

## Test Report

CLIENT: **Architectural Supplements LLC**  
Waterbury, CT

**Sound Absorption**  
**RAL™-A19-077**

CONDUCTED: 2019-02-25

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ON: BioMontage® Panels - Reindeer Moss

### 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 17025:2005 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 client.

### INFORMATION PROVIDED BY CLIENT

The test specimen was designated by the client as BioMontage® Panels - Reindeer Moss. The following nominal product information was provided by the client prior to testing. The accuracy of such client-provided information can affect the validity of the test results.

#### Product Under Test

Trade Name: BioMontage® Panels  
Material: Reindeer Moss  
Manufacturer: Architectural Supplements LLC

### SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

#### Test Specimen

Materials: Organic material in metal trays, plastic frames  
Tray Dimensions: 16 @ 584.2 mm (23 in.) x 584.2 mm (23 in.)  
Tray Depth: 22.22 mm (0.875 in.)  
Frame Dimensions: 16 @ 603.25 mm (23.75 in.) x 603.25 mm (23.75 in.)  
Frame Depth: 73.02 mm (2.875 in.)  
Assembly: Trays laid in frames, held by snap-in perimeter pieces  
Organic material approximately flush with top of frame  
Weight: Trays with organic material @ 42.98 kg (94.75 lbs)  
Frames @ 54.66 kg (120.5 lbs)

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### Overall Specimen Properties

Size: 2.44 m (95.875 in) wide by 2.44 m (95.875 in) long  
Thickness: 0.07 m (2.875 in)  
Weight: 97.64 kg (215.25 lbs)  
Mass per Unit Area: 16.46 kg/m<sup>2</sup> (3.37 lbs/ft<sup>2</sup>)  
Calculation Area: 5.93 m<sup>2</sup> (63.83 ft<sup>2</sup>)

### Test Environment

Room Volume: 291.98 m<sup>3</sup>  
Temperature: 20.9 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)  
Relative Humidity: 66.8 % ± 0.2 % (Requirement: ≥ 40 % and ≤ 5 % change)  
Barometric Pressure: 100.3 kPa (Requirement not defined)

### MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. The perimeter edges were exposed, as would be typical of an actual installation of this specimen.

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Figure 1 – Specimen mounted in test chamber



Figure 2 – Frame pieces (left, right), tray with organic material (center)

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Figure 3 – Protrusion of organic material from tray



Figure 4 – Individual assembled panel

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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 <sup>2</sup> )	Total Absorption (Sabins)	Absorption Coefficient
100	1.42	15.29	0.24
** 125	1.60	17.23	0.27
160	2.26	24.37	0.38
200	3.80	40.88	0.64
** 250	3.15	33.88	0.53
315	2.71	29.20	0.46
400	2.72	29.30	0.46
** 500	3.86	41.56	0.65
630	4.04	43.47	0.68
800	3.12	33.57	0.53
** 1000	2.77	29.77	0.47
1250	2.91	31.37	0.49
1600	3.12	33.61	0.53
** 2000	3.38	36.37	0.57
2500	3.56	38.36	0.60
3150	3.18	34.18	0.54
** 4000	3.27	35.15	0.55
5000	3.89	41.84	0.66

**SAA = 0.55**

**NRC = 0.55**

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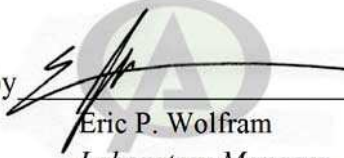
### TEST RESULTS (continued)


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   
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Report by   
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Acoustical Test Engineer

Approved by   
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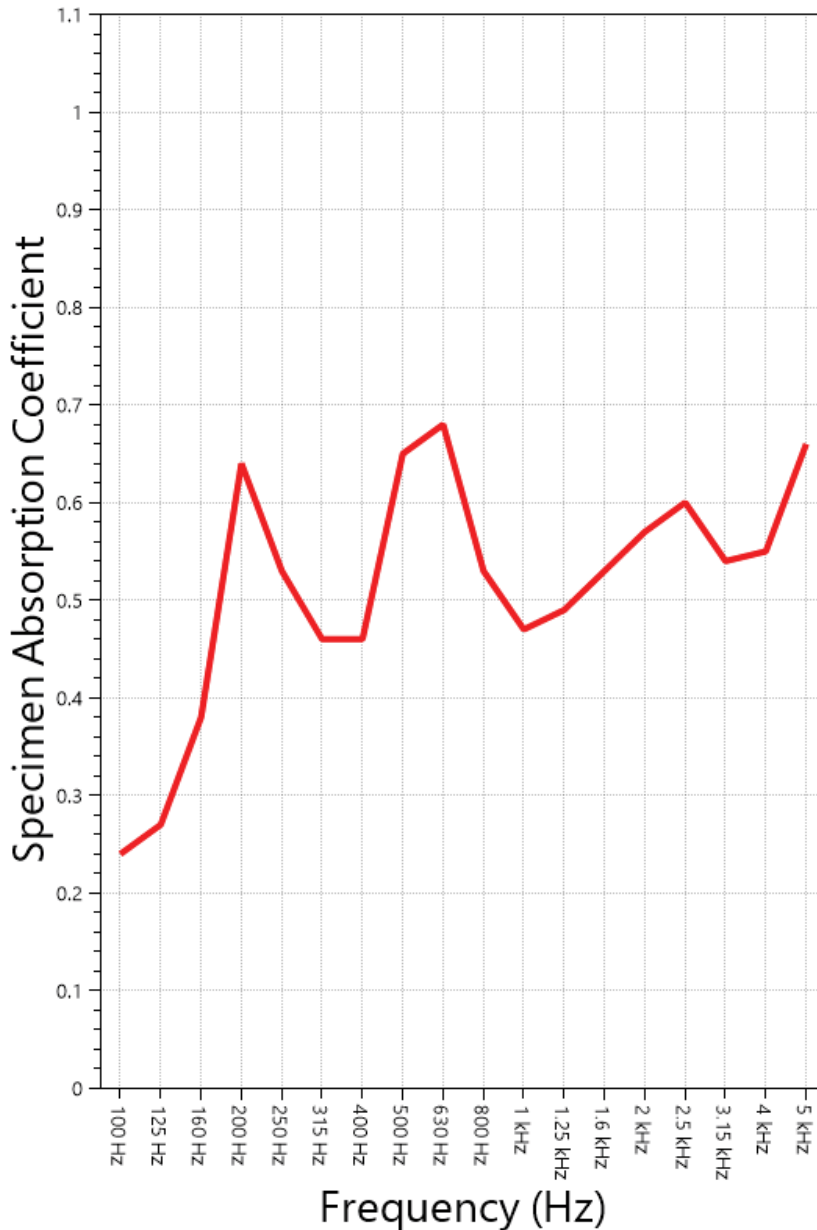
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SOUND ABSORPTION REPORT  
BioMontage® Panels - Reindeer Moss



**SAA = 0.55**  
**NRC = 0.55**



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### APPENDIX A: Extended Frequency Range Data

Specimen: BioMontage® Panels - Reindeer Moss (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	-0.06	0.00
40	-14.18	-0.22
50	-10.16	-0.16
63	3.57	0.06
80	7.89	0.12
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100	15.29	0.24
125	17.23	0.27
160	24.37	0.38
200	40.88	0.64
250	33.88	0.53
315	29.20	0.46
400	29.30	0.46
500	41.56	0.65
630	43.47	0.68
800	33.57	0.53
1000	29.77	0.47
1250	31.37	0.49
1600	33.61	0.53
2000	36.37	0.57
2500	38.36	0.60
3150	34.18	0.54
4000	35.15	0.55
5000	41.84	0.66
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6300	47.68	0.75
8000	53.87	0.84
10000	59.66	0.93
12500	67.77	1.06



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### APPENDIX B: Instruments of Traceability

Specimen: BioMontage® Panels - Reindeer Moss (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	2018-08-09	2019-08-09
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2018-09-28	2019-09-28
Bruel & Kjaer Pistonphone	Type 4228	2781248	2018-08-06	2019-08-06
EXTECH Hygro 662	SD700	A083662	2018-11-29	2019-11-29

### APPENDIX C: Revisions to Original Test Report

Specimen: BioMontage® Panels - Reindeer Moss (See Full Report)

<u>Date</u>	<u>Revision</u>
2019-03-08	Original report issued

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END