

#### **TEST REPORT**

**Report No.**: B7961.01-109-47

#### Rendered to:

MI WINDOWS AND DOOR, INC. Gratz, Pennsylvania

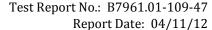
**PRODUCT TYPE**: PVC Single Hung Window **SERIES/MODEL**: 4300

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

	Summary of Results			
Title	Test Specimen #1 Test Specimen #2			
Drimary Draduat Dagignator	Class R-PG30 914 x 1880*	Class R-PG35 914 x 1524*		
Primary Product Designator	(36 x 74*)-H	(36 x 60*)-H		
Design Pressure	+1440 Pa (+30.08 psf)	+2160 Pa (+45.11 psf)		
Negative Design Pressure	-2260 Pa (-47.20 psf)	-2640 Pa (-55.14 psf)		
Air Infiltration	1.2 L/s/m <sup>2</sup> (0.23 cfm/ft <sup>2</sup> )	N/A		
Water Penetration Resistance Test Pressure	260 Pa (5.43 psf)	N/A		

**Test Completion Date**: 03/26/2012

Reference must be made to Report No. B7961.01-109-47, dated 04/11/12 for complete test specimen description and detailed test results. Reference Architectural Testing, Inc. Report No. B7959.01-109-47, dated 04/11/12 for complete *Gateway* test specimen description and test results.



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**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:

**Architectural Testing** 

**3.1 Product Type**: PVC Single Hung Window

**3.2 Series/Model**: 4300

**3.2.1** This product also labeled under the following names: 4300SPSH, 4340SH, 4340SPSH, S-4300SPSH, S-4340SPSH, S-4340SPSH, W-4300SPSH, NBSPSH, and 1355.

**3.3 Compliance Statement**: Results obtained are tested values and were secured by using the designated test method(s). The specimens tested successfully met the performance requirements for the following ratings: Test Specimen #1: **Class R-PG30 914 x 1880\* (36 x 74\*)-H**; Test Specimen #2: **Class R-PG35 914 x 1524\* (36 x 60\*)-H**. Reference Architectural Testing, Inc. Report No. B7959.01-109-47, dated 04/11/12 for complete *Gateway* test specimen description and test results.

**General Note**: An asterisk (\*) next to the size designation indicates that the size tested for optional performance was smaller than the Gateway test size for the product type and class.

- **3.4 Test Dates**: 03/22/2012 03/26/2012
- **3.5 Test Record Retention End Date**: All test records for this report will be retained until April 11, 2016.
- **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 specimens were 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.



**Architectural Testing** 

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### **3.0 Project Summary**: (Continued)

**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:**

**Test Specimen #1**:

Overall Area:	Width millimeters inches		Height	
1.7 m <sup>2</sup> (18.5 ft <sup>2</sup> )			millimeters	inches
Overall size	914	36	1880	74
Interior sash	846	33-5/16	926	36-7/16

**Test Specimen #2:** 

Overall Area:	Width millimeters inches		Height	
1.4 m <sup>2</sup> (15.0 ft <sup>2</sup> )			millimeters	inches
Overall size	914	36	1524	60
Interior sash	846	33-5/16	749	29-1/2



# **5.0 Test Specimen Description**: (Continued)

# The following descriptions apply to all specimens.

### **5.2 Frame Construction**:

Frame Member	Material	Description
Head, sill, and jambs	PVC	Extruded
Fixed meeting rail	PVC	Extruded

	Joinery Type	Detail		
All corners	Mitered	Thermally welded		
Fixed meeting rail	Coped and butted	Secured at each end with a PVC end cap. End cap was secured to the meeting rail with three $\#6 \times 1-1/4$ " long flat head screws and to the jamb with three $\#6 \times 5/8$ " long flat head screws		

### **5.3 Sash Construction**:

Sash 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 0.150" high polypile with center fin	1	Sill leg
0.187" backed by 0.290" high polypile with center fin	1	Sash stiles
0.187" backed by 0.230" high polypile with center fin	1	Sash stiles and interior meeting rail
0.187" backed by 5/16" diameter foam-filled vinyl bulb	1	Bottom rail
0.187" backed by 5/32" diameter foam-filled vinyl bulb	1	Fixed meeting rail

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# **5.0 Test Specimen Description**: (Continued)

**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	3/32" clear annealed	3/32" clear annealed	The fixed lite was interior glazed onto double-sided adhesive tape and secured with snap-in PVC glazing beads. The sash was interior glazed onto a bead of silicone and secured with snap-in PVC glazing beads.

### Test Specimen #1:

Logation	Quantity	Daylight Opening		Glass Bite
Location	Quantity	millimeters	inches	Glass Bite
Sash daylight opening	1	772 x 854	30-3/8 x 33-5/8	1/2"
Fixed daylight opening	1	797 x 854	31-3/8 x 33-5/8	1/2"

**Test Specimen #2:** 

Logation	Ouantity	Dayligh	Daylight Opening	
Location	Quantity	millimeters	inches	Glass Bite
Sash daylight opening	1	772 x 676	30-3/8 x 26-5/8	1/2"
Fixed daylight opening	1	797 x 676	31-3/8 x 26-5/8	1/2"

**5.6 Drainage**: A sloped sill was utilized.

### **5.7 Hardware**:

Description	Quantity	Location
Metal cam lock with adjacent keepers	2	Interior meeting rail, 7" from each end
Block and tackle balance	2	One in each jamb
Plastic tilt latch	2	Each end of the interior meeting rail
Metal tilt pins	2	Each end of bottom rail

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**5.0 Test Specimen Description**: (Continued)

### **5.8 Reinforcement:**

<b>Drawing Number</b>	Location	Material
GVL-451-020	Interior meeting rail and sash bottom rail	Steel
GVL-450	Fixed meeting rail	Steel

### **5.9 Screen Construction:**

Frame Material	<b>Corner Construction</b>	Mesh Type	Mesh Attachment Method
Roll-formed	Square-cut and keyed	Fiberglass	Flexible vinyl spline
aluminum	Square cut and keyeu	ribergiass	Tiexible villyt spillie

### **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 2" long pan head screw	4" from corners and one midspan, through the finless		
juiios	long pan nead seren	frame into the wood buck.		

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

#### Test Specimen #1:

rest specimen "1.			
Title of Test	Results	Allowed	Note
Air Leakage,			
Infiltration per ASTM E 283	$1.2 \text{ L/s/m}^2$	1.5 L/s/m <sup>2</sup>	
at 75 Pa (1.57 psf)	$(0.23 \text{ cfm/ft}^2)$	$(0.3 \text{ cfm/ft}^2) \text{ max.}$	1, 7
Water Penetration,			
per ASTM E 547	N/A	N/A	3, 7
Uniform Load Deflection,			
per ASTM E 330	N/A	N/A	3
Uniform Load Structural,			
per ASTM E 330	N/A	N/A	3



# **7.0 Test Results**: (Continued)

Test Specimen #1. (Continued)

lest Specimen #1: (Continued)				
Title of Test	Results	Allowed	Note	
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)	Pass	Meets as stated		
Remaining direction,				
230 N (50 lbf)	Pass	Meets as stated	7	
0	Optional Performance			
Water Penetration,				
per ASTM E 547				
at 260 Pa (5.43 psf)	Pass	No leakage	2, 7	
Uniform Load Deflection,				
per ASTM E 330				
taken at the meeting rail				
+1440 Pa (+30.08 psf)	4.6 mm (0.18")			
-2260 Pa (-47.20 psf)	6.6 mm (0.26")	Report Only	4, 5, 6	
Uniform Load Structural,				
per ASTM E 330				
taken at the meeting rail				
+2160 Pa (+45.11 psf)	0.5 mm (0.02")	3.3 mm (0.13") max.		
-3390 Pa (-70.80 psf)	0.8 mm (0.03")	3.3 mm (0.13") max.	5, 6	



**7.0 Test Results**: (Continued)

Test Specimen #2:

rest specimen #2:			
Title of Test	Results	Allowed	Note
Uniform Load Deflection,			
per ASTM E 330	N/A	N/A	3
Uniform Load Structural,			
per ASTM E 330	N/A	N/A	3
	Optional Performance		
Uniform Load Deflection,			
per ASTM E 330			
taken at the meeting rail			
+2160 Pa (+45.11 psf)	6.9 mm (0.27")		
-2640 Pa (-55.14 psf)	6.9 mm (0.27")	Report Only	4, 5, 6
Uniform Load Structural,			
per ASTM E 330			
taken at the meeting rail			
+3240 Pa (+67.67 psf)	2.0 mm (0.08")	3.3 mm (0.13") max.	
-3960 Pa (-82.71 psf)	0.8 mm (0.03")	3.3 mm (0.13") 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.
- Note 7: Reference Architectural Testing, Inc. Report No. B7959.01-109-47 for air, water and secondary testing, dated April 11, 2012.



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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.

Jeremy R. Bender Michael D. Stremmel, P. E.

Jeremy R. Bender Technician

Michael D. Stremmel, P. E Senior Project Engineer

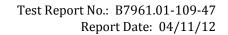
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Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Alteration Addendum (1)

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

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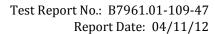




Appendix A

# **Alteration Addendum**

Note: No alterations were required.





Report Date. 04/11/1

# Appendix B

# **Drawings**

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