Architectural Testing

TEST REPORT

Report No.: B9423.02-301-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Prescott Valley, AZ

PRODUCT TYPE: Polyvinyl Chloride (PVC) Awning over Awning
SERIES/MODEL: EC 145

SPECIFICATIONS: AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

CAWM 301, *Forced Entry Resistance Test for Windows.*

Title	Summary of Results
Primary Product Designator	AP-C30 1522 x 1822 (60 x 72)
Design Pressure	±1440 Pa (±30.08 psf)
Air Infiltration	0.20 L/s/m^2 (0.04 cfm/ft^2)
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)

Test Completion Date: 06/21/2012

Reference must be made to Report No. B9423.02-301-47 dated 07/16/12 for complete test specimen description and detailed test results.

1.0 Report Issued To: MI Windows and Doors, Inc.
7555 East State Route 69
Prescott Valley, Arizona 86314

2.0 Test Laboratory: Architectural Testing, Inc.
2524 East Jensen Avenue
Fresno, California 93706
(559) 233 - 8705

3.0 Project Summary:

3.1 Product Type: Polyvinyl Chloride (PVC) Awning over Awning

3.2 Series/Model: EC 145

3.3 Compliance Statement: Results obtained are tested values and were secured by using the designated test methods. The specimen tested successfully met the performance requirements for an **AP-C30 1522 x 1822 (60 x 72)** rating.

This product was originally tested as the Mikron Industries, Inc. Series/Model 10200 Awn, Polyvinyl Chloride (PVC) Awning over Awning and is a reissue of the original Report No. B9423.01-301-47. This report is reissued in the name of MI Windows and Doors, Inc. through written authorization by Mikron Industries, Inc.

3.4 Test Dates: 05/10/2012 – 06/21/2012

3.5 Test Record Retention End Date: All test records for this report will be retained until June 21, 2016.

3.6 Test Location: MI Windows and Doors, Inc. test facility in Prescott Valley, Arizona and the Architectural Testing, Inc. test facility in Fresno, California. 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 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.

3.8 Drawing Reference: The test specimen drawings have been reviewed by Architectural Testing and are representative of the test specimen reported herein. Test specimen construction was verified by Architectural Testing per the drawings located in Appendix B. Any deviations are documented herein or on the drawings.

3.0 Project Summary: (Continued)

3.9 List of Official Observers:

Name	Company
Mike Maystadt	MI Windows and Doors, Inc.
Russ Wilkerson	MI Windows and Doors, Inc.
Jeffrey Osugi	Architectural Testing, Inc.

4.0 Test Specifications:

AAMA/WDMA/CSA 101/I.S.2/A440-05, *Standard/Specification for Windows, Doors, and Unit Skylights.*

CAWM 301, *Forced Entry Resistance Test for Windows.*

5.0 Test Specimen Description:

5.1 Product Sizes:

Overall Area: 2.77 m^2 (29.85 ft^2)	**Width**		**Height**	
	millimeters	**inches**	**millimeters**	**inches**
Overall size	1522	59-15/16	1822	71-3/4
Vent	1475	58-1/16	877	34-1/2

5.2 Frame Construction:

Frame Member	**Material**	**Description**
Head, sill and jambs	PVC	Continuous frame. One internal hollow was filled with Aircell foam.
Horizontal Impost	PVC	

	Joinery Type	**Detail**
Head, sill and jambs	Mitered	Fully welded
Horizontal Impost	Coped	Secured through the continuous frame at each end with three #8 x 2" Phillips pan head screws with washers and gaskets.

5.0 Test Specimen Description: (Continued)

5.3 Vent Construction:

Vent Member	Material	Description
Top rail, bottom rail, each stile	PVC	Two internal hollows were filled with Aircell foam.

	Joinery Type	Detail
All corners	Mitered	Fully welded

5.4 Weatherstripping:

Description	Quantity	Location
Wrapped foam gasket	2 rows	All members of frame.
Wrapped foam gasket	4 rows	Each mullion.
0.290" high polypile with center fin	1 Row	All members of each panel.

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	Polycarbonate – butyl composite	1/8" Annealed	1/8" Annealed	Each vent. Exterior glazed onto a 3/8" wide x 1/16" high glazing tape with center fin and secured with a snap in PVC glazing bead. The corners of the glazing tape were sealed.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Vent	2	1354 x 755	53-5/16 x 29-3/4	1/2"

5.6 Drainage: No drainage was utilized.

5.0 Test Specimen Description: (Continued)

5.7 Hardware:

Description	Quantity	Location
Dual arm operator	2	Midspan on mullion and sill secured with six #8 x 1" Phillips flat head screws and to the vent with four 6 x 3/4" Phillips flat head self-drilling screws. The upper operator was secured through a plastic spacer.
Hinges	4	Top of each jamb secured to frame with five #6 x 1/2" Phillips flat head screws and to the vent with four #8 x 3/4" Phillips flat head screws.
Lock and handle assembly	4	8-1/2" from sill and 6-1/4" from the mullion on each jamb secured through the frame and metal backing plate with two 10-24 x 1/2" screws.
Keeper	4	Opposite each lock secured with two #8 x 1/2" Phillips flat head screws.
Snubbers	12	17-1/2" from each end and midspan on top rail of vent secured with two #6 x 1/2" Phillips flat head screws and opposite on head of frame and mullion secured with two #6 x 5/8" screws.

5.8 Reinforcement: No reinforcement was utilized.

5.9 Screen Construction: No screen was utilized.

6.0 Installation:

The specimen was installed into a Spruce-Pine-Fir wood buck. The rough opening allowed for a 5/16 - 3/8" shim space. The exterior perimeter of the window was sealed with silicone.

Location	Anchor Description	Anchor Location
Head and jambs	#8 x 1-1/2" Phillips pan head screws	3" from each corner and 10" on center through the frame.

7.0 Test Results: The temperature during testing was 24 - 27°C (76 - 80°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Operating Force, per ASTM E 2068	Initiate motion: 13 N (3.0 lbf) Maintain motion: 13 N (3.0 lbf) Locks: 7 N (1.5 lbf)	Report Only 45 N (10.1 lbf) max. 100 N (22.5 lbf) max.	
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.20 L/s/m² (0.04 cfm/ft²)	1.5 L/s/m² (0.3 cfm/ft²) max.	1
Water Penetration, per ASTM E 547 at 220 Pa (4.59 psf)	Pass	No leakage	
Uniform Load Deflection, per ASTM E 330 taken at mullion +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	 19.5 mm (0.77") 20.8 mm (0.82")	 Report Only	 2,3,4
Uniform Load Deflection, per ASTM E 330 taken at bottom rail of lower vent +1440 Pa (+30.08 psf) -1440 Pa (-30.08 psf)	 2.8 mm (0.11") 14.8 mm (0.58")	 Report Only	 2,3,4
Uniform Load Structural, per ASTM E 330 taken at mullion +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	 0.5 mm (0.02") 0.8 mm (0.03")	 4.4 mm (0.17") max.	 3,4
Uniform Load Structural, per ASTM E 330 taken at bottom rail of lower vent +2160 Pa (+45.11 psf) -2160 Pa (-45.11 psf)	 0.5 mm (0.02") 4.3 mm (0.17")	 4.3 mm (0.17") max.	 3,4
Forced Entry Resistance, per ASTM F 588, Type: B - Grade: 10	Pass	No entry	
Forced Entry Resistance, per CAWM 301, Type: II	Pass	No entry	

7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
Thermoplastic Corner Weld	Pass	Meets as stated	
Awning, Hopper, Projected Hardware Load Test 140 N (31.5 lbf)	3.3 mm (0.13")	49.3 mm (1.94")	
Optional Performance			
Water Penetration, per ASTM E 547 at 290 Pa (6.06 psf)	Pass	No leakage	

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: 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 3: Loads were held for 10 seconds.

Note 4: 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.

This report is reissued in the name of MI Windows and Doors, Inc. through written authorization by Mikron Industries, Inc. to whom the original report was rendered. The original Mikron Industries, Inc. Report No. is B9423.01-301-47.

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.

Digitally Signed by: Jeffery Osugi

Jeffrey Osugi
Technician

Digitally Signed by:Leaton Kirk

Leaton Kirk
Director – Regional Operations

JO: ms

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Alteration Addendum (1)
Appendix-B: Drawings (8) 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.*