ASTM C 423 SOUND ABSORPTION
TEST REPORT

Rendered to:

NEW ENGLAND SOUNDPROOFING

SERIES/MODEL: 9000AP REVRB™

TYPE: Acoustical Wall Panel

Summary of Test Results								
Sample ID Number & Sample Description	**1/3 Octave Sound Absorption Coefficients at the Octave Band Frequencies**						**NRC**	**SAA**
	125	**250**	**500**	**1000**	**2000**	**4000**		
D9013.01 Series/Model 9000AP REVRB™, acoustical wall panel	0.12	0.90	1.15	1.12	0.97	0.98	1.05	1.01

Reference should be made to Architectural Testing, Inc. Report No. D9013.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

NEW ENGLAND SOUNDPROOFING
190 Felton Street
Waltham, Massachusetts 02453

Report No:	D9013.01-113-11
Test Date:	07/21/14
Report Date:	08/01/14
Record Retention End Date:	07/21/18

Test Sample Identification:

Series/Model: 9000AP REVRB™

Type: Acoustical Wall Panel

Overall Size: 2.44 m by 3.05 m (8' by 10')

Project Summary: Architectural Testing, Inc. was contracted by New England Soundproofing to conduct a sound absorption test on a Series/Model 9000AP REVRB™, acoustical wall panel. A summary of the results is listed in the Test Results section, and the complete test data is included as Appendix B of this report. The sample was provided by the client.

Test Methods: The acoustical test was conducted in accordance with the following:

ASTM C 423-09a, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*.

ASTM E 795-05 (2012), *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*.

Test Equipment: The equipment used to conduct these tests meets the requirements of ASTM C 423. The microphone was calibrated before conducting the sound absorption test. The test equipment and test chamber descriptions are listed in Appendix A.

Test Procedure: The sound absorption of the reverberation chamber was measured before the test specimen was installed. This measurement shall be referred to as the empty room test. For the Type F-5 mounting, the specimen was placed on the test surface with Z-clips separating the specimen from the test surface so that the specimen was suspended 5 mm above the test surface (floor) of the reverberation room. The sound absorption test was then re-run. The absorption measurement with the specimen inside the chamber shall be referred to as the full room test.

For the empty and full room tests, ten decay measurements were conducted at each of the five microphone positions. The sound absorption test was conducted at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the empty and full room measurements.

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the area of the sample in m^2. The Sound Absorption Coefficient is dimensionless.

The Noise Reduction Coefficient (NRC) rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000 and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

The Sound Absorption Average (SAA) rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

Sample Description:

Material Description	Average Thickness		Average Density		Average Weight	
Class A fire rated sound absorption cloth	0.76 mm	0.03 "	352.4 kg/m^3	22.00 pcf	0.27 kg/m^2	0.06 psf
Class A fire rated sound absorption insulation	51.31 mm	2.02 "	42.77 kg/m^3	2.67 pcf	2.20 kg/m^2	0.45 psf

The test sample consisted of five, 0.61 m by 2.44 m (24" by 96") panels, which were arranged to produce a 2.44 m by 3.05 m (8' by 10') sample. Each panel consisted of a frame constructed from 3/4" by 2" wood and backed with 1/8" thick luan board. The insulation was placed in the frame against the backing. The cloth was stretched over the insulation and wrapped around the frame and fastened to the frame and backing with staples. The overall thickness of the sample was 58.74 mm (2-5/16") thick. The total weight of the sample was 48.99 kg (108 lbs). Photographs of the sample test setup are included in Appendix C.

Comments: The client did not supply drawings on the Series/Model 9000AP REVRB™, Acoustical wall panel. The specimen was disassembled, and the components will be retained by Architectural Testing for four years.

Test Results: A summary of the sound absorption tests is listed below:

Summary of Test Results								
Sample ID Number & Sample Description	**1/3 Octave Sound Absorption Coefficients at the Octave Band Frequencies**						**NRC**	**SAA**
	125	**250**	**500**	**1000**	**2000**	**4000**		
D9013.01 Series/Model 9000AP REVRB™, acoustical wall panel	0.12	0.90	1.15	1.12	0.97	0.98	1.05	1.01

The complete test results are listed in Appendix B. The acoustical chamber is qualified down to 80 hertz. Data provided below this frequency is for reference only.

Architectural Testing will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Architectural Testing for the entire test record retention period.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

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Digitally Signed by: Daniel P. Platts

Daniel P. Platts
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Todd D. Kister
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DPP:jmcs

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix-A: Equipment description (1)
Appendix-B: Complete test results (2)
Appendix-C: Photographs (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	08/01/14	N/A	Original Report Issue

Appendix A

Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number	Date of Calibration
Analyzer	Hewlett Packard	HP35670A	Real time analyzer	004112	06/13 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/13
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003247	02/14
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003251	09/13
Microphone Calibrator	Norsonic	1251	Pistonphone Calibrator	65105	04/14
Noise Source	Delta Electronics	SNG-1	Noise Generator	Y002181	N/A
Equalizer	Rane	RPE 228	Programmable Equalizer	Y002180	N/A
Power Amplifiers	Crown	Xti 2000	Two, Amplifiers	005769 005770	N/A
Receive Room Loudspeakers	Renkus-Heinz Inc.	Trap Jr./9	Two, Loudspeakers	Y001784 Y001785	N/A
Receive Room Environmental Indicator	Vaisala	HMW92	Temperature and Humidity Sensor	64286	06/14

**- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.*

Test Chamber:

	Volume	Description
Receive Room	234 m^3 (8291.3 ft^3)	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor

N/A-Non Applicable

Appendix B

Complete Test Results

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SOUND ABSORPTION

ASTM C 423

Test Date	07/21/14	
ATI No.	D9013.01	
Client	New England Soundproofing	
Specimen	Series/Model: 9000AP REVRB™ Acoustic Wall Panel	
Operator	Daniel P. Platts	
Sample Area	7.43 m^2	
Mounting Type	Type F5	
	Empty	Full
Temp C	22	23
RH %	45	47
B.P. (mb)	1012	

Freq (Hz)	Empty Room Absorption (m^2)	Uncertainty	Full Room Absorption (m^2)	Uncertainty	Absorption Coefficient	Relative Uncertainty
80	5.00	0.056	5.28	0.045	0.04	0.010
100	4.93	0.010	5.33	0.035	0.05	0.005
125	4.55	0.018	5.46	0.009	0.12	0.003
160	4.42	0.005	6.57	0.015	0.29	0.002
200	4.57	0.038	8.48	0.018	0.53	0.006
250	4.85	0.002	11.54	0.030	0.90	0.004
315	4.84	0.010	12.53	0.046	1.03	0.006
400	5.21	0.009	13.11	0.057	1.06	0.008
500	5.12	0.009	13.63	0.052	1.15	0.007
630	4.77	0.025	12.95	0.025	1.10	0.005
800	4.71	0.005	13.29	0.004	1.15	0.001
1000	4.80	0.008	13.13	0.061	1.12	0.008
1250	5.09	0.004	13.49	0.019	1.13	0.003
1600	4.89	0.004	12.62	0.030	1.04	0.004
2000	4.82	0.009	12.05	0.026	0.97	0.004
2500	4.99	0.003	12.34	0.029	0.99	0.004
3150	5.29	0.002	13.07	0.001	1.05	0.000
4000	5.50	0.003	12.78	0.014	0.98	0.002
5000	6.00	0.004	13.27	0.020	0.98	0.003

NRC Rating **1.05** *(Noise Reduction Coefficient)*
SAA Rating **1.01** *(Sound Absorption Average)*

Notes:

1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

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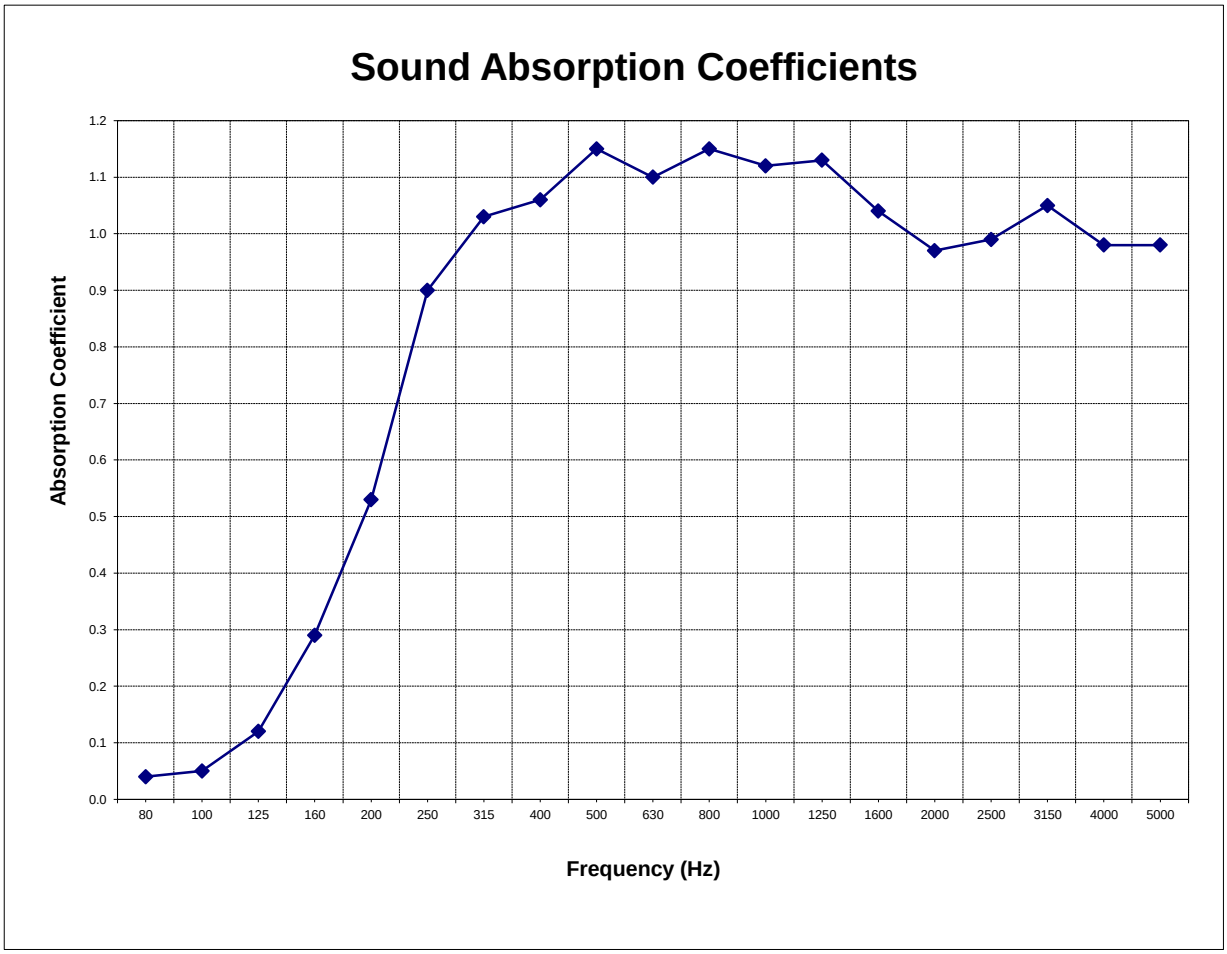
SOUND ABSORPTION

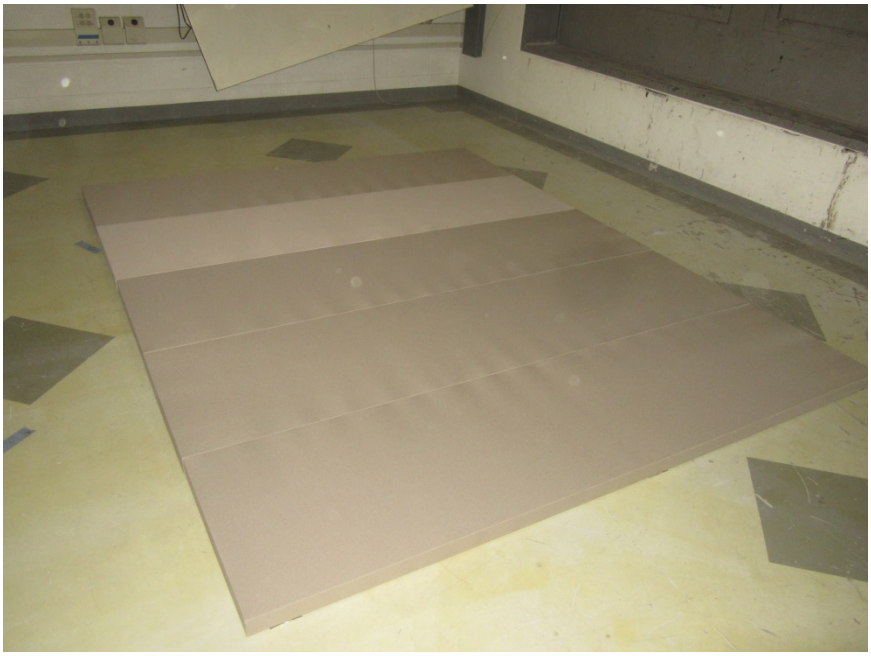
ASTM C 423

Test Date	07/21/14	
ATI No.	D9013.01	
Client	New England Soundproofing	
Specimen	Series/Model: 9000AP REVRB™ Acoustic Wall Panel	
Operator	Daniel P. Platts	
Sample Area	7.43 m^2	
Mounting Type	Type F5	
	Empty	Full
Temp C	22.2	22.9
RH %	45	47
B.P. (mb)	1012	



Appendix C

Photographs



View of Installed Specimen

Cross-Cut View of Specimen