

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

SPONSOR: **Decorative Ceiling Tiles**
Margate, FL

Sound Absorption
RAL™-A24-429

CONDUCTED: 2024-10-30

Page 1 of 10

ON: EPS (polystyrene wood planks) adhered to gypsum board

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 C423-23: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-23: "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 EPS (polystyrene wood planks) adhered to gypsum board. 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: EPS (polystyrene wood planks) tiles
Manufacturer: Decorative Ceiling Tiles

SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

Base Layer Gypsum

Material: Type X gypsum board
Dimensions: 2 pieces @ 1219 mm (48 in.) by 2743 mm (108 in.)
Thickness: 16 mm (0.625 in.)
Overall Weight: 73.03 kg (161 lbs)
Mass per Unit Area: 10.92 kg/m² (2.24 lbs/ft²)

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 2 of 10

SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Fabric (Product Under Test) and Adhesive

Materials: Styrofoam planks, applied with instant grab adhesive
Tile Dimensions: 36 planks @ 165 mm (6.5 in.) by 992 mm (39.0625 in.)
2 planks @ 102 mm (4 in.) by 992 mm (39.0625 in.)
4 planks @ 992 mm (39.0625 in.) by 62 mm (2.4375 in.)
2 planks @ 759 mm (29.875 in.) by 62 mm (2.4375 in.)
Tile Thickness: 4.86 mm (0.1915 in.)
Overall Weight: Adhesive @ 1.59 kg (3.5 lbs)
Tiles @ 1.13 kg (2.5 lbs)
Total @ 2.72 kg (6 lbs)
Mass per Unit Area: 0.41 kg/m² (0.083 lbs/ft²)
Installation: Adhesive applied to gypsum boards using caulk tube, zig zag pattern
Adhesive also applied to backsides of planks in dot pattern
Planks then pressed firmly into place onto gypsum boards

Note: Installation of planks with adhesive to gypsum boards completed on 2024-10-28

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 3 of 10

SPECIMEN MEASUREMENTS & TEST CONDITIONS (continued)

Overall Specimen Properties

Size: 2.44 m (96.0 in) wide by 2.74 m (108.0 in) long
Thickness: 0.02 m (0.8165 in)
Weight: 74.28 kg (163.75 lbs)
Mass per Unit Area: 11.1 kg/m² (2.27 lbs/ft²)
Calculation Area: 6.689 m² (72. ft²)

Test Environment

Room Volume: 291.98 m³
Temperature: 21.6 °C ± 0.0 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)
Relative Humidity: 61.6 % ± 0.6 % (Requirement: ≥ 40 % and ≤ 5 % change)
Barometric Pressure: 98.8 kPa (Requirement not defined)

MOUNTING METHOD

Type B Mounting: The test specimen planks were applied to the surface of one layer of 5/8" type X gypsum board which was laid directly over the horizontal test surface. Due to there being no apparent air gap between the planks and adhesive, shims were not used at the four corners of each specimen tile, as described in section 7.3 of ASTM E795-23. Perimeter edges were sealed with tape.

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 4 of 10

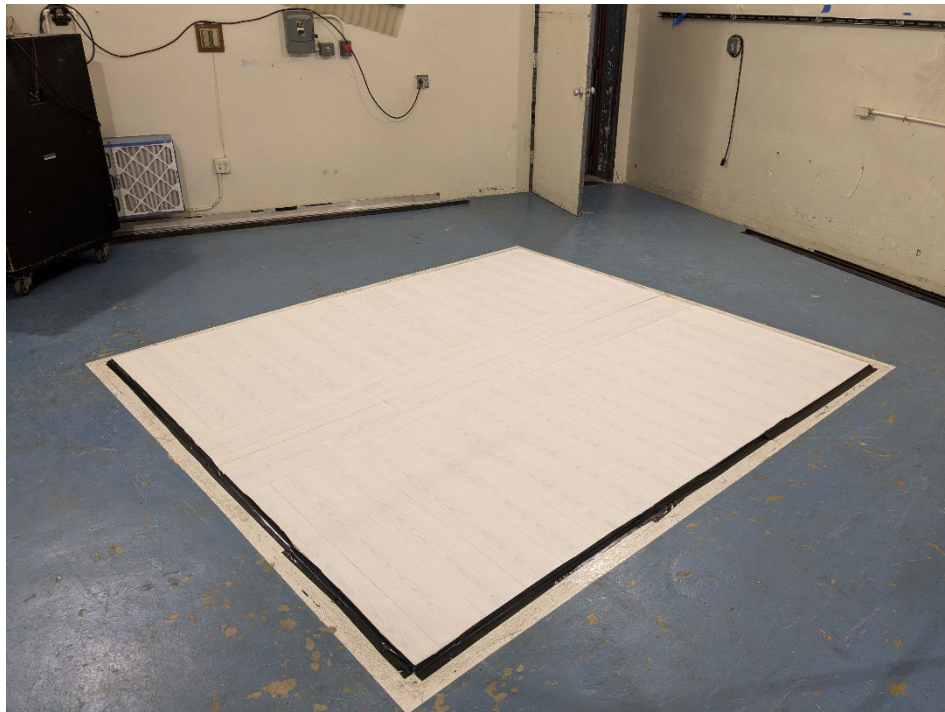


Figure 1 – Specimen mounted in test chamber



Figure 2 – Gypsum board (1 of 2) and specimen planks with adhesive applied

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 5 of 10



Figure 3 – Gypsum board (1 of 2) with specimen planks installed



Figure 4 – Detail of specimen materials

627 RIVERBANK DRIVE
 GENEVA, IL 60134
 630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
 WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
 2024-10-30

RAL™-A24-429
 Page 6 of 10

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	0.49	5.29	0.07
** 125	-0.07	-0.72	-0.01
160	0.00	0.03	0.00
200	0.07	0.76	0.01
** 250	0.33	3.56	0.05
315	0.29	3.13	0.04
400	0.53	5.69	0.08
** 500	0.77	8.27	0.11
630	0.72	7.79	0.11
800	0.76	8.16	0.11
** 1000	0.64	6.86	0.10
1250	0.50	5.34	0.07
1600	0.55	5.92	0.08
** 2000	0.74	7.94	0.11
2500	0.88	9.46	0.13
3150	1.24	13.34	0.19
** 4000	1.53	16.48	0.23
5000	2.32	24.97	0.35

SAA = 0.08
NRC = 0.10

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 7 of 10

TEST RESULTS (continued)

The sound absorption average (SAA) is defined in ASTM C423-23 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.

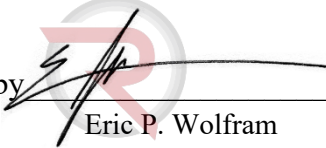
The noise reduction coefficient (NRC) is defined from previous versions of ASTM C423 as the arithmetic average of the sound absorption coefficients at 250 Hz, 500 Hz, 1000 Hz, and 2000 Hz, rounded to the nearest integer multiple of 0.05.

Tested by 

Marc Sciaky
Senior Experimentalist

Report by 

Keith Kimberling
Test Engineer

Approved by 

Eric P. Wolfram
Laboratory Manager

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

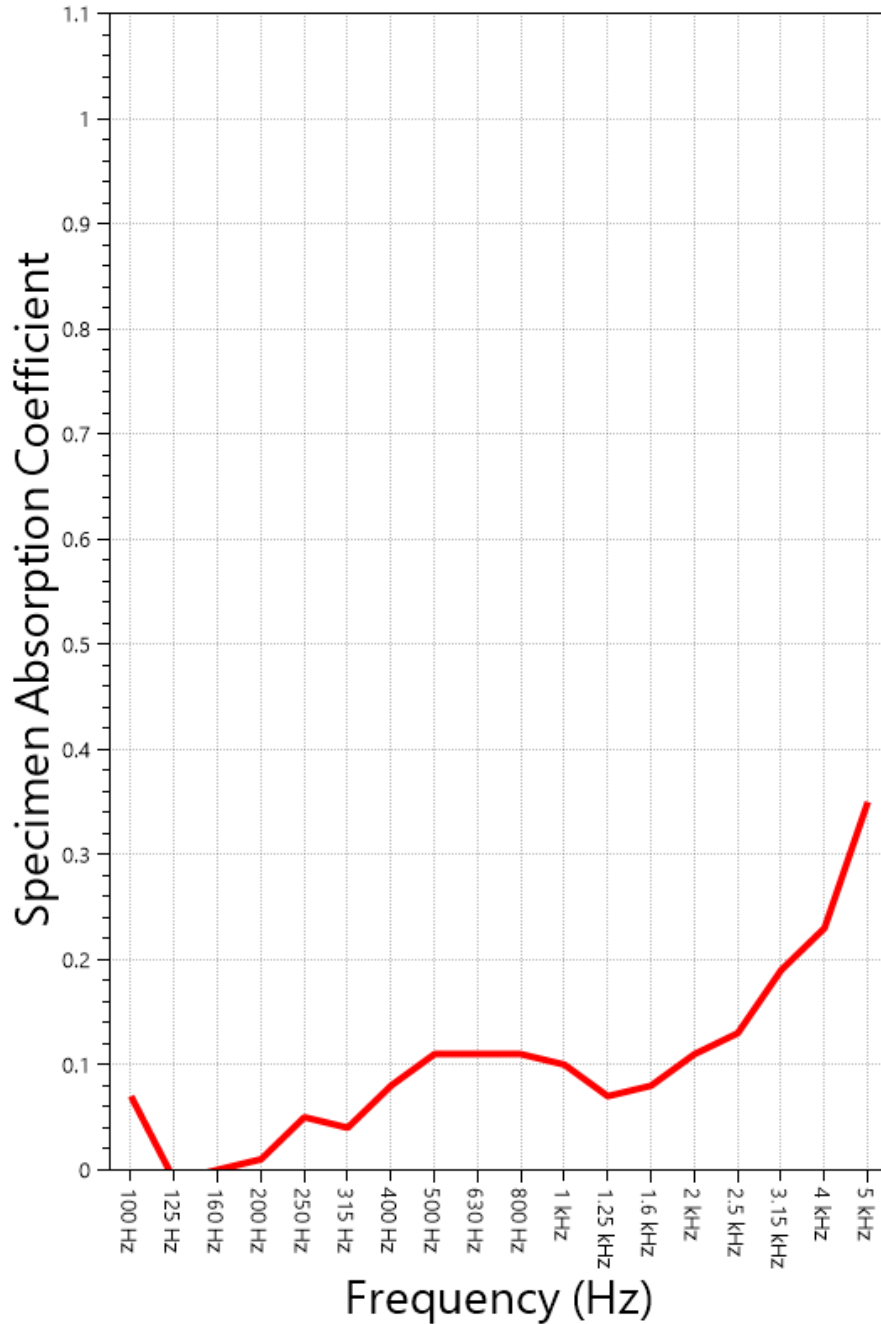
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 8 of 10

SOUND ABSORPTION REPORT

EPS (polystyrene wood planks) adhered to gypsum board



SAA = 0.08

NRC = 0.10



RIVERBANK ACOUSTICAL LABORATORIES IS ACCREDITED BY NVLAP (LAB CODE 100227-0) FOR ACOUSTICAL TESTING SERVICES IN ACCORDANCE WITH ISO/IEC 17025:2017 AND FOR THIS PROCEDURE. THIS REPORT MUST NOT BE USED BY THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY RAL, NVLAP, NIST, OR ANY AGENCY OF THE U.S. GOVERNMENT. THIS REPORT SHALL NOT BE MODIFIED WITHOUT THE WRITTEN APPROVAL OF RAL. THE RESULTS REPORTED APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR TESTING; RAL ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF ANY OTHER SAMPLE.

627 RIVERBANK DRIVE
 GENEVA, IL 60134
 630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
 WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
 2024-10-30

RAL™-A24-429
 Page 9 of 10

APPENDIX A: Extended Frequency Range Data

Specimen: EPS (polystyrene wood planks) adhered to gypsum board (See Full Report)

The following non-accredited data were obtained in accordance with ASTM C423-23, 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	-3.03	-0.04
40	-3.28	-0.05
50	-3.48	-0.05
63	4.81	0.07
80	-1.25	-0.02
100	5.29	0.07
125	-0.72	-0.01
160	0.03	0.00
200	0.76	0.01
250	3.56	0.05
315	3.13	0.04
400	5.69	0.08
500	8.27	0.11
630	7.79	0.11
800	8.16	0.11
1000	6.86	0.10
1250	5.34	0.07
1600	5.92	0.08
2000	7.94	0.11
2500	9.46	0.13
3150	13.34	0.19
4000	16.48	0.23
5000	24.97	0.35
6300	35.42	0.49
8000	38.64	0.54
10000	37.86	0.53
12500	40.52	0.56

627 RIVERBANK DRIVE
GENEVA, IL 60134
630-232-0104

Test Report

www.riverbankacoustics.com

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

Decorative Ceiling Tiles
2024-10-30

RAL™-A24-429
Page 10 of 10

APPENDIX B: Instruments of Traceability

Specimen: EPS (polystyrene wood planks) adhered to gypsum board (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	3160-106974	2024-08-15	2025-08-15
Bruel & Kjaer Mic And Preamp G	Type 4943-B-001	2525858	2024-05-07	2025-05-07
Bruel & Kjaer Pistonphone	Type 4228	2781248	2024-07-19	2025-07-19
EXTECH Hygro 959	SD700	A099959	2024-03-29	2025-03-29

APPENDIX C: Revisions to Original Test Report

Specimen: EPS (polystyrene wood planks) adhered to gypsum board (See Full Report)

<u>Date</u>	<u>Revision</u>
2024-11-07	Original report issued

END