

ALEX GLASS CONSTRUCTION CORP. ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A TYPE W1 COMBINATION DOUBLE CASEMENT WINDOW

REPORT NUMBER

L0008.01-113-11-R0

TEST DATE

05/13/20

ISSUE DATE

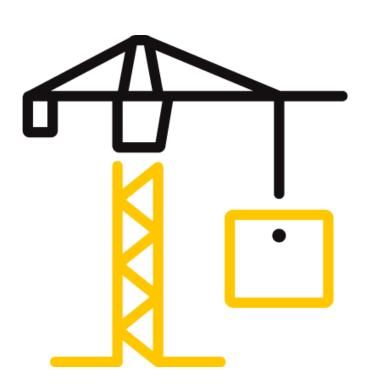
06/24/20

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DOCUMENT CONTROL NUMBER

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Date: 06/24/20

REPORT ISSUED TO

ALEX GLASS CONSTRUCTION CORP.

2800 Coyle, Suite 280 Brooklyn, New York 11235

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Alex Glass Construction Corp. to conduct a sound transmission loss test. Results obtained are tested values and were secured by using the designated test methods. The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

Andrew M. Johnston
Technician
Acoustical Testing

SIGNATURE:

Andrew M. Johnston
Technician
Acoustical Testing

06/24/20

REVIEWED BY: Kurt A. Golden
Project Lead
Acoustical Testing

SIGNATURE: Kent a. Holden

06/24/20

DATE: AMJ:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	Type W1 Combination
ТҮРЕ	Double casement window
GLAZING (Nominal Dimensions)	1-1/4" IG (1/4" tempered, 3/4" air space, 1/4" tempered)
DATA FILE NO.	L0008.01
STC	33
OITC	27

SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

ASTM E90-09 (2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

ASTM E413-16, Classification for Rating Sound Insulation

ASTM E1332-16, Standard Classification for Rating Outdoor-Indoor Sound Attenuation

ASTM E2235-04 (2012), Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

SECTION 4

SPECIMEN INSTALLATION

A sound transmission loss test was initially performed on a filler wall.

The specimen plug was removed from the filler wall assembly. The specimen was placed on an isolation pad in the test opening. Duct seal was used to seal the perimeter of the specimen to the test opening on both sides. The interior side of the specimen, when installed, was approximately 1/4" from being flush with the receive room side of the filler wall. A stethoscope was used to check for any abnormal air leaks around the test specimen prior to testing. Operable portions of the test specimen, if any, were cycled at least five times prior to testing.



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EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET#	CAL	
					DATE	
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	63763-3*	04/20	
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125*	05/20	
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/20	
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	10/19	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65968	01/20	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	65103	03/20	
Source Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	64905	03/20	
Source Room Microphone	PCB piezotronics	378C20	Microphone and Preamplifier	64906	03/20	
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/20	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/20	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/20	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/20	
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	10/19	
Receive Room	Comet	T7510	Receive Room	64915	01/20	
Environmental Indicator					,	
Source Room	Comet	T7510	Source Room	64914	02/20	
Environmental Indicator					0.4/0.0	
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/20	

st-Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m³	Rotating vane and stationary diffusers
		Temperature and humidity controlled
		Isolation pads under the floor
SOURCE ROOM	207 m³	Stationary diffusers only
		Temperature and humidity controlled

	MAXIMUM SIZE	DESCRIPTION	
TL TEST OPENING	4.27 m wide by 3.05 m high	Vibration break between source and receive rooms	



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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Andrew M. Johnston	Intertek B&C
Kurt A. Golden	Intertek B&C

SECTION 7

TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted.

The transmission loss values were obtained for a single direction of measurement.

Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions.

Two sound pressure level measurements were made simultaneously in receive and source rooms at each of five microphone positions.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

Data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

The specimen was sent to another department within Intertek for further testing.

SECTION 8

ACOUSTICAL TEST CALCULATIONS

Transmission loss (TL) at each 1/3 octave frequency is the average source room sound pressure level minus the average receive room sound pressure level, plus, 10 times the log of the specimen area divided by the sound absorption of the receive room with the sample in place.

STC Rating

To obtain the Sound Transmission Class (STC), read the TL of the contour curve at 500 Hz. The sum of the deficiencies below the contour curve must not exceed 32. The maximum deficiency at any one frequency must not exceed 8.

OITC Rating

The Outdoor-Indoor Transmission Class (OITC) is calculated by subtracting the logarithmic summation of the TL values from the logarithmic summation of the A-weighted transportation noise spectrum stated in ASTM E1332.



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SECTION 9

SPECIMEN DESCRIPTION

	FRAME	VENT (X2)
SIZE	72" by 84"	34-3/8" by 58-1/2"
THICKNESS	3-1/2"	3-1/2"
CORNERS	Mitered	Mitered
FASTENERS	Keyed and staked	Keyed and staked
SEAL METHOD	N/A	N/A
MATERIAL	Aluminum	Aluminum
REINFORCEMENT	N/A	N/A
THERMAL BREAK MATERIAL	Insulbar	Insulbar
DAYLIGHT OPENING SIZE	32" by 20-1/4" (X2)	29" by 53-1/4"

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS		1.225"
SPACER TYPE Aluminum		

	EXTERIOR SHEET	GAP	INTERIOR SHEET
MEASURED THICKNESS	0.225"	0.773"	0.227"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Tempered
LAMINATE MATERIAL	N/A	N/A	N/A

GLAZING METHOD	Interior
GLAZING MATERIAL	EPDM
GLAZING BEAD MATERIAL	Aluminum

^{* -} Stated per Client/Manufacturer, N/A-Not Applicable



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	ТҮРЕ	QUANTITY	LOCATION
WEATHERSTRIP	1" by 3/4" Rubber step gasket	1 Row	Perimeter of vent openings
	1/8" Leaf gasket	1 Row	Perimeter of each vent
HARDWARE	Multi-point lock system	2	Lock stiles
	Keeper	8	Vent jambs
	Dual action hinge	4	Vent jambs
DRAINAGE	1" by 1/4" Weep slot	8	Sill face, meeting rail

TOTAL WEIGHT (lbs)	AVERAGE WEIGHT (lbs/ft²)
292	6.95

Photographs are included in Section 11.

A drawing of the test specimen is included in Section 12.



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TEST RESULTS

L0008.01 DATA

SPECIMEN AREA	3.90 m ²	RECEIVE TEMP.	21.8 ℃	SOURCE TEMP	21.6 °C
TECHNICIAN	Andrew M Jo	RECEIVE HUMIDITY	50%	SOURCE HUMIDIT	47%

FREQ	BACKGROUND	ABSORPTION	SOURCE	RECEIVE	SPECIMEN	95%	NUMBER	
	SPL		SPL	SPL	TL	CONFIDENCE	OF	
(Hz)	(dB)	(m²)	(dB)	(dB)	(dB)	LIMIT	DEFICIENCIES	
80	37.7	5.2	103	82	21	2.56	-	
100	36.7	5.6	104	78	26	1.68	-	
125	35.9	6.6	105	85	18	1.23	0	
160	37.8	5.7	106	87	17	0.67	3	
200	35.7	5.1	106	82	23	1.73	0	
250	32.5	5.7	103	79	22	0.57	4	
315	28.1	6.0	103	71	30	0.53	0	
400	25.0	6.2	102	70	31	0.32	1	
500	21.0	6.4	103	68	32	0.65	1	
630	19.7	6.2	102	66	34	0.36	0	
800	17.3	6.4	101	64	34	0.37	1	
1000	15.2	6.5	102	65	35	0.30	1	
1250	14.9	7.1	100	63	35	0.23	2	
1600	13.3	7.5	99	62	34	0.17	3	
2000	10.4	8.0	100	66	31	0.23	6	
2500	8.5	9.1	101	65	32	0.21	5	
3150	8.1	10.6	99	59	36	0.19	1	
4000	9.2	13.1	97	52	40	0.24	0	
5000	10.2	16.6	97	46	45	0.25	-	
STC RATING		33	(Sound Transmission Class)					
DEFICIENCIES		28	(Sum of Deficiencies)					
OITC RATING		27	(Outdoor-Indoor Transmission Class)					

Notes:

¹⁾ Receive Room levels less than 5 dB above the Background levels are red.

²⁾ Specimen TL levels listed in red indicate the lower limit of the transmission loss.

³⁾ Specimen TL levels listed in green indicate that there has been a filler wall correction applied



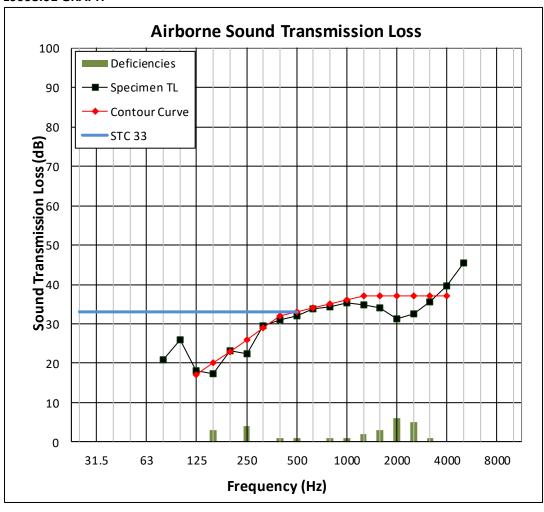
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L0008.01 GRAPH





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SECTION 11

PHOTOGRAPHS



Photo No. 1
Receive Room View of Installed Test Specimen



Photo No. 2 Source Room View of Installed Test Specimen



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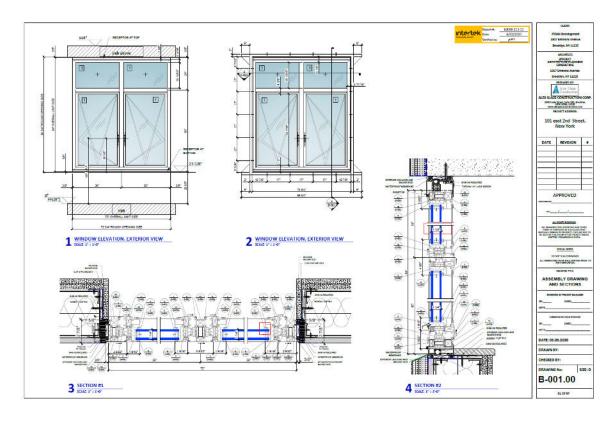
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SECTION 12

DRAWINGS

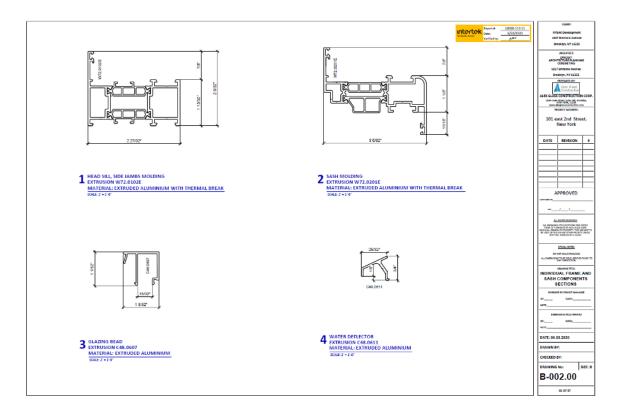




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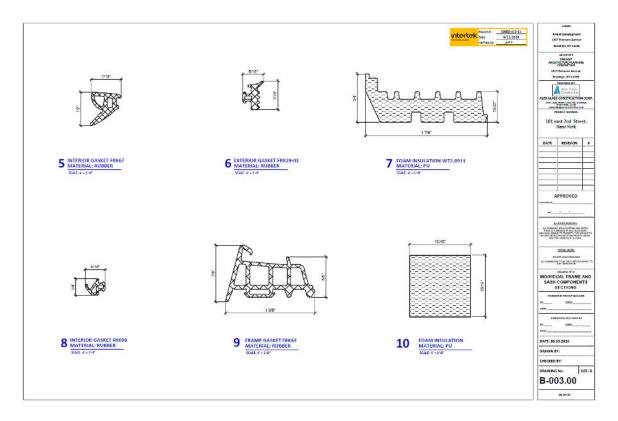




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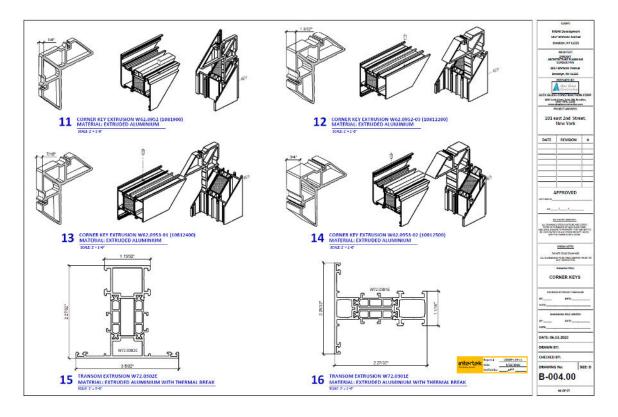




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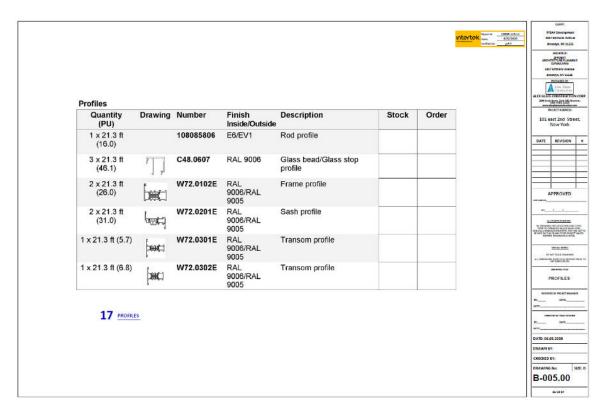




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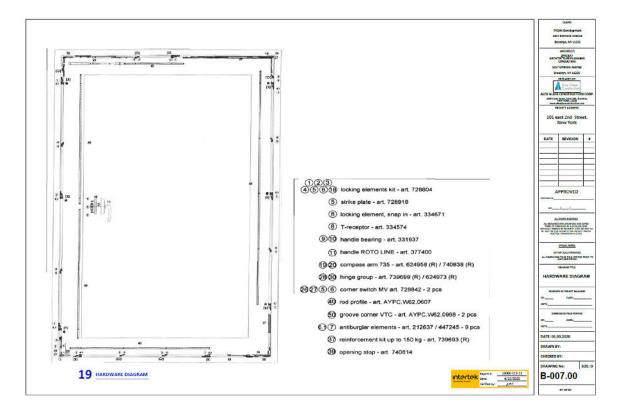




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SECTION 13

REVISION LOG

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