

1512 S BATAVIA AVENUE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Genesis Products**
Elkhart, IN

Sound Absorption
RAL™-A22-329

CONDUCTED: 2022-08-05

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ON: 1" Drop Tiles

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 C423-22: "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 1" Drop Tiles. 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: 1" Drop Tiles
Face Finish/Fabric: Polyester Fiber
Core Material: Polyester Fiber
Air Space Depth: 400 mm
Tile/Panel Dimensions: 2' by 2'
Manufacturer: Genesis Products

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SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Drop Tiles

Dimensions: 16 tiles @ 603 mm (23.75 in.) by 603 mm (23.75 in.)
Thickness: 28.04 mm (1.104 in.)
Overall Weight: 8.39 kg (18.5 lbs)
Mass per Unit Area: 1.44 kg/m² (0.295 lbs/ft²)

Flat Tiles

Dimensions: 4 tiles @ 330 mm (13 in.) by 603 mm (23.75 in.)
Thickness: 4.41 mm (0.1735 in.)
Overall Weight: 0.91 kg (2 lbs)
Mass per Unit Volume: 1.14 kg/m² (0.233 lbs/ft²)

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Overall Specimen Properties

Size: 2.74 m (108.0 in) wide by 2.41 m (95.0 in) long
Thickness: 0.03 m (1.104 in)
Weight: 9.3 kg (20.5 lbs)
Mass per Unit Area: 1.4 kg/m² (0.29 lbs/ft²)
Calculation Area: 6.619 m² (71.25 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 21.9 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 57.0 % ± 1.0 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 99.0 kPa (Requirement not defined)

MOUNTING METHOD

Type E-430 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 numeral suffix in the designation is defined in ASTM E795-16 as the distance in millimeters from the exposed face of the test specimen to the test surface, rounded to the nearest integer multiple of 5. For the purposes of this report, the mounting designation uses the top faces of the specimen drop tiles as a reference datum. Perimeter edges were sealed with metal framing.

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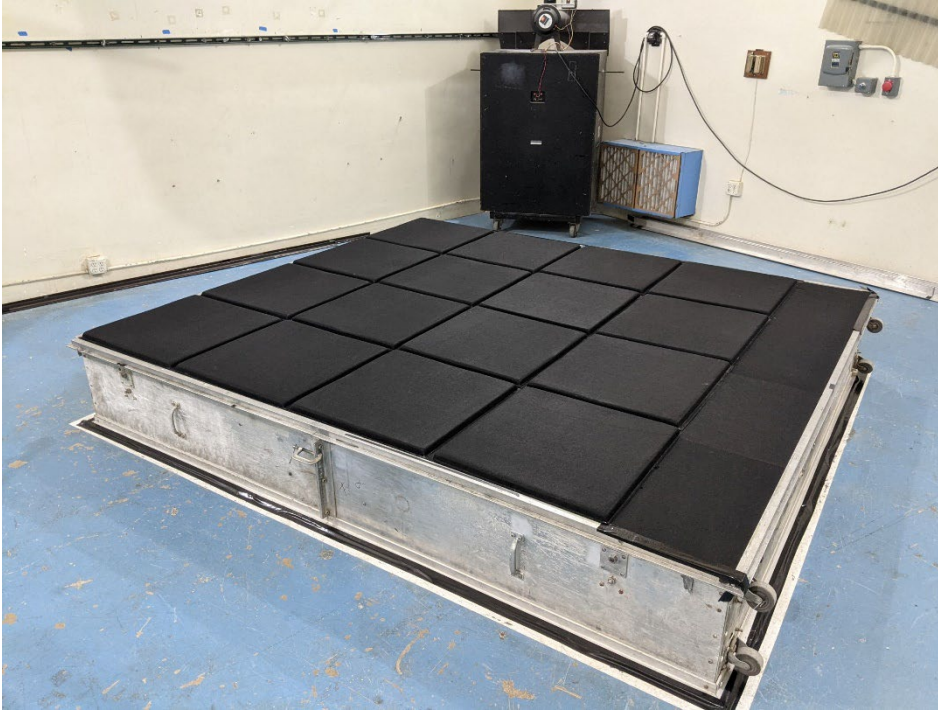


Figure 1 – Specimen mounted in test chamber



Figure 2 – Individual specimen drop tile

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Figure 3 – Individual specimen drop tile

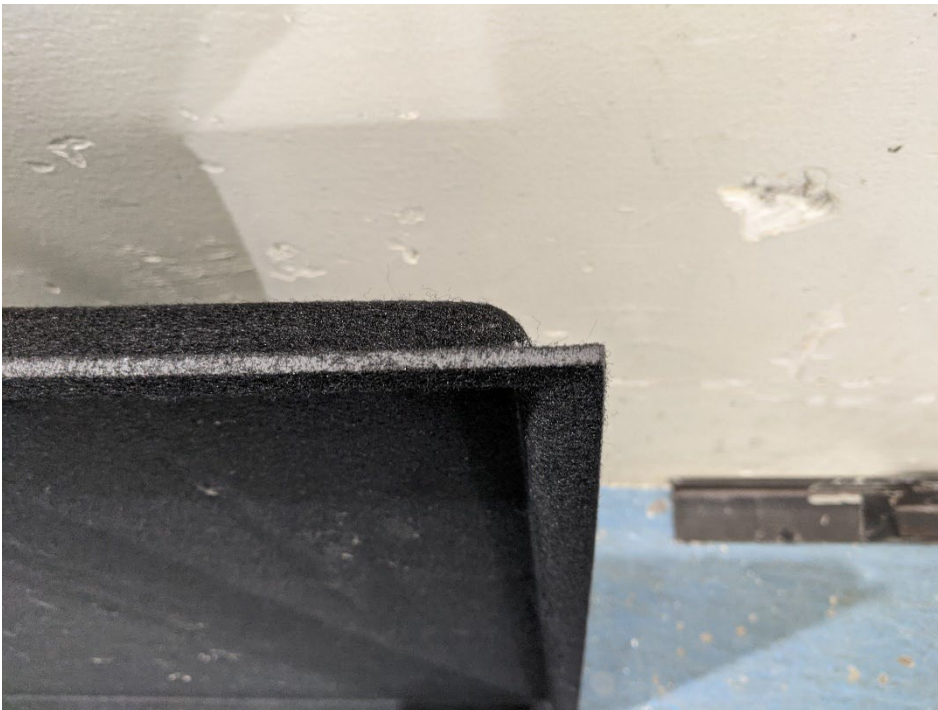


Figure 4 – Detail of specimen drop tile material

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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	6.15	66.20	0.93
** 125	6.18	66.56	0.93
160	5.02	54.02	0.76
200	6.79	73.06	1.03
** 250	6.51	70.05	0.98
315	5.60	60.29	0.85
400	4.59	49.39	0.69
** 500	3.96	42.62	0.60
630	4.99	53.75	0.75
800	4.75	51.15	0.72
** 1000	4.91	52.88	0.74
1250	5.21	56.07	0.79
1600	5.51	59.34	0.83
** 2000	5.79	62.34	0.88
2500	5.88	63.27	0.89
3150	6.04	64.99	0.91
** 4000	6.09	65.55	0.92
5000	6.41	68.96	0.97

SAA = 0.81

NRC = 0.80

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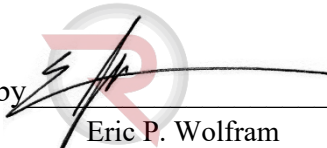
TEST RESULTS (continued)

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 
Keith Kimberling
Test Engineer

Approved by 
Eric P. Wolfram
Laboratory Manager

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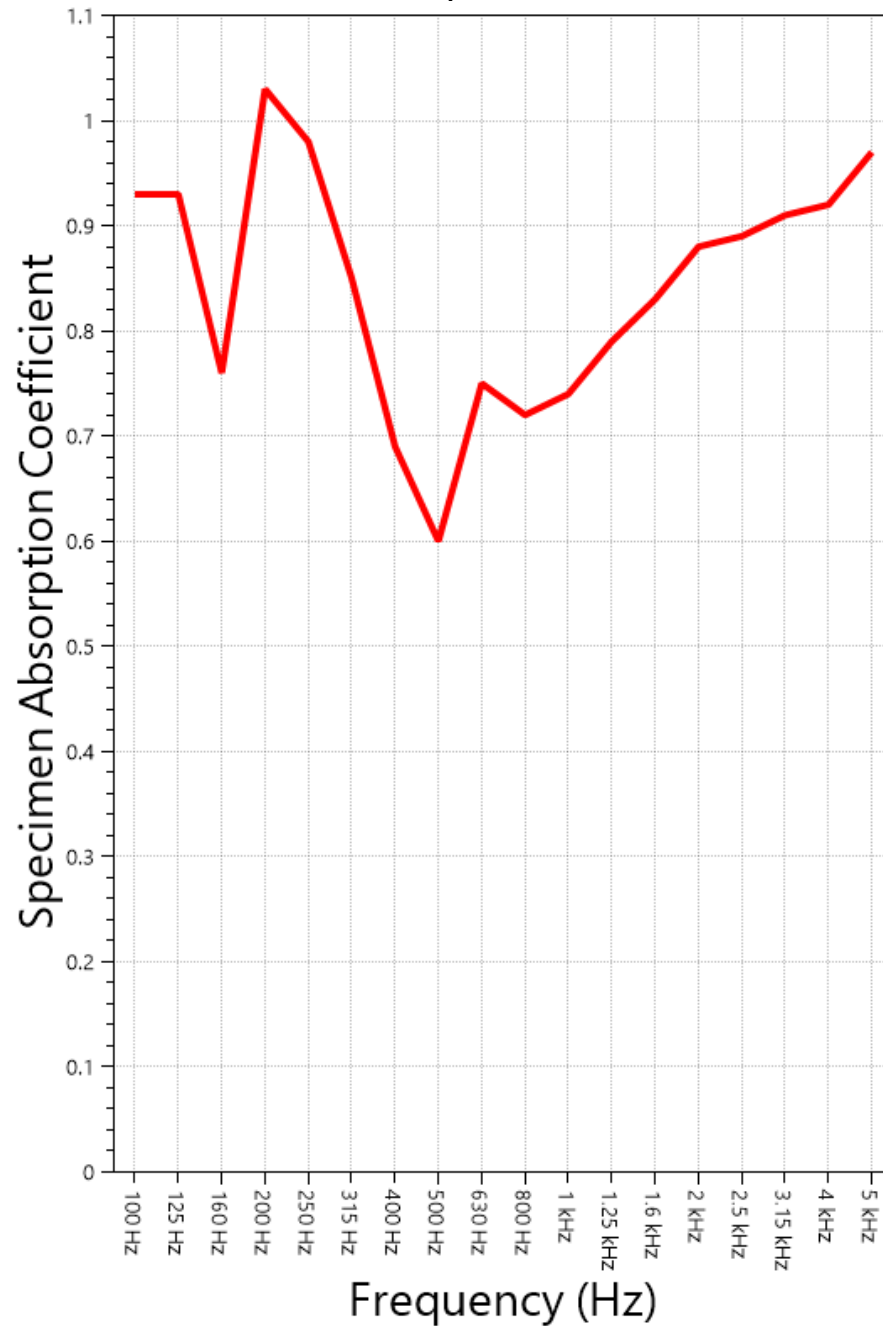
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SOUND ABSORPTION REPORT

1" Drop Tiles



SAA = 0.81

NRC = 0.80

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APPENDIX A: Extended Frequency Range Data

Specimen: 1" Drop Tiles (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-22, 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	27.17	0.38
40	13.62	0.19
50	35.39	0.50
63	24.84	0.35
80	34.50	0.48
100	66.20	0.93
125	66.56	0.93
160	54.02	0.76
200	73.06	1.03
250	70.05	0.98
315	60.29	0.85
400	49.39	0.69
500	42.62	0.60
630	53.75	0.75
800	51.15	0.72
1000	52.88	0.74
1250	56.07	0.79
1600	59.34	0.83
2000	62.34	0.88
2500	63.27	0.89
3150	64.99	0.91
4000	65.55	0.92
5000	68.96	0.97
6300	68.04	0.95
8000	71.15	1.00
10000	73.22	1.03
12500	78.05	1.10

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APPENDIX B: Instruments of Traceability

Specimen: 1" Drop Tiles (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	2022-07-12	2023-07-12
Bruel & Kjaer Mic And Preamp A	Type 4943-B-001	2311428	2021-09-30	2022-09-30
Bruel & Kjaer Pistonphone	Type 4228	2781248	2022-07-22	2023-07-22
EXTECH Hygro 959	SD700	A099959	2022-03-22	2023-03-22

APPENDIX C: Revisions to Original Test Report

Specimen: 1" Drop Tiles (See Full Report)

<u>Date</u>	<u>Revision</u>
2022-08-11	Original report issued

END