

TEST REPORT

Report No.: B2431.02-301-47

Rendered to:

MI WINDOWS AND DOORS, INC.
Prescott Valley, Arizona

PRODUCT TYPE: Polyvinyl Chloride (PVC) Fixed Window
SERIES/MODEL: EC 155 / EC 170 Fixed

SPECIFICATION: 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	FW-C65 1522 x 1218 (60 x 48)*
Design Pressure	±2880 Pa (±65.15 psf)
Air Infiltration	<0.05 L/s/m ² (<0.01 cfm/ft ²)
Water Penetration Resistance Test Pressure	580 Pa (12.11 psf)

Test Completion Date: 10/18/2011

Reference must be made to Report No. B2431.02-301-47 dated 03/05/13 for complete test specimen description and detailed test results. Reference Architectural Testing, Inc. Report No. B2427.01-301-47, dated 10/20/11 for complete *Gateway* test specimen description and test results.

1.0 Report Issued To: MI Windows and Doors
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) Fixed Window

3.2 Series/Model: EC 155 / EC 170 Fixed

This product is also labeled under the following names: HM III-155 and HM III-170 and BB-155 and BB-170.

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 a **FW-C65 1522 x 1218 (60 x 48)*** rating.

This product was originally tested as the Mikron Industries, Inc. Series/Model 10200 PW-Fin 96" x 72", Polyvinyl Chloride (PVC) Fixed Window and is a reissue of the original Report No. B2431.01-301-47. This report is reissued in the name of Mikron Industries, Inc. through written authorization of Mikron Industries, Inc.

***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: 10/07/2011 - 10/18/2011

3.5 Test Record Retention End Date: All test records for this report will be retained until October 18, 2015.

3.6 Test Location: MI Windows and Doors, Inc. test facility in Prescott Valley, Arizona. Calibration of test equipment was performed by Architectural Testing in accordance with AAMA205-01 "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:

<u>Name</u>	<u>Company</u>
Mike Maystadt	MI Windows and Doors, Inc.
Wayne Battram	MI Windows and Doors, Inc.
David Douglass	Company
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: 1.85 m ² (19.95 ft ²)	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1522	59-15/16	1218	47-15/16

5.2 Frame Construction:

Frame Member	Material	Description
Head, sill and jambs	PVC	Two internal hollows were filled with Aircell foam.
Sill track filler	PVC	Employed at sill and jambs.
Stucco key	PVC	Employed at head, sill and jambs.

	Joinery Type	Detail
All corners	Mitered	Fully welded.

5.3 Sash/Vent/Panel Construction: No Sash/Vent/Panel was utilized.

5.4 Weatherstripping: No weatherstripping was utilized.

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	Polycarbonate butyl composite	1/8" Annealed	1/8" Annealed	Exterior glazed onto a 3/8" wide x 1/16" glazing tape and secured with a PVC snap in glazing bead.

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed light	1	1415 x 1111	55-11/16 x 43-3/4	1/2"

5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weephole with cover	2-5/8" x 1/4" oval (1-1/16" x 3/16" effective)	2	3" from each end through exterior sill face.
Weephole	1/8" x 1/8"	2	3-1/2" from each end through glazing track at sill.

5.7 Hardware: No hardware was utilized.

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 1/4 - 5/16" shim space. The exterior perimeter of the window was sealed with silicone.

Location	Anchor Description	Anchor Location
Head, sill and jambs	1-5/8" drywall screws	2-4" from each end and 8" on center through mounting fin.

7.0 Test Results: The temperature during testing was 22 - 26°C (72 - 78°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
Air Leakage, Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.05 L/s/m ² (<0.01 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	Pass	No entry	
Forced Entry Resistance, per CAWM 301, Type: V	Pass	No entry	
Thermoplastic Corner Weld	Pass	Meets as stated	6
Optional Performance			
Water Penetration, per ASTM E 547 at 580 Pa (12.11 psf)	Pass	No leakage	6
Uniform Load Deflection, per ASTM E 330 taken at left jamb of frame between mounting screws +3120 Pa (+65.16 psf) -3120 Pa (-65.16 psf)	0.5 mm (0.02") 0.3 mm (0.01")	Report Only	3,4,5
Uniform Load Structural, per ASTM E 330 taken at left jamb of frame between mounting screws +4680 Pa (+97.74 psf) -4680 Pa (-97.74 psf)	0.0 mm (0.00") 0.0 mm (0.00")	0.6 mm (0.02") max.	4,5

7.0 Test Results: (Continued)

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

Note 3: 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 4: Loads were held for 10 seconds.

Note 5: Tape and film were not used to seal against air leakage during structural testing.

Note 6: Results obtained from Architectural Testing, Inc. Report No. B2427.01-301-47, dated 10/20/11.

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 B2431.01-301-47.

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.

David Douglass
Project Manager

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 (7) 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>
1	03/05/13	1	Added " This product is also labeled under the following names: HM III-155 and HM III-170 and BB-155 and BB-170."



Test Report No.: B2431.02-301-47
Report Date: 04/24/12
Revision 1: 03/05/13
Record Retention End Date: 10/18/15

Appendix A

Alteration Addendum

Note: No alterations were required.



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Report Date: 04/24/12
Revision 1: 03/05/13
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Appendix B

Drawings

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