

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

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

FOR: **Turf Design**
Elgin, IL

Sound Absorption
RAL™-A18-310

Page 1 of 7

CONDUCTED: 2018-09-25

ON: Carved tile, 18 mm

TEST METHOD

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 17025:2005 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 measuring procedure and room qualifications is available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Carved tile, 18 mm. A full external visual inspection performed on the test specimen by Riverbank personnel verified the manufacturer's description.

Panel

Trade Name: Carved tile
Material ID: 181793
Materials: Polyethylene terephthalate felt
Dimensions: 16 @ 596.9 mm (23.5 in.) x 596.9 mm (23.5 in.)
4 @ 596.9 mm (23.5 in.) x 298.45 mm (11.75 in.)
Overall Thickness: Nominal @ 18 mm (0.709 in.)
Measured @ 18.22 mm (0.717 in.)
Overall Weight: 16.22 kg (35.75 lbs)

Physical Measures

Size: 2.69 m (105.75 in) wide by 2.39 m (94.0 in) long
Thickness: 18.22 mm (0.717 in.)
Weight: 16.22 kg (35.75 lbs)
Mass per Unit Area: 2.53 kg/m² (0.52 lbs/ft²)
Calculation Area: 6.413 m² (69.03 ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 20.4 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 58.0 % ± 0.8 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.2 kPa (Requirement not defined)

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

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Turf Design
2018-09-25

RAL™-A18-310

Page 2 of 7



Figure 1 – Specimen mounted in test chamber



Figure 2 – Detail of ridge pattern profile

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

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Turf Design

2018-09-25

RAL™-A18-310

Page 3 of 7

MOUNTING METHOD

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

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Total Absorption (m ²)	Total Absorption (Sabins)	Absorption Coefficient
100	0.43	4.66	0.07
** 125	0.51	5.45	0.08
160	0.00	-0.02	0.00
200	0.50	5.42	0.08
** 250	0.13	1.45	0.02
315	0.63	6.78	0.10
400	0.81	8.74	0.13
** 500	1.25	13.49	0.20
630	1.97	21.22	0.31
800	2.74	29.54	0.43
** 1000	3.63	39.07	0.57
1250	4.37	47.06	0.68
1600	5.18	55.71	0.81
** 2000	5.84	62.82	0.91
2500	6.24	67.21	0.97
3150	6.52	70.19	1.02
** 4000	6.64	71.46	1.04
5000	6.68	71.87	1.04

SAA = 0.43

NRC = 0.40

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

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Turf Design

2018-09-25

RAL™-A18-310

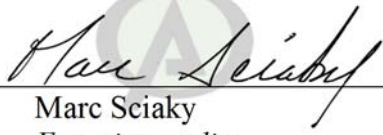
Page 4 of 7

TEST RESULTS (Continued)

The sound absorption average (SAA) is defined in ASTM C423-17 Section 3.1.1 as the average, rounded to the nearest integer multiple of 0.01, of the sound absorption coefficients of a material for the twelve one-third octave bands from 200 Hz through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, expressed to the nearest integer multiple of 0.05.


Tested by


Marc Sciaky
Experimentalist

Report by


Malcolm Kelly
Acoustician

Approved by


Eric P. Wolfram
Laboratory Manager

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

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

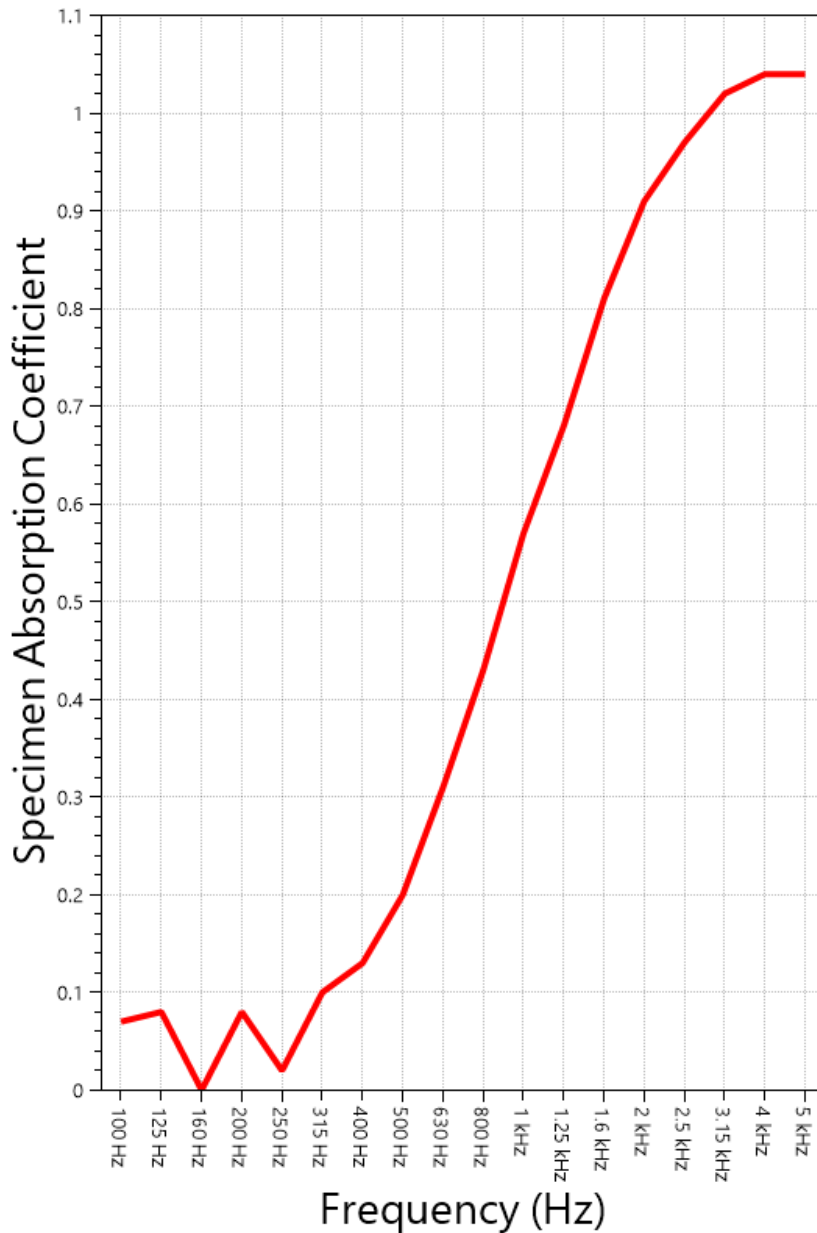
Turf Design
2018-09-25

RAL™-A18-310

Page 5 of 7

SOUND ABSORPTION REPORT

Carved tile, 18 mm



SAA = 0.43

NRC = 0.40

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

An  ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

Test Report

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Turf Design
2018-09-25

RAL™-A18-310

Page 6 of 7

APPENDIX A: Extended Frequency Range Data

Specimen: Carved tile, 18 mm (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	4.97	0.07
40	-2.75	-0.04
50	1.52	0.02
63	-0.23	0.00
80	0.76	0.01
100	4.66	0.07
125	5.45	0.08
160	-0.02	0.00
200	5.42	0.08
250	1.45	0.02
315	6.78	0.10
400	8.74	0.13
500	13.49	0.20
630	21.22	0.31
800	29.54	0.43
1000	39.07	0.57
1250	47.06	0.68
1600	55.71	0.81
2000	62.82	0.91
2500	67.21	0.97
3150	70.19	1.02
4000	71.46	1.04
5000	71.87	1.04
6300	73.45	1.06
8000	69.75	1.01
10000	72.33	1.05
12500	78.51	1.14

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

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Test Report

Turf Design
2018-09-25

RAL™-A18-310

Page 7 of 7

APPENDIX B: Instruments of Traceability

Specimen: Carved tile, 18 mm (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-4/2	3160- 106968	2018-08-09	2019-08-09
Bruel & Kjaer Mic And Preamp C	Type 4943-B-001	2311439	2018-03-27	2019-03-27
Bruel & Kjaer Pistonphone	Type 4228	2781248	2018-08-06	2019-08-06
Omega Digital Temp., Humid. And Pressure Recorder	OM-CP- PRHTemp2000	P97844	2018-02-03	2019-02-03

END