



# Acoustical Surfaces, Inc.

**SOUNDPROOFING, ACOUSTICS, NOISE & VIBRATION CONTROL SPECIALISTS**

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**We Identify and S.T.O.P. Your Noise Problem**

## **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: Rendered by Manufacturer and Released to: Sound Transmission Loss Test  
Acoustical Surfaces, Inc. RAL™-TL07-389  
123 Columbia Court North  
Chaska, MN 55318

Page 1 of 4

ON: 3-5/8" Steel Studs, 24" on Center, 3.0" Mineral Fiber,  
One Side 5/8" Gold Bond® BRAND Fire-Shield®  
Gypsum Board, Other Side 5/8" Gold Bond®  
BRAND SoundBreak™ Gypsum Board

CONDUCTED: 18 December 2007

#### 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 manufacturer as 3-5/8" steel studs, 24" on center, 3.0" mineral fiber, one side 5/8" Gold Bond® BRAND Fire-Shield® Gypsum Board, other side 5/8" Gold Bond® BRAND SoundBreak™ Gypsum Board. The overall dimensions of the specimen as measured were 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 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 3-5/8" steel studs with mineral fiber insulation. One side had a layer of 5/8" Fire-Shield® Gypsum Board and the other side a layer of 5/8" SoundBreak™ 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 4.27 m (168 in.) long steel runners were attached to the floor and ceiling with 32 mm (1.25 in.) Type S bugle head drywall screws at nominal 610 mm (24 in.) on centers.

Studs: The eight (8) 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 studs were friction fit into the top and bottom runners on

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RAL™-TL07-389

18 December 2007

Page 2 of 4

nominal 610 mm (24 in.) centers.

Insulation: All cavities formed by the plates and studs were lined with mineral fiber insulation measuring 76 mm (3 in.) thick and 610 mm (24 in.) wide. The total weight of the insulation was 37.2 kg (82 lbs).

Gypsum Wallboard: On the source side, a layer of 16 mm (0.625 in.) thick SoundBreak™ Gypsum Board was applied vertically and fastened with 25 mm (1 in.) long Type S drywall screws on 305 mm (12 in.) centers. Total weight of the SoundBreak™ Gypsum Board as measured was 151 kg (331 lbs.). On the receive side, a single layer of 16 mm (0.625 in.) thick Fire-Shield® Gypsum Board was applied vertically and fastened with 25 mm (1 in.) long Type S drywall screws on 305 mm (12 in.) centers. Total weight of the gypsum board as measured was 127 kg (280 lbs.). Joints were staggered on opposite sides and covered with duct tape. Screw heads were covered with duct tape.

The weight of the specimen as measured was 340.4 kg (750.5 lbs.), an average of 29 kg/m<sup>2</sup> (6 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 21±1°C (70±1°F) and 53±1% 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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RAL™-TL07-389

18 December 2007

Page 3 of 4

### 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.

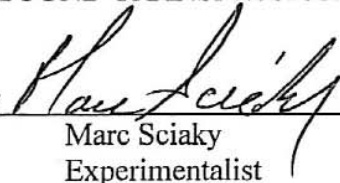
<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	17	1.02		800	57	0.16	
125	30	0.66	8	1000	59	0.11	
160	36	0.72	5	1250	61	0.10	
200	38	0.60	6	1600	62	0.11	
250	42	0.44	5	2000	61	0.09	
315	48	0.27	2	2500	58	0.08	
400	51	0.27	2	3150	60	0.07	
500	54	0.20		4000	60	0.06	
630	56	0.30		5000	62	0.12	

STC=54

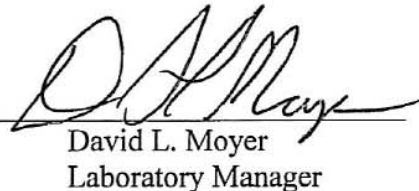
### ABBREVIATION INDEX

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 = 28)  
STC = SOUND TRANSMISSION CLASS

Tested by

  
Marc Sciaky  
Experimentalist

Approved by

  
David L. Moyer  
Laboratory Manager

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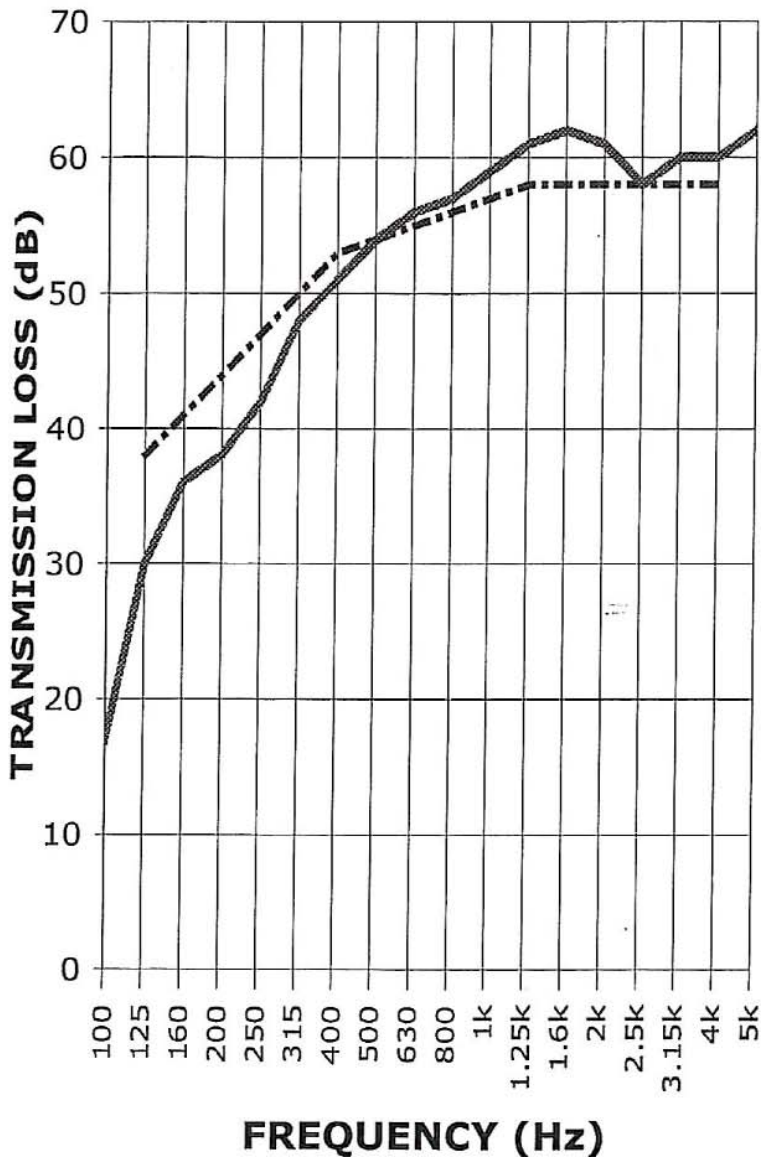
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SOUND TRANSMISSION REPORT  
RAL - TL07-389

PAGE 4 OF 4



STC = 54



TRANSMISSION LOSS  
SOUND TRANSMISSION LOSS CONTOUR

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