Architectural Testing

TEST REPORT

Report No.: B2603.01-109-47

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 PG15 2134 x 1524 (84 x 60)-HS
Design Pressure	±720 Pa (±15.04 psf)
Air Infiltration	0.8 L/s/m^2 (0.15 cfm/ft^2)
Water Penetration Resistance Test Pressure	150 Pa (3.13 psf)

Test Completion Date: 08/18/2011

Reference must be made to Report No. B2603.01-109-47, dated 09/06/11 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 Horizontal Sliding Window (XO) (Finless)

3.2 Series/Model: 3580

3.2.1 This product also labeled under the following names: 1280 and 3280

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 R PG15 2134 x 1524 (84 x 60)-HS** rating.

3.4 Test Dates: 08/17/2011 and 08/18/2011

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 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:

Name	Company
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 Sizes:

Overall Area: 3.3 m^2 (35.0 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	2134	84	1524	60
Interior sash	1064	41-7/8	1473	58
Screen	1022	40-1/4	1454	57-1/4

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill, 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. The 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 Sash Construction:

Sash Member	**Material**	**Description**
Top rail, bottom rail, 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 stiles

5.5 Glazing:

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

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	1014 x 1426	39-15/16 x 56-1/8	1/2"
Sash daylight opening	1	991 x 1375	39 x 54-1/8	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	Each end of the snap-in PVC roller track, 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	Each end of the bottom rail

5.8 Reinforcement:

Drawing Number	Location	Material
GLV-451-020	Fixed meeting rails	Roll-formed steel
RF-104S-020	Operable panel stiles 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	Flexible vinyl spline	Roll-formed aluminum

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 exterior perimeter of the window was sealed with sealant.

Location	Anchor Description	Anchor Location
Head and jambs	#8 x 1-1/2" long pan head screws	4" from corners and centered through the frame into the wood buck

7.0 Test Results: The temperature during testing was 23°C (74°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 67 N (15 lbf) Maintain motion: 49 N (11 lbf) Latches: 13 N (3 lbf)	Report Only 135 N (30 lbf) 100 N (22.5 lbf)	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.8 L/s/m^2 (0.15 cfm/ft^2)	1.5 L/s/m^2 (0.3 cfm/ft^2) max.	1
Water Penetration, per ASTM E 547 at 150 Pa (3.13 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at meeting rail +720 Pa (+15.04 psf) -720 Pa (-15.04 psf)	 21.1 mm (0.83") 21.1 mm (0.83")	 Report Only	3, 4, 5
Uniform Load Structural, per ASTM E 330 taken at meeting rail +1080 Pa (+22.56 psf) -1080 Pa (-22.56 psf)	 2.8 mm (0.11") 3.3 mm (0.13")	 5.6 mm (0.22") max. 5.6 mm (0.22") max.	4, 5
Forced Entry Resistance, per ASTM F 588 Type: A - Grade: 10	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	
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	

7.0 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 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 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.

Digitally Signed by: Aaron M. Shultz

Aaron M. Shultz
Technician

Digitally Signed by: Michael D. Stremmel

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.

Appendix A

Alteration Addendum

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

Appendix B

Drawings

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