Architectural Testing

ASTM C 423 SOUND ABSORPTION TEST REPORT

Rendered to:

FABRI TRAK SYSTEMS, INC.

SERIES/MODEL: 1-1/8" Fabri Trak™

TYPE: Upholstered Panel System with 1-1/8" Fabri Tack™

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**		
C5046.03A Series/Model 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™	0.17	0.53	0.92	0.99	0.95	0.93	0.85	0.86

Reference should be made to Architectural Testing, Inc. Report No. C5046.03-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

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ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

FABRI TRAK SYSTEMS, INC.
111 West Park Drive
Mt. Laurel, New Jersey 08054

Report No: C5046.03-113-11
Test Date: 02/12/13
Report Date: 03/13/13
Record Retention End Date: 03/13/17

Test Sample Identification:

Series/Model: 1-1/8" Fabri Trak™

Type: Upholstered Panel System with 1-1/8" Fabri Tack™

Overall Size: 2.44 m by 2.74 m (8' by 9')

Project Summary: Architectural Testing, Inc. was contracted by Fabri Trak Systems, Inc. to conduct a sound absorption test on a Series/Model 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™ . 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.

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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 A mounting, the test specimen was placed directly against the test surface (floor) of the reverberation room with the high density board exposed to the sound field. The perimeter of the sample was sealed to the floor with aluminum angle and duct tape. 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**	
Standard acoustically transparent fabric	0.76 mm	0.030"
14-18# High density board	3.16 mm	0.125"
Fiberglass 6 pcf	25.40 mm	1.000"
5/8" Gypsum board	16.51 mm	0.650"

The test specimen consisted of two, 1.22 m by 2.74 m (4' by 9') upholstered panels, which were arranged to produce a 2.44 m by 2.74 m (8' by 9') test specimen. Each upholstered panel construction included a 32 mm (1-1/4") Fabri-Trak®, FR extruded vinyl locking-channel frame. Each frame was fastened along the perimeter of 1.22 m wide by 2.74 m long by 16 mm thick (4' wide by 9' long by 5/8" thick) gypsum board with heavy-duty staples, which simulated a wall construction. The 28.6 mm (1-1/8") Fabri-Tack™ high density fiberglass board, which consisted of 3.16 mm (1/8") thick 16# high density board skin laminated onto 25.4 mm (1") thick 6 pcf fiberglass body, was installed flush with the edges of each frame with the high density board skin facing the sound field. Shims were used to create an approximate 3.16 mm (1/8") air space between the gypsum board and Fabri-Tack™ high density fiberglass board. Acoustically transparent polyester fabric was stretched over each panel and retained by the frame's locking-channel. The total thickness of the fully assembled test specimen was approximately 50.8 mm (2"). The total weight of the test specimen was approximately 118 kg (240 lbs). The sample test setup was photographed with a digital camera, and a picture is included in Appendix C.

Comments: The client did not supply drawings on the Series/Model 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™ . The test specimen was returned per the client's request.

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**		
C5046.03A Series/Model 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™	0.17	0.53	0.92	0.99	0.95	0.93	0.85	0.86

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:

Digitally Signed by: Daniel P. Platts

Daniel P. Platts
Technician - Acoustical Testing

Digitally Signed by: Todd D. Kister

Todd D. Kister
Laboratory Supervisor - Acoustical Testing

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: Photograph (1)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	03/13/13	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	07/11 *
Data Acquisition Unit	Agilent	34970A	Data Acquisition Unit	62211	07/12
Receive Room Microphone	GRAS	40 AR	1/2" Microphone	Y003246	08/12
Receive Room Preamplifier	GRAS	26 AK	1/2" Preamplifier	Y003249	08/12
Microphone Calibrator	Bruel & Kjaer	Type 4228	Pistonphone Calibrator	Y002816	02/12
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	HMW60Y	Temperature and Humidity Sensor	005066	09/12
Weather Station	Davis Instruments	VantagePRO 6150C	Weather Station	Y003257	05/12

**- 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	02/12/13	
ATI No.	C5046.03A	
Client	Fabri Trak Systems, Inc.	
Specimen	Series/Model: 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™	
Operator	Daniel P. Platts	
Sample Area	6.69 m^2	
Mounting Type	Type A	
	Empty	Full
Temp C	22	22
RH %	49	48
B.P. (mb)	1002	

Freq (Hz)	Empty Room Absorption (m^2)	Uncertainty	Full Room Absorption (m^2)	Uncertainty	Absorption Coefficient	Relative Uncertainty
80	4.55	0.048	4.97	0.049	0.06	0.010
100	4.86	0.026	5.46	0.060	0.09	0.010
125	4.69	0.010	5.86	0.035	0.17	0.005
160	4.14	0.007	5.72	0.001	0.24	0.001
200	4.22	0.007	6.67	0.013	0.37	0.002
250	4.60	0.003	8.13	0.054	0.53	0.008
315	4.86	0.010	9.75	0.055	0.73	0.008
400	5.03	0.010	10.82	0.010	0.87	0.002
500	5.10	0.030	11.25	0.041	0.92	0.008
630	4.69	0.007	11.24	0.049	0.98	0.007
800	4.82	0.006	11.48	0.012	1.00	0.002
1000	4.78	0.011	11.44	0.054	0.99	0.008
1250	5.23	0.004	12.17	0.050	1.04	0.007
1600	5.07	0.017	11.56	0.010	0.97	0.003
2000	5.03	0.004	11.39	0.012	0.95	0.002
2500	5.17	0.021	11.37	0.011	0.93	0.004
3150	5.44	0.009	11.37	0.037	0.89	0.006
4000	5.25	0.005	11.48	0.007	0.93	0.001
5000	5.45	0.011	11.69	0.012	0.93	0.002

NRC Rating **0.85** *(Noise Reduction Coefficient)*
SAA Rating **0.86** *(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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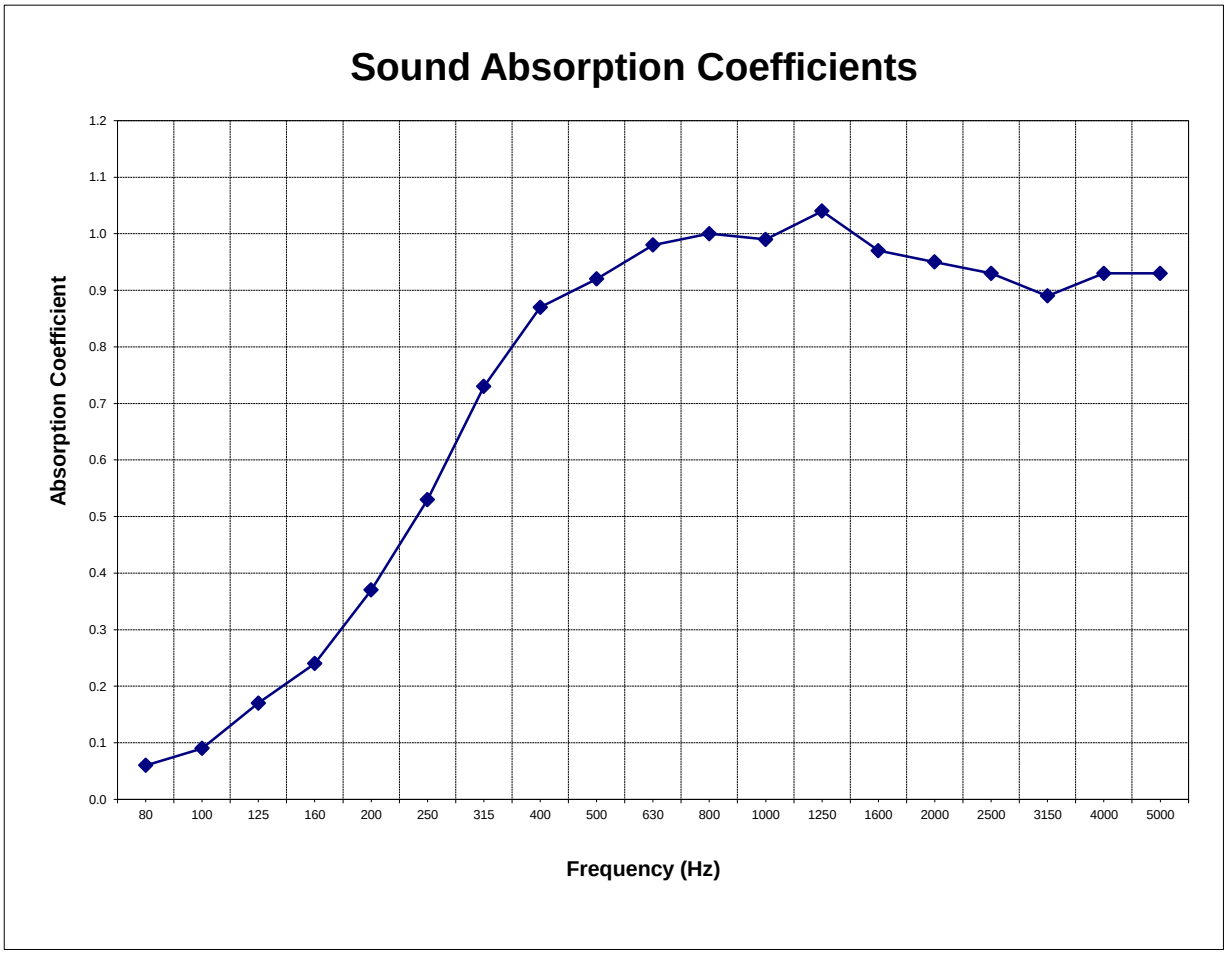
SOUND ABSORPTION

ASTM C 423

Test Date	02/12/13	
ATI No.	C5046.03A	
Client	Fabri Trak Systems, Inc.	
Specimen	Series/Model: 1-1/8" Fabri Trak™, upholstered panel system with 1-1/8" Fabri Tack™	
Operator	Daniel P. Platts	
Sample Area	6.69 m^2	
Mounting Type	Type A	
	Empty	Full
Temp C	22.1	21.9
RH %	49	48
B.P. (mb)	1002	



Appendix C

Photograph

View of Installed Specimen