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™-TL08-155

ON: Steel Stud R-13 Insulated Wall at 24 Inch on Center with dB-3™ Pro and Double Layer of 5/8 Inch Thick Gypsum Both Sides

CONDUCTED: 4 June 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 24 inch on center with dB-3™ Pro and double layer of 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 162 mm (6.375 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. Both sides of the wall were covered with a layer of dB-3™ Pro and a double 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 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 eight 92 mm (3.625 in.) wide 25 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.

Mass Loaded Barrier, Sealant and Tape: On both sides 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 108 kg (238 lbs.).

Gypsum Wallboard: A double layer of 16 mm (5/8 in.) Type X gypsum board was applied to studs vertically on both sides of the wall with all joints staggered. Boards were attached to the studs at 406 mm (16 in.) on centers with 32 mm (1.25 in.) long Type S bugle head drywall screws and 61 mm (24 in.) on the base and face layers, respectively. 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 654 kg (1,442.25 lbs.), an average of 55.6 kg/m^2 (11.4 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 23±1°C (74±1°F) and 52±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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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	29	0.90		800	63	0.15	1
125	42	0.37	4	1000	64	0.16	1
160	47	0.50	2	1250	65	0.16	1
200	49	0.45	3	1600	67	0.10	
250	53	0.32	2	2000	64	0.07	2
315	58	0.33		2500	65	0.07	1
400	60	0.34	1	3150	68	0.06	
500	60	0.16	2	4000	70	0.06	
630	62	0.23	1	5000	72	0.04	

STC=62

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 _____

Dean Victor
Senior Experimentalist

David L. Moyer
Laboratory Manager

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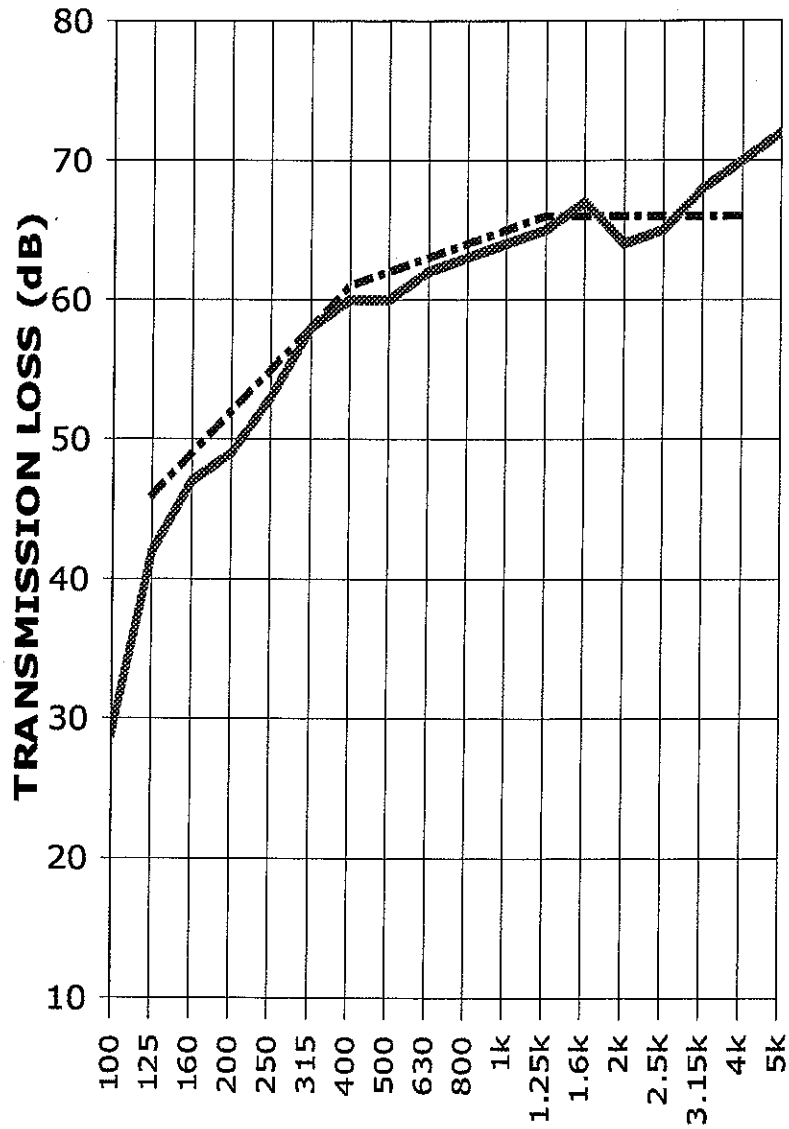

STC = 62

TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR