

Test Report

SPONSOR: **Sound Seal**
Agawam, MA

Sound Absorption
RAL™-A20-361

CONDUCTED: 2020-08-31

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ON: Plex Board™ 9mm Panel w/ 4" Air Gap

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 Plex Board™ 9mm Panel w/ 4" Air Gap. 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: Plex Board™ 9mm Panel w/ 4" Air Gap
Material: Polyethylene terephthalate felt
Thickness: 9 mm (0.354 in.)
Manufacturer: Sound Seal

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Test Specimen

Material: Semirigid felt paneling
Dimensions: 2 @ 1219.2 mm (48 in.) x 2438.4 mm (96 in.)
1 @ 304.8 mm (12 in.) x 2438.4 mm (96 in.)
Thickness: 9.37 mm (0.369 in.)
Overall Weight: 8.39 kg (18.5 lbs)
Density: 133.85 kg/m³ (8.36 lbs/ft³)
Joints: Edges butted

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Overall Specimen Properties

Size: 2.74 m (108.0 in) wide by 2.44 m (96.0 in) long
Thickness: 0.01 m (0.369 in)
Weight: 8.39 kg (18.5 lbs)
Mass per Unit Area: 1.25 kg/m² (0.26 lbs/ft²)
Calculation Area: 6.689 m² (72. ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 22.9 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 57.5 % ± 0.0 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.1 kPa (Requirement not defined)

MOUNTING METHOD

Type F-100 Mounting: The test specimen was laid across a regularly-spaced array of 101.6 mm (4 in.) thick wooden spacers, creating an air space between the test specimen and the horizontal test surface. The numeral suffix in the mounting designation is defined in ASTM E795-16 as the thickness of the spacers in millimeters, rounded to the nearest integer multiple of 5. Perimeter edges were sealed with metal framing, wood, and duct tape.

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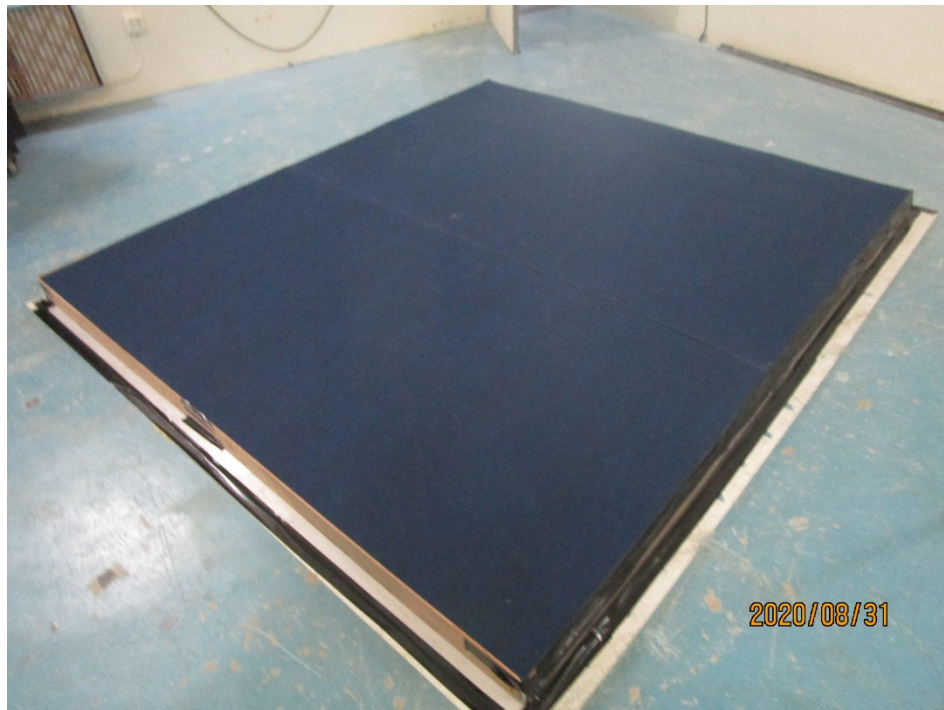


Figure 1 – Specimen mounted in test chamber



Figure 2 – Specimen partially installed, spacer array

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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 | 1.30 | 13.95 | 0.19 |
| ** 125 | 0.95 | 10.18 | 0.14 |
| 160 | 1.15 | 12.35 | 0.17 |
| 200 | 1.88 | 20.22 | 0.28 |
| ** 250 | 2.12 | 22.81 | 0.32 |
| 315 | 3.19 | 34.35 | 0.48 |
| 400 | 3.63 | 39.07 | 0.54 |
| ** 500 | 4.87 | 52.37 | 0.73 |
| 630 | 5.55 | 59.73 | 0.83 |
| 800 | 6.06 | 65.27 | 0.91 |
| ** 1000 | 6.12 | 65.92 | 0.92 |
| 1250 | 5.60 | 60.33 | 0.84 |
| 1600 | 4.61 | 49.57 | 0.69 |
| ** 2000 | 4.82 | 51.84 | 0.72 |
| 2500 | 5.74 | 61.83 | 0.86 |
| 3150 | 5.84 | 62.89 | 0.87 |
| ** 4000 | 5.89 | 63.36 | 0.88 |
| 5000 | 6.02 | 64.77 | 0.90 |

SAA = 0.68
NRC = 0.65

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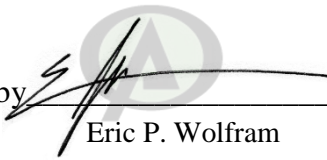
TEST RESULTS (continued)

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 
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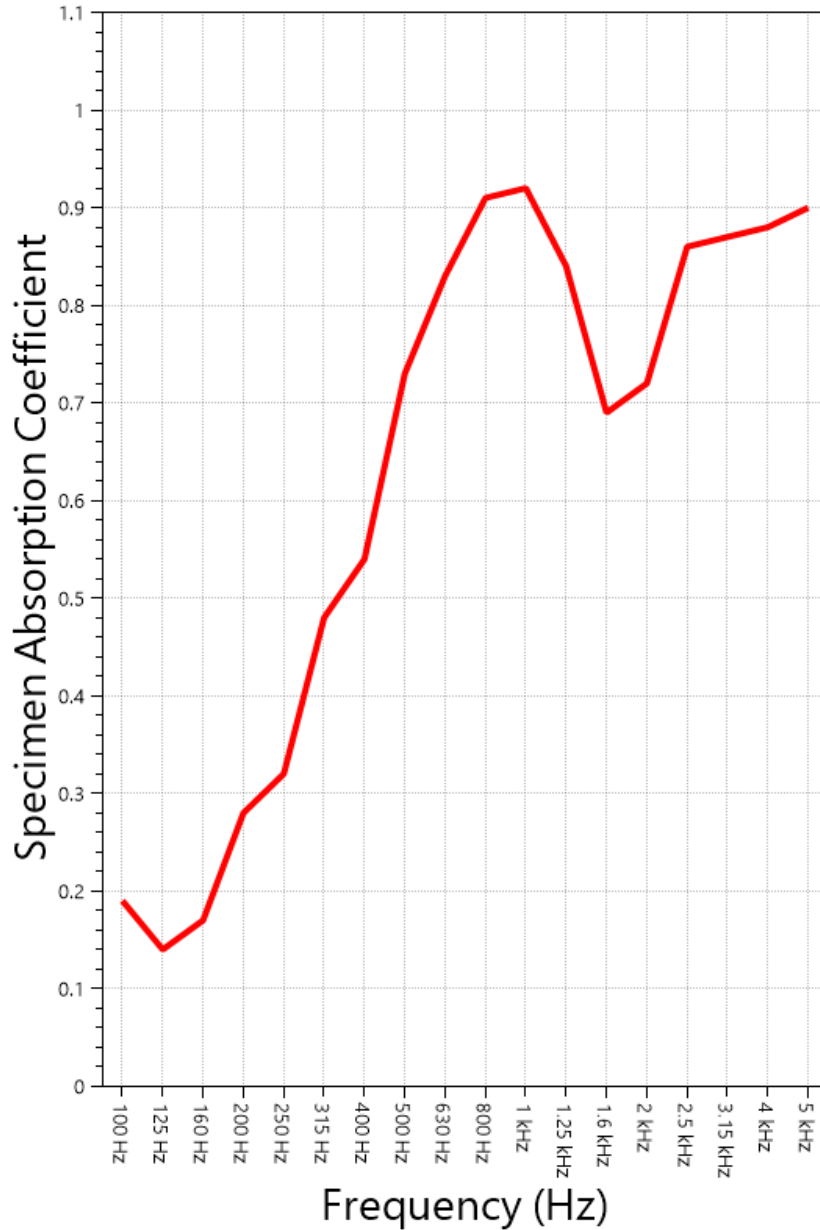
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SOUND ABSORPTION REPORT
Plex Board™ 9mm Panel w/ 4" Air Gap



SAA = 0.68
NRC = 0.65

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APPENDIX A: Extended Frequency Range Data

Specimen: Plex Board™ 9mm Panel w/ 4" Air Gap (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 | 2.72 | 0.04 |
| 40 | 6.63 | 0.09 |
| 50 | 7.91 | 0.11 |
| 63 | -0.19 | 0.00 |
| 80 | 8.44 | 0.12 |
| 100 | 13.95 | 0.19 |
| 125 | 10.18 | 0.14 |
| 160 | 12.35 | 0.17 |
| 200 | 20.22 | 0.28 |
| 250 | 22.81 | 0.32 |
| 315 | 34.35 | 0.48 |
| 400 | 39.07 | 0.54 |
| 500 | 52.37 | 0.73 |
| 630 | 59.73 | 0.83 |
| 800 | 65.27 | 0.91 |
| 1000 | 65.92 | 0.92 |
| 1250 | 60.33 | 0.84 |
| 1600 | 49.57 | 0.69 |
| 2000 | 51.84 | 0.72 |
| 2500 | 61.83 | 0.86 |
| 3150 | 62.89 | 0.87 |
| 4000 | 63.36 | 0.88 |
| 5000 | 64.77 | 0.90 |
| 6300 | 66.86 | 0.93 |
| 8000 | 72.09 | 1.00 |
| 10000 | 71.33 | 0.99 |
| 12500 | 81.09 | 1.13 |

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APPENDIX B: Instruments of Traceability

Specimen: Plex Board™ 9mm Panel w/ 4" Air Gap (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 Sound Level Calibrator | Type 4230 | 861609 | 2019-11-19 | 2020-11-19 |
| 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: Plex Board™ 9mm Panel w/ 4" Air Gap (See Full Report)

| <u>Date</u> | <u>Revision</u> |
|--------------------|--|
| 2020-09-03 | Original report issued |
| 2020-09-24 | Page 1-8: The original manufacturer/requester identification and specimen designation were 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. –MP, approved by EPW. |

END