

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

An  ALION Technical Center

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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

SPONSOR: **FabriTRAK Systems Inc.**
Mount Laurel, NJ

Sound Absorption
RAL™-A20-440

CONDUCTED: 2020-10-29

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ON: 2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting)

TEST METHODOLOGY

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2017 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM C423-17: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-16: "Standard Practices for Mounting Test Specimens During Sound Absorption Tests." A description of the measurement procedure and room specifications are available upon request. The results presented in this report apply to the sample as received from the test sponsor.

INFORMATION PROVIDED BY SPONSOR

The test specimen was designated by the sponsor as 2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting). The following nominal product information was provided by the sponsor prior to testing. The accuracy of such sponsor-provided information can affect the validity of the test results.

Product Under Test

Materials: Fiberglass, Fabri Felt
Thickness: 50.8 mm (2 in.)
Manufacturer: FabriTRAK Systems Inc

SPECIMEN MEASUREMENTS & TEST CONDITIONS

Through a full external visual inspection performed on the test specimen, Riverbank personnel verified the following information:

Test Specimen

Material: Rigid fiberglass core, adhered felt fabric exterior, core exposed at one large face
Dimensions: 4 @ 1219 mm (48 in.) by 1219 mm (48 in.)
2 @ 305 mm (12 in.) by 1219 mm (48 in.)
Thickness: 53.6 mm (2.11 in.)
Overall Weight: 39.12 kg (86.25 lbs)
Installation: Face with exposed core oriented toward test surface

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Overall Specimen Properties

Size: 2.74 m (108.0 in) wide by 2.44 m (96.0 in) long
Thickness: 53.6 m (2.11 in)
Weight: 39.12 kg (86.25 lbs)
Mass per Unit Area: 5.85 kg/m² (1.2 lbs/ft²)
Calculation Area: 6.689 m² (72 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 22.0 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 57.75 % ± 2.3 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.3 kPa (Requirement not defined)

MOUNTING METHOD

Type E-400 Mounting: The test specimen was mounted across a metal fixture which was open at its top and bottom and enclosed at its sides, creating an enclosed airspace between the test specimen and the horizontal test surface. The specimen was supported across the span of the fixture by an array of metal slats located beneath the panel joints. The numeral suffix in the designation is defined in ASTM E795-16 as the distance in millimeters from the exposed face of the test specimen to the test surface, rounded to the nearest integer multiple of 5. Perimeter edges were sealed with metal framing.

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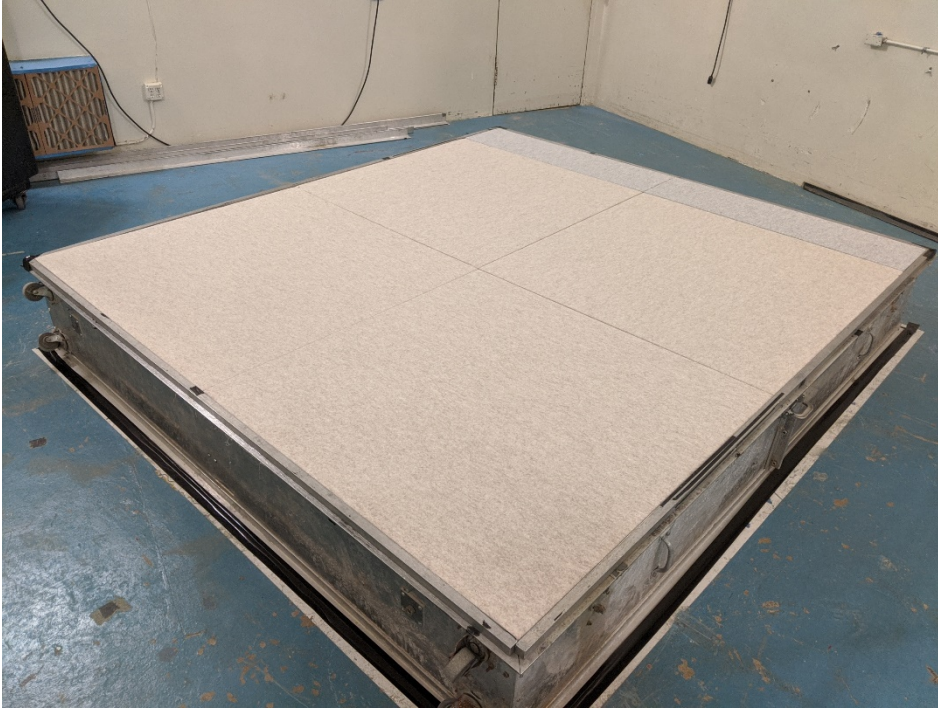


Figure 1 – Specimen mounted in test chamber

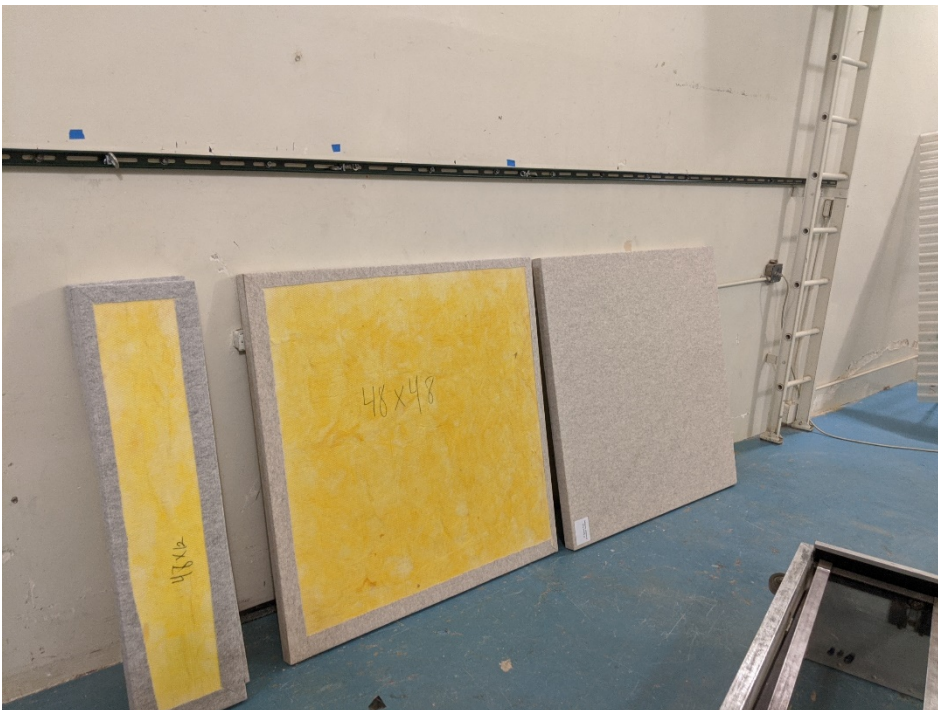


Figure 2 – Individual specimen panels, exposed fiberglass core at underside

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Figure 3 – Detail of specimen materials

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TEST RESULTS

Specimen total absorption and absorption coefficient are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages.

1/3 Octave Center

Frequency (Hz)	Total Absorption (m ²)	Total Absorption (Sabins)	Absorption Coefficient
100	6.48	69.79	0.97
** 125	4.81	51.80	0.72
160	4.93	53.04	0.74
200	6.12	65.91	0.92
** 250	6.02	64.75	0.90
315	6.30	67.84	0.94
400	6.41	68.99	0.96
** 500	6.91	74.35	1.03
630	7.33	78.86	1.10
800	7.37	79.28	1.10
** 1000	7.34	79.00	1.10
1250	7.43	79.99	1.11
1600	7.43	79.97	1.11
** 2000	7.48	80.50	1.12
2500	7.45	80.17	1.11
3150	7.59	81.68	1.13
** 4000	7.53	81.07	1.13
5000	7.86	84.58	1.17

SAA = 1.04

NRC = 1.05

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TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-17 Section 3.1.1 as the arithmetic average of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive, rounded to the nearest integer multiple of 0.01.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the arithmetic average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, rounded to the nearest integer multiple of 0.05.

Tested by Marc Sciaky
Marc Sciaky
Senior Experimentalist

Report by Malcolm Kelly
Malcolm Kelly
Acoustical Test Engineer

Approved by Eric P. Wolfram
Eric P. Wolfram
Laboratory Manager

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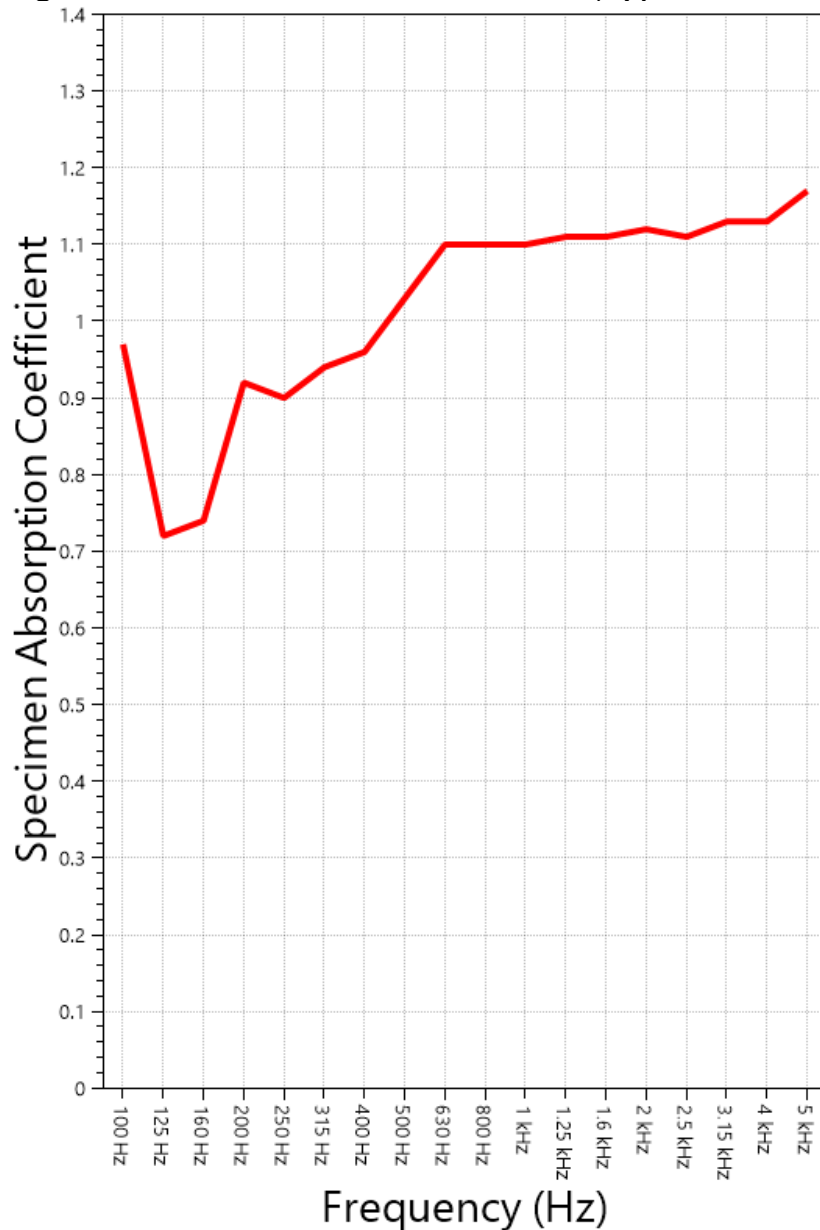
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SOUND ABSORPTION REPORT

2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting)



SAA = 1.04

NRC = 1.05

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APPENDIX A: Extended Frequency Range Data

Specimen: 2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting) (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-17, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Total Absorption (Sabins)	Absorption Coefficient
31.5	35.70	0.50
40	50.09	0.70
50	68.66	0.95
63	46.95	0.65
80	57.57	0.80
100	69.79	0.97
125	51.80	0.72
160	53.04	0.74
200	65.91	0.92
250	64.75	0.90
315	67.84	0.94
400	68.99	0.96
500	74.35	1.03
630	78.86	1.10
800	79.28	1.10
1000	79.00	1.10
1250	79.99	1.11
1600	79.97	1.11
2000	80.50	1.12
2500	80.17	1.11
3150	81.68	1.13
4000	81.07	1.13
5000	84.58	1.17
6300	85.31	1.18
8000	85.58	1.19
10000	84.32	1.17
12500	96.78	1.34

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APPENDIX B: Instruments of Traceability

Specimen: 2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting) (See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certification</u>	<u>Calibration Due</u>
System 1	Type 3160-A-042	3160- 106968	2020-06-26	2021-06-26
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2020-09-30	2021-09-30
Bruel & Kjaer Pistonphone	Type 4228	2781248	2020-08-12	2021-08-12
Omega Digital Temp., Humid. And Pressure Recorder	OM-CP- PRHTemp2000	P97844	2020-02-18	2021-02-18

APPENDIX C: Revisions to Original Test Report

Specimen: 2 in. Fiberglass Cloud Covered with Fabri Felt (Type E-400 mounting) (See Full Report)

<u>Date</u>	<u>Revision</u>
2020-11-04	Original report issued

END