

TEST REPORT

Report No.: C6724.01-109-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Gratz, Pennsylvania

PRODUCT TYPE: Picture 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*

Test Dates: 03/11/13
Through: 04/09/13
Report Date: 04/19/13

Summary of Results

Summary of Results	
Title	Test Specimen #1
Primary Product Designator	Class LC-PG40 1618 x 2075 (64 x 82)-FW
Design Pressure	±1920 Pa (±40.10 psf)
Air Infiltration	0.1 L/s/m ² (0.02 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Summary of Results		
Title	Test Specimen #2	Test Specimen #3
Primary Product Designator	Class LC-PG45 1524 x 1829* (60 x 72*)-FW	Class LC-PG35 1287 x 1287* (51 x 51*)-FW
Design Pressure	±2160 Pa (±45.11 psf)	±1680 Pa (±35.09 psf)
Air Infiltration	0.2 L/s/m ² (0.03 cfm/ft ²)	0.4 L/s/m ² (0.08 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)	360 Pa (7.52 psf)

Test Completion Date: 04/09/2013

Reference must be made to Report No. C6724.01-109-47, dated 04/19/13 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: Picture Window

3.2 Series/Model: 4300

3.2.1 This product also labeled under the following names: 4300SDLITES, 4300T, NBPW, NBSDLITES, NBT, S-4300PW, S-4300SDLITES, S-4300T, W-4300PW, W-4300SDLITES, W-4300T, 4340PW, 4340SDLITES, 4340T, S-4340PW, S-4340SDLITES, S-4340T, W-4340PW, W-4340SDLITES, W-4340T, and 1355PW.

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 LC-PG40 1618 x 2075 (64 x 82)-FW**; Test Specimen #2: **Class LC-PG45 1524 x 1829* (60 x 72*)-FW**; Test Specimen #3: **Class LC-PG35 1287 x 1287* (51 x 51*)-FW**.

***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: 03/11/2013 - 04/09/2013

3.5 Test Record Retention End Date: All test records for this report will be retained until April 19, 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 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 report completion date.



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:

<u>Name</u>	<u>Company</u>
Rick Sawdey	MI Windows and Doors, Inc.
Aaron M. Shultz	Architectural Testing, Inc.
Jeremy R. Bender	Architectural Testing, Inc.

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/1.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: 3.4 m ² (36.1 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1618	63-11/16	2075	81-11/16

Test Specimen #2:

Overall Area: 2.8 m ² (30.0 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1524	60	1829	72

Test Specimen #3:

Overall Area: 1.7 m ² (17.8 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1287	50-11/16	1287	50-11/16

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
Track filler	PVC	Extruded, snap-fit to interior track on head, sill, and jambs

	Joinery Type	Detail
All corners	Mitered	Thermally welded

5.3 Weatherstripping: No weatherstripping was utilized.

5.4 Glazing: *No conclusions of any kind regarding the adequacy or inadequacy of the glass in any glazed test specimen(s) can be made.*

Test Specimens #1 and 2:

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Aluminum reinforced butyl	1/8" clear annealed	1/8" clear annealed	Interior glazed against a bead of silicone, secured with snap-fit PVC glazing beads

Test Specimen #1:

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	1502 x 1959	59-1/8 x 77-1/8	1/2"

Test Specimen #2:

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	1403 x 1711	55-1/4 x 67-3/8	1/2"

**5.0 Test Specimen Description:** (Continued)**5.4 Glazing:** (Continued)**Test Specimen #3:**

Glass Type	Spacer Type	Interior Lite	Exterior Lite	Glazing Method
3/4" IG	Aluminum reinforced butyl	3/32" clear annealed	3/32" clear annealed	Interior glazed against a bead of silicone, secured with snap-fit PVC glazing beads

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	1168 x 1168	46 x 46	1/2"

5.5 Drainage:

Drainage Method	Size	Quantity	Location
Weephole	1/4" wide by 1/2" long	2	Glazing channel, 2" from each end
Weepslot	1/8" wide by 1-1/4" long	2	Sill face, 2" from each end

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 exterior perimeter of the window was sealed with sealant.

Location	Anchor Description	Anchor Location
Head, sill, and jambs	#6 x 1-5/8" drywall screws	3" from corners and spaced 8" on center, through the mounting fin 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:

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 (0.02 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	
Thermoplastic Corner Weld	Pass	Meets as stated	
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at left stile +1920 Pa (+40.10 psf) -1920 Pa (-40.10 psf)	1.0 mm (0.04") 0.3 mm (0.01")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at left stile +3072 Pa (+64.16 psf) -3072 Pa (-64.16 psf)	<0.3 mm (<0.01") <0.3 mm (<0.01")	8.1 mm (0.32") max. 8.1 mm (0.32") max.	5, 6

**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)	0.2 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	N/A	N/A	3
Uniform Load Structural, per ASTM E 330	N/A	N/A	3
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at left stile +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	2.0 mm (0.08") 1.0 mm (0.04")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at left stile +3456 Pa (+72.18 psf) -3456 Pa (-72.18 psf)	0.3 mm (0.01") <0.3 mm (<0.01")	7.4 mm (0.29") max. 7.4 mm (0.29") max.	5, 6

**7.0 Test Results:** (Continued)**Test Specimen #3:**

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.4 L/s/m ² (0.08 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
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	2
Uniform Load Deflection, per ASTM E 330 taken at bottom rail +1680 Pa (+35.09 psf) -1680 Pa (-35.09 psf)	0.5 mm (0.02") 0.3 mm (0.01")	Report Only	4, 5, 6
Uniform Load Structural, per ASTM E 330 taken at bottom rail +2688 Pa (+56.14 psf) -2688 Pa (-56.14 psf)	<0.3 mm (<0.01") <0.3 mm (<0.01")	5.1 mm (0.20") max. 5.1 mm (0.20") 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.



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
Technician

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

Alteration #1: Date -03/14/13
Cause for alteration – On Test Specimen #2 glass broke while trying to achieve +40 psf.
Remedial action taken – Unit was reglazed.



Architectural Testing

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Appendix B

Drawings

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