RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: Acoustiblok
Tampa, FL

Sound Transmission Loss Test
RAL™-TL05-150

ON: Insulated Steel Stud Wall with 16 oz. Acoustiblok and 5/8 Inch Gypsum Board Each Side

CONDUCTED: 15 July 2005

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-04 and E413-04, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP Lab Code: 100227-0). A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated as insulated steel stud wall with 16 oz. Acoustiblok and 5/8 inch gypsum board each side. The overall dimensions of the specimen as measured were 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 130 mm (5.125 in.) thick. The specimen was installed by the manufacturer directly into the laboratory's 2.74 m (9 ft) by 4.27 m (14 ft) wood-lined steel frame and was sealed on the periphery (both sides) with a dense mastic.

The description of the specimen was as follows: The wall consisted of 92 mm (3.625 in.) 20 gauge steel studs with 89 mm (3.5 in.) fiberglass insulation, 16 oz. Acoustiblok and a single layer of 15.9 mm (0.625 in.) thick Type X gypsum board on each side. A verified manufacturer's detailed drawing is maintained on file. A more detailed description of the wall assembly appears in the sections below.

Floor and Ceiling Runners: The two 92 mm (3.625 in.) wide 20 gauge 4.26 m (168 in.) long steel runners were attached to floor and ceiling with 41 mm (1.625 in) type S bugle head drywall screws 610 mm (24 in.) on centers.

Studs: The six 92 mm (3.625 in.) wide 20 gauge 2.73 m (107.5 in.) long steel studs were spaced on 610 mm (24 in.) centers. The runners and the end studs were attached to the frame with 41 mm (1-5/8 in.) long bugle head drywall screws spaced on 610 mm (24 in.) centers. The studs were attached to the top and bottom runners on both sides with 13 mm (0.5 in.) long S-12 pan head screws.

Insulation: The seven cavities formed by the runners and studs were lined with unfaced R-13 fiberglass insulation measuring 76 mm (3.5 in.) thick and 610 mm (24 in.) wide.

Acoustiblok Barrier, Sealant and Tape: On both sides of the wall a single layer of 2.5 mm (0.10 in.) thick 16 oz. Acoustiblok mass loaded barrier was applied horizontally across the studs and attached using 13 mm (0.5 in.) long S-12 screws and tin cap disks at 610 mm (24 in.) on center. The horizontal joint was caulked using Acoustiblok Acoustical Sound Sealant and covered with Acoustiblok adhesive tape.

Gypsum Wallboard: A single layer of 15.9 mm (5/8 in.) Type 'X' gypsum board was applied to studs vertically on both sides of the wall. They were attached to the studs through the barrier with 32 mm (1.25 in.) long Type S bugle head drywall screws at 610 mm (24 in.) on centers. Acoustical sealant was applied to the test frame perimeter prior to installation of the gypsum board. All joints and screw heads were sealed using tape and all purpose joint compound.

The weight of the specimen as measured was 428.6 kg (945 lbs.), an average of 36.6 kg/m^2 (7.5 lbs/ft^2). The transmission area used in the calculations was 11.7 m^2 (126 ft^2). The source and receiving room temperatures at the time of the test were 25±3°C (78±3°F) and 50±2% relative humidity. The source and receive reverberation room volumes were 178 m^3 (6,298 ft^3) and 177 m^3 (6,255 ft^3), respectively.

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Acoustiblok — RAL™-TL05-150

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TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data is within the limits set by the ASTM Standard E90-04.

FREQ.	T.L.	C.L.	DEF.	FREQ.	T.L.	C.L.	DEF.
100	19	1.04		800	59	0.12	
125	33	0.54	8	1000	62	0.13	
160	38	0.35	6	1250	63	0.16	
200	43	0.40	4	1600	64	0.14	
250	48	0.38	2	2000	64	0.09	
315	52	0.48	1	2500	63	0.10	
400	53	0.30	3	3150	64	0.09	
500	55	0.28	2	4000	65	0.07	
630	57	0.23	1	5000	66	0.06	

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 27)
STC = SOUND TRANSMISSION CLASS

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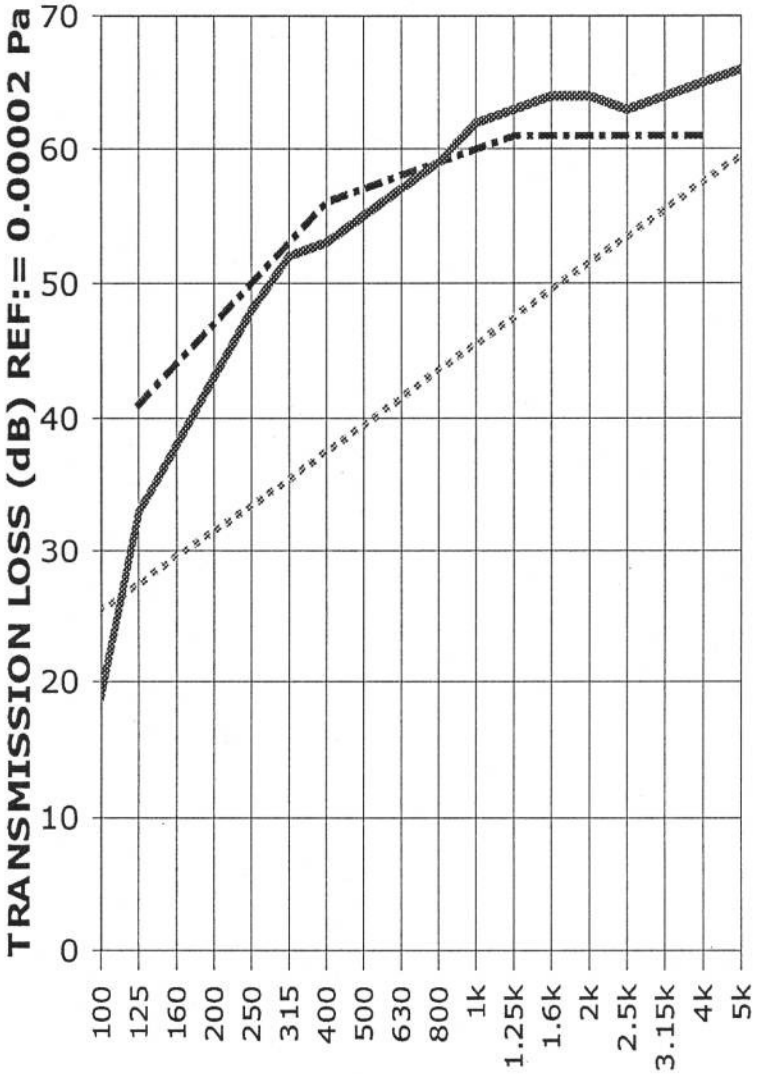
TEST REPORT

SOUND TRANSMISSION REPORT
RAL - TL05-150



STC = 57

TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR
MASS LAW

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SUBJECT: Additional Frequency Data for Transmission Loss Testing

As requested by the client, transmission loss (TL) values were calculated at additional test frequencies. Although the measurements were made in accordance with the procedures described in ASTM E90-04, they do not qualify as part of the standard. Since the results are representative of the test environment only, they are unofficial and intended for research and development guidelines rather than for commercial purposes. The transmission loss values at the additional frequencies were as follows:

RAL-TL05-150

1/3 Octave Center Frequency (Hz)	Sound Transmission Loss (dB)
40	24
50	20
63	14
80	16
6300	67
8000	68
10000	69

Submitted by David L. Moyer
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