Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS
TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, LLC

SERIES/MODEL: EC130

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

TYPE: Polyvinyl Chloride (PVC) Double Horizontal Sliding Window

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
C6465.01A	3/4" IG (3/32" annealed, 9/16" air space, 3/32" annealed), Intercept Spacer	26	20
C6465.01B	3/4" IG (1/8" annealed, 1/2" air space, 1/8" annealed), Super Spacer	26	22
C6465.01C	1-1/8" IG (1/8" annealed exterior, 13/16" air space, 3/16" annealed interior), Super Spacer	33	27
C6465.01D	1-1/16" IG (3/16" annealed exterior, 5/8" air space, (2.7 mm / 0.030" SQ41 Lami 3/16" Solutia Q Series / 2.7 mm) laminated interior), Super Spacer, Glass Temperature 75°F	35	30

Reference should be made to Architectural Testing, Inc. Report No. C6465.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

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Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, LLC
P.O. Box 370
650 West Market Street
Gratz, Pennsylvania 17030-0370

Report No:	C6465.01-113-11
Test Dates:	03/07/13
And:	03/08/13
Report Date:	05/13/13
Record Retention End Date:	05/13/17

Test Sample Identification:

Series/Model: EC130

Type: Polyvinyl Chloride (PVC) Double Horizontal Sliding Window

Overall Size: 59" by 47-1/4"

Glazing (Nominal Dimensions):

Option A: 3/4" IG (3/32" Annealed, 9/16" Air Space, 3/32" Annealed), Intercept Spacer

Option B: 3/4" IG (1/8" Annealed, 1/2" Air Space, 1/8" Annealed), Super Spacer

Option C: 1-1/8" IG (1/8" Annealed Exterior, 13/16" Air Space, 3/16" Annealed Interior), Super Spacer

Option D: 1-1/16" IG (3/16" Annealed Exterior, 5/8" Air Space, (2.7 mm / 0.030" SQ41 Lami 3/16" Solutia Q Series / 2.7 mm) Laminated Interior), Super Spacer, Glass Temperature75°F

Project Scope: Architectural Testing, Inc. was contracted by MI Windows and Doors, LLC to conduct sound transmission loss tests on a Series/Model EC130, horizontal sliding window. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The samples were provided by the client.

Test Methods: The acoustical tests were conducted in accordance with the following:

ASTM E 90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.*

ASTM E 413-10, *Classification for Rating Sound Insulation.*

ASTM E 1332-10a, *Standard Classification for Rating Outdoor-Indoor Sound Attenuation.*

ASTM E 2235-04 (Reapproved 2012), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.*

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM E 90. The microphones were calibrated before conducting sound transmission loss tests. The test equipment and test chamber descriptions are listed in Appendix A.

Sample Installation: Sound transmission loss tests were initially performed on a filler wall that was designed to test window specimens. The filler wall achieved an STC rating of 68.

A filler wall reducing element was used to reduce the test opening size. The reducing element consisted of two separate 2x6 wood frames filled with concrete to reduce the test opening size to 59-1/2" wide by 47-3/4" high. A dense neoprene gasket was placed between the two wood and concrete frames. The window was placed on an isolation pad in the new test opening. Duct seal was used to seal the perimeter of the window to the test opening on both sides. The interior side of the window frame, when installed, was approximately 1/4" from being flush with the receiving room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. The sash were opened and closed at least five times prior to testing.

Test Procedure: The window was closed and locked for this test. The sound transmission loss tests were conducted in accordance with the ASTM E 90 test method using a single direction of measurement. The sound transmission loss test consisted of the following measurements: One background noise sound pressure level and five sound absorption measurements were conducted at each of the five microphone positions. Two sound pressure level measurements were made simultaneously in both rooms, at each of the five microphone positions. The air temperature and relative humidity conditions were monitored and recorded during the background, absorption, source, and receive room measurements.

Sample Descriptions:

Frame Construction:

	Frame
Size	59" by 47-1/4"
Thickness	4-1/2"
Corners	Mitered
Fasteners	Welds
Seal Method	None
Material	Vinyl
Reinforcement	Air cell
Thermal Break Material	N/A

Sash Construction:

	Interior Sash	Exterior Sash
Size	28-7/8" by 42-13/16"	28-15/16" by 42-13/16"
Thickness	1-5/8"	1-5/8"
Corners	Mitered	Mitered
Fasteners	Welds	Welds
Seal Method	None	None
Material	Vinyl	Vinyl
Reinforcement	Air cell at top and bottom rails and jamb stile Aluminum at meeting stile	Air cell at top and bottom rails and jamb stile Aluminum at meeting stile
Thermal Break Material	N/A	N/A
Daylight Opening Size	25-3/8" by 39-5/16"	25-3/8" by 39-5/16"

N/A-Non Applicable

Sample Descriptions: (Continued)

Sash Glazing Option A:

Measured Overall Insulation Glass Unit Thickness	0.754"
Spacer Type	Steel U-shaped Intercept

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.086"	0.582"	0.086"
Muntin Pattern	N/A	N/A	N/A
Material	Annealed	Air*	Annealed
Laminate Material	N/A	N/A	N/A

Glazing Method	Exterior
Glazing Material	Double-sided adhesive foam tape
Glazing Bead Material	Vinyl

Sash Glazing Option B:

Measured Overall Insulation Glass Unit Thickness	0.746"
Spacer Type	Silicone foam (Premium Enhanced)

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.117"	0.513"	0.116"
Muntin Pattern	N/A	N/A	N/A
Material	Annealed	Air*	Annealed
Laminate Material	N/A	N/A	N/A

Glazing Method	Exterior
Glazing Material	Double-sided adhesive foam tape
Glazing Bead Material	Vinyl

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Sash Glazing Option C:

Measured Overall Insulation Glass Unit Thickness	1.119"
Spacer Type	Silicone foam (Premium Enhanced)

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.117"	0.820"	0.182"
Muntin Pattern	N/A	N/A	N/A
Material	Annealed	Air*	Annealed
Laminate Material	N/A	N/A	N/A

Glazing Method	Exterior
Glazing Material	Double-sided adhesive foam tape
Glazing Bead Material	Vinyl

Sash Glazing Option D:

Measured Overall Insulation Glass Unit Thickness	1.105"
Spacer Type	Silicone foam (Premium Enhanced)

	Exterior Sheet	**Gap**	**Interior Sheet**
Measured Thickness	0.182"	0.685"	0.105", 0.028", 0.105" (2.67 mm, 0.71 mm, 2.67 mm)
Muntin Pattern	N/A	N/A	N/A
Material	Annealed	Air*	Laminated
Laminate Material	N/A	N/A	Solutia Q Series* Saflex® Q Series acoustical interlayer

Glazing Method	Exterior
Glazing Material	Double-sided adhesive foam tape
Glazing Bead Material	Vinyl

** - Stated per Client/Manufacturer, N/A-Non Applicable*

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
Weatherstrip		
0.187" by 0.290" Polypile with center fin	2 Rows	Frame perimeter
0.187" by 0.310" Polypile with center fin	3 Rows	Options A and B: Top and bottom rails, and jamb stiles Option C: Exterior sash - top and bottom rail / Interior sash - top rail and jamb stile
0.187" by 0.310" Polypile with center fin	2 Rows	Option C: Exterior sash – jamb stile / Interior sash – bottom rail
0.187" by 0.310" Polypile with center fin	1 Row	Options A and B: Lock stile Option D: Top and bottom rails, and jamb stiles
0.187" by 0.310" Polypile	1 Row	Options C and D: Lock stile
3/8" Diameter co-extruded kerf mounted foam-lined bulb gasket	1 Row	Keeper stiles
Hardware		
Roller assembly set	4	Bottom rails
Cam lock	1	Lock stile
Keeper	1	Keeper stile
Drainage		
1" by 1/4" Weep slot with cover	2	Sill face
5/8" by 1/8" Weep slot	2	Sill track
3/8" by 1/8" Weep slot	4	Sill track and sill face
1/4" by 1/8" Weep slot	2	Sill at screen track
1/2" by 3/16" Weep slot	4	Sill hollow

Sample Descriptions: (Continued)

Sample Weights:

Overall Sample Area:	m^2	ft^2
	1.799	19.36

Sample Identification:	Total Weight		Weight Per Unit Area	
	kg	lbs	kg / m^2	lbs / ft^2
A	31	68	17.23	3.53
B	36.50	80	20.29	4.16
C	43.50	96	24.18	4.95
D	51.00	112	28.35	5.81

Comments: The client did not supply drawings on the Series/Model EC130, horizontal sliding window. The window was disassembled, and the components will be retained by Architectural Testing for four years. Photographs of the test specimen are included in Appendix C.

Test Results: The STC (Sound Transmission Class) rating was calculated in accordance with ASTM E 413. The OITC (Outdoor-Indoor Transmission Class) was calculated in accordance with ASTM E 1332. A summary of the sound transmission loss test results on the Series/Model EC130, horizontal sliding window is listed below.

Summary of Test Results			
Data File No.	**Glazing Option (Nominal Dimensions)**	**STC**	**OITC**
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The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

Architectural Testing 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 Architectural Testing 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 tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

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Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (8)
- Appendix-C: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	05/13/13	N/A	Original Report Issue