

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: Troy Acoustics Corporation
Santa Clarita, CA

Sound Absorption Test
RAL™-A11-206

ON: Troy System Shooting Range Wall Design

Page 1 of 4

CONDUCTED: 8 November 2011

TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-09a and E795-05. 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 procedure and room qualifications is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Troy System Shooting Range Wall Design. The overall dimensions of the specimen as measured were nominally 2.74 m (108 in.) wide by 2.41 m (94.75 in.) long and 89 mm (3.5 in.) thick. The specimen consisted of five (5) pieces of Troy Board consisting of wood fibers bonded with cement. Four (4) pieces as measured were nominally 597 mm (23.5 in.) wide by 2.4 m (96 in.) long and 51 mm (2 in.) thick. One (1) piece was nominally 305 mm (12 in.) wide by 2.4 m (94.5 in.) long and 51 mm (2 in.) thick. The Troy Board was placed over 2 inch thick 2.5 pcf mineral wool batts provided in a total of fourteen (14) pieces. Each piece as measured was nominally 406 mm (16 in.) wide by 1.22 m (48 in.) long and 51 mm (2 in.) thick. The specimen was tested in the laboratory's 292 m³ (10,311 ft³) test chamber.

The weight of the entire specimen as measured was 150.8 kg (332.5 lbs), an average of 22.9 kg/m² (4.68 lbs/ft²). The area used in the calculations was 6.6 m² (71.1 ft²). The room temperature at the time of the test was 22°C (72±1°F) and 59±2% relative humidity.

MOUNTING A

The test specimen was laid directly against the test surface. The perimeter was sealed using wood and metal framing.

This report shall not be reproduced except in full, without the written approval of RAL.

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



NVLAP Lab Code 100227-0

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

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

Troy Acoustics Corporation

RAL™-A11-206

8 November 2011

Page 2 of 4

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins
100	0.23	16.02
** 125	0.35	25.13
160	0.43	30.71
200	0.62	44.17
** 250	0.72	50.91
315	1.02	72.52
400	1.17	83.45
** 500	1.05	74.89
630	1.04	73.70
800	0.83	59.03
** 1000	0.66	46.71
1250	0.64	45.43
1600	0.66	46.84
** 2000	0.88	62.25
2500	0.99	70.74
3150	0.89	63.58
** 4000	0.95	67.50
5000	0.93	66.47

SAA = 0.86

NRC = 0.85

This report shall not be reproduced except in full, without the written approval of RAL.

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



NVLAP Lab Code 100227-0

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

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

Troy Acoustics Corporation

RAL™-A11-206

8 November 2011

Page 3 of 4

TEST RESULTS (Continued)

The sound absorption average (SAA) is defined as a single number rating, the average, rounded to the nearest 0.01, of the sound absorption coefficient of a material for the twelve one-third octave bands from 200 through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of this same test method as the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Tested by Marc Sciaky
Marc Sciaky
Experimentalist

Approved by David L. Moyer
David L. Moyer
Laboratory Manager

This report shall not be reproduced except in full, without the written approval of RAL.

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



NVLAP Lab Code 100227-0

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

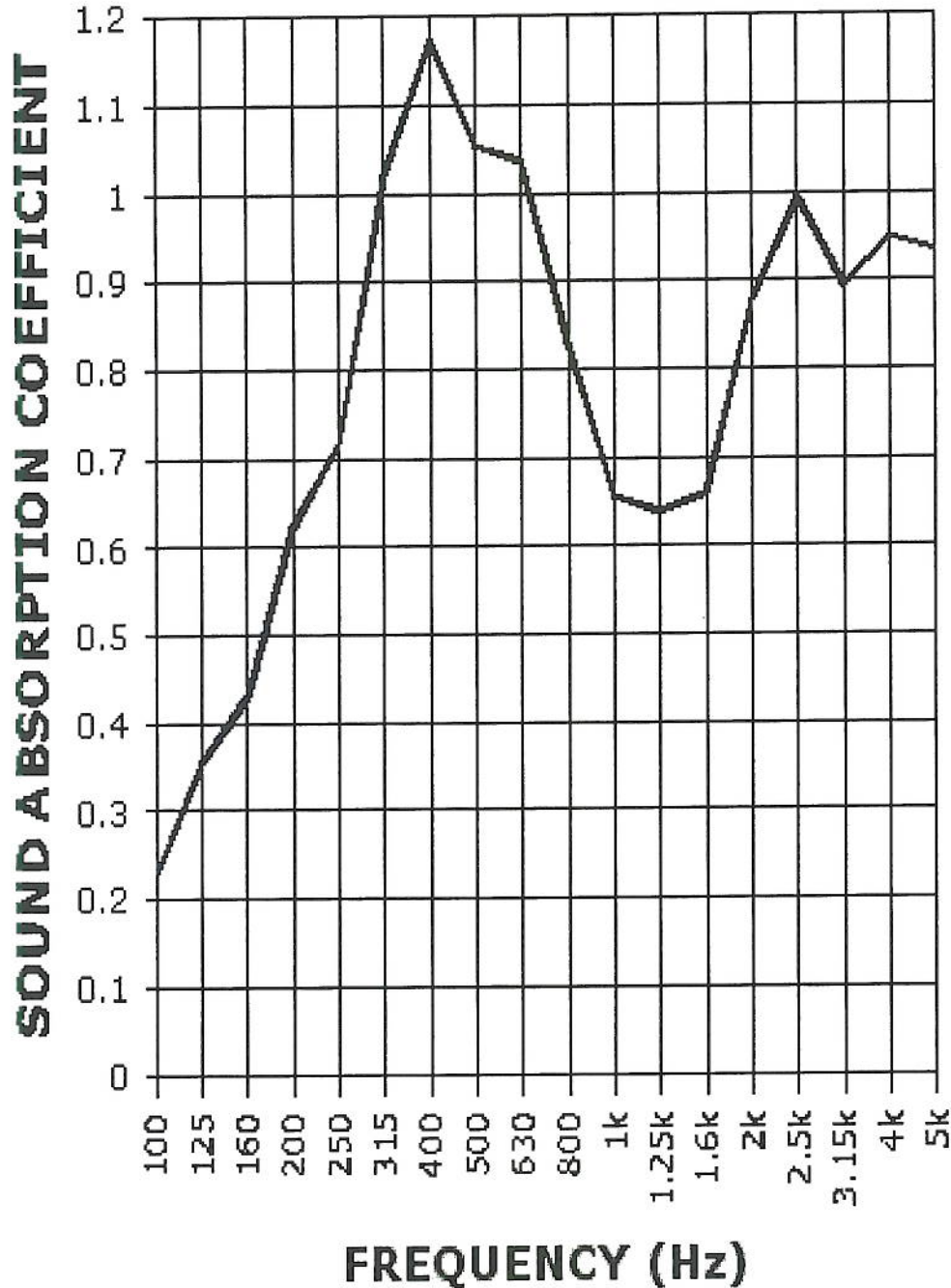
Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

Page 4 of 4

SOUND ABSORPTION REPORT RAL-A11-206



SAA=0.86
NRC=0.85

This report shall not be reproduced except in full, without the written approval of RAL.

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



NVLAP Lab Code 100227-0

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.