

Test Report

SPONSOR: **Mayne Inc.**
Abbotsford, BC, Canada

Sound Absorption
RAL™-A20-285

CONDUCTED: 2020-07-07

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ON: 6 in. Beams over 3 pcf 1 in. fiberglass backer

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 6 in. Beams over 3 pcf 1 in. fiberglass backer. 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

Trade Name: Linear Metal Ceilings: 6 in. Beams
Depth: 152.4 mm (6 in.)
Backer Density: 48.1 kg/m³ (3 lbs/ft³)
Manufacturer: Longboard Products

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Materials: Hollow aluminum beams over rigid fiberglass backer
Aluminum caps over ends of beams
Dimensions: Beams, 18 @ 2443 mm (96.19 in.) long x 152.4 mm (6 in.) wide x 41.28 mm (1.625 in.) thick
Fiberglass backer @ 2632.08 mm (103.625 in.) x 2438.4 mm (96 in.)
Thickness: Beam wall @ 2 mm (0.079 in.)
Fiberglass backer @ 25.4 mm (1 in.)
Overall Weight: Beams @ 107.73 kg (237.5 lbs)
Fiberglass backer @ 7.71 kg (17 lbs)
Density: Fiberglass backer @ 47.30 kg/m³ (2.95 lbs/ft³)
Installation: Beams loose laid over backer, spaced 152.4 mm (6 in.) on center



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Overall Specimen Properties

Size: 2.63 m (103.625 in.) wide by 2.44 m (96.187 in) long
Thickness: 0.18 m (7 in.)
Weight: 115.44 kg (254.5 lbs)
Mass per Unit Area: 17.95 kg/m² (3.68 lbs/ft²)
Calculation Area: 6.43 m² (69.22 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 22.5 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 59.15 % ± 0.5 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.7 kPa (Requirement not defined)

MOUNTING METHOD

Type A Mounting: The test specimen was laid directly against the test surface. Perimeter edges were sealed with metal framing.

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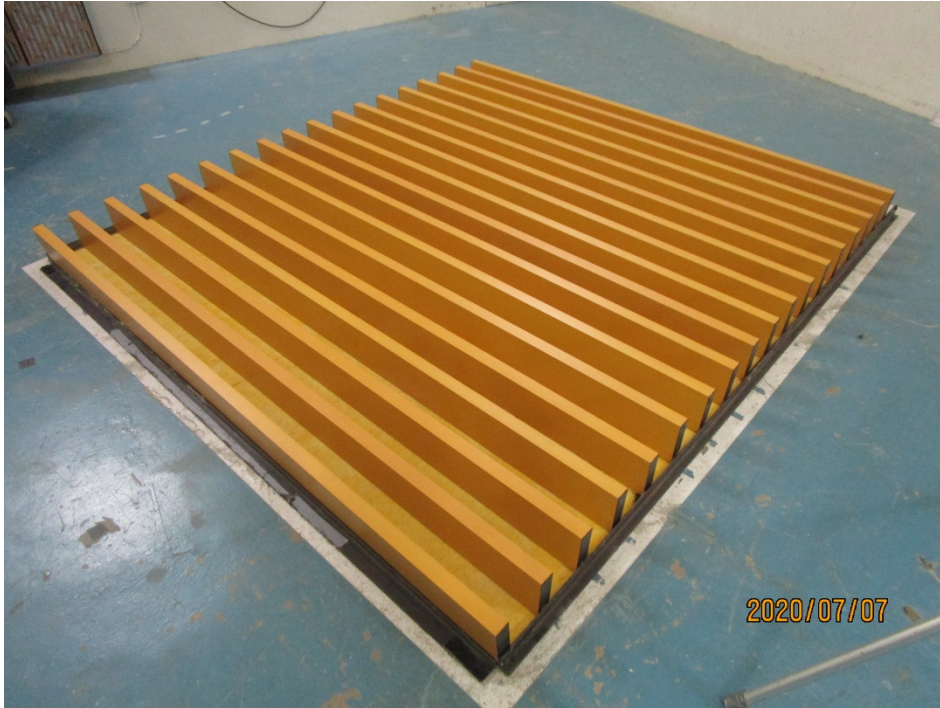


Figure 1 – Specimen mounted in test chamber



Figure 2 – Detail of specimen materials

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Figure 3 – Specimen mounted in test chamber

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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	0.85	9.15	0.13
** 125	1.62	17.45	0.25
160	1.74	18.78	0.27
200	2.39	25.70	0.37
** 250	3.25	34.99	0.51
315	4.85	52.25	0.75
400	5.25	56.50	0.82
** 500	5.44	58.55	0.85
630	5.53	59.55	0.86
800	5.59	60.21	0.87
** 1000	6.03	64.91	0.94
1250	6.24	67.21	0.97
1600	5.19	55.88	0.81
** 2000	5.47	58.88	0.85
2500	5.71	61.46	0.89
3150	5.27	56.73	0.82
** 4000	5.31	57.18	0.83
5000	5.33	57.37	0.83

SAA = 0.80
NRC = 0.79

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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.

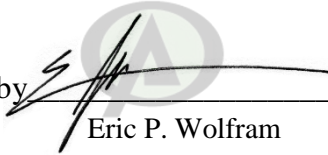
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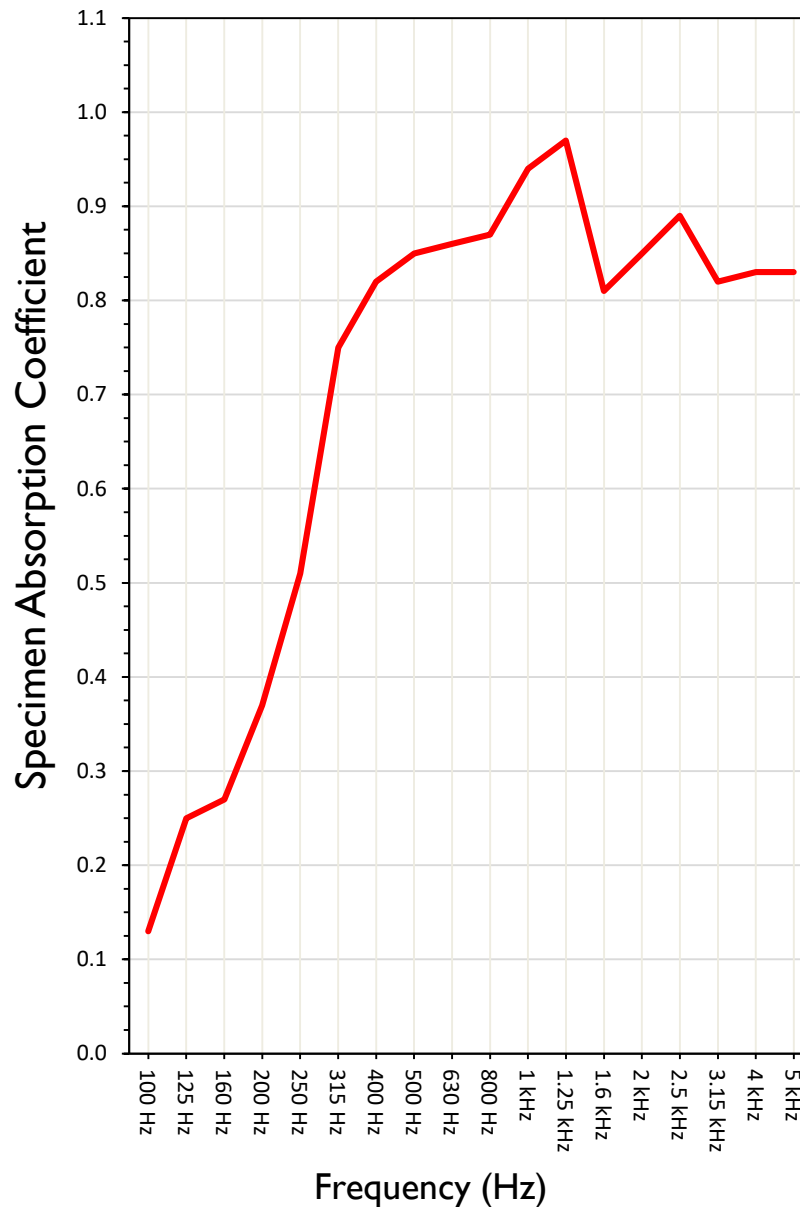
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SOUND ABSORPTION REPORT

6 in. Beams over 3 pcf 1 in. fiberglass backer



SAA = 0.80

NRC = 0.79



NVLAP LAB CODE 100227-0

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APPENDIX A: Extended Frequency Range Data

Specimen: 6 in. Beams over 3 pcf 1 in. fiberglass backer (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	2.31	0.03
40	8.34	0.12
50	-4.57	-0.07
63	-3.33	-0.05
80	0.50	0.01
100	9.15	0.13
125	17.45	0.25
160	18.78	0.27
200	25.70	0.37
250	34.99	0.51
315	52.25	0.75
400	56.50	0.82
500	58.55	0.85
630	59.55	0.86
800	60.21	0.87
1000	64.91	0.94
1250	67.21	0.97
1600	55.88	0.81
2000	58.88	0.85
2500	61.46	0.89
3150	56.73	0.82
4000	57.18	0.83
5000	57.37	0.83
6300	58.28	0.84
8000	60.89	0.88
10000	58.80	0.85
12500	58.59	0.85

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APPENDIX B: Instruments of Traceability

Specimen: 6 in. Beams over 3 pc 1 in. fiberglass backer (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	2019-09-27	2020-09-27
Bruel & Kjaer Pistonphone	Type 4228	2781248	2019-08-09	2020-08-09
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: 6 in. Beams over 3 pc 1 in. fiberglass backer (See Full Report)

<u>Date</u>	<u>Revision</u>
2020-07-13	Original report issued

END