

# 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: Commercial Acoustics  
Tampa, FL

Sound Transmission Loss Test  
RAL™-TL08-138

ON: 2 x 4 R-13 Insulated Wood Stud Wall at 16 Inch on  
Center with Wall Blokker One Side and 5/8 Inch  
Thick Gypsum Both Sides

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CONDUCTED: 14 May 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 2 x 4 R-13 insulated wood stud wall at 16 inch on center with Wall Blokker 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 124 mm (4.875 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 test specimen consisted of a two-by-four wood stud wall with fiberglass insulation in the cavities. One side of the wall was covered with a layer of Wall Blokker 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 Plates: The wall had two 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 4.27 m (168 in.) long SPF wood plates. Plates were attached to the top and bottom of the test frame with 16d nails on nominal 610 mm (24 in.) centers.

Studs: The eight (8) 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 2.67 m (105 in.) long SPF wood studs were spaced on 610 mm (24 in.) centers. The studs were nailed at the top and bottom to the floor and ceiling plates with 8d nails. The end studs were attached to the frame with 16d nails on nominal 610 mm (24 in.) centers. Total weight of the plates and studs was measured as 61 kg (134.5 lbs.).

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Insulation: The seven cavities formed by the runners and studs were lined with faced R-13 fiberglass insulation measuring 89 mm (3.5 in.) thick and 368 mm (14.5 in.) wide. The total weight of the insulation was 14.9 kg (33 lbs.).

Mass Loaded Barrier, Sealant and Tape: On the source side of the wall, a layer of 32mm (0.125 in.) thick Wall Blokker, a 1 pound per square foot loaded barrier, was applied horizontally across the studs and attached using 9.5mm (0.375 in.) long staples 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 54.4 kg (120 lbs.).

Gypsum Wallboard: On both the source and receive side, a layer of 16 mm (0.625 in.) thick gypsum board was applied vertically and fastened with 41 mm (1.625 in.) long Type W drywall screws on 406 mm (16 in.) centers. Total weight of the gypsum board as measured was 257.3 kg (567.25 lbs.). All joints were sealed with acoustical caulk and metal taped. Screw heads remained exposed.

The weight of the specimen as measured was 389 kg (857.75 lbs.), an average of 33.2 kg/m<sup>2</sup> (6.8 lbs/ft<sup>2</sup>). The transmission area used in the calculations was 11.7 m<sup>2</sup> (126 ft<sup>2</sup>). The source and receiving room temperatures at the time of the test were 23±1°C (74±1°F) and 55±2% relative humidity. The source and receive reverberation room volumes were 178 m<sup>3</sup> (6,298 ft<sup>3</sup>) and 177 m<sup>3</sup> (6,255 ft<sup>3</sup>), 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.

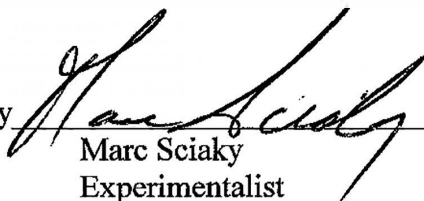
<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	18	0.66		800	48	0.15	
125	17	0.49	8	1000	50	0.15	
160	21	0.27	7	1250	52	0.14	
200	29	0.66	2	1600	51	0.14	
250	35	0.36		2000	47	0.14	
315	36	0.23	1	2500	46	0.08	
400	39	0.27	1	3150	52	0.06	
500	42	0.22		4000	57	0.05	
630	47	0.16		5000	62	0.05	

STC=41

### 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 = 19)  
STC = SOUND TRANSMISSION CLASS

Tested by

  
Marc Sciaky  
Experimentalist

Approved by

  
David L. Moyer  
Laboratory Manager

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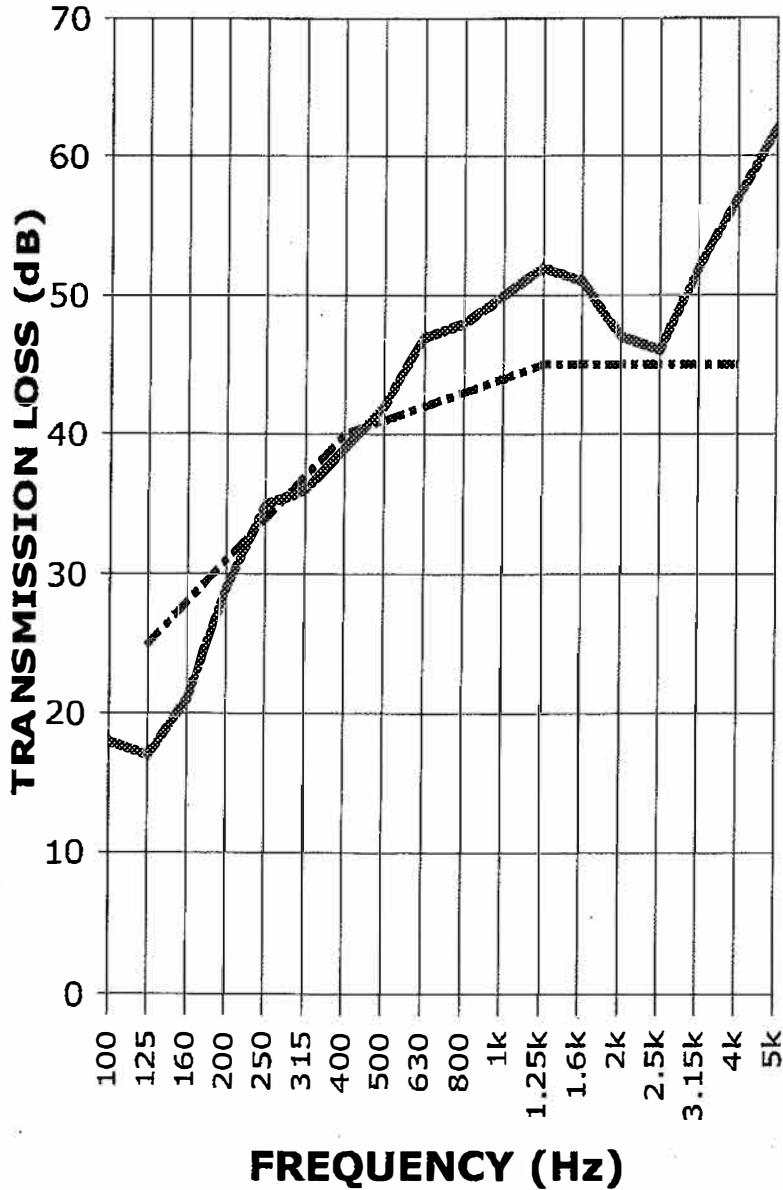
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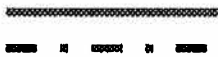
## TEST REPORT

SOUND TRANSMISSION REPORT  
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STC = 41



TRANSMISSION LOSS  
SOUND TRANSMISSION LOSS CONTOUR

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