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THERMA-TRU CORPORATION
ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK
ASTM E90 SOUND TRANSMISSION LOSS TESTING ON A
FG FULL LITE WITH MINIBLINDS, 3068 HIGH PERFORMANCE LEAF WITH FIBERGLASS SKIN

REPORT NUMBER
L1152.01-113-11-R1

TEST DATE
06/25/20

ISSUE DATE
07/06/20

REVISION 1 DATE
04/12/22

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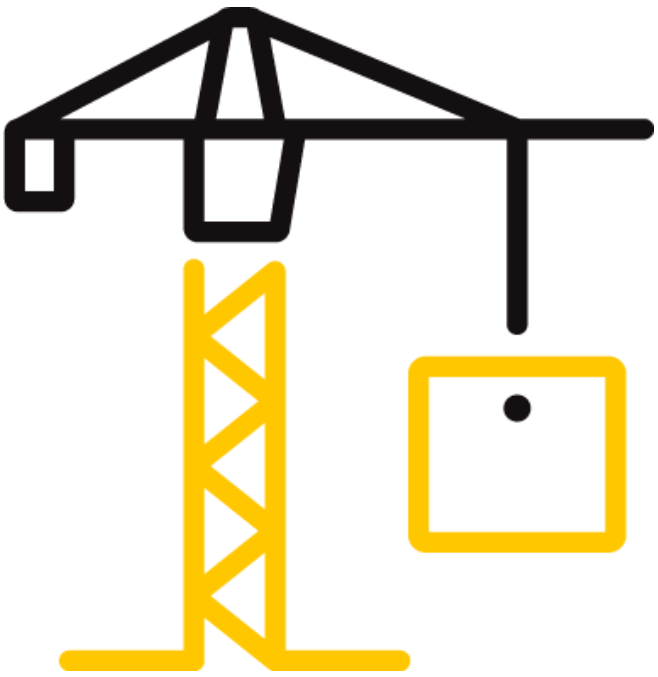

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TEST REPORT FOR THERMA-TRU CORPORATION

Report No.: L1152.01-113-11-R1
Revision 1 Date: 04/12/22 Date: 07/06/20

REPORT ISSUED TO

THERMA-TRU CORPORATION
6214 Monclova Road
Maumee, Ohio 43537

SECTION 1

SCOPE

Intertek Building & Construction (B&C) was contracted by Therma-Tru Corporation 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:

COMPLETED BY:	Zachary P. Golden	**REVIEWED BY:**	Kurt A. Golden
TITLE:	Technician Team Leader Acoustical Testing	**TITLE:**	Senior Project Lead Acoustical Testing
SIGNATURE:	Digitally Signed by: Zachary Golden	**SIGNATURE:**	Digitally Signed by: Kurt A. Golden
DATE:	04/12/22	**DATE:**	04/12/22

ZPG:jmcs

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SECTION 2
SUMMARY OF TEST RESULTS

SERIES/MODEL	FG full lite with miniblinds
TYPE	3068 High performance leaf with fiberglass skin
DESCRIPTION	1" IG (1/8" tempered, 3/4" air space, 1/8" tempered)
TEST CONDITION	Inoperable (sealed with duct seal on both sides)

OPTION L1152.01A

MINIBLINDS CONDITION	Miniblinds up
DATA FILE NO.	L1152.01A
STC	31
OITC	28

OPTION L1152.01A1

MINIBLINDS CONDITION	Miniblinds down and closed
DATA FILE NO.	L1152.01A1
STC	31
OITC	28

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 (2020), *Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods*

COMMENTS
Whether the tested door system utilizes wood or composite stile edges, the ratings would remain unchanged.

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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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SECTION 5
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 Environmental Indicator	Comet	T7510	Receive Room	64915	01/20
Source Room Environmental Indicator	Comet	T7510	Source Room	64914	02/20
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/20

**- 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	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor
SOURCE ROOM	207 m^3	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
Zachary P. 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 returned per the client's request.

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

COMMENTS
The SMC skins with foam fill leaf was 36" by 78-1/2" and 1-3/4" thick with a day light opening size 22" by 59" and weight 77 lbs. Per the client's request, the contents of the door leaf are proprietary.

MEASURED OVERALL INSULATION GLASS UNIT THICKNESS	1.024"
SPACER TYPE	Aluminum

	EXTERIOR SHEET	**GAP**	**INTERIOR SHEET**
MEASURED THICKNESS	0.119"	0.780"	0.125"
MUNTIN PATTERN	N/A	N/A	N/A
MATERIAL	Tempered	Air*	Tempered
LAMINATE MATERIAL	N/A	N/A	N/A

GLAZING METHOD	Channel
GLAZING MATERIAL	Foam tape
GLAZING BEAD MATERIAL	NA

	TYPE	**QUANTITY**	**LOCATION**
WEATHERSTRIP	No weatherstrip		
HARDWARE	Lockset assembly	1	Lock rail
	Dead bolt	1	Lock rail
	Miniblinds	1	Air space between glass
DRAINAGE	No drainage		

TOTAL WEIGHT (lbs)	**AVERAGE WEIGHT** (lbs/ft^2)
77	3.87

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

COMMENTS
Whether the tested door system utilizes wood or composite stile edges, the ratings would remain unchanged.

Photographs are included in Section 11.

The client did not supply a report drawing of the test specimen.

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SECTION 10

TEST RESULTS

L1152.01A DATA

SPECIMEN AREA	1.85 m²	**RECEIVE TEMP.**	22.7 °C	**SOURCE TEMP**	22.9 °C
TECHNICIAN	Zachary Gol	**RECEIVE HUMIDITY**	49%	**SOURCE HUMIDIT**	47%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	44.1	6.0	102	73	25	1.86	-
100	40.0	5.5	103	77	21	1.70	-
125	39.0	6.0	104	75	24	1.08	0
160	42.0	5.5	106	77	24	1.03	0
200	41.0	5.1	106	79	23	0.64	0
250	34.9	5.5	103	77	21	0.55	3
315	29.5	5.7	103	72	26	0.50	1
400	25.7	5.9	104	70	29	0.31	1
500	22.3	6.2	102	64	33	0.44	0
630	23.1	5.9	101	61	35	0.39	0
800	20.4	6.2	100	59	36	0.17	0
1000	16.7	6.6	102	62	34	0.18	0
1250	14.9	7.0	100	61	34	0.38	1
1600	12.2	7.4	99	66	27	0.26	8
2000	10.7	7.8	100	65	29	0.25	6
2500	9.0	8.9	101	55	39	0.16	0
3150	8.7	10.4	99	48	44	0.16	0
4000	8.7	12.8	97	52	36	0.18	0
5000	9.2	16.2	97	46	42	0.33	-
STC RATING		31	*(Sound Transmission Class)*				
DEFICIENCIES		20	*(Sum of Deficiencies)*				
OITC RATING		28	*(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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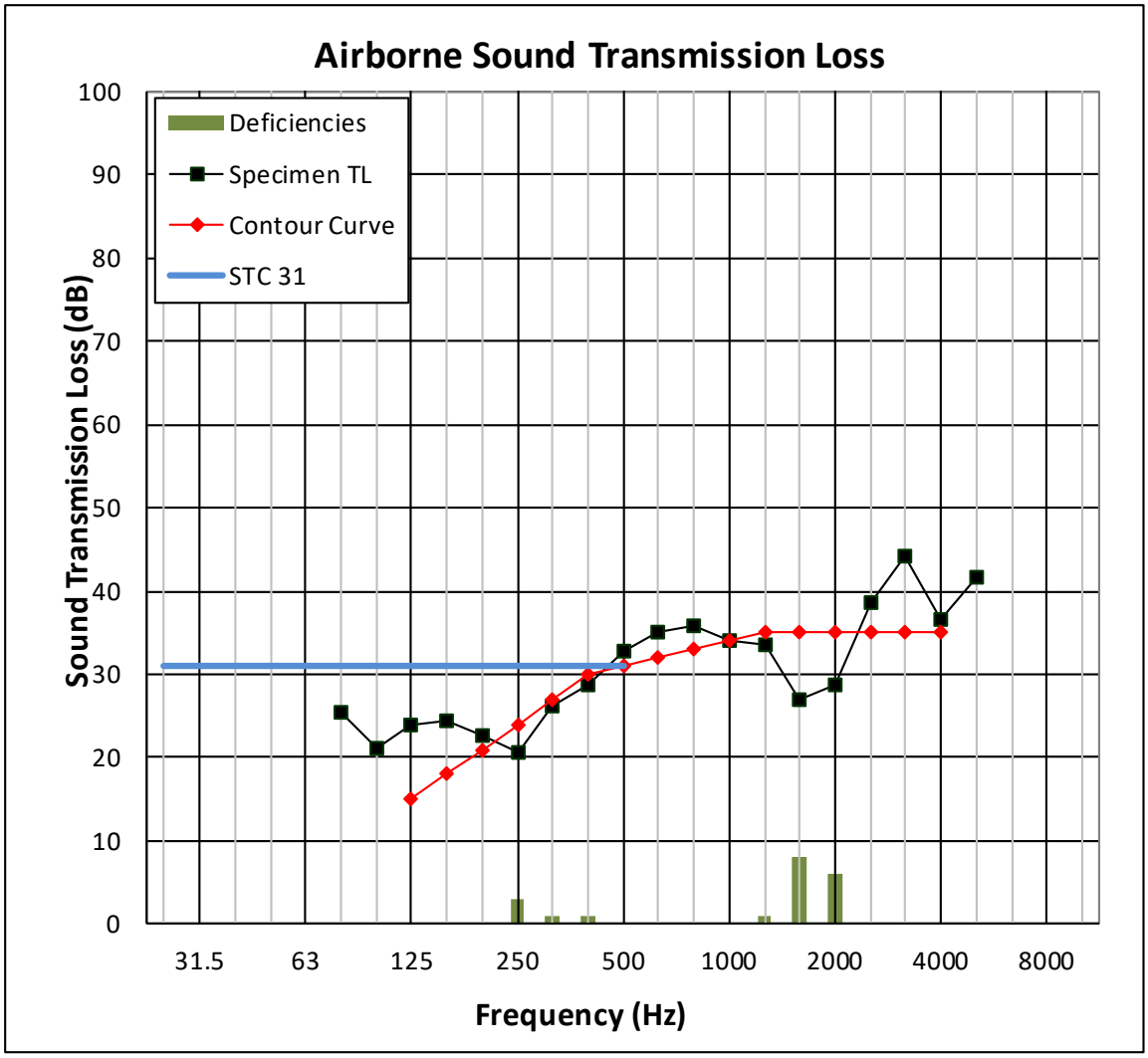
L1152.01A GRAPH



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L1152.01A1 DATA

SPECIMEN AREA	1.85 m²	**RECEIVE TEMP.**	23.3 °C	**SOURCE TEMP**	22.9 °C
TECHNICIAN	Zachary Gol	**RECEIVE HUMIDITY**	48%	**SOURCE HUMIDIT**	49%

FREQ (Hz)	BACKGROUND SPL (dB)	ABSORPTION (m²)	SOURCE SPL (dB)	RECEIVE SPL (dB)	SPECIMEN TL (dB)	95% CONFIDENCE LIMIT	NUMBER OF DEFICIENCIES
80	43.0	5.9	102	73	25	1.97	-
100	38.6	5.9	103	77	21	1.74	-
125	38.6	6.3	104	75	24	1.15	0
160	40.5	5.4	107	77	25	1.13	0
200	39.1	4.9	106	79	23	0.78	0
250	33.5	5.6	102	78	20	0.53	4
315	27.6	5.8	103	73	25	0.51	2
400	23.1	6.0	104	70	28	0.34	2
500	18.6	6.3	102	64	33	0.47	0
630	19.4	6.0	101	61	36	0.38	0
800	15.8	6.2	100	58	36	0.19	0
1000	11.6	6.5	102	62	34	0.18	0
1250	9.6	7.0	100	60	34	0.38	1
1600	8.4	7.4	99	66	27	0.32	8
2000	7.3	7.9	100	65	29	0.27	6
2500	7.0	8.9	101	55	39	0.17	0
3150	7.3	10.4	99	47	45	0.16	0
4000	7.9	12.9	97	50	39	0.18	0
5000	8.7	16.3	97	45	42	0.30	-
STC RATING		31	*(Sound Transmission Class)*				
DEFICIENCIES		23	*(Sum of Deficiencies)*				
OITC RATING		28	*(Outdoor-Indoor Transmission Class)*				

Notes: *1) Receive Room levels less than 5 dB above the Background levels are red.*
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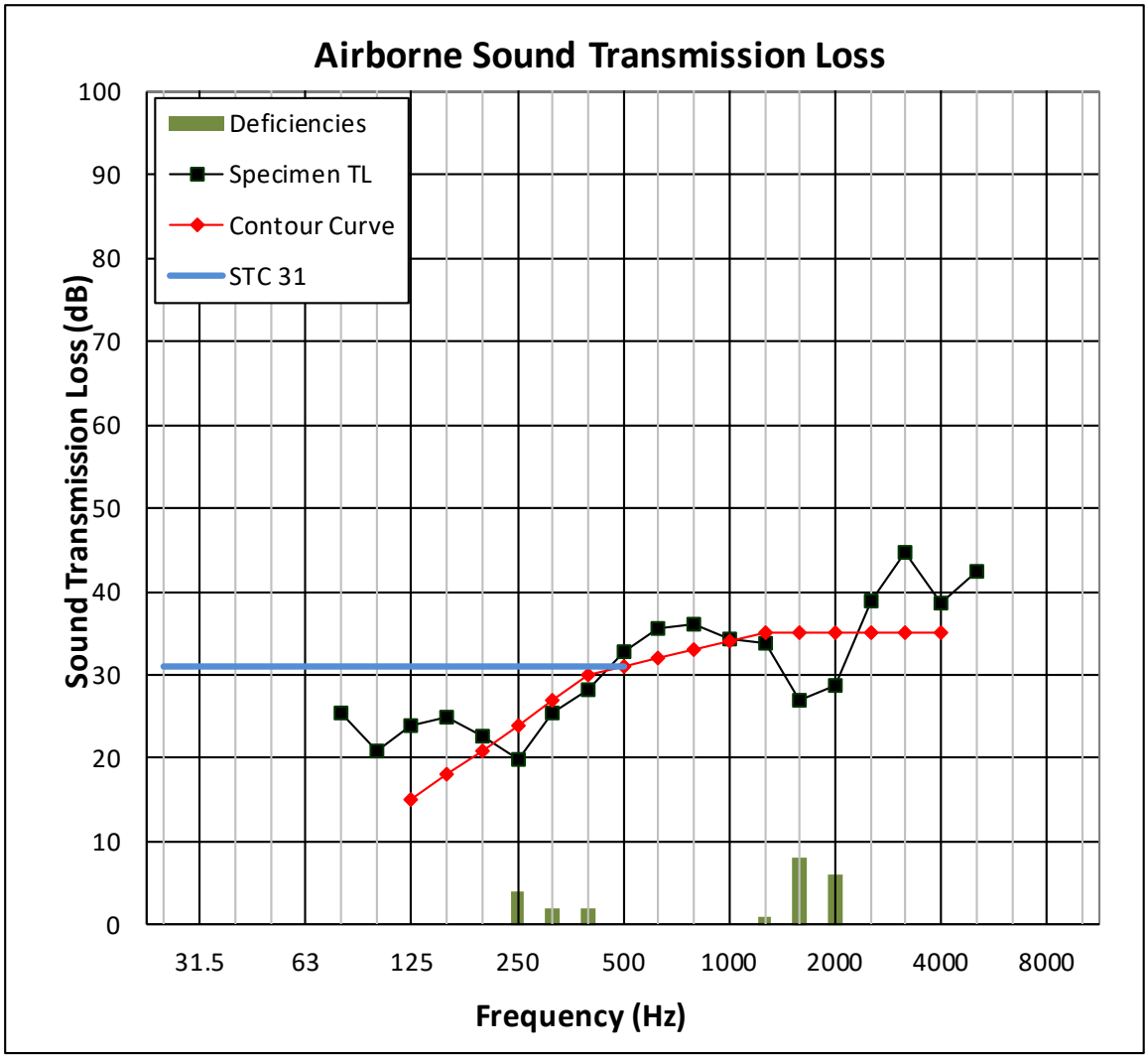
L1152.01A1 GRAPH



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SECTION 11
PHOTOGRAPHS

Photo No. 1
Receive Room View of Installed Test Specimen L1152.01A

Photo No. 2
Source Room View of Installed Test Specimen L1152.01A

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Photo No. 3
Receive Room View of Installed Test Specimen L1152.01A1

Photo No. 4
Source Room View of Installed Test Specimen L1152.01A1

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SECTION 12
REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	07/06/20	N/A	Original Report Issue
1	04/12/22	3, 7	Added Comments
1	04/12/22	All	Reformatted and changed total number of pages from 13 to 14