



**TEST REPORT**

**Report No.:** F7297.01-109-47

**Rendered to:**

MI WINDOWS AND DOORS, LLC  
Gratz, Pennsylvania

**PRODUCT TYPE:** Polyvinyl Chloride (PVC) Picture Window  
**SERIES/MODEL:** HM155

**SPECIFICATION(S):** AAMA/WDMA/CSA 101/I.S.2/A440-08, *NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights*

Title	Summary of Results
AAMA/WDMA/CSA 101/I.S.2/A440-08	Class LC-PG40 1829 x 1829 (72 x 72)-FW
Design Pressure	+2160 Pa (+45.11 psf)
Negative Design Pressure	-1920 Pa (-40.10 psf)
Air Infiltration	0.3 L/s/m <sup>2</sup> (0.06 cfm/ft <sup>2</sup> )
Water Penetration Resistance Test Pressure	360 Pa (7.52 psf)

**Test Completion Date:** 04/12/16

Reference must be made to Report No. F7297.01-109-47, dated 06/03/16 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) Picture Window
- 3.2 Series/Model:** HM155
- 3.2.1 This product also labeled under the following names:** EC155, EC155MULL, HM 155, HM155MULL, EC152, EC170, HM170, BB155, and BB170
- 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-PG40 1829 x 1829 (72 x 72)-FW** rating.
- 3.4 Test Date:** 04/12/16
- 3.5 Test Record Retention End Date:** All test records for this report will be retained until April 12, 2020.
- 3.6 Test Location:** MI Windows and Doors test facility in Gratz, Pennsylvania. Calibration of test equipment was performed by Intertek-ATI in accordance with AAMA 205-01 "In-Plant Testing Guidelines for Manufacturers and Independent Laboratories".
- 3.7 Test Specimen Source:** The test specimens were provided by the client. Representative samples of the test specimen(s) will be retained by Intertek-ATI for a minimum of four 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
Joel Chronister	Intertek-ATI

#### 4.0 Test Specification(s):

AAMA/WDMA/CSA 101/I.S.2/A440-08, NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights

#### 5.0 Test Specimen Description:

##### 5.1 Product Sizes:

Overall Area: 3.3 m <sup>2</sup> (36.0 ft <sup>2</sup> )	Width		Height	
	millimeters	inches	millimeters	inches
Overall size	1829	72	1829	72

##### 5.2 Frame Construction:

Frame Member	Material	Description
Head, sill, and jambs	PVC	Extruded
Track filler	PVC	Extruded, snap fit to the interior track of the head, sill, and jambs

	Joinery Type	Detail
All corners	Mitered	Thermally welded

**5.3 Weatherstripping:** No weatherstripping was utilized.

**5.4 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	Butyl-reinforced metal	1/8" annealed	1/8" annealed	Exterior tape glazed with two-sided butyl tape, silicone in each corner, and secured with PVC snap-in glazing beads

Location	Quantity	Daylight Opening		Glass Bite
		millimeters	inches	
Fixed daylight opening	1	1724 x 1724	67-7/8 x 67-7/8	1/2"

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

**5.5 Drainage:**

Drainage Method	Size	Quantity	Location
Weep slot with cover	1-5/8" wide by 1/4" high	2	3-1/2" from each end, through the exterior sill face
Weep slot	1-1/8" wide by 1/4" high	2	5/8" from each end inside the hollow chamber in the sill
Weep slot	1/8" wide by 1/8" high	2	3-1/2" from each end through the glazing track
Weep slot	1-1/8" wide by 1/4" high	2	2-1/4" from each end through the interior snap-in cover
Weep slot	1-3/8" triangle	2	2-1/2" from each end of the internal snap-in cover

**5.6 Hardware:** No hardware was utilized.

**5.7 Reinforcement:** No reinforcement was utilized.

**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 sealant.

Location	Anchor Description	Anchor Location
Head, sill, and jambs	#6 x 1-5/8" drywall screws	Located 3" from the corners and spaced 8" to 10" on center, through the mounting fin and into the wood buck

**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
<b>Air Leakage,</b> Infiltration per ASTM E 283 at 75 Pa (1.57 psf)	0.3 L/s/m <sup>2</sup> (0.06 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	N/A	N/A	2
<b>Uniform Load Structural,</b> per ASTM E 330	N/A	N/A	2
<b>Forced Entry Resistance,</b> per ASTM F 588, Type: D - Grade: 10	Pass	No entry	
<b>Thermoplastic Corner Weld</b>	Pass	Meets as stated	
<b>Optional Performance</b>			
<b>Water Penetration,</b> per ASTM E 547 at 360 Pa (7.52 psf)	Pass	No leakage	
<b>Uniform Load Deflection,</b> per ASTM E 330 Deflections taken at sill +2160 Pa (+45.11 psf) -1920 Pa (-40.10 psf)	0.5 mm (0.02") 2.3 mm (0.09")	Report only	3, 4, 5
<b>Uniform Load Structural,</b> per ASTM E 330 Permanent sets taken at sill +3240 Pa (+67.67 psf) -2880 Pa (-60.15 psf)	<0.3 mm (<0.01") <0.3 mm (<0.01")	6.9 mm (0.27") max. 6.9 mm (0.27") 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 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.

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Joel Chronister  
Technician

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Timothy J. McGill  
Manager - Product Testing

JC:asm/cmd

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: Complete drawings packet on file with Intertek-ATI.

## **Appendix A**

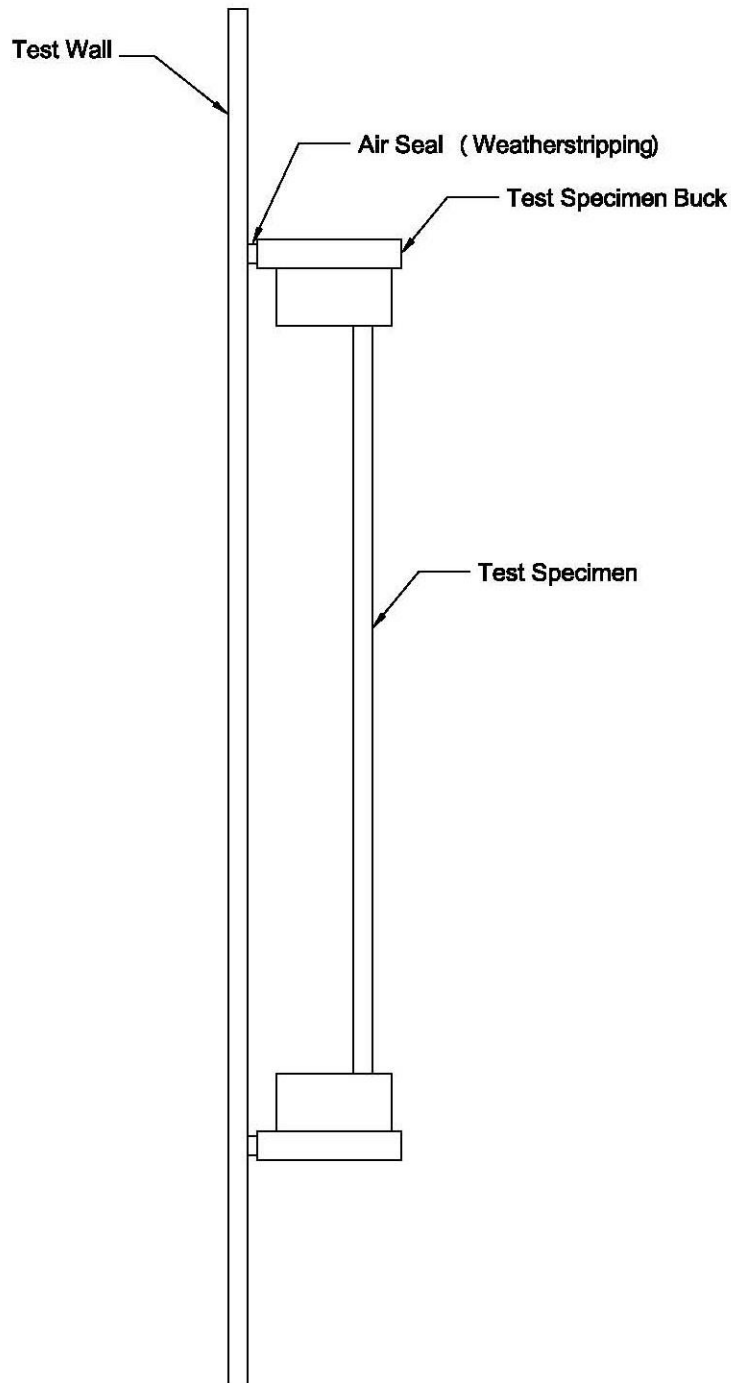
### **Alteration Addendum**

**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.