RIVERBANK ACOUSTICAL LABORATORIES

1512 S BATAVIA AVENUE
GENEVA, IL 60134

630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Archifibe Inc**
Mississauga, Ontario, Canada

Sound Absorption
RAL™-A23-198

CONDUCTED: 2023-06-30

ON: Amplitude Ceiling System

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 C423-23: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-23: "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 Amplitude Ceiling System. 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

Product Name:	Amplitude Ceiling System
Manufacturer:	Archifibe Inc

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Materials:	PET felt pieces over supports (metal T-bar supports with felt spacers)
Dimensions:	Four (4) T-bars @ 24 mm (0.9375 in.) wide by 2743 mm (108 in.) long
	38 felt pieces @ 98 mm (3.875 in.) wide by 1219 mm (48 in.) long
Depth:	T-bars @ 41 mm (1.625 in.)
	Felt pieces @ 184 mm (7.25 in.)
Layout:	Felt spacers wrapped around metal T-bar supports
	Felt pieces arranged in 19 rows of two pieces each
	Felt pieces shaped like waves with alternating crests and valleys
	Except last two, rows staggered such that crests and valleys were offset
Overall Weight:	22.79 kg (50.25 lbs)

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Overall Specimen Properties

Size:	2.74 m (108.0 in) wide by 2.44 m (96.0 in) long
Thickness:	0.2 m (7.75 in)
Weight:	20.3 kg (44.75 lbs)
Mass per Unit Area:	3.03 kg/m² (0.62 lbs/ft²)
Calculation Area:	6.689 m² (72.0 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	23.1 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	67.35 % ± 1.7 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	98.3 kPa (Requirement not defined)

MOUNTING METHOD

Modified Type E 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 approximate location of ceiling grid framing (minimum surface depth) was set to 400mm. Due to the form of this particular specimen, a clear surface face was not identified. Portions of the sample extended up to 524 mm (20.63 inches) from the test surface. Perimeter edges were partially sealed with metal framing.

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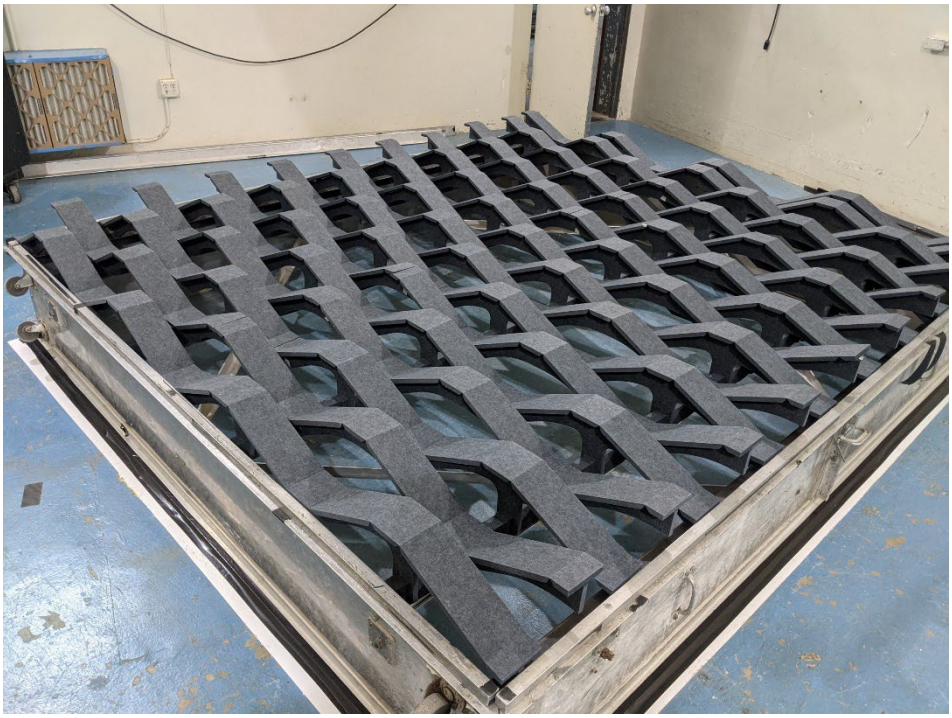

Figure 1 – Specimen mounted in test chamber

Figure 2 – T-bar support prior to installation

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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	1.98	21.34	0.30
** 125	2.41	25.91	0.36
160	2.78	29.91	0.42
200	2.73	29.37	0.41
** 250	2.99	32.17	0.45
315	3.09	33.28	0.46
400	2.99	32.23	0.45
** 500	3.90	41.97	0.58
630	4.96	53.40	0.74
800	5.31	57.18	0.79
** 1000	5.95	64.01	0.89
1250	6.30	67.81	0.94
1600	6.77	72.90	1.01
** 2000	7.35	79.09	1.10
2500	7.32	78.83	1.09
3150	7.33	78.92	1.10
** 4000	7.44	80.04	1.11
5000	7.79	83.85	1.16

SAA = 0.74
NRC = 0.75

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TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-23 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
Senior Experimentalist

Report by _____
Keith Kimberling
Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

Digitally signed
by Eric P Wolfram
Date: 2023.07.13
10:21:51 -05'00'

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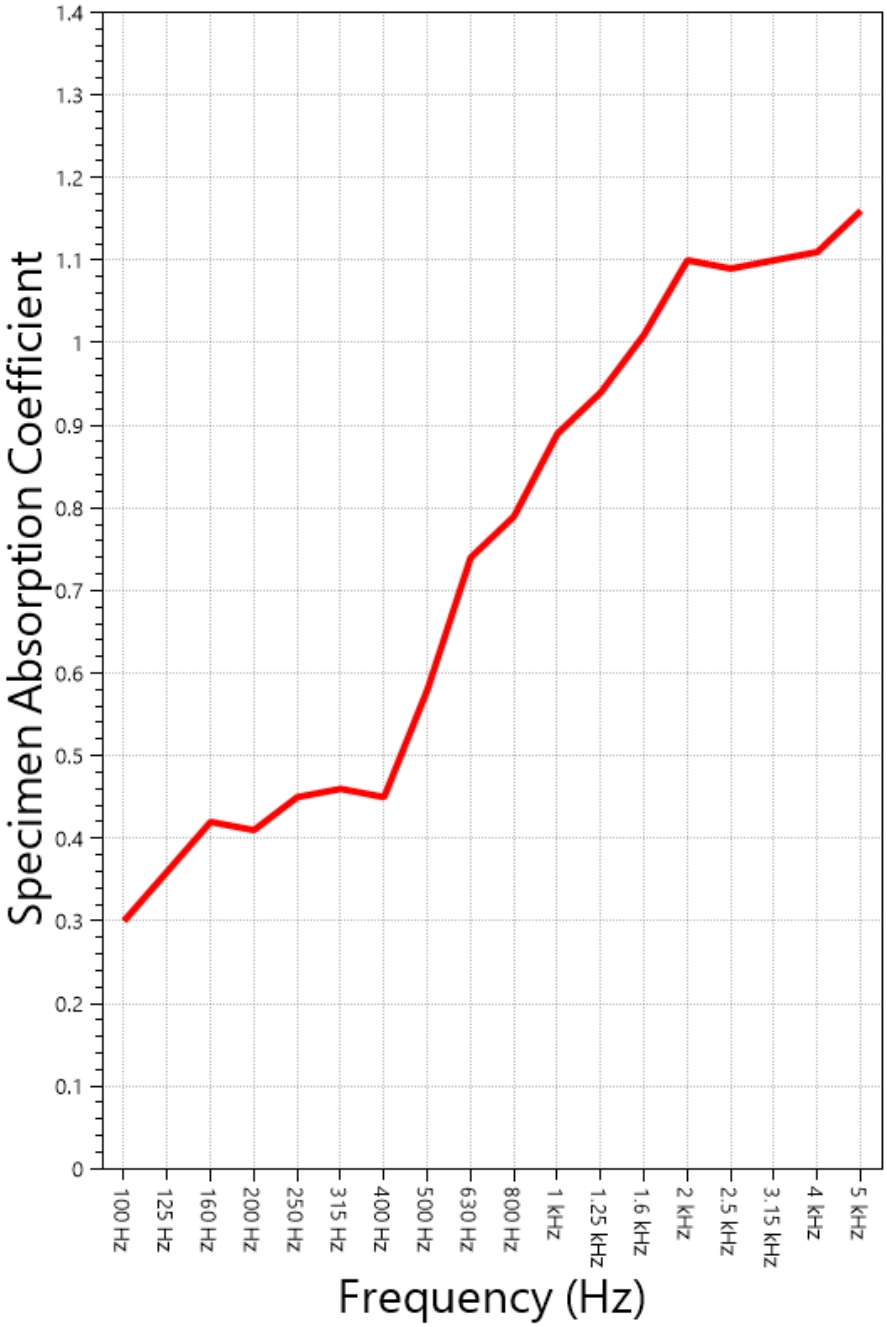
SOUND ABSORPTION REPORT

Amplitude Ceiling System



SAA = 0.74
NRC = 0.75

NVLAP TESTING
NVLAP LAB CODE 100227-0

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APPENDIX A: Extended Frequency Range Data

Specimen: Amplitude Ceiling System (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-23, 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	7.77	0.11
40	-4.64	-0.06
50	20.67	0.29
63	31.33	0.44
80	2.71	0.04
100	21.34	0.30
125	25.91	0.36
160	29.91	0.42
200	29.37	0.41
250	32.17	0.45
315	33.28	0.46
400	32.23	0.45
500	41.97	0.58
630	53.40	0.74
800	57.18	0.79
1000	64.01	0.89
1250	67.81	0.94
1600	72.90	1.01
2000	79.09	1.10
2500	78.83	1.09
3150	78.92	1.10
4000	80.04	1.11
5000	83.85	1.16
6300	85.61	1.19
8000	86.64	1.20
10000	86.46	1.20
12500	90.98	1.26

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APPENDIX B: Instruments of Traceability

Specimen: Amplitude Ceiling System (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-042	3160-106968	2022-07-12	2023-07-12
Bruel & Kjaer Mic And Preamp G	Type 4943-B-001	2525858	2023-05-03	2024-05-03
Bruel & Kjaer Pistonphone	Type 4228	2781248	2022-07-22	2023-07-22
EXTECH Hygro 639	SD700	A.103639	2022-12-07	2023-12-07

APPENDIX C: Revisions to Original Test Report

Specimen: Amplitude Ceiling System (See Full Report)

Date	Revision
2023-07-13	Original report issued

END