



# 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:  
Acoustical Surfaces, Inc.  
123 Columbia Court North  
Chaska, MN 55318

Sound Transmission Loss Test  
RAL™-TL07-147

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ON: System (5) Double 2 x 4 WS, 16" on Center, 3.5  
Fiberglass, One Side 5/8" Gold Bond® BRAND  
Fire-Shield® Gypsum Board, Other Side Base Layer  
5/8" Gold Bond® BRAND Fire-Shield® Gypsum Board  
and Face Layer 5/8" Gold Bond® BRAND  
SoundBreak™ Gypsum Board

CONDUCTED: 6 June 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 sLab 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 System (5) double 2 x 4 WS, 16" on center, 3.5 fiberglass, one side 5/8" Gold Bond® BRAND Fire-Shield® Gypsum Board, other side base layer 5/8" Gold Bond® BRAND Fire-Shield® Gypsum Board and face layer 5/8" Gold Bond® BRAND SoundBreak™ Gypsum Board. The overall dimensions of the specimen as measured were nominally 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 251 mm (9.875 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 a double 2 x 4 wall assembly, 2 x 4 plates with a 1" airspace (studs staggered 8") and R-13 fiberglass batt insulation. Both sides had a layer of 5/8" Gold Bond® Fire-Shield® Gypsum Board and one side had a face layer of 5/8" SoundBreak™ Gypsum Board. A more detailed description of the wall assembly appears in the sections below.

Floor and Ceiling Plates: Each of the two walls 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. Wall plates were attached to the top and bottom of the test frame with 16d nails on 610 mm (24 in.) centers. The total weight of the plates was 25.4 kg (56 lbs).

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THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



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Studs: Twenty-four pieces of SPF wood 2 x 4's, actual 38 mm (1.5 in.) by 89 mm (3.5 in.) were cut to 2.66 m (104.75 in.) long. Two walls were constructed of these studs on 406 mm (16 in.) centers and were staggered with an offset of 8 inches. The total weight of the studs was 94.4 kg (217 lbs).

Insulation: All cavities formed by the plates and studs were lined with Kraft faced R-13 fiberglass insulation measuring 89 mm (3.5 in.) thick and 406 mm (16 in.) wide by 1.22 m (48 in.) high. The total weight of the insulation was 28.1 kg (62 lbs).

Gypsum Wallboard: A layer of 16 mm (0.625 in.) thick Gold Bond® Fire-Shield® Gypsum Board was applied to the studs vertically on both sides. The board on the receive side was attached to the studs with 32 mm (1.25 in.) long Type W bugle head drywall screws at 406 mm (16 in.) on centers. The board on the source side was attached to the studs with 32 mm (1.25 in.) long Type W bugle head drywall screws at 305 mm (12 in.) on centers. Total weight of the gypsum board as measured was 260 kg (572 lbs.). On the source side, a face layer of 16 mm (0.625 in.) thick SoundBreak™ Gypsum Board was applied vertically and fastened with 51 mm (2 in.) long Type W bugle head drywall screws on 406 mm (16 in.) centers. Total weight of the SoundBreak™ Gypsum Board as measured was 150 kg (331.5 lbs.). Joints were staggered at opposite sides and each layer. Exposed joints were covered with duct tape. Screw heads remained exposed.

The weight of the specimen as measured was 562 kg (1,238.5 lbs.), an average of 48 kg/m<sup>2</sup> (9.8 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°C (74°F) and 52±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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### 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	35	1.34		800	71	0.14	
125	40	0.41	8	1000	72	0.15	
160	43	0.66	8	1250	73	0.20	
200	46	0.64	8	1600	73	0.09	
250	52	0.34	5	2000	72	0.11	
315	59	0.24	1	2500	74	0.12	
400	63	0.45		3150	80	0.10	
500	65	0.24		4000	83	0.12	
630	68	0.16		5000	86	0.18	

STC=64

### ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)

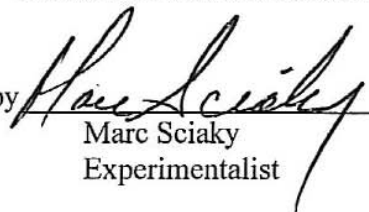
T.L. = TRANSMISSION LOSS, dB

C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT

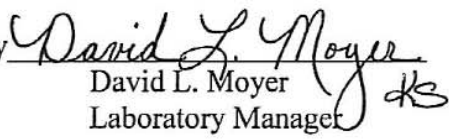
DEF. = DEFICIENCIES, dB < STC CONTOUR (SUM OF DEF = 30)

STC = SOUND TRANSMISSION CLASS

Tested by

  
Marc Sciaky  
Experimentalist

Approved by

  
David L. Moyer  
Laboratory Manager

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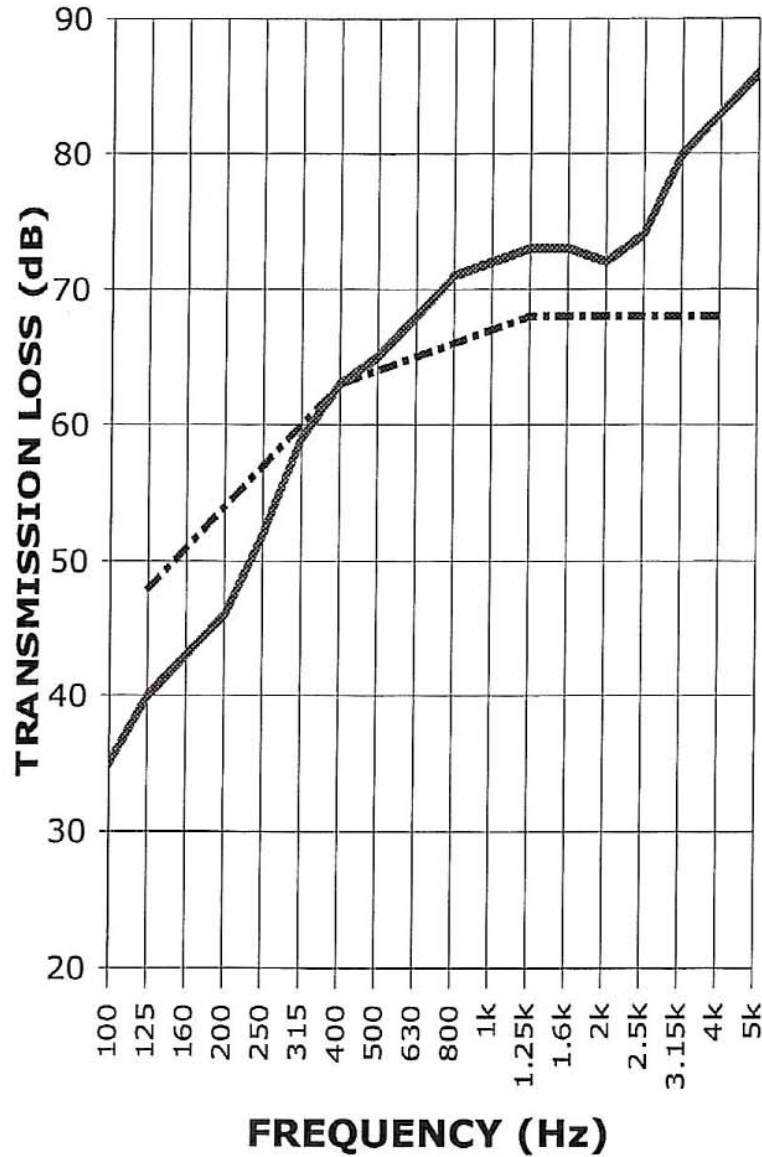
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SOUND TRANSMISSION REPORT  
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STC = 64



TRANSMISSION LOSS  
SOUND TRANSMISSION LOSS CONTOUR

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