RIVERBANK ACOUSTICAL LABORATORIES

1512 S BATAVIA AVENUE
GENEVA, IL 60134

630-232-0104

An A L I O N Technical Center

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Sound Seal**
Agawam, MA

Sound Absorption
RAL™-A21-419

CONDUCTED: 2021-07-21

ON: Timberstix panels (Modified Type D-20 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," except for modifications detailed in the Mounting Method section on Page 2. 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 Timberstix panels (Modified Type D-20 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

Trade Name:	Timberstix
Thickness:	22 mm (0.866 in.)

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Materials:	Medium density fiberboard slats with wood veneer facing Spaced slats fastened over semirigid felt paneling
Dimensions:	5 panels @ 603 mm (23.75 in.) by 2442 mm (96.125 in.) Slats, 15 per panel @ 25 mm (0.984 in.) wide, spaced 40 mm (1.575 in.) on centers
Thickness:	Slats @ 12.75 mm (0.502 in.) Felt @ 9.37 mm (0.369 in.)
Overall Weight:	56.93 kg (125.5 lbs)
Installation:	Slats exposed to sound field 5 mm (0.197 in.) wide overlap at joints, slat spacing preserved panel to panel

Overall Specimen Properties

Size:	2.99 m (117.75 in) wide by 2.44 m (96.125 in) long
Thickness:	0.02 m (0.871 in)
Weight:	56.93 kg (125.5 lbs)
Mass per Unit Area:	7.8 kg/m² (1.6 lbs/ft²)
Calculation Area:	7.302 m² (78.6 ft²)

Test Environment

Room Volume:	291.98 m³
Temperature:	21.9 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity:	63.7 % ± 0.6 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure:	99.4 kPa (Requirement not defined)

MOUNTING METHOD

Modified Type D-20 Mounting: The test specimen was laid over an evenly spaced array of 20.83 mm (0.82 in.) thick wooden furring strips provided by the test sponsor. Additional furring strips placed perpendicular to the ends of the spaced array served to enclose the resulting air space between the test specimen and the horizontal test surface. The furring strips were spaced 610 mm (24 in.) on centers. The numeral suffix in the mounting designation is defined in ASTM E795-16 as the thickness of the furring strips in millimeters, rounded to the nearest integer multiple of 5. Perimeter edges were additionally sealed with tape.

Note: This specimen mounting differs from Type D mounting described in ASTM E795-16 Section 9 in that the furring strip spacing used in the test differs from the spacing of 300 mm (12 in.) on centers specified in Section 9.1.

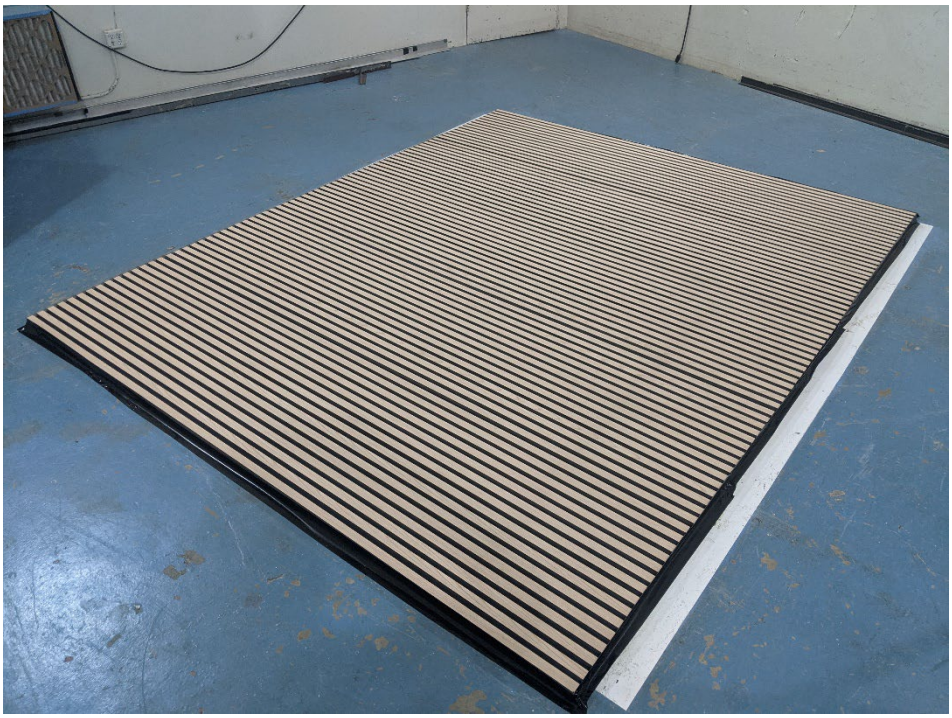

Figure 1 – Specimen mounted in test chamber

Figure 2 – Specimen partially installed over spaced furring strips

Figure 3 – Individual specimen panels, face oriented toward horizontal test surface

Figure 4 – Detail of specimen materials, as installed over furring strips

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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	0.19	2.09	0.03
** 125	0.33	3.51	0.04
160	0.55	5.88	0.07
200	1.03	11.13	0.14
** 250	1.32	14.16	0.18
315	1.94	20.92	0.27
400	2.49	26.77	0.34
** 500	3.67	39.51	0.50
630	4.86	52.28	0.67
800	6.34	68.29	0.87
** 1000	7.45	80.17	1.02
1250	8.11	87.31	1.11
1600	8.24	88.71	1.13
** 2000	7.57	81.51	1.04
2500	6.64	71.43	0.91
3150	5.83	62.74	0.80
** 4000	5.64	60.70	0.77
5000	5.85	63.00	0.80

SAA = 0.68
NRC = 0.70

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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
Senior Experimentalist

Report by _____
Malcolm Kelly
Acoustical Test Engineer

Approved by _____
Eric P. Wolfram
Laboratory Manager

Digitally signed by
Eric P Wolfram
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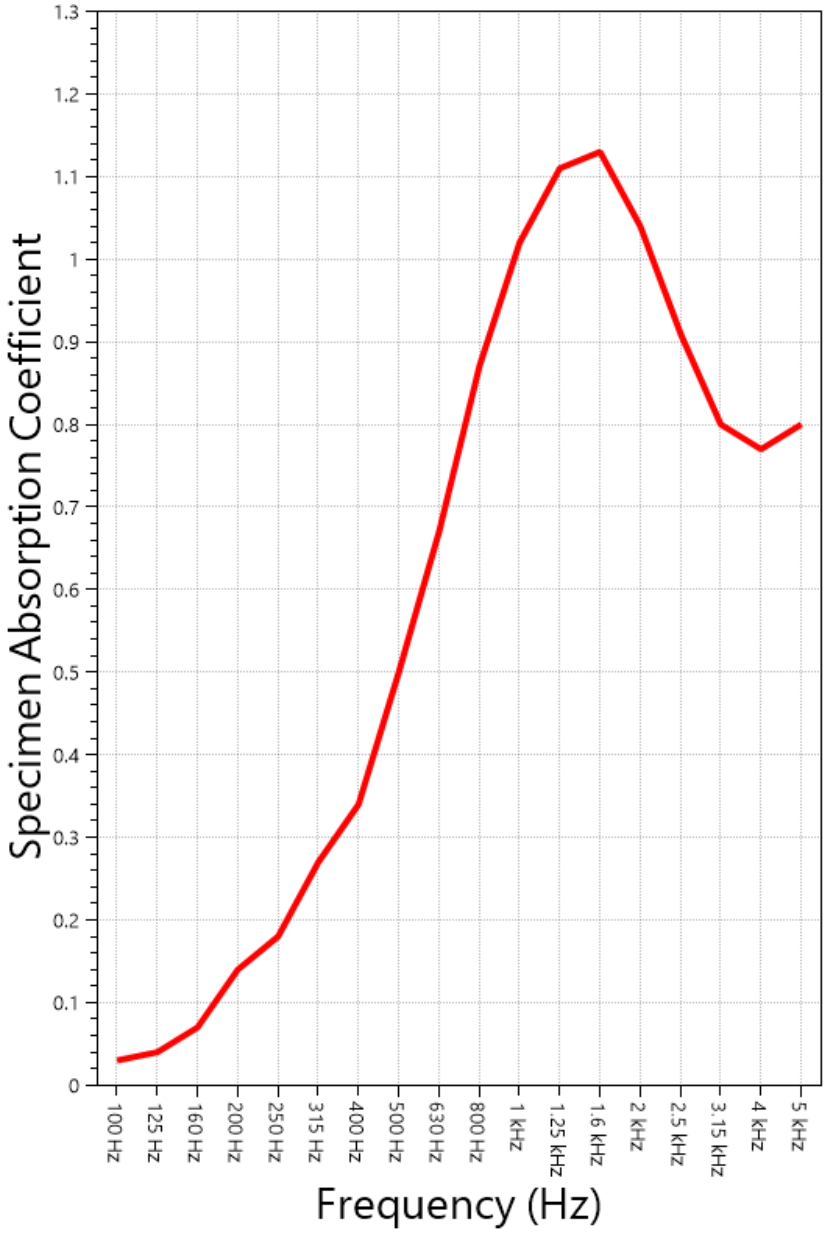
SOUND ABSORPTION REPORT

Timberstix panels (Modified Type D-20 mounting)



SAA = 0.68
NRC = 0.70

NVLAP TESTING
NVLAP LAB CODE 100227-0

APPENDIX A: Extended Frequency Range Data

Specimen: Timberstix panels (Modified Type D-20 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	-0.18	0.00
40	-0.29	0.00
50	5.30	0.07
63	4.56	0.06
80	-2.25	-0.03
100	2.09	0.03
125	3.51	0.04
160	5.88	0.07
200	11.13	0.14
250	14.16	0.18
315	20.92	0.27
400	26.77	0.34
500	39.51	0.50
630	52.28	0.67
800	68.29	0.87
1000	80.17	1.02
1250	87.31	1.11
1600	88.71	1.13
2000	81.51	1.04
2500	71.43	0.91
3150	62.74	0.80
4000	60.70	0.77
5000	63.00	0.80
6300	57.33	0.73
8000	47.70	0.61
10000	39.40	0.50
12500	37.24	0.47

APPENDIX B: Instruments of Traceability

Specimen: Timberstix panels (Modified Type D-20 mounting) (See Full Report)

Description	Model	Serial Number	Date of Certification	Calibration Due
System 1	Type 3160-A-042	3160-106968	2021-07-01	2022-07-01
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
EXTECH Hygro 639	SD700	A.103639	2020-12-18	2021-12-18

APPENDIX C: Revisions to Original Test Report

Specimen: Timberstix panels (Modified Type D-20 mounting) (See Full Report)

Date	Revision
2021-07-23	Original report issued
2022-03-03	All Pages: The original manufacturer/requester identification and specimen designation was changed to facilitate a private label sales agreement. The original requester has provided a letter to RAL on their company letterhead certifying that the product identified has not changed in materials, composition, or manufacturing methods since the original test date and the product sold under the private label agreement is exactly identical to the original specimen described in the test report and sourced from the same manufacturing process. -EPW

END