2: (Continued)

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken at sill between mounting screws +1680 Pa (+35.09 psf) -1680 Pa (-35.09 psf)	 0.0 mm (0.00") 0.3 mm (0.01")	 Report Only	 3,4,5
Uniform Load Structural, per ASTM E 330 taken at sill between mounting screws +2520 Pa (+52.63 psf) -2520 Pa (-52.63 psf)	 0.0 mm (0.0") 0.0 mm (0.0")	 1.4 mm (0.06") max.	 4,5

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

Note 3: *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 4: *Loads were held for 10 seconds.*

Note 5: *Tape and film were not used to seal against air leakage during structural testing.*

Architectural Testing will service this report for the entire test record retention period. Test records that are retained 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: Jeffery Osugi

Jeffrey Osugi
Technician

Digitally Signed by:Leaton Kirk

Leaton Kirk
Director – Regional Operations

JO: ms

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (6) Complete drawings packet on file with Architectural Testing, Inc.

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/22/12	N/A	Original Report Issue.
1	11/11/13	1	Added additional product label names

Appendix A

Alteration Addendum

Alteration #1: Date – 05/08/12
Cause for alteration – Failed structural load test.
Remedial action taken – Re glazed specimen. Added mounting screws through sill.

Appendix B

Drawings

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