

**TEST REPORT**

**Report No.:** D0823.01-301-44

**Rendered to:**

MI WINDOWS AND DOORS, INC.  
Prescott Valley, Arizona

**SERIES/MODEL:** EC 130

**PRODUCT TYPE:** Polyvinyl Chloride (PVC) Double Horizontal Sliding Window

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

CAWM 301-90, *Forced Entry Resistance Test for Windows.*

<b>Title</b>	<b>Summary of Results</b>
Primary Product Designator	HS-LC25 2133 x 1523 (84 x 60)
Design Pressure	±1200 Pa (±25.06 psf)
Air Infiltration	0.61 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	290 Pa (6.06 psf)

**Test Completion Date:** 01/13/2014

Reference must be made to Report No. D0823.01-301-44 dated 02/12/14 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 Series/Model:** EC 130

**This product also labeled under the following names:** HM130 and BB130

**3.2 Product Type:** Polyvinyl Chloride (PVC) Double Horizontal Sliding Window

**3.3 Compliance Statement:** Results obtained are tested values and were secured by using the designated test methods. The specimens tested successfully met the performance requirements for a **HS-LC25 2133 x 1523 (84 x 60)** rating.

**3.4 Test Dates:** 08/20/2013 – 01/13/2014

**3.5 Test Record Retention End Date:** All test records for this report will be retained until January 23, 1018.

**3.6 Test Location:** Architectural Testing, Inc. Fresno, California

**3.7 Test Sample Source:** The test specimen was provided by the client. Representative samples of the test specimens 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 specimens 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.

**3.9 List of Official Observers:**

<u>Name</u>	<u>Company</u>
Jay Ratliff	Architectural Testing, Inc.
David Douglass	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 301-90, *Forced Entry Resistance Test for Windows.*

#### 5.0 Test Specimen Description:

##### 5.1 Product Sizes:

Overall Area: 3.25 m <sup>2</sup> (34.97 ft <sup>2</sup> )	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	2133	83-15/16	1523	60
Exterior panel	1050	41-5/16	1413	55-5/8
Interior panel	1050	41-5/16	1413	55-5/8
Screen	1006	39-5/8	1414	55-11/16

##### 5.2 Frame Construction:

Frame Member	Material	Description
Head, sill and jambs	PVC	Two internal hollows were filled with Aircell foam.
Screen track insert	PVC	Snap fit to sill and held back 1/2" from each end.
Roller track insert	PVC	Snap fit to sill and held back 1/2" from each end.
Anti-lift	PVC	Two were employed above interior panel.

	Joinery Type	Detail
Head, sill and jambs	Mitered	Fully welded.

##### 5.3 Panel Construction:

Panel Member	Material	Description
Top rail, bottom rail and each stile	PVC	The main hollow in the top rails, bottom rails and jamb stiles of each panel were filled with Aircell foam. The interlocks were held back 1-1/4" from each end and 2" for the lock. A 0.070" lip was employed at the locks.

**5.0 Test Specimen Description:** (Continued)

**5.3 Panel Construction:** (Continued)

	<b>Joinery Type</b>	<b>Detail</b>
All corners	Mitered	Fully welded.

**5.4 Weatherstripping:**

<b>Description</b>	<b>Quantity</b>	<b>Location</b>
0.290" high polypile with triple center fin	2 Rows	All members of frame.
Hollow wrapped foam gasket	1 Row	Each meeting stile.
0.400" high polypile	1 Row	Interior meeting stile.
0.290" high polypile with triple center fin	1 Row	Exterior panel jamb stile. Bottom rail of each panel.
0.290" high polypile with triple center fin	3 Rows	Top rails of each panel. Jamb stile of exterior 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.*

<b>Glass Type</b>	<b>Spacer Type</b>	<b>Interior Lite</b>	<b>Exterior Lite</b>	<b>Glazing Method</b>
3/4" IG	Duralite	1/8" Annealed	1/8" Annealed	Exterior glazed onto silicone and secured with a snap in PVC glazing bead.

<b>Location</b>	<b>Quantity</b>	<b>Daylight Opening</b>		<b>Glass Bite</b>
		<b>millimeters</b>	<b>inches</b>	
Exterior panel	1	962 x 1325	37-7/8 x 52-1/8	1/2"
Interior panel	1	962 x 1325	37-7/8 x 52-1/8	1/2"

## 5.0 Test Specimen Description: (Continued)

### 5.6 Drainage:

Drainage Method	Size	Quantity	Location
Weephole with cover	1" x 1/4" (13/16" x 1/8" effective)	2	2-1/2" from each end through exterior sill face.
Weephole	1/4" x 1/8"	2	1/2" from each end through screen track exterior leg at sill face.
Weephole	3/8" x 1/8" oval	2	1/2" from each end through exterior panel sill track through frame to the exterior.
Weephole	5/8" x 1/8"	2	1" from each end through interior panel sill track.
Weephole	1-3/4" x 1/4"	2	Each end through second layer of internal webbing.
Weephole	1/4" x 3/4"	2	1" from each end through third layer of internal webbing.
Weephole	1/2" x 1/8" oval	4	1/4" from each end through bottom rail of each panel. 2-1/4" from each end through snap in glazing bead track on bottom rail of each panel.

### 5.7 Hardware:

Description	Quantity	Location
Plastic rollers with housing	4	1-3/4" from each end on bottom rail of each panel.
Cam lock	1	Mid-span on interior meeting stile secured with two #6 x 1" Phillips flat head self-drilling screws into reinforcement.
Keeper	1	Opposite each lock on interior meeting stile secured with two #6 x 1" Phillips flat head self-drilling screws into reinforcement.

### 5.8 Reinforcement:

Drawing Number	Location	Material
M-9264	Exterior meeting stile	Extruded aluminum
M-9258	Interior meeting stile	Extruded aluminum

**5.0 Test Specimen Description:** (Continued)

**5.9 Screen Construction:**

Frame Material	Corner Construction	Mesh Type	Mesh Attachment Method
Extruded aluminum	Mitered with corner key	Fiberglass	Hollow spline

**6.0 Installation:**

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

Location	Anchor Description	Anchor Location
Head and jambs	#8 x 1-5/8" drywall screws	3-4" from corners, and 9" on center, through the mounting fin into the wood test buck.

**7.0 Test Results:** The temperature during testing was 17 - 18°C (68 - 73°F). The results are tabulated as follows:

Title of Test	Results	Allowed	Note
<b>Operating Force,</b> per ASTM E 2068	Initiate motion: 89 N (20.0 lbf) Maintain motion: 58 N (13.0 lbf) Locks: 18 N (4.0 lbf)	Report Only  115 N (25.9 lbf) max.  100 N (22.5 lbf) max.	
<b>Air Leakage,</b> Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.61 L/s/m <sup>2</sup> (0.12 cfm/ft <sup>2</sup> )	1.5 L/s/m <sup>2</sup> (0.3 cfm/ft <sup>2</sup> ) max.	1
<b>Water Penetration,</b> per ASTM E 547	N/A	N/A	2
<b>Uniform Load Deflection,</b> per ASTM E 330 <u>taken at exterior meeting stile</u> +1200 Pa (+25.06 psf) -1200 Pa (-25.06 psf)	12.8 mm (0.51") 13.2 mm (0.52")	Report Only.	3, 4, 5



## 7.0 Test Results: (Continued)

Title of Test	Results	Allowed	Note
<b>Uniform Load Structural,</b> per ASTM E 330 <u>taken at exterior meeting stile</u> +1800 Pa (+37.59 psf) -1800 Pa (-37.59 psf)	0.4 mm (0.02") 0.4 mm (0.02")	5.7 mm (0.22") max.	4, 5
<b>Forced Entry Resistance,</b> per ASTM F 588: Type A, Grade 10 per CAWM 301, Type: I	Pass Pass	No entry No entry	
<b>Thermoplastic Corner Weld</b>	Pass	Meets as stated	
<b>Deglazing,</b> per ASTM E 987 <u>Operating direction</u> 320 N (71.9 lbf) <u>Remaining direction</u> 230 N (51.7 lbf)	Pass Pass	Meets as stated Meets as stated	
<b>Optional Performance</b>			
<b>Water Penetration,</b> per ASTM E 547 at 290 Pa (6.06 psf)	Pass	No leakage	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:** 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 used to seal against air leakage during structural testing. In our opinion, the tape and film did not influence the results of the test.

**Note 6:** With and without insect screen.

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.

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David Douglass  
Project Manager

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Leaton Kirk  
Director – Regional Operations

DD: ms

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

Appendix-A: Alteration Addendum (1)

Appendix-B: Drawings (19) Complete drawings packet on file with Architectural Testing, Inc.





Architectural Testing

Test Report No.: D0823.01-301-44  
Report Date: 02/12/14  
Record Retention End Date: 01/13/18

## Appendix A

### Alteration Addendum

**Alteration #1:** Date – 10/21/2013  
Cause for alteration – uniform wind load test failure  
Remedial action taken – replaced panels



**Architectural Testing**

Test Report No.: D0823.01-301-44  
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Record Retention End Date: 01/13/18

## **Appendix B**

### **Drawings**

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