

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: **MCM Acoustical**  
Mississauga, Ontario, Canada

**Sound Absorption**  
**RAL™-A22-424**

CONDUCTED: 2022-09-23

Page 1 of 10

ON: Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation

### 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 Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation. 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**

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Product Name: Microperforated panels with acoustical backer  
Perforations: Nominal 0.5 mm diameter @ 2.0 mm on centers  
Manufacturer: MCM Acoustical

### SPECIMEN MEASUREMENTS & TEST CONDITIONS

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

#### **Base Layer**

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Material: Rigid fiberglass board  
Dimensions: 8 pieces @ 559 mm (22 in.) by 1219 mm (48 in.)  
2 pieces @ 305 mm (12 in.) by 1219 mm (48 in.)  
2 pieces @ 203 mm (8 in.) by 1219 mm (48 in.)  
Thickness: 51 mm (2 in.)  
Overall Weight: 31.52 kg (69.5 lbs)  
Mass per Unit Volume: 92.8 kg/m<sup>3</sup> (5.79 lbs/ft<sup>3</sup>)



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MCM Acoustical  
2022-09-23

**RAL™-A22-424**  
Page 2 of 10

### Specimen Panels

Material: Microperforated wood panels with black backing sheet  
Dimensions: 4 panels @ 1372 mm (54 in.) by 1219 mm (48 in.)  
Thickness: 17.12 mm (0.674 in.)  
Perforation Pitch: Triangular @ approx. 1.9 mm (0.075 in.)  
Perforation Diameter: Approx. 0.5 mm (0.02 in.)  
Overall Weight: 45.93 kg (101.25 lbs)  
Mass per Unit Volume: 401 kg/m<sup>3</sup> (25.0 lbs/ft<sup>3</sup>)

### Overall Specimen Properties

Size: 2.74 m (108.0 in) wide by 2.44 m (96.0 in) long  
Thickness: 0.07 m (2.674 in)  
Weight: 77.45 kg (170.75 lbs)  
Mass per Unit Area: 11.58 kg/m<sup>2</sup> (2.37 lbs/ft<sup>2</sup>)  
Calculation Area: 6.689 m<sup>2</sup> (72. ft<sup>2</sup>)

### Test Environment

Room Volume: 291.98 m<sup>3</sup>  
Temperature: 21.9 °C ± 0.1 °C (Requirement: ≥ 10 °C and ≤ 5 °C change)  
Relative Humidity: 57.3 % ± 1.6 % (Requirement: ≥ 40 % and ≤ 5 % change)  
Barometric Pressure: 99.3 kPa (Requirement not defined)

### MOUNTING METHOD

Type F-50 Mounting: The test specimen was laid on top of wood spacers, creating a 51 mm (2 in.) thick airspace between the test surface and the panel body. The numeral suffix in the mounting designation is the thickness of the spacers in millimeters, rounded to the nearest integer multiple of 5. Perimeter edges were sealed with metal framing and tape.

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**MCM Acoustical**  
2022-09-23

**RAL™-A22-424**  
Page 3 of 10



Figure 1 – Specimen mounted in test chamber



Figure 2 – Individual specimen panels

1512 S BATAVIA AVENUE  
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## Test Report

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2022-09-23

**RAL™-A22-424**

Page 4 of 10



Figure 3 – Detail of specimen panel materials



Figure 4 – Specimen panels and base layer fiberglass partially installed over spacers

1512 S BATAVIA AVENUE  
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630-232-0104

**Test Report**

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**MCM Acoustical**  
2022-09-23

**RAL™-A22-424**  
Page 5 of 10



Figure 5 – Specimen panels and base layer fiberglass partially installed over spacers

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

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**MCM Acoustical**  
 2022-09-23

**RAL™-A22-424**  
 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 <sup>2</sup> )	Total Absorption (Sabins)	Absorption Coefficient
100	4.47	48.08	0.67
** 125	5.04	54.23	0.75
160	5.53	59.53	0.83
200	6.59	70.92	0.99
** 250	6.76	72.80	1.01
315	7.56	81.33	1.13
400	7.69	82.79	1.15
** 500	7.66	82.43	1.14
630	7.36	79.21	1.10
800	7.38	79.45	1.10
** 1000	7.54	81.20	1.13
1250	7.28	78.36	1.09
1600	6.74	72.54	1.01
** 2000	6.03	64.95	0.90
2500	5.51	59.32	0.82
3150	4.51	48.59	0.67
** 4000	4.09	43.97	0.61
5000	3.66	39.36	0.55

**SAA = 1.05**  
**NRC = 1.05**

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2022-09-23

**RAL™-A22-424**  
Page 7 of 10

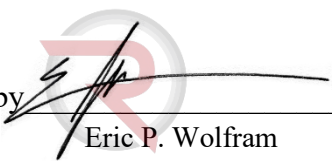
### TEST RESULTS (continued)

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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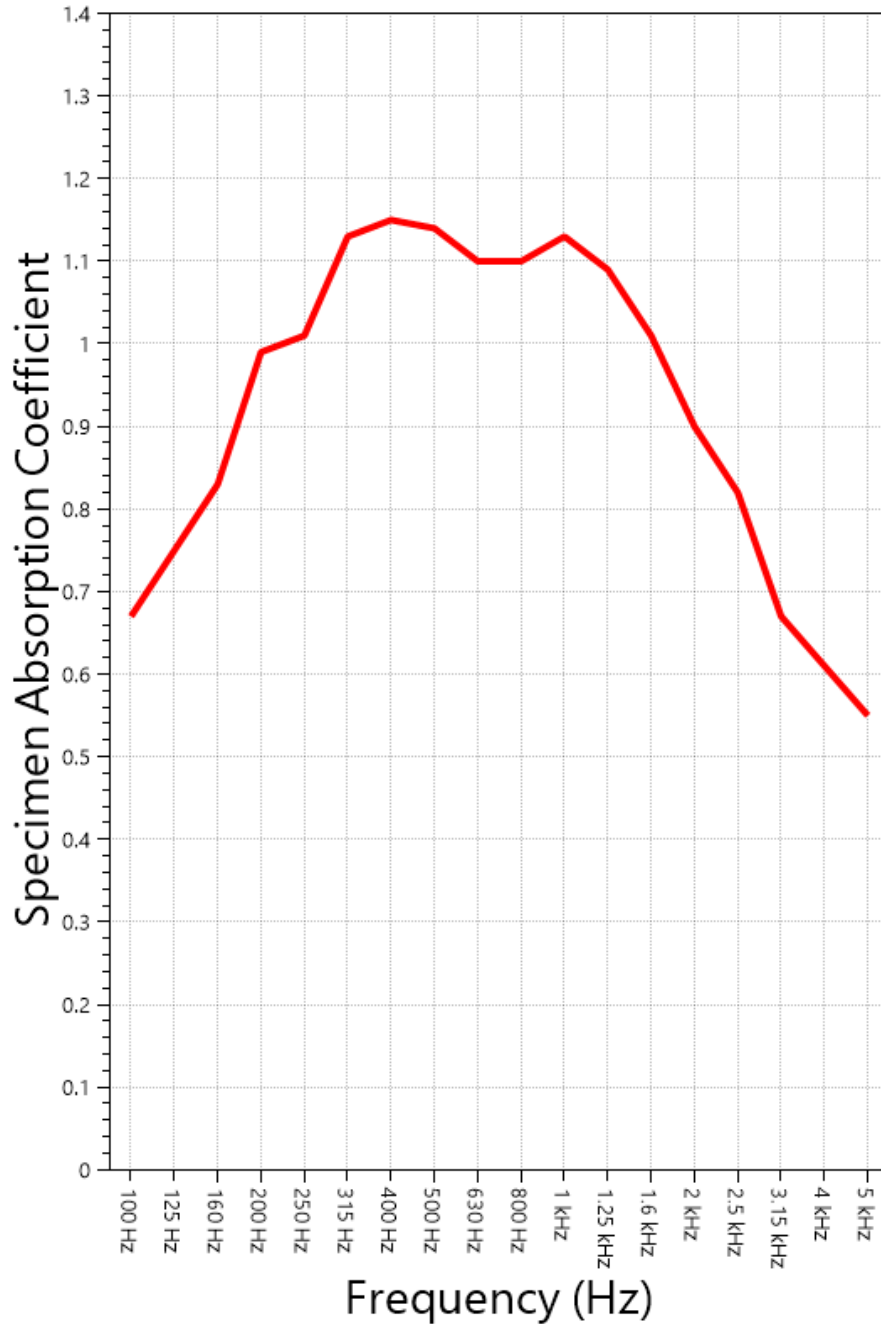
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MCM Acoustical  
2022-09-23

**RAL™-A22-424**  
Page 8 of 10

### SOUND ABSORPTION REPORT

Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation



**SAA = 1.05**

**NRC = 1.05**



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 2022-09-23

**RAL™-A22-424**  
 Page 9 of 10

### APPENDIX A: Extended Frequency Range Data

Specimen: Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation (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	-1.19	-0.02
40	-0.79	-0.01
50	5.14	0.07
63	10.22	0.14
80	23.41	0.33
100	48.08	0.67
125	54.23	0.75
160	59.53	0.83
200	70.92	0.99
250	72.80	1.01
315	81.33	1.13
400	82.79	1.15
500	82.43	1.14
630	79.21	1.10
800	79.45	1.10
1000	81.20	1.13
1250	78.36	1.09
1600	72.54	1.01
2000	64.95	0.90
2500	59.32	0.82
3150	48.59	0.67
4000	43.97	0.61
5000	39.36	0.55
6300	32.49	0.45
8000	27.74	0.39
10000	25.50	0.35
12500	26.47	0.37

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**RAL™-A22-424**  
Page 10 of 10

### APPENDIX B: Instruments of Traceability

Specimen: Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation (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 C	Type 4943-B-001	2311439	2022-05-02	2023-05-02
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: Microperforated Panels over 2" 6.0PCF unfaced fiberglass insulation (See Full Report)

<u>Date</u>	<u>Revision</u>
2022-10-06	Original report issued

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END