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: United Plastics Corporation
Mount Airy, NC

Sound Transmission Loss Test
RAL™-TL08-184

ON: Steel Stud R-13 Insulated Wall at 16 Inch on Center with dB-3™ Pro One Side and 5/8 Inch Thick Gypsum Both Sides

CONDUCTED: 2 July 2008

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 by the client as a steel stud R-13 insulated wall at 16 inch on center with dB-3™ Pro one side and 5/8 inch thick gypsum both sides. The overall dimensions of the specimen as measured were nominally 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 127 mm (5 in.) thick. The specimen was installed by the client 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 dense mastic.

The description of the specimen was as follows: The wall consisted of 92 mm (3.625 in.) 25 gauge steel studs with fiberglass insulation in the cavities. One side of the wall was covered with a layer of dB-3™ Pro and 5/8" Type X gypsum board and the other side with a layer of 5/8" Type X gypsum board. 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 25 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 twelve 92 mm (3.625 in.) wide 25 gauge 2.73 m (107.5 in.) long steel studs were spaced on 406 mm (16 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 twelve cavities formed by the runners and studs were lined with unfaced R-13 fiberglass insulation measuring 89 mm (3.5 in.) thick and 406 mm (16 in.) wide. The total weight of the insulation was 12.2 kg (27 lbs.).

Mass Loaded Barrier, Sealant and Tape: On the source side of the wall, a layer of 3.2 mm (0.125 in.) thick dB-3™ Pro, a 1 pound per square foot loaded barrier, was applied horizontally across the studs and attached using 12.7 mm (0.5 in.) long #8 self tapping screws at 305 mm (12 in.) on center. The barrier was installed with a 50 mm (2 in.) horizontal overlap and caulked with a nominal 6.4 mm (0.25 in.) diameter bead of acoustical sealant at the center of the horizontal joint and covered with foil tape. Total weight of the barrier as measured was 53.5 kg (118 lbs.).

Gypsum Wallboard: A single layer of 16 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 with 32 mm (1.25 in.) long Type S bugle head drywall screws at 406 mm (16 in.) on centers. The source side gypsum attached to the studs through the barrier. Acoustical sealant was applied to the test frame perimeter prior to installation of the gypsum board. Joints were sealed with acoustical caulk and metal tape. Screw heads remained exposed.

The weight of the specimen as measured was 351 kg (774 lbs.), an average of 30 kg/m^2 (6.1 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 24±1°C (76±1°F) and 53% 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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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	18	0.72		800	58	0.16	
125	28	0.43	8	1000	60	0.18	
160	34	0.44	5	1250	61	0.15	
200	38	0.36	4	1600	62	0.11	
250	42	0.35	3	2000	58	0.07	
315	51	0.20		2500	55	0.08	1
400	53	0.29		3150	58	0.06	
500	55	0.17		4000	61	0.04	
630	57	0.19		5000	63	0.06	

STC=52

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 = 21)
STC = SOUND TRANSMISSION CLASS

Tested by _____ Approved by _____

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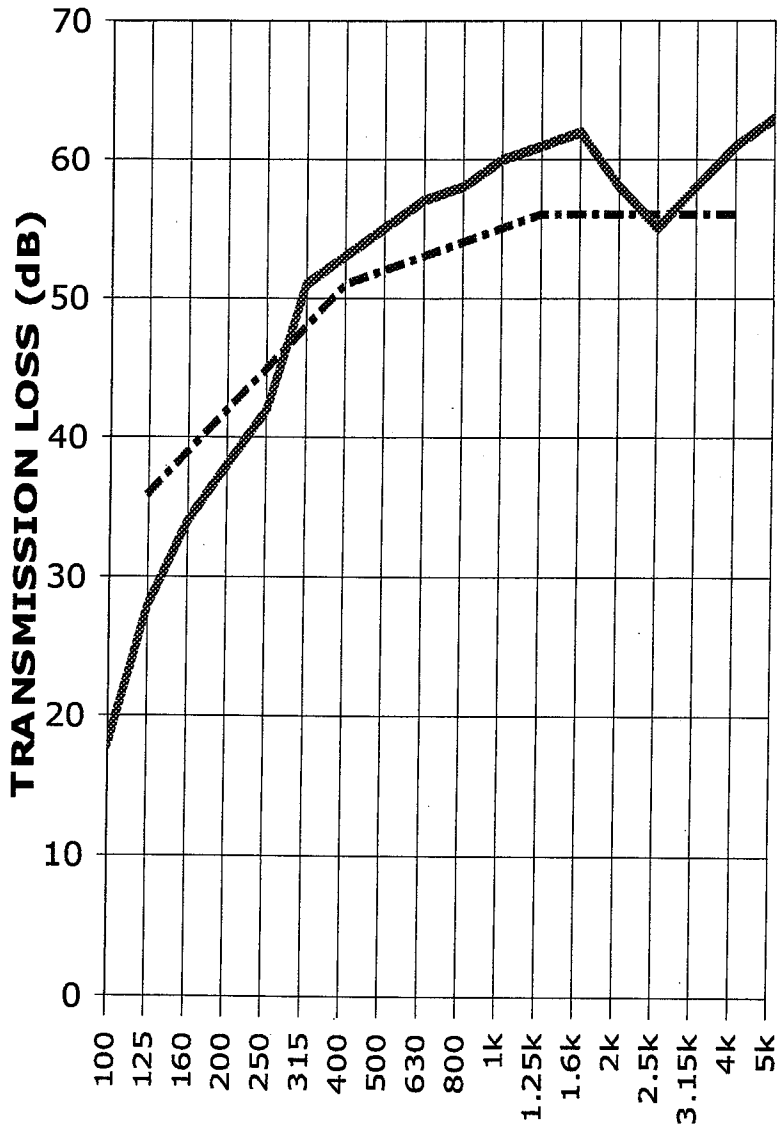

STC = 52

TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR