Architectural Testing

ASTM E 90 SOUND TRANSMISSION LOSS TEST REPORT

Rendered to:

ACOUSTIBLOK, INC.

WALL ASSEMBLY: #2

TYPE: Standard 8" Hollow Block Wall With Single Stud Wall Construction On Both Sides

SOUND ISOLATION MATERIAL: Acoustiblok®

Summary of Test Results			
ATI Data File No.	**Description**	**STC**	**OITC**
69220.01	Standard ASTME 90 test on a Standard 8" hollow block wall with; 1/2" air space, single metal stud wall construction, Acoutiblok® Sound Isolation Material, with single layer 5/8" gypsum board and one layer of 4" mineral wool insulation (on both sides)	85	68
69220.01A	Low frequency test performed on a Standard 8" hollow block wall with; 1/2" air space, single metal stud wall construction, Acoutiblok® Sound Isolation Material, with single layer 5/8" gypsum board and one layer of 4" mineral wool insulation (on both sides)	84	66

Reference should be made to ATI Report No. 69220.01-113-11 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:

ACOUSTIBLOK, INC.
6900 Interbay Boulevard
Tampa, Florida 33616

Report No:	69220.01-113-11
Test Dates:	01/03/07
And:	01/19/07
Report Date:	01/29/07
Expiration Date:	01/19/11

Test Sample Identification:

Type: Standard 8" hollow block wall with single stud wall construction on both sides

Sound Isolation Material: Acoustiblok®

Wallboard: Single layer of 5/8" gypsum board

Insulation: 4" Thermafiber® Sound Attenuation Fire Blankets

Overall Size: 14' by 10'

Project Scope: Architectural Testing, Inc. (ATI) was contracted by Acoustiblok, Inc. to conduct a sound transmission loss test on a standard 8" hollow block wall with single stud wall construction on both sides. 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.

Test Procedure: The sound transmission loss test was conducted in accordance with the ASTM E 90 test method. 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:

The standard 8" hollow block wall with single stud wall construction on both sides was fabricated in the 168" wide by 120" high test opening of a steel test frame. A 1/2" plywood perimeter was fastened to the steel test frame with 3" long TEK screws and isolation washers. The plywood perimeter was sealed with acoustic caulk and had a 1/2" wide vibration brake filled with silicone caulk in the center of the test frame. The 8" block wall was constructed 1/2" from being flush with the receive room with the perimeter sealed with acoustic caulk on both sides. The wall was allowed to cure at least 28 days prior to testing. The materials used in the construction are described in the Construction Materials section listed below.

The stud walls were constructed on the source and receiving room side of the block wall. On the receive room side, top and bottom plates were placed on 3/8" neoprene foam against the test chamber opening. They were fastened to the edge of the plywood perimeter of the test frame with 1-1/4" drywall screws creating a 1/2" gap between the plates and block wall. The source room top and bottom plates were fastened to the plywood perimeter with a 1/2" gap between the block wall, using 1/2" wood screws with isolation washers. The steel studs on both walls were attached 24" on center to the top and bottom plates with 1/4" self-tapping screws.

The 4" Thermafiber® Sound Attenuation Fire Blankets were placed into the stud cavities of both walls.

The Acoustiblok® Sound Isolation Material was attached to all of the studs horizontally every 18" on center using self tapping wafer head screws. No screws were used at either the top and bottom tracks on either wall. The Acoustiblok® Sound Isolation Material was overlapped 1" with a 3/8" bead of Acoustiblok® Acoustical Sound Sealant, and applied to the full length of all overlapped areas. Acoustigrip® AGT60 tape was applied to all seams.

The 5/8" wallboard material was attached to the studs of both walls, covering the Acoustiblok® Sound Isolation Material, and fastened with 1-1/4" drywall screws spaced 24" on center. No screws were used at either the top and bottom tracks on both walls. The joints between the wallboard panels were sealed with acoustic caulk and duct tape. All screw heads were sealed with duct tape. A 3/8" gap existed between the wallboard material and the test frame around the entire perimeter of the wall specimen on both sides. This gap was sealed with duct seal.

Sample Descriptions: (Continued)

Construction Materials:

Stud Material	Nominal Dimensions	Stud Spacing	Quantity Used	Average Weight (lbs / lineal ft.)
25 gage (0.020"), steel	3-1/2" by 120"	24" on center	16	0.33

Top and Bottom Plate Material	Nominal Dimensions	Quantity Used	Average Weight (lbs / lineal ft.)
25 gage (0.020"), steel runner track	3-1/2" by 168"	4	0.33

Sound Isolation Material	Nominal Dimensions	Quantity Used	Average Weight (lbs / sq. ft.)
Acoustiblok® Sound Isolation Material 16oz (0.093")	168" by 120"	2	0.98
Receive Room Wallboard	**Nominal Dimensions**	**Quantity Used**	**Average Weight (lbs / sq. ft.)**
FIRECODE®-CORE, Type X, Gypsum board	5/8" by 48" by 120"	3-1/2	2.34
Source Room Wallboard	**Nominal Dimensions**	**Quantity Used**	**Average Weight (lbs / sq. ft.)**
FIRECODE®-CORE, Type X, Gypsum board	5/8" by 48" by 120"	3-1/2	2.34

Cavity Insulation Type	Nominal Dimensions	Number of Layers	Average Weight (lbs / sq. ft.)
Thermafiber® Sound Attenuation Fire Blankets	4" by 24" by 48"	2	1.32
Wall Material	**Nominal Dimensions**	**Quantity Used**	**Average Weight (lbs / sq. ft.)**
Standard 8" Block Wall	7-5/8" by 7-5/8" by 15-1/2"	157.5	36.0

Total Wall Construction Weight (lbs)	6410.48
Total Wall Construction Weight (lbs / sq. ft.)	45.79

Comments: After the first transmission loss test was performed, the wall system was dismantled except for the 8" block wall. For the Low Frequency transmission loss test, same wall construction used for the first test was build at a later date using the same 8" block wall. The Low Frequency test consisted of a standard ASTM E 90 test with the addition of a subwoofer speaker to achieve data down to 25hertz. The acoustical chambers are qualified for measurements down to 80 hertz. Data reported below 80 hertz is for reference only. The gypsum board panels were conditioned at a relative humidity of 65% to 70% for at least 24 hours in a conditioning chamber and/or the reverberation chambers. Drawings of the test sample are located in Appendix C. Photographs of the test sample are located in Appendix D.

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 wall construction is listed below.

ATI Data File No.	Sample Description	STC	OITC
69220.01	Standard ASTME 90 test on a Standard 8" hollow block wall with; 1/2" air space, single metal stud wall construction, Acoutiblok® Sound Isolation Material, with single layer 5/8" gypsum board and one layer of 4" mineral wool insulation (on both sides)	85	68
69220.01A	Low frequency test performed on a Standard 8" hollow block wall with; 1/2" air space, single metal stud wall construction, Acoutiblok® Sound Isolation Material, with single layer 5/8" gypsum board and one layer of 4" mineral wool insulation (on both sides)	84	66

The complete test results are listed in Appendix B. Data on 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
Senior Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

KAG:crc

Attachments (pages): This report is complete only when all attachments listed are included.
- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Drawings (1)
- Appendix-D: Photographs (2)

NVLAP LAB CODE 200361

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Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	01/29/07	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	Y002820
Receive Room Preamp	G.R.A.S	26AK	1/2" preamplifier	Y003250
Source Room Preamp	ACO Pacific	4012	1/2" preamplifier	Y002185
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 (234 m^3)	Rotating vane and stationary diffusers. Temperature and humidity controlled. Isolation pads under the floor.
Source Room	7296.3 ft^3 (206.6 m^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 Sound Transmission Loss Test Results

Architectural Testing

SOUND TRANSMISSION LOSS

ASTM E90

ATI No.	69220.01	**Date**	01/03/07
Client	Acoustiblok, Inc.		
Specimen	Wall Assembly #2, Standard 8" hollow block wall with single stud wall construction on both sides		
Specimen Area	140.00 Sq Ft		
Filler Area	0.00 Sq Ft		
Operator	Kurt A. Golden		

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	74.0	74.2	73.3	74.0	0.0	73.9
RH %	64.0	63.8	62.4	64.1	0.0	63.6

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	33.9	54.0	92.4	45.5	0.0	51	1.90	0	0.0
100	34.7	54.9	100.2	48.0	0.0	56	3.04	0	0.0
125	41.2	54.1	104.9	47.6	0.0	61	3.14	8	0.0
160	38.8	56.6	106.4	44.2	0.0	66	0.98	6	0.0
200	38.8	55.4	111.8	42.6	0.0	73	0.69	2	0.0
250	34.8	54.9	111.6	38.7	0.0	77	0.80	1	0.0
315	31.7	60.5	110.5	33.6	0.0	81	0.49	0	0.0
400	29.4	60.0	111.3	31.8	0.0	83	0.84	1	0.0
500	28.7	61.1	114.1	31.0	0.0	87	0.65	0	0.0
630	23.1	60.8	113.5	25.5	0.0	92	0.44	0	0.0
800	23.9	62.4	112.7	25.5	0.0	91	0.57	0	0.0
1000	21.4	64.7	112.6	23.5	0.0	92	0.49	0	0.0
1250	22.0	69.7	114.1	23.9	0.0	93	0.56	0	0.0
1600	16.7	73.6	119.1	19.8	0.0	102	0.64	0	0.0
2000	13.4	79.3	111.7	14.5	0.0	100	0.39	0	0.0
2500	5.0	92.6	108.9	6.4	0.0	104	0.32	0	0.0
3150	6.1	107.1	109.4	8.6	0.0	102	0.20	0	0.0
4000	6.0	130.1	107.1	8.6	0.0	99	0.44	0	0.0
5000	6.6	170.4	103.6	8.5	0.0	94	0.27	0	0.0

STC Rating =	**85**	*(Sound Transmission Class)*
Deficiencies =	**18**	*(Number of deficiencies versus contour curve)*
OITC Rating =	**68**	*(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.*

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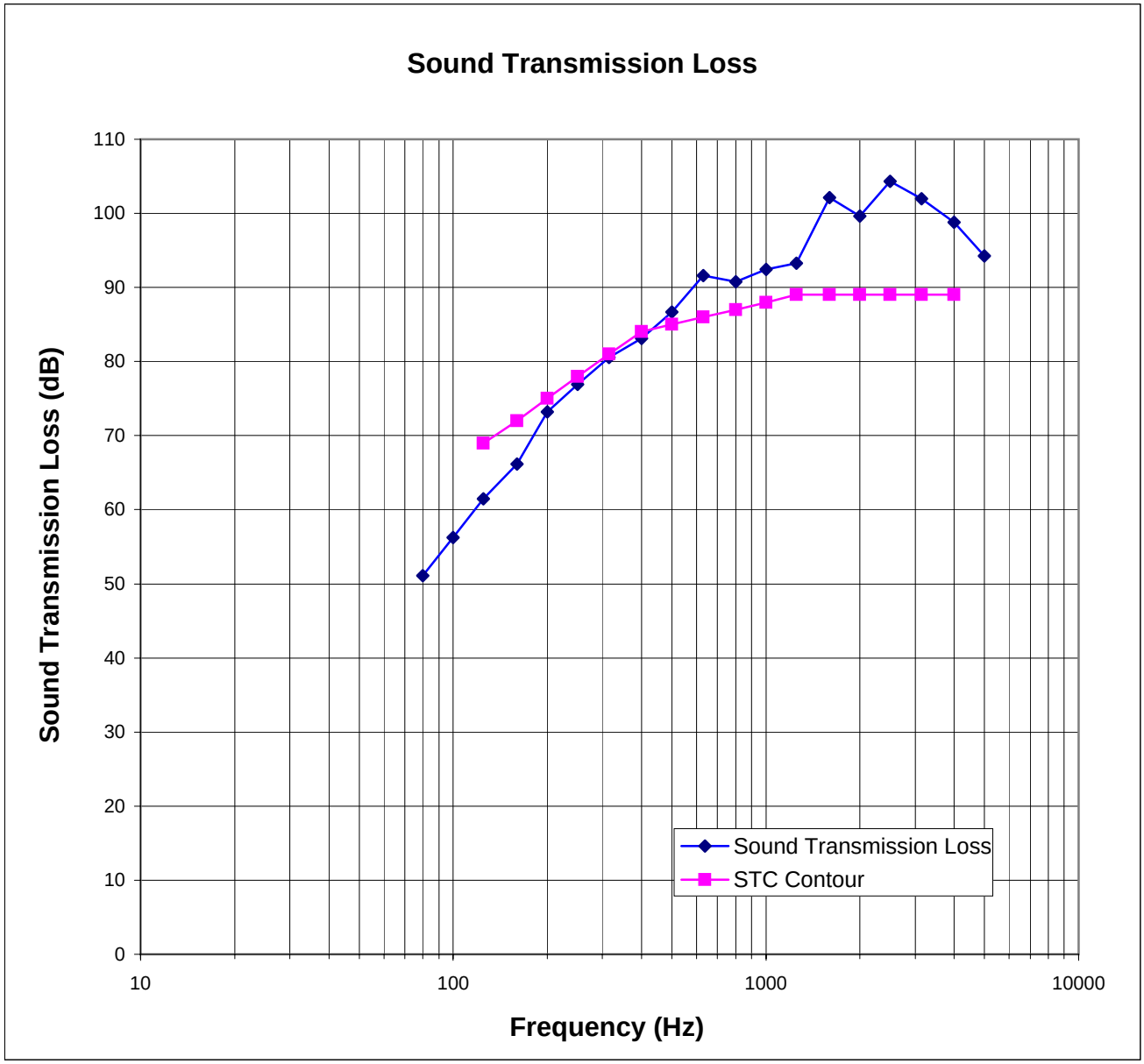
Architectural Testing

ATI No.	69220.01	**Date**	01/03/07
Client	Acoustiblok, Inc.		
Specimen	Wall Assembly #2, Standard 8" hollow block wall with single stud wall construction on both sides		
Specimen Area	140.00 Sq Ft		
Filler Area	0.00 Sq Ft		
Operator	Kurt A. Golden		



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SOUND TRANSMISSION LOSS

ASTM E90

Architectural Testing

ATI No.	69220.01A	**Date**	01/19/07
Client	Acoustiblok, Inc.		
Specimen	Wall Assembly # 2 - low frequency test, Standard 8" hollow block wall with single stud wall construction on both sides		
Specimen Area	140.00 Sq Ft		
Filler Area	0.00 Sq Ft		
Operator			

	Bkgrd	Absorp	Source	Receive	Filler	Specimen
Temp F	71.2	71.4	70.6	71.0	0.0	71.1
RH %	65.6	63.6	63.2	65.9	0.0	64.6

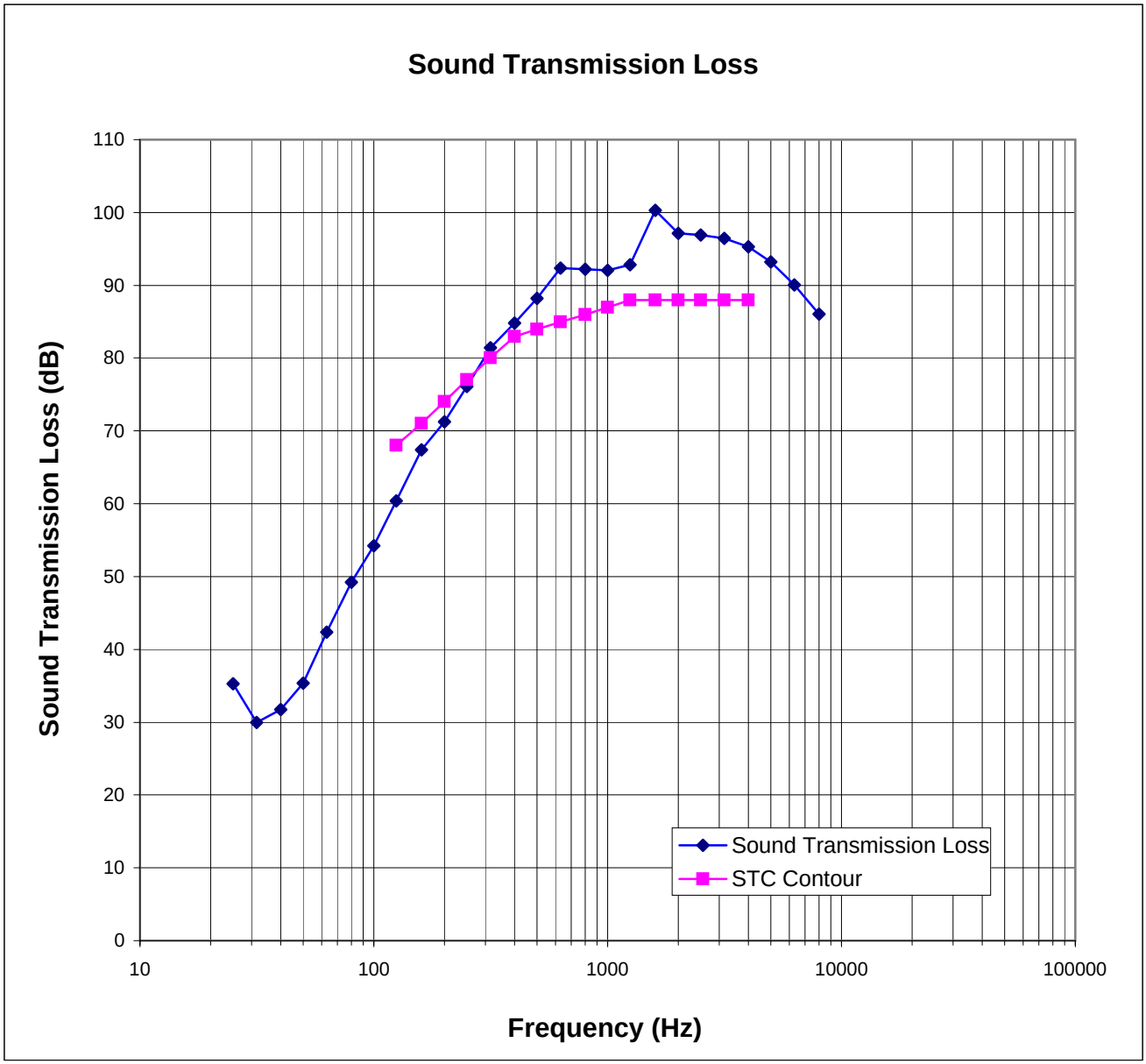
Freq (Hz)	Bkgrd SPL (dB)	Absorp (Sabines /Sq Ft)	Source SPL (dB)	Receive SPL (dB)	Filler TL (dB)	Specimen TL (dB)	95% Conf Limit	No. of Defici-encies	Trans Coef Diff
25	40.9	72.6	106.3	73.9	0.0	35	5.45	0	0.0
31.5	49.0	84.8	108.9	81.1	0.0	30	2.85	0	0.0
40	49.1	106.8	118.1	87.5	0.0	32	2.58	0	0.0
50	37.1	126.4	111.2	76.2	0.0	35	5.32	0	0.0
63	38.5	96.5	108.3	67.6	0.0	42	2.70	0	0.0
80	41.0	73.5	101.7	55.3	0.0	49	2.77	0	0.0
100	43.1	54.6	100.6	50.5	0.0	54	4.22	0	0.0
125	45.5	56.3	105.4	48.9	0.0	60	3.31	8	0.0
160	38.5	53.8	107.2	44.0	0.0	67	1.11	4	0.0
200	38.3	52.3	110.2	43.2	0.0	71	2.60	3	0.0
250	33.8	63.4	112.3	39.6	0.0	76	1.90	1	0.0
315	30.5	67.4	114.5	36.3	0.0	81	1.67	0	0.0
400	28.9	68.1	114.8	33.1	0.0	85	1.37	0	0.0
500	27.6	69.1	116.2	31.1	0.0	88	1.42	0	0.0
630	23.0	68.6	116.2	27.0	0.0	92	1.40	0	0.0
800	23.8	71.5	115.8	26.5	0.0	92	1.08	0	0.0
1000	21.8	75.2	113.9	24.5	0.0	92	0.85	0	0.0
1250	21.6	79.7	114.4	24.1	0.0	93	0.80	0	0.0
1600	16.2	83.6	118.1	20.0	0.0	100	0.67	0	0.0
2000	12.3	92.2	111.8	16.4	0.0	97	0.99	0	0.0
2500	5.8	105.2	109.8	14.1	0.0	97	1.38	0	0.0
3150	6.3	125.3	110.6	14.6	0.0	96	0.97	0	0.0
4000	6.5	148.8	109.5	13.9	0.0	95	0.41	0	0.0
5000	7.2	189.6	108.4	13.9	0.0	93	0.46	0	0.0
6300	7.7	238.0	106.7	14.3	0.0	90	0.67	0	0.0
8000	8.2	299.6	103.8	14.5	0.0	86	1.00	0	0.0

STC Rating	84	*(Sound Transmission Class)*
Deficiencies	16	*(Number of deficiencies versus contour curve)*
OITC Rating	66	*(Outdoor/Indoor Transmission Class)*

NVLAP LAB CODE 200361

Architectural Testing

ATI No.	69220.01A	**Date**	01/19/07
Client	Acoustiblok, Inc.		
Specimen	Wall Assembly # 2 - low frequency test, Standard 8" hollow block wall with single stud wall construction on both sides		
Specimen Area	140.00 Sq Ft		
Filler Area	0.00 Sq Ft		
Operator			



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Appendix C

Design Drawings

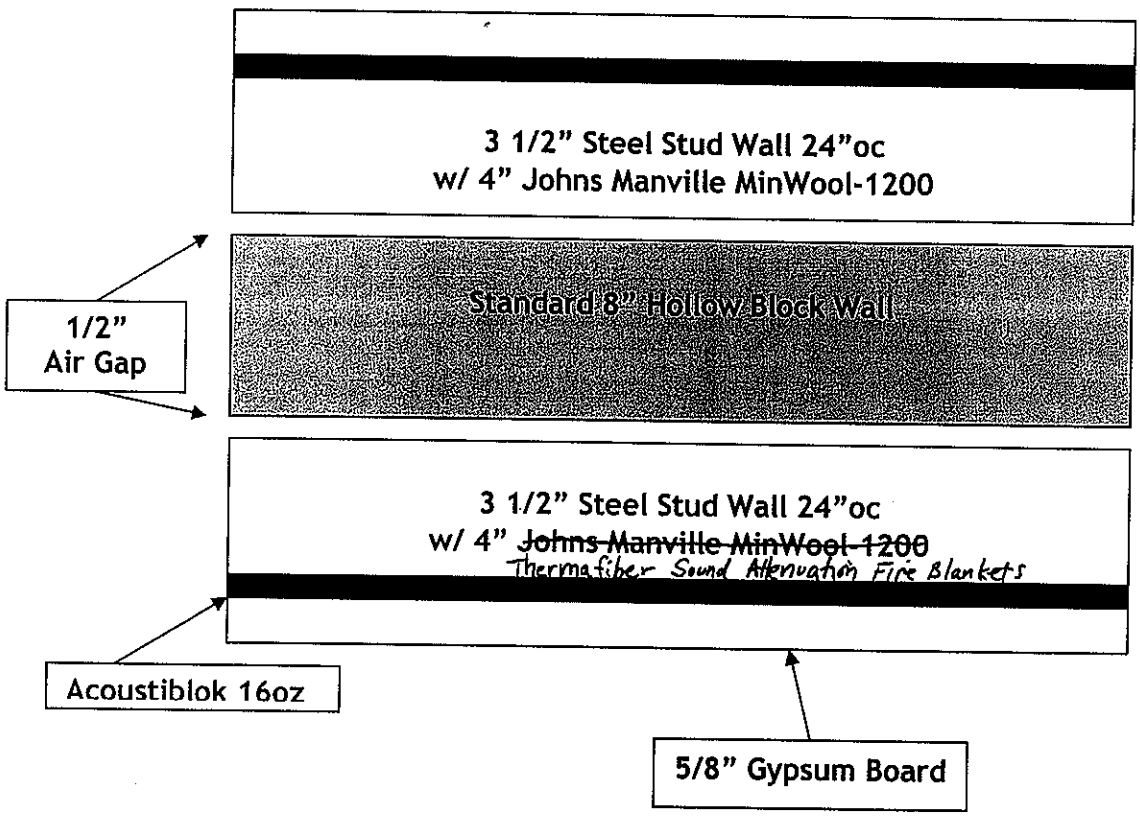
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report# 69220.01-113-11

Date 1/17/07 Tech KG.

Assembly # 2



Appendix D

Photographs

View of Specimen Installed in Receive Room

View of Specimen Installed in Source Room

Appendix D

Photographs (continued)

View of Acoustiblok® Added to Metal Studs

View of Metal Studs with Insulation and 1/2" Air Space