

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

## Test Report

[www.riverbankacoustics.com](http://www.riverbankacoustics.com)

FOUNDED 1918 BY  
WALLACE CLEMENT SABINE

SPONSOR: **TURF**  
Elgin, IL

**Sound Absorption**  
**RAL™-A22-364**

CONDUCTED: 2022-08-24

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ON: Monolith

### 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 Monolith. 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: Monolith  
Manufacturer: TURF

### SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

#### **Test Specimen**

Material: PET felt  
Dimensions: 6 panels @ 406 mm (16 in.) by 2743 mm (108 in.)  
Thickness: 51.74 mm (2.037 in.)  
Overall Weight: 33.45 kg (73.75 lbs)  
Mass per Unit Volume: 96.7 kg/m<sup>3</sup> (6.03 lbs/ft<sup>3</sup>)

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### Overall Specimen Properties

Size: 2.46 m (96.75 in) wide by 2.74 m (108.0 in) long  
Thickness: 51.74 mm (2.037 in.)  
Weight: 33.45 kg (73.75 lbs)  
Mass per Unit Area: 4.96 kg/m<sup>2</sup> (1.02 lbs/ft<sup>2</sup>)  
Calculation Area: 6.741 m<sup>2</sup> (72.56 ft<sup>2</sup>)

### Test Environment

Room Volume: 291.98 m<sup>3</sup>  
Temperature: 21.7 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)  
Relative Humidity: 56.0 % ± 0.0 % (Requirement: ≥ 40 % and ≤ 5 % change)  
Barometric Pressure: 99.0 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 and tape.

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Figure 1 – Specimen mounted in test chamber

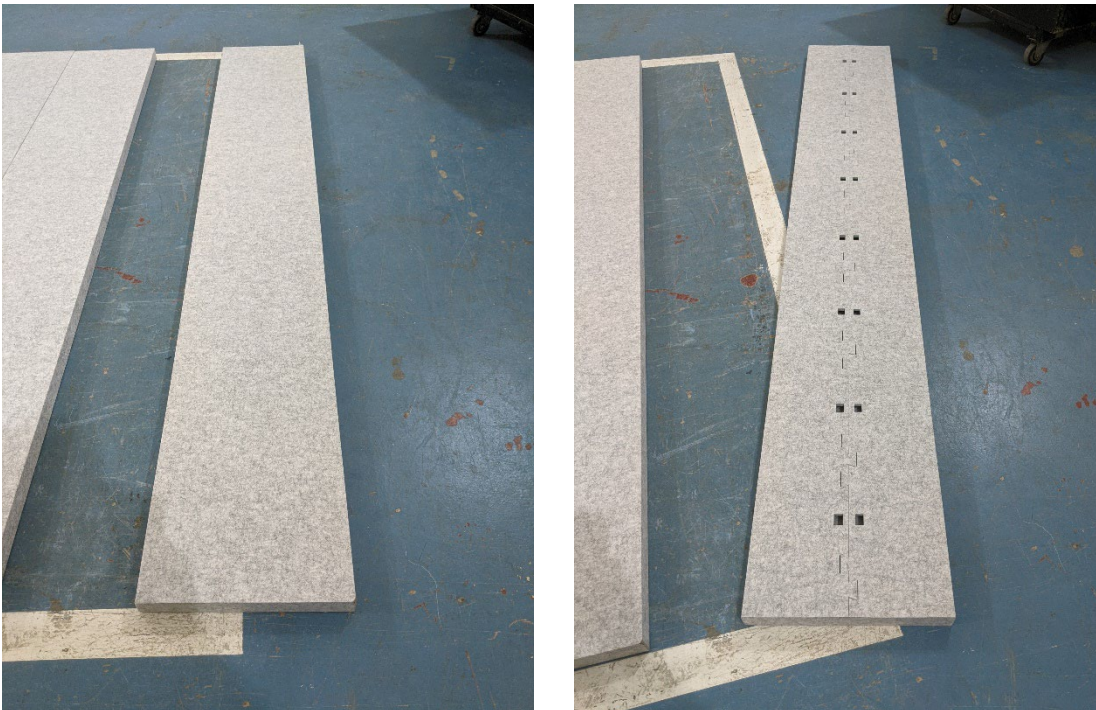


Figure 2 – Individual specimen panel prior to perimeter sealing



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Figure 3 – Detail of specimen 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 <sup>2</sup> )	Total Absorption (Sabins)	Absorption Coefficient
100	1.13	12.16	0.17
** 125	1.28	13.79	0.19
160	1.78	19.16	0.26
200	2.77	29.86	0.41
** 250	3.76	40.45	0.56
315	5.25	56.53	0.78
400	5.84	62.90	0.87
** 500	6.80	73.19	1.01
630	7.56	81.42	1.12
800	7.62	82.00	1.13
** 1000	7.45	80.19	1.11
1250	7.47	80.43	1.11
1600	7.13	76.80	1.06
** 2000	6.83	73.48	1.01
2500	6.81	73.26	1.01
3150	6.59	70.97	0.98
** 4000	6.77	72.85	1.00
5000	7.03	75.72	1.04

**SAA = 0.93**  
**NRC = 0.90**

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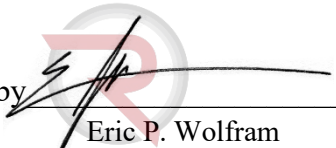
### TEST RESULTS (continued)

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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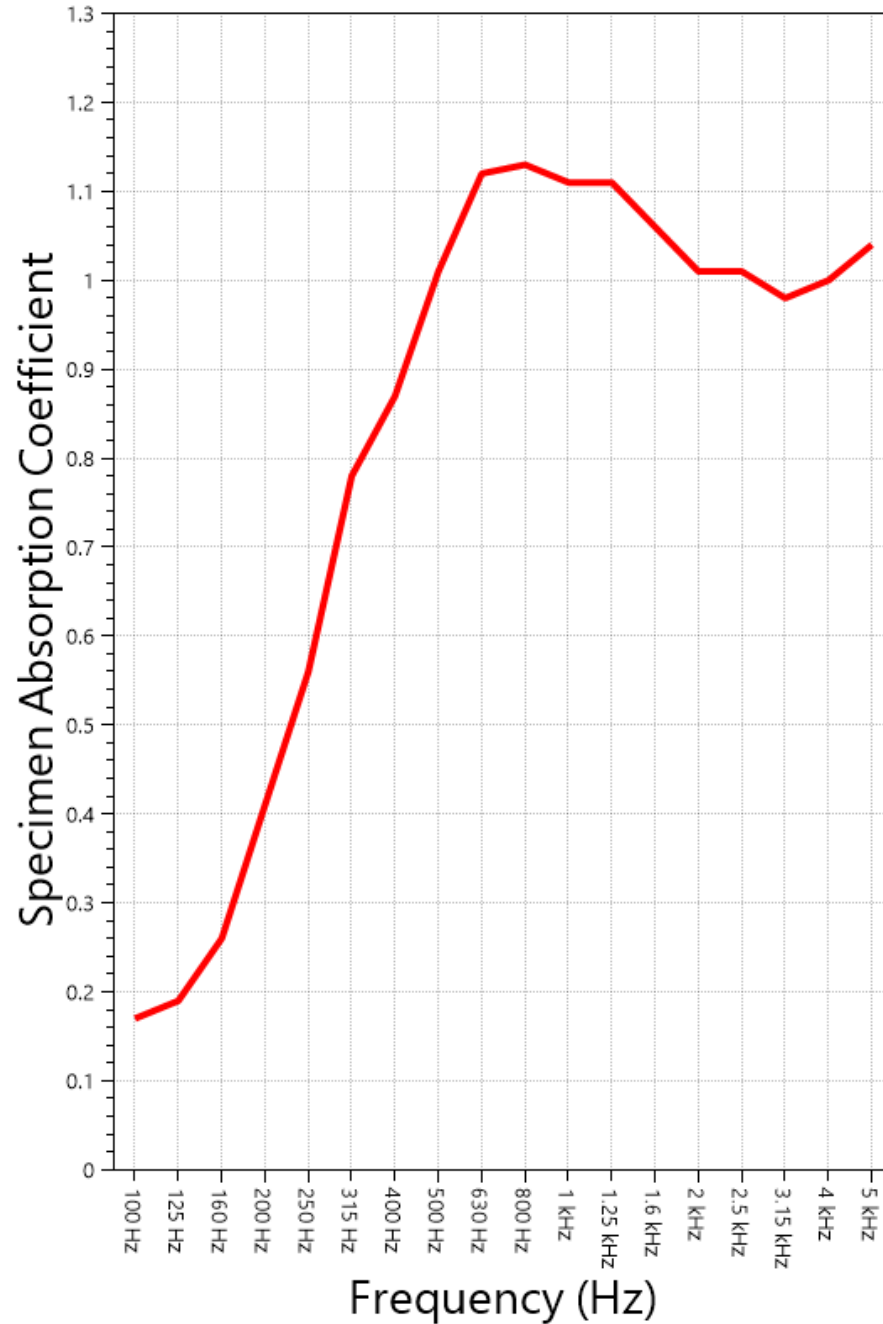
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### SOUND ABSORPTION REPORT

Monolith



**SAA = 0.93**

**NRC = 0.90**

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### **APPENDIX A: Extended Frequency Range Data**

Specimen: Monolith (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	-8.49	-0.12
40	-1.77	-0.02
50	-0.38	-0.01
63	-6.07	-0.08
80	10.78	0.15
100	12.16	0.17
125	13.79	0.19
160	19.16	0.26
200	29.86	0.41
250	40.45	0.56
315	56.53	0.78
400	62.90	0.87
500	73.19	1.01
630	81.42	1.12
800	82.00	1.13
1000	80.19	1.11
1250	80.43	1.11
1600	76.80	1.06
2000	73.48	1.01
2500	73.26	1.01
3150	70.97	0.98
4000	72.85	1.00
5000	75.72	1.04
6300	77.32	1.07
8000	78.02	1.08
10000	75.54	1.04
12500	85.20	1.17



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### **APPENDIX B: Instruments of Traceability**

Specimen: Monolith (See Full Report)

<b><u>Description</u></b>	<b><u>Model</u></b>	<b><u>Serial Number</u></b>	<b><u>Date of Certification</u></b>	<b><u>Calibration Due</u></b>
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: Monolith (See Full Report)

<b><u>Date</u></b>	<b><u>Revision</u></b>
2022-08-26	Original report issued

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END