Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

MI WINDOWS AND DOORS, INC.

SERIES/MODEL: 5800 Vinyl

TYPE: Horizontal Sliding Window

Summary of Test Results			
ATI Data File No.	**Glazing**	**STC**	**OITC**
65996.01	11/16" IG (3/32" annealed, 1/2" air space, 3/32" annealed)	24	20

Reference should be made to ATI Report No. 65996.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

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York, PA 17406-8405
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Architectural Testing

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

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

Report No:	65996.01-113-11
Test Date:	06/27/06
Report Date:	08/28/06
Expiration Date:	06/27/10

Test Sample Identification:

Series/Model: 5800 Vinyl

Type: Horizontal Sliding Window

Overall Size: 72" by 48"

Glazing: 11/16" IG (3/32" Annealed, 1/2" Air Space, 3/32" Annealed)

Project Scope: Architectural Testing, Inc. (ATI) was contracted by MI Windows and Doors, Inc. to conduct a sound transmission loss test on a Series/Model 5800 Vinyl, 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.

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

ASTM E 90-04, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions*.

ASTM E 413-04, *Classification for Rating Sound Insulation*.

ASTM E 1332-90 (Re-approved 2003), *Standard Classification for Determination of Outdoor-Indoor Transmission Class.*

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

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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 48" by 72" and 72" by 48" specimens. The filler wall achieved an STC rating of 64.

The 72" by 48" plug was removed from the filler wall assembly. The window was placed on a foam isolation pad in the 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 was 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 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		72" by 48"
Thickness		2-3/4"
CORNERS		Mitered
	Fasteners	Welds
	Seal Method	None
MATERIAL		Vinyl
	Reinforcement	Aluminum / Meeting stile
	Thermal Break Material	N/A
Daylight Opening Size		33" by 44-7/8"

Sample Descriptions: (Continued)

Sash Construction:

		Active Sash
Size		36-3/8" by 45-5/8"
Thickness		1"
CORNERS		Mitered
	Fasteners	Welds
	Seal Method	None
MATERIAL		Vinyl
	Reinforcement	Aluminum / Lock stile
	Thermal Break Material	N/A
Daylight Opening Size		33" by 42-1/2"

Glazing:

Measured Overall Insulation Glass Unit Thickness	0.683"
Spacer Type	Steel U-shape

	Exterior Sheet	**Gap**	**Interior Sheet**
MEASURED THICKNESS	0.087"	0.509"	0.087"
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

Sample Descriptions: (Continued)

Components:

TYPE	QUANTITY	LOCATION
WEATHERSTRIP		
0.187" by 0.210" Poly-pile with center fin	1 Row	Perimeter of active sash and fixed meeting stile
HARDWARE		
Metal cam lock	1	Active lock stile
Metal lock keeper	1	Fixed meeting stile
Roller assembly	2	Bottom rail
DRAINAGE		
1-1/4" by 3/16" Weep slot with cover	2	Sill
1-1/4" by 3/16" Weep slot	2	Sill
1" by 3/16"	2	Sill
3/16" by 3/16"	2	Sill

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

Comments: The weight of the sample was 70 lbs. The client did not supply drawings on the Series/Model 5800 Vinyl, horizontal sliding window. The window was disassembled, and the components will be retained by ATI 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 5800 Vinyl, horizontal sliding window is listed below.

ATI Data File No.	Glazing	STC	OITC
65996.01	11/16" IG (3/32" annealed, 1/2" air space, 3/32" annealed)	24	20

The complete test results are listed in Appendix B. Flanking limit tests and reference specimen tests are available upon request.

This report is prepared for the convenience of our customer and endeavors to provide accurate and timely project information. It contains a summary of observations made by a qualified representative of Architectural Testing, Inc. The results of this report apply only to the specimen that was tested. The statements made herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

A copy of this report will be retained by ATI for a period of four years from the original test date. This report is the exclusive property of the client so named herein. This report shall not be reproduced, except in full, without written approval by Architectural Testing, Inc.

For ARCHITECTURAL TESTING, INC:

Digitally Signed by: Kurt A. Golden

Kurt A. Golden
Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KAG:dla

Attachments (pages):
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Photographs (1)

NVLAP LAB CODE 200361

Architectural Testing, Inc is accredited by the National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program for the specific test methods listed under lab code 200361. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by NIST. This test report applies only to the specimen that was tested.

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	08/28/06	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number
Analyzer	Agilent Technologies	35670A	Dynamic signal analyzer	Y002929
Receive Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003246
Source Room Microphone	ACO Pacific	7047	1/2", pressure type, condenser microphone	Y002757
Receive Room Preamp	G.R.A.S.	N-1201	1/2" preamplifier	Y003240
Source Room Preamp	ACO Pacific	4012	1/2" preamplifier	Y002756
Microphone Calibrator	Bruel & Kjaer	4228	Pistonphone calibrator	Y002816
Noise Source	Delta Electronics	SNG-1	Two, non-coherelated "Pink" noise signals	Y002181
Equalizer	Rane	RPE228	Programmable EQ	Y002180
Power Amplifiers	Renkus-Heinz	P2000	2 - Amplifiers	Y002179 Y001779
Receive Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	2 - Loudspeakers	Y001784 Y001785
Source Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	2 - Loudspeakers	Y002649 Y002650

Test Chamber:

	Volume	Description
Receiving Room	8291.3 ft^3 (234m^3)	Rotating vane and stationary diffusers. Temperature and humidity controlled. Isolation pads under the floor.
Source Room	7296.3 ft^3 (206.6m^3)	Stationary diffusers only. Temperature and humidity controlled.

	Maximum Size	Description
TL Test Opening	14 ft wide by 10 ft high	Vibration break between source and receive rooms.

Appendix B

Complete Test Results

Architectural Testing

SOUND TRANSMISSION LOSS

ASTM E90

ATI No.	65996.01	**Date**	06/27/06
Client	MI Windows and Doors, Inc.		
Specimen	Series/Model 5800 vinyl horizonntal sliding window with 11/16" IG (3/32" annealed, 1/2"air space, 3/32" annealed)		
Specimen Area	24.00 Sq Ft		
Filler Area	116.00 Sq Ft		
Operator	Kurt A. Golden		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	74.4	75.1	74.2	74.5	72.6	74.5
RH %	63.4	62.7	64.6	63.5	63.9	63.5

Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici-encies	Trans Coef Diff
80	43.3	39.3	85.5	63.3	45.3	20	2.02	0	18.4
100	46.2	54.2	89.1	70.1	49.0	15	2.50	0	26.7
125	42.3	53.9	91.3	69.9	50.3	18	1.33	0	25.5
160	44.2	50.7	93.7	73.1	51.5	17	2.03	0	27.4
200	43.3	58.5	97.7	76.0	56.3	18	0.93	0	31.6
250	40.0	59.4	98.7	78.5	59.3	16	1.02	1	36.2
315	39.2	66.8	95.4	78.8	63.8	12	0.64	8	44.7
400	39.7	66.7	94.6	73.1	65.9	17	0.76	6	41.9
500	41.5	68.1	98.2	73.9	66.9	20	0.70	4	40.3
630	33.0	65.6	101.3	72.7	68.4	24	0.60	1	37.3
800	29.7	66.8	101.3	69.1	69.5	28	0.33	0	34.9
1000	28.4	69.1	100.6	65.5	69.3	30	0.25	0	32.0
1250	29.5	74.6	104.9	66.0	76.3	34	0.27	0	35.5
1600	23.3	75.8	111.0	70.4	80.4	36	0.23	0	37.9
2000	19.6	80.2	107.1	64.9	78.1	37	0.32	0	34.4
2500	12.7	92.7	105.6	61.3	76.7	38	0.20	0	31.4
3150	10.7	107.5	106.3	61.2	79.9	39	0.29	0	34.5
4000	8.6	132.9	105.3	60.9	81.6	37	0.26	0	37.8
5000	8.0	171.1	104.0	65.0	81.2	31	0.39	0	43.8

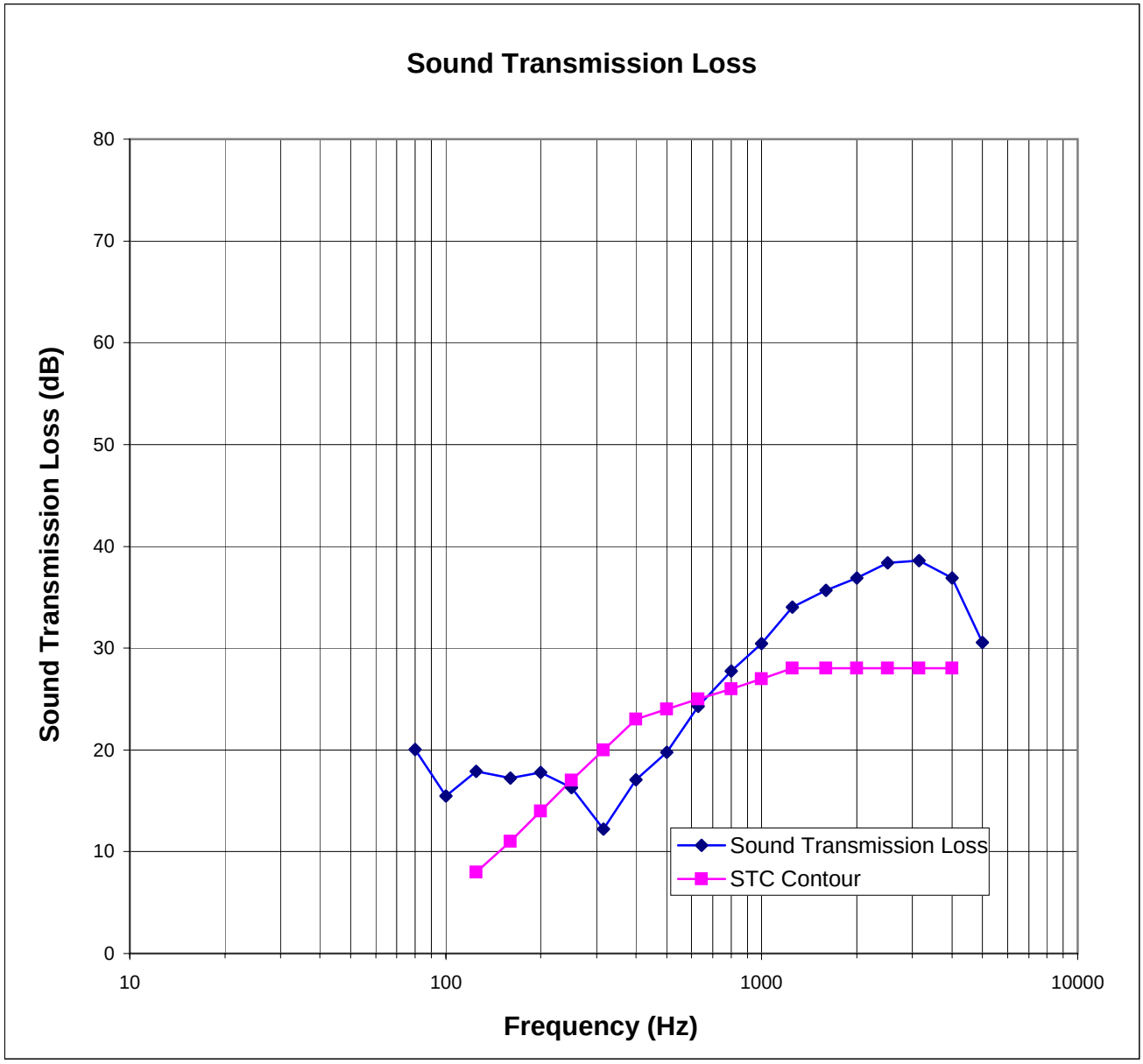
STC Rating =	**24**	*(Sound Transmission Class)*
Deficiencies =	**20**	*(Number of deficiencies versus contour curve)*
OITC Rating =	**20**	*(Outdoor/Indoor Transmission Class)*

Note: *The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only.*

NVLAP LAB CODE 200361

Architectural Testing

ATI No.	65996.01	**Date**	06/27/06
Client	MI Windows and Doors, Inc.		
Specimen	Series/Model 5800 vinyl horizonntal sliding window with 11/16" IG (3/32" annealed, 1/2"air space, 3/32" annealed)		
Specimen Area	24.00 Sq Ft		
Filler Area	116.00 Sq Ft		
Operator	Kurt A. Golden		



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Appendix C

Photographs

View of Specimen Installed in Receive Room

View of Specimen Installed in Source Room