



TEST REPORT

Report No.: G9138.01-109-47

Rendered to:

MI WINDOWS AND DOORS, LLC
Gratz, Pennsylvania

PRODUCT TYPE: Polyvinyl Chloride (PVC) Sliding Door
SERIES/MODEL: 1615/1617

SPECIFICATION(S): AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-11	Class LC-PG50 2426 x 2426 (96 x 96)-SD
Design Pressure	±2400 Pa (±50.13 psf)
Air Infiltration	0.6 L/s/m ² (0.11 cfm/ft ²)
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

Test Completion Date: 03/23/17

Reference must be made to Report No. G9138.01-109-47, dated 04/07/17 for complete test specimen description and detailed test results.

1.0 Report Issued To: MI Windows and Doors, LLC
650 West Market Street
P.O. Box 370
Gratz, Pennsylvania 17030-0370

2.0 Test Laboratory: Architectural Testing, Inc., an Intertek company ("Intertek-ATI")
130 Derry Court
York, Pennsylvania 17406-8405
717-764-7700

3.0 Project Summary:

3.1 Product Type: Polyvinyl Chloride (PVC) Sliding Door

3.2 Series/Model: 1615/1617

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 LC-PG50 2426 x 2426 (96 x 96)-SD** rating.

3.4 Test Date(s): 03/13/17 - 03/23/17

3.5 Test Record Retention End Date: All test records for this report will be retained until March 23, 2021.

3.6 Test Location: MI Windows and Doors, LLC test facility in Gratz, Pennsylvania. Calibration of test equipment was performed by Intertek-ATI in accordance with AAMA 205-15 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".

3.7 Test Specimen Source: The test specimen(s) was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek-ATI for a minimum of two years from the test completion date.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Intertek-ATI and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek-ATI per the drawings on file with Intertek-ATI. Any deviations are documented herein or on the drawings.

3.9 List of Official Observers:

<u>Name</u>	<u>Company</u>
Richie Williard	MI Windows and Doors, LLC
Andrew P. Mehalick	Intertek-ATI

4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-11, *NAFS 2011 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 5.9 m ² (63.3 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	2426	95-1/2	2426	95-1/2
Operable panel	1229	48-3/8	2315	91-1/8
Screen	1191	46-7/8	2340	92-1/8

5.2 Frame Construction:

Frame Member	Material	Description
Head, jambs, and sill	PVC	Extruded
Outside sill cladding, roller track, and sill extender	Aluminum	Extruded
Fixed panel fixing track	PVC	Extruded

	Joinery Type	Detail
All corners	Coped and butted	The corners were secured together using five #8 x 2" pan head screws through the jambs and into the head and sill into the screw bosses.
Sill cladding	Butted	Pressed onto the exterior of the sill and held in place using #8 x 5/8" self-tapping screws through the cladding and into the sill at the exterior face
Roller track	Butted	Pressed into the sill
Fixed panel fixing track	Butted	Pressed into the sill using a keyway and secured to the sill using #8 x 2-3/4" flat head screws through the track and into the sill
Sill extender	Butted	Secured using #6 x 5/8" self-tapping screws through the water bead and into the sill. A bead of silicone was placed between the sill extender and the sill.

5.0 Test Specimen Description: (Continued)

5.3 Panel Construction:

Panel Member	Material	Description
Rails and stiles	PVC	Extruded
Interlocks	Aluminum	Extruded

	Joinery Type	Detail
Rails and stiles	Mitered	Thermally welded
Interlocks	Butted	The interlocks were secured to the rails using #8 x 2" pan head screws through the interlock and into the stile.

5.4 Reinforcement:

Drawing Number	Location	Material
9598	Lock stile	Steel
9599	Stiles	Steel

5.0 Test Specimen Description: (Continued)

5.5 Weatherstripping:

Description	Quantity	Location
0.190" high polypile with fin mounted on a 0.250" T-kerf	2 rows	Rails and stiles
0.190" high polypile with fin mounted on a 0.250" T-kerf	1 row per panel	Interlock
0.190" high polypile mounted on a 0.187" T-kerf	2 rows	Jambs
0.190" high polypile mounted on a 0.250" kerf	2 rows	Jambs
0.500" high polypile mounted on a 0.175" T-kerf	1 row	Pull stile of the screen
5/16" hollow rubberized vinyl bulb	2 rows	Jambs
5/8" wide by 1-1/2" long woolpile	1	Sill, at the exterior side of the fixed panel track
1-1/2" wide by 2-3/4" long woolpile	1	Sill, at the interior side of the fixed panel track
1" wide by 1" long by 9/16" thick foam plug	1	Head, exterior side of the fixed panel track

5.6 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
7/8" IG	Metal box spacer	5/32" clear annealed glass 0.090" PVB interlayer 5/32" clear annealed glass	5/32" clear tempered glass	Exterior glazed against a bead of silicone and held in place with glazing beads located on the exterior

5.0 Test Specimen Description: (Continued)

5.6 Glazing: (Continued)

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Operable panel daylight opening	1	1054 x 2149	41-1/2 x 84-5/8	1/2"
Fixed panel daylight opening	1	1054 x 2156	41-1/2 x 84-7/8	1/2"

5.7 Drainage:

Drainage Method	Size	Quantity	Location
Weepslot	9/16" wide by 3/16" tall	2	Sill, roller track 2-1/4" from the jambs
Weepslot	2-1/4" wide by 1/4" tall	2	Sill, roller track 2-1/4" from the jambs
Weepslot with cover	1-7/16" wide by 1/4" tall	2	1-1/2" from the jambs in the fixed panel track
Weepslot	1-7/16" wide by 1/8" tall	2	1-1/2" from the jambs in the intermediate hollow in the fixed panel track
Weepslot	1-7/16" wide by 1/8" tall	2	1-1/2" from the jambs in the fixed panel track
Weepslot	1-1/2" wide by 1/8" tall	6	1-1/4" from the jamb and spaced 2-1/2" apart from each other, and at the mid-span of the sill.

5.8 Hardware:

Description	Quantity	Location
Two point lock with handle and keeper	1	Operable panel lock stile, 38-1/2" above the bottom of the bottom rail
Nylon rollers	2	Operable panel bottom rail, 4" from each stile
Rollers on springs	4	Screen stiles
Lock handle	1	Screen pull stile located 40" above the bottom of the bottom rail

5.0 Test Specimen Description: (Continued)

5.9 Screen Construction:

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Aluminum	Coped and butted	Fiberglass	Pressed in place using rubber 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 silicone.

Location	Anchor Description	Anchor Location
Head and jambs	#8 x 2" pan head screws	Located 4" from each corner and spaced 14" on center through the head and jambs and into the wood buck
Sill	1-1/16" wide by 2-7/8" long steel straps with one #8 x 5/8" pan head screw	Located 4" from the corners of the jamb and spaced 14" on center through the anchors and into the wood buck using two #8 x 1-1/4" pan head screws

7.0 Test Results: The temperature during testing was 19°C (67°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 4 N (1 lbf) Maintain motion: 4 N (1 lbf) Locks: 49 N (11 lbf)	135 N (30.35 lbf) max. 90 N (20.23 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.6 L/s/m ² (0.11 cfm/ft ²)	1.5 L/s/m ² (0.3 cfm/ft ²) max.	1, 2
Water Penetration, per ASTM E 547	N/A	N/A	4
Uniform Load Deflection, per ASTM E 330	N/A	N/A	4
Uniform Load Structural, per ASTM E 330	N/A	N/A	4
Forced Entry Resistance, per ASTM F 842, 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)

Title of Test	Results	Allowed	Note
Optional Performance			
Water Penetration, per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	3
Uniform Load Deflection, per ASTM E 330 Deflections taken at astragal +2400 Pa (+50.13 psf) -2400 Pa (-50.13 psf)	14.2 mm (0.56") 14.0 mm (0.55")	Report only	5, 6, 7
Uniform Load Structural, per ASTM E 330 Permanent sets taken at astragal +3600 Pa (+75.19 psf) -3600 Pa (-75.19 psf)	<0.3 mm (<0.01") 0.3 mm (0.01")	9.4 mm (0.37") max. 9.4 mm (0.37") max.	6, 7

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: Test Date 03/13/17 / Time: 9:30 AM

Note 3: With and without insect screen.

Note 4: The client opted to start at a pressure higher than the minimum required. Test results are reported under Optional Performance.

Note 5: 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 6: Loads were held for 10 seconds.

Note 7: 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.

Intertek-ATI will service this report for the entire test record retention period. Test records such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI 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 Intertek-ATI.

For ARCHITECTURAL TESTING, Inc.

Andrew Mehalick
Technician

Timothy J. McGill
Manager – Product Testing

APM:asm

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

Appendix-A: Alteration Addendum (1)

Appendix-B: Location of Air Seal (1)

Appendix-C: Drawing(s) (0) Complete drawings packet on file with Intertek-ATI.

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
1	06/28/17	Page 2	Corrected operable panel height

This report produced from controlled document template ATI 00438, revised 01/18/17.

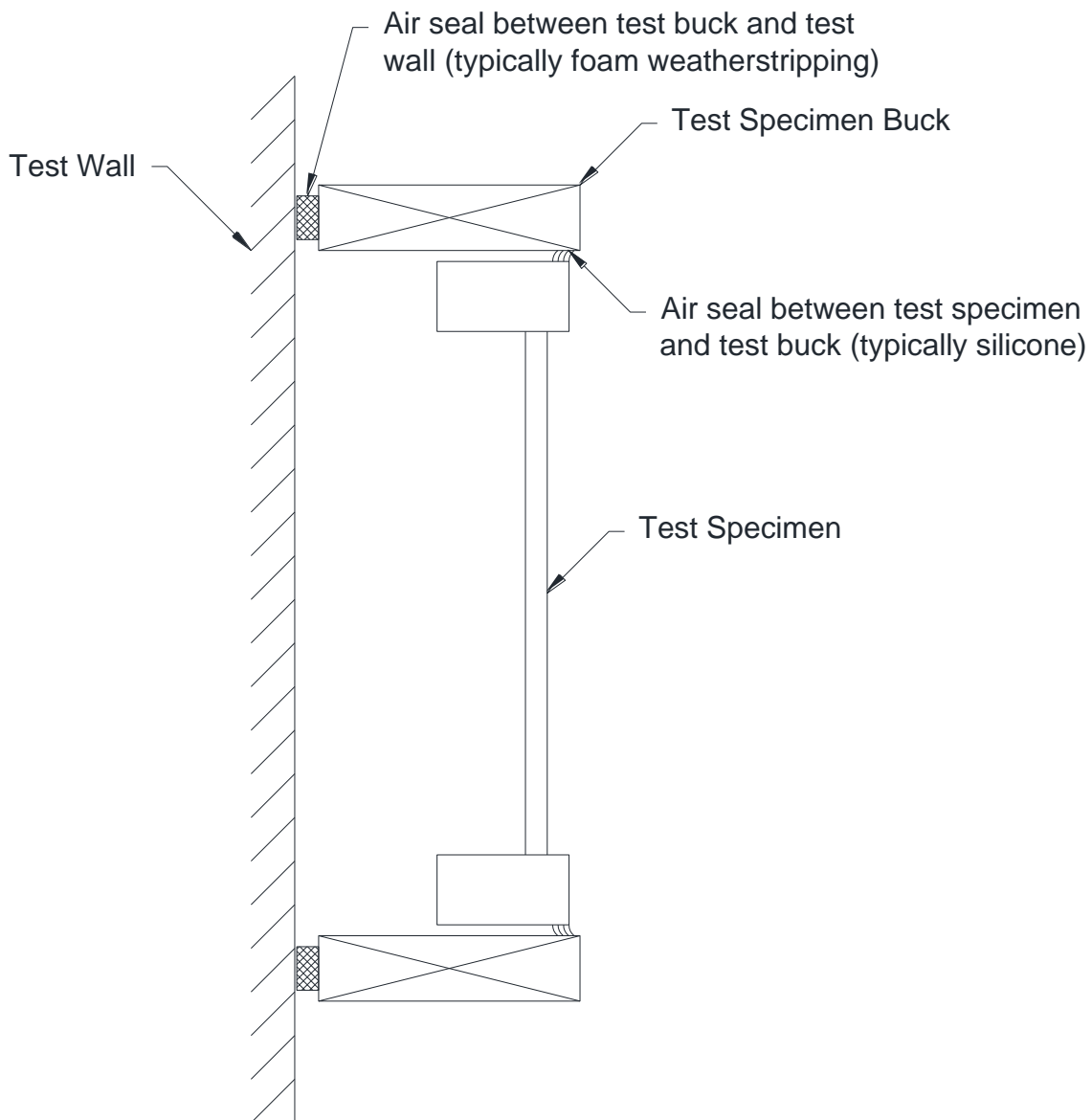
Appendix A

Alteration Addendum

Note: *No alterations were required.*

Appendix B

Location of Air Seal: The air seal between the test specimen and the test wall is detailed below. The seal is made of foam weatherstripping and is attached to the edge of the test specimen buck. The test specimen buck is placed against the test wall and clamped in place, compressing the weatherstripping and creating a seal.



Appendix C

Drawing(s)

Note: *Complete drawings packet on file with Intertek-ATI.*