



**AAMA/WDMA/CSA 101/I.S.2/A440-08
TEST REPORT**

Rendered to:

MI WINDOWS AND DOORS, INC.

SERIES/MODEL: 1650

PRODUCT TYPE: PVC Fixed Window (Finless)

Title	Summary of Results
Primary Product Designator	Class LC-PG50 1829 x 1829 (72 x 72)-FW
Design Pressure	± 2640 Pa (± 55.14 psf)
Air Infiltration	0.3 L/s/m ² (0.06 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)
Uniform Load Structural Test Pressure	± 3960 Pa (± 82.71 psf)
Forced Entry Resistance	Grade 10

Test Completion Date: 04/12/10

Reference must be made to Report No. 99927.01-109-47, dated 05/04/10 for complete test specimen description and data.

130 Derry Court
York, PA 17406-8405
phone: 717-764-7700
fax: 717-764-4129
www.archtest.com

Glazing Information

Edge Supports: 4 Sides
Glazing Angle: 90°
Lite Dimensions:
Width: 67.1 in.
Height: 67.1 in.

Project Details

Project Name:
Location:
Comments:

Glass Construction (Rectangular)

Double Glazed Insulating Unit

	Outboard Lite	Air Space: 0.5 in.	Inboard Lite
Glass Type:	Annealed		Annealed
Nominal Thickness:	3/16 in.		3/16 in.

Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.): 55.1 psf
Load Resistance: 52.3 psf
Approximate center of glass deflection: 0.81 in.

Conclusion

Based on your design information, the load resistance is less than specified loading.

Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-09.

Disclaimer:

This software can be used to determine the load resistance of specified glass types exposed to uniform lateral loads of short or long duration subject to the following conditions:

- The glass is free of edge and surface damage and has been properly glazed in the opening in conformance with the manufacturer's recommendations.
- Procedures exist to determine load resistance for rectangular glass assemblies that are:
 - a. Continuously supported along all four edges,
 - b. Continuously supported along three edges,
 - c. Continuously supported along two parallel edges, and
 - d. Continuously supported along one edge.
- The software user has the responsibility of selecting the correct procedures for the required application from the software.
- The stiffness of members supporting any glass edge shall be sufficient that under design load, edge deflections shall not exceed $L/175$, where L denotes that length of the supported edge.
- The manufacturer states that the Safety Plus II 0.090 Polyurethane Large Missile Resistant interlayer is comparable to the PVB interlayer.

For other limiting conditions that may apply, refer to Section 5 of ASTM E1300 and local building codes.

Neither SDG nor GANA guarantees and each disclaims any responsibility for any particular results relating to the use of the Window Glass Design 5 Software Program. SDG and GANA disclaim any liability for any personal injury or any loss or damage of any kind, including all indirect, special, or consequential damages and lost profits, arising out of or relating to the use of the Window Glass Design 5 Software Program.

Prepared by:  on 2/12/2013

Glazing Information

Edge Supports: 4 Sides
Glazing Angle: 90°
Lite Dimensions:
Width: 55.1 in.
Height: 55.1 in.

Project Details

Project Name:
Location:
Comments:

Glass Construction (Rectangular)

Double Glazed Insulating Unit

	Air Space: 0.5 in.	
	<u>Outboard Lite</u>	<u>Inboard Lite</u>
Glass Type:	Annealed	Annealed
Nominal Thickness:	1/8 in.	1/8 in.

Short Load Duration, Resistance, and Deflection Data

Load (~ 3 sec.): 10.0 psf
Load Resistance: 39.3 psf
Approximate center of glass deflection: 0.37 in.

Conclusion

Based on your design information, the load resistance is greater than or equal to the specified loading.

Statement of Compliance

Procedures followed in determining the resistance of this window glass are in accordance with ASTM E1300-09.

Disclaimer:

This software can be used to determine the load resistance of specified glass types exposed to uniform lateral loads of short or long duration subject to the following conditions:

- The glass is free of edge and surface damage and has been properly glazed in the opening in conformance with the manufacturer's recommendations.
- Procedures exist to determine load resistance for rectangular glass assemblies that are:
 - a. Continuously supported along all four edges,
 - b. Continuously supported along three edges,
 - c. Continuously supported along two parallel edges, and
 - d. Continuously supported along one edge.
- The software user has the responsibility of selecting the correct procedures for the required application from the software.
- The stiffness of members supporting any glass edge shall be sufficient that under design load, edge deflections shall not exceed $L/175$, where L denotes that length of the supported edge.
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Prepared by:  on 2/12/2013



AAMA/WDMA/CSA 101/I.S.2/A440-08 TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, INC.
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

Report No.: 99927.01-109-47
Test Date: 04/12/10
Report Date: 05/04/10
Test Record Retention Date: 04/12/14

Project Summary: Architectural Testing, Inc. was contracted by MI Windows and Doors, Inc. to witness and validate testing on a Series/Model 1650, PVC fixed window (finless) at the MI Window and Doors, Inc. test facility in Gratz, Pennsylvania. The sample tested successfully met the performance requirements for a Class LC-PG50 1829 x 1829 (72 x 72)-FW rating. Test specimen description and results are reported herein. The sample was provided by the client.

Test Specification: The test specimen was evaluated in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*.

Test Specimen Description:

Series/Model: 1650

Product Type: PVC Fixed Window (Finless)

Overall Size: 1829 mm (72") wide by 1829 mm (72") high

Fixed Daylight Opening Size: 1682 mm (66-1/4") wide by 1682 mm (66-1/4") high

Overall Area: 3.3 m² (36.0 ft²)

Finish: All PVC was white.

Frame Construction: The frame was constructed from extruded PVC with mitered and welded corners.

Test Specimen Description: (Continued)

Weatherstripping: No weatherstripping was utilized.

Glazing Details: The unit was glazed with a 7/8" thick sealed insulating glass fabricated from two sheets of 3/16" thick clear annealed glass with a metal reinforced butyl spacer system. The glass was set from the interior onto a bead of silicone and secured with snap-in vinyl glazing beads.

Drainage:

<u>Description</u>	<u>Quantity</u>	<u>Location</u>
1/4" long by 1/8" wide weepslot	2	Sill, 2-1/2" from interior corner draining glazing
1/4" long by 1/8" wide weepslot	2	Sill, 2-1/2" from interior corner draining glazing
1" long by 1/8" wide weepslot	2	Sill face, 3-1/2" from each end

Hardware: No hardware was utilized.

Reinforcement: No reinforcement was utilized.

Installation: The unit was installed into a Spruce-Pine-Fir wood buck. The unit was secured to the buck through the head, sill, and jambs with #8 x 2" long pan head screws, located 4" from each end and one at midspan. The exterior perimeter was sealed with silicone.

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

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.2.1	Air Leakage Resistance per ASTM E 283 75 Pa (1.6 psf)	0.3 L/s/m ² (0.06 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.

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.

Test Results: (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
5.3.3.2	Water Penetration Resistance per ASTM E 547		See Note #2
5.3.4.2	Uniform Load Deflection per ASTM E 330		See Note #2
5.3.4.3	Uniform Load Structural per ASTM E 330		See Note #2
<i>Note #2: The client opted to start at a pressure higher than the minimum required. Those results are listed under "Optional Performance".</i>			
5.3.5	Forced Entry Resistance per ASTM F 588		
	Type: D	Grade: 10	
	Disassembly Test	No entry	No entry
	Sash/Panel Manipulation Test	No entry	No entry
5.3.6.2	Thermoplastic Corner Weld Test	Meets as stated	Meets as stated

Optional Performance

4.3.2.1	Water Penetration Resistance per ASTM E 547 (without insect screen) 360 Pa (7.52 psf)	No leakage	No leakage
4.3.2.1	Uniform Load Deflection per ASTM E 330 (Deflections were taken on the stile) (Loads were held for 10 seconds)		
	2640 Pa (55.14 psf) (positive)	1.3 mm (0.05")	See Note #3
	2640 Pa (55.14 psf) (negative)	0.8 mm (0.03")	See Note #3

Note #3: The deflections reported are not limited by AAMA/WDMA/CSA 101/1.S.2/A440 for this product designation. The deflection data is recorded in this report for special code compliance and information only.

Test Results: (Continued)

<u>Paragraph</u>	<u>Title of Test - Test Method</u>	<u>Results</u>	<u>Allowed</u>
<u>Optional Performance:</u> (Continued)			
4.3.2.1	Uniform Load Structural per ASTM E 330 (Permanent sets were taken on the stile) (Loads were held for 10 seconds)		
	3960 Pa (82.71 psf) (positive)	<0.3 mm (<0.01")	3.3 mm (0.13") max.
	3960 Pa (82.71 psf) (negative)	<0.3 mm (<0.01")	3.3 mm (0.13") max.

Tape and film were not used to seal against air leakage during structural testing.

Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein.

Per the client, this product is also labeled under the following names:

1555 PW
1650 PW
3450 PW
Bryn Mawr 3 PW
New Castle 3 PW

List of Official Observers:

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

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing, Inc. for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire.

Results obtained are tested values and were secured by using the designated test methods. If test specimen contains glazing, no conclusions of any kind regarding the adequacy or inadequacy of the glass in the test specimen 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: 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: Test Equipment (1)

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

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	05/04/10	N/A	Original report issue

Appendix A
Alteration Addendum

Note: No alterations were required.

Appendix B
Test Equipment

Instrument	Manufacturer	Asset #
Control Panel	Architectural Testing, Inc.	MI-1
Transducer	Celesco	E-1603001A
Transducer	Celesco	J-1705016A
Transducer	Celesco	J-1705014A

Appendix C

Drawings

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