E6297.02-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E90

Rendered to:

THERMA-TRU CORPORATION

Series/Model: 3/0 x 6/8 Fiber-Classic/Smooth-Star,
Full Lite Flush Glazed

Type: Side-Hinged Single Door System

Summary of Test Results				
Data File No.	**Test Description**	**STC**	**OITC**	**EWNR**
E6297.01B1	5/8" IG (1/8" tempered, 3/8" air space, 1/8" tempered), sealed with duct tape on both sides, (inoperable)	29	27	31
E6297.01B	5/8" IG (1/8" tempered, 3/8" air space, 1/8" tempered), (operable)	29	26	31

Reference should be made to Intertek-ATI Report No. E6297.02-113-11 for complete test specimen description. This page alone is not a complete report. Flanking limit tests and reference specimen tests are available upon request.

Acoustical Performance Test Report

THERMA-TRU CORPORATION
118 Industrial Drive
Edgerton, Ohio 43517

Report No	E6297.02-113-11
Test Date	04/21/15
Report Date	05/22/15

Project Scope

Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted to conduct a sound transmission loss test. The complete test data is included as Appendix B of this report. The client provided the test specimen.

Test Methods

Testing for this project was conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*
ASTM E413-10, *Classification for Rating Sound Insulation*
ASTM E1332-10a, *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*

Test Procedure

All measurements were conducted in the HT test chambers at Intertek-ATI located in York, Pennsylvania. 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 twenty-five sound absorption measurements were conducted at each of five microphone positions.

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

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

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 a foam 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 frame, 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.

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 may not exceed 32. The maximum deficiency at any one frequency may 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.

Specimen Descriptions

		Frame
Size		82" by 37-5/8"
Thickness		4-1/2"
	Corners	Butted
	Fasteners	Screws
	Seal Method	Sealant
Material		Wood
	Reinforcement	N/A
	Thermal Break Material	N/A

N/A-Not Applicable

Specimen Descriptions (Continued)

Leaf Materials

Layers (outside to inside)	Layer Description (material and thickness)
1	0.080" Fiberglass skin
2	1.5" Foam core
3	0.080" Fiberglass skin

Comments

The daylight opening size was 21" by 63". The stiles were constructed with 1-1/2" by 1-1/4" wood. The rails were constructed with 1-1/2" by 1" composite material.

Measured Overall Insulation Glass Unit Thickness	0.715"
Spacer Type	Reinforced butyl

	Exterior Sheet	Gap	Interior Sheet
Measured Thickness	0.120"	0.475"	0.120"
Muntin Pattern	N/A	N/A	N/A
Material	Tempered	Air*	Tempered
Laminate Material	N/A	N/A	PVB

Glazing Method	Channel
Glazing Material	Silicone
Glazing Bead Material	N/A

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

Specimen Descriptions (Continued)

Type	Quantity	Location
Weatherstrip		
1-1/4" Foam-filled leaf gasket	1 Row	Head jambs
Dual bulb triple fin door sweep	1	Bottom rail
Hardware		
Hinge	3	Hinge stile
Lockset	1	Lock stile
Drainage		
No drainage		

Comments

The client did not supply a report drawing of the test specimen. Intertek-ATI will store samples of test specimens for four years.

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. The test record retention period ends four years after the test date.

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 is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

For INTERTEK-ATI:

Digitally Signed by: Daniel P. Platts

Daniel P. Platts
Senior Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor – Acoustical Testing

DPP:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (4)
- Appendix-C: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
R0	05/22/15	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	Data Acquisition card	65127	04/14 *
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64902	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64903	12/14
Source Room Microphone	PCB Electronics	378B20	Microphone and Preamplifier	65103	05/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64905	12/14
Source Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64906	12/14
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	11/14
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/14
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature Humidity Sensor	64286	06/14
Source Room Environmental Indicator	Vaisala	HMW60Y	Temperature and Humidity Sensor	Y002653	06/14
Microphone Calibrator	Larson Davis	CAL200	Calibrator	65327	09/14

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

Test Chamber:

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

	Maximum Size	Description
TL Test Opening	4.27 m (14 ft) wide by 3.05 m (10 ft) high	Vibration break between source and receive rooms

N/A-Non Applicable

Appendix B

Complete Test Results

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IAS ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	04/21/15					
Data File No.	E6297.01B1					
Client	Therma-Tru Corporation					
Description	Series/Model: 3/0 x 6/8 Fiber-Classic/Smooth-Star full lite flush glazed, side-hinged single door system with 5/8" IG (1/8" tempered, 3/8" air space, 1/8" tempered), sealed with duct tape on both sides (inoperable)					
Specimen Area	1.99 m²	Receive Temp.	22.6 °C		Source Temp.	22.1 °C
Technician	Daniel P. Platts	Receive Humidity	49%		Source Humidity	48%

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	41.6	4.2	105	78	25.0	2.02	-
100	36.3	4.7	106	78	25.7	2.00	-
125	39.4	4.6	106	77	25.7	1.11	0
160	41.9	4.6	107	79	24.4	1.27	0
200	40.4	4.5	106	78	24.0	0.73	0
250	35.8	4.9	106	79	23.4	0.33	0
315	28.4	5.5	102	79	19.1	0.54	6
400	24.3	5.8	101	72	24.5	0.36	4
500	20.4	5.8	101	68	28.5	0.50	0
630	17.9	5.5	102	66	30.9	0.36	0
800	16.4	5.8	101	65	32.2	0.26	0
1000	12.9	6.0	100	66	29.6	0.32	2
1250	10.8	6.7	98	61	32.2	0.24	1
1600	8.3	7.0	101	65	30.9	0.37	2
2000	6.7	7.5	100	69	25.5	0.29	8
2500	6.4	8.5	98	58	34.2	0.14	0
3150	6.5	10.2	98	53	38.5	0.27	0
4000	7.2	12.7	97	56	33.7	0.37	0
5000	7.7	16.3	95	48	38.4	0.30	-

STC Rating	**29**	*(Sound Transmission Class)*
Deficiencies	23	*(Sum of Deficiencies)*
OITC Rating	**27**	*(Outdoor-Indoor Transmission Class)*
EWNR Rating	**31**	*(Exterior Wall Noise Reduction)*

Notes:

1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
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

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

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Client	Therma-Tru Corporation						
Description	Series/Model: 3/0 x 6/8 Fiber-Classic/Smooth-Star full lite flush glazed, side-hinged single door system with 5/8" IG (1/8" tempered, 3/8" air space, 1/8" tempered), sealed with duct tape on both sides (inoperable)						
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IAS ACCREDITED TL-144

AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	04/21/15					
Data File No.	E6297.01B					
Client	Therma-Tru Corporation					
Description	Series/Model: 3/0 x 6/8 Fiber-Classic/Smooth-Star, full lite flush glazed, side-hinged single door system with 5/8" IG (1/8" tempered, 3/8" air space, 1/8" tempered) (operable)					
Specimen Area	1.99 m²	Receive Temp.	22.6 °C		Source Temp.	22.1 °C
Technician	Daniel P. Platts	Receive Humidity	49%		Source Humidity	48%

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	41.2	5.0	105	79	23.7	1.88	-
100	36.7	4.9	106	78	25.0	1.71	-
125	38.7	4.4	106	78	24.9	1.37	0
160	41.9	4.4	107	79	24.3	1.42	0
200	40.1	4.3	106	79	24.0	0.66	0
250	35.6	4.9	107	79	23.5	0.39	0
315	28.0	5.4	102	79	19.0	0.53	6
400	24.6	5.7	101	73	24.3	0.32	4
500	20.4	5.8	101	68	28.2	0.47	1
630	17.4	5.6	102	67	30.4	0.37	0
800	15.7	5.7	101	66	30.8	0.24	0
1000	11.9	6.1	100	68	27.5	0.32	4
1250	12.8	6.8	98	63	29.8	0.26	3
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4000	7.2	12.4	98	57	32.9	0.37	0
5000	7.8	15.8	95	51	35.7	0.32	-

STC Rating	**29**	*(Sound Transmission Class)*
Deficiencies	31	*(Sum of Deficiencies)*
OITC Rating	**26**	*(Outdoor-Indoor Transmission Class)*
EWNR Rating	**31**	*(Exterior Wall Noise Reduction)*

Notes:

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Specimen Area	1.99 m²	Receive Temp.	22.6 °C		Source Temp.	22.1 °C
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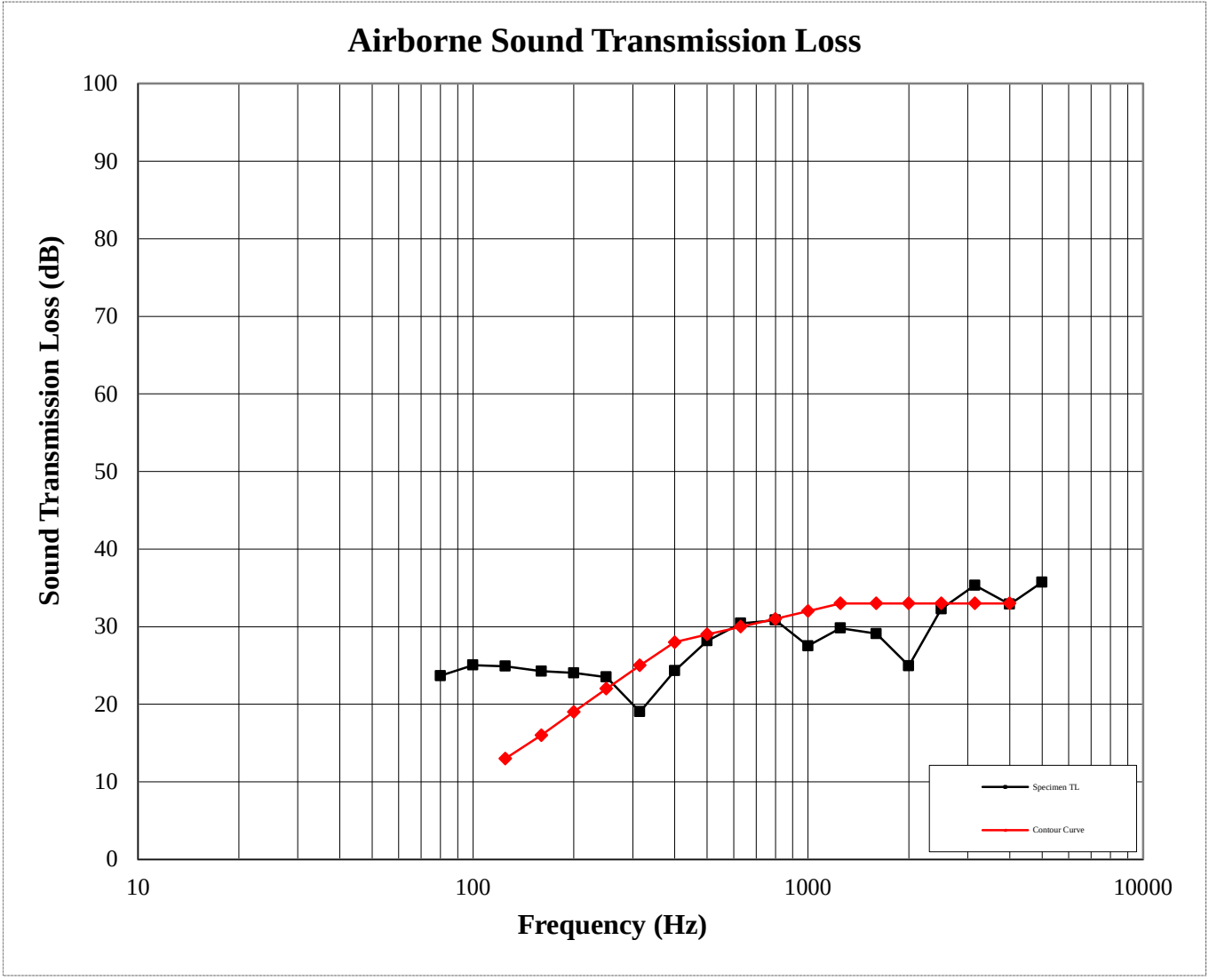

Appendix C

Photographs

Receive Room View of Installed Specimen

Source Room View of Installed Specimen