Architectural Testing

TEST REPORT

Report No.: C4784.01-109-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Gratz, Pennsylvania

PRODUCT TYPE: PVC Horizontal Sliding Window (XO) (Finless)
SERIES/MODEL: 3580

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 R-PG25 1346 x 1270 (53 x 50)-HS
Design Pressure	±1200 Pa (±25.06 psf)
Negative Design Pressure	-1680 Pa (-35.09 psf)
Air Infiltration	0.9 L/s/m^2 (0.18 cfm/ft^2)
Water Penetration Resistance Test Pressure	180 Pa (3.76 psf)

Test Completion Date: 12/19/12

Reference must be made to Report No. C4784.01-109-47, dated 01/30/13 for complete test specimen description and detailed test results. Reference Architectural Testing, Inc. Report No. C4791.01-109-47, dated 01/28/13 for complete *Gateway* test specimen description and 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 Horizontal Sliding Window (XO) (Finless)

3.2 Series/Model: 3580

3.2.1 This product also labeled under the following name: 1280

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 R-PG25 1346 x 1270 (53 x 50)-HS** rating. Reference Architectural Testing, Inc. Report No. C4791.01-109-47, dated 01/28/13 for complete *Gateway* test specimen description and test results.

3.4 Test Dates: 12/18/2012 - 12/19/2012

3.5 Test Record Retention End Date: All test records for this report will be retained until January 30, 2017.

3.6 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".

3.7 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 report completion date.

3.8 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.

3.9 List of Official Observers:

Name	Company
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: 1.7 m^2 (18.4 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1346	53	1270	50
Interior sash	672	26-7/16	1222	48-1/8
Screen	631	24-11/16	1200	47-1/4

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill, and jambs	PVC	Extruded, the interior sill track utilized a snap-in PVC roller track
Fixed meeting stile	PVC	Extruded

	Joinery Type	**Detail**
All corners	Mitered	Thermally welded
Fixed meeting stile	Coped and butted	Secured with a PVC clip at each end. Each clip was secured to the head and sill with three #6 x 5/8" long flat head screws and secured to the fixed meeting stile with three #6 x 5/8" flat head screws

5.3 Panel Construction:

Panel Member	**Material**	**Description**
Rails and stiles	PVC	Extruded

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

5.0 Test Specimen Description: (Continued)

5.4 Weatherstripping:

Description	Quantity	Location
0.187" backed by 0.260" high polypile with center fin	1 Row	All panel stiles and rails
0.187" backed by 1/8" diameter offset vinyl foam-filled bulb	1 Row	Fixed meeting stile

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	Metal reinforced butyl	1/8" clear annealed	1/8" clear annealed	Interior glazed against a bead of silicone. Secured with PVC snap-in glazing beads

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Sash daylight opening	1	600 x 1148	23-5/8 x 45-3/16	1/2"
Fixed daylight opening	1	597 x 1170	23-1/2 x 46-1/16	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	1-1/4" wide by 1/8" high	2	Sill face, 2" from each end draining the exterior hollow
Weepslot	5/8" wide by 1/8" long	2 per end	Sill, draining the interior and intermediate hollows to the exterior hollow
Weepslot	1/2" wide by 1/8" long	2 per end	Sash bottom rail, 2-5/16" from each end draining the glazing bead
Weepslot	1/2" wide by 1/8" long	1	Snap-in PVC roller track, 40" on center, draining the interior hollow

5.0 Test Specimen Description: (Continued)

5.7 Hardware:

Description	Quantity	Location
Metal cam lock with adjacent keeper	2	Lock stile, 13" from each end
Wheel assembly	2	Bottom rail, 5/8" from each end

5.8 Reinforcement:

Drawing Number	Location	Material
GVL-451-020	Fixed meeting rail	Roll-formed steel
RF-104S-020	Operable panel jamb and lock stiles	Roll-formed "I" shaped steel

5.9 Screen Construction:

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

6.0 Installation:

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

Location	Anchor Description	Anchor Location
Jambs	#8 x 1-1/4" long pan head screws	4" from corners, through the frame into the wood buck

7.0 Test Results: The temperature during testing was 21°C (69°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 58 N (13 lbf) Maintain motion: 27 N (6 lbf) Locks: 13 N (3 lbf)	Report Only 135 N (30 lbf) max. 100 N (22.5 lbf) max.	

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.9 L/s/m^2 (0.18 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: A - Grade: 10	Pass	No entry	7
Thermoplastic Corner Weld	Pass	Meets as stated	7
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	7
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 taken at meeting stile +1200 Pa (+25.06 psf) -1680 Pa (-35.09 psf)	 12.7 mm (0.50") 11.7 mm (0.67")	 Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at meeting stile +1800 Pa (+37.59 psf) -2520 Pa (-52.63 psf)	 1.5 mm (0.06") 1.0 mm (0.09")	 4.6 mm (0.18") max. 4.6 mm (0.18") 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.

Note 7: Reference Architectural Testing, Inc. Report No. C4791.01-109-47, dated 01/28/13 for complete Gateway test specimen test results.

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: Jeremy R. Bender

Jeremy R. Bender
Technician

Digitally Signed by: Michael D. Stremmel

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.

Appendix A

Alteration Addendum

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

Appendix B

Drawings

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