

## Test Report

FOR: **American Tin Ceilings, LLC**  
Bradenton, FL

**Sound Absorption**  
**RAL-A16-343**

CONDUCTED: 2016-11-29

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ON: Perforated Tin Ceiling Tiles with acoustical pad

### 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 C423-09a: "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method." The specimen mounting was performed according to ASTM E795-05(2012): "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 Perforated Tin Ceiling Tiles with acoustical pad. A full inspection was performed on the test specimen by Riverbank personnel, verifying the manufacturer's description.

#### Ceiling Tiles

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Material: Tin plated steel  
Dimensions: 16 @ 606.55 mm (23.88 in.) x 606.55 mm (23.88 in.)  
4 @ 606.55 mm (23.88 in.) x 317.5 mm (12.5 in.)  
Thickness: 0.25 mm (0.01 in.)  
Overall Weight: 13.38 kg (29.5 lbs.)  
Perforations: Diameter: 0.56 mm (0.022 in.)  
Pitch: 5.25 mm (0.207 in.) On Center Square Pitch  
Open Area: 0.9% of Perforated Region

*Note: Seams between each tile were taped for test.*

#### Pads

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Material: 1.5 pcf poly-wrapped insulation  
Dimensions: 16 @ 606.55 mm (23.88 in.) x 606.55 mm (23.88 in.)  
4 @ 606.55 mm (23.88 in.) x 330.2 mm (13 in.)  
Thickness: 50.8 mm (2 in.)  
Overall Weight: 10.43 kg (23 lbs.)



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THE RESULTS REPORTED APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR TESTING; RAL ASSUMES NO RESPONSIBILITY FOR THE PERFORMANCE OF ANY OTHER SPECIMEN.

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### Physical Measures

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Overall Dimensions: 2.74 m (108.00 in.) wide by 2.43 m (95.50 in.) long  
Overall Thickness: 53.34 mm (2.10 in.)  
Overall Weight: 23.81 kg (52.50 lbs.)  
Area: 6.65 m<sup>2</sup> (71.60 ft<sup>2</sup>)  
Mass per Unit Area: 3.56 kg/m<sup>2</sup> (0.73 lbs./ft<sup>2</sup>)

### Test Environment

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Volume: 292.0 m<sup>3</sup> (10,311.0 ft<sup>3</sup>)  
Temperature: 21.6±0.0°C (70.8±0.1°F) (Requirement: ≥10° C and ≤5° C change)  
Humidity: 64.0±0.6% (Requirement: ≥40% RH and ≤5% change)  
Barometric Pressure: 97.4 kPa. (Requirement not defined)



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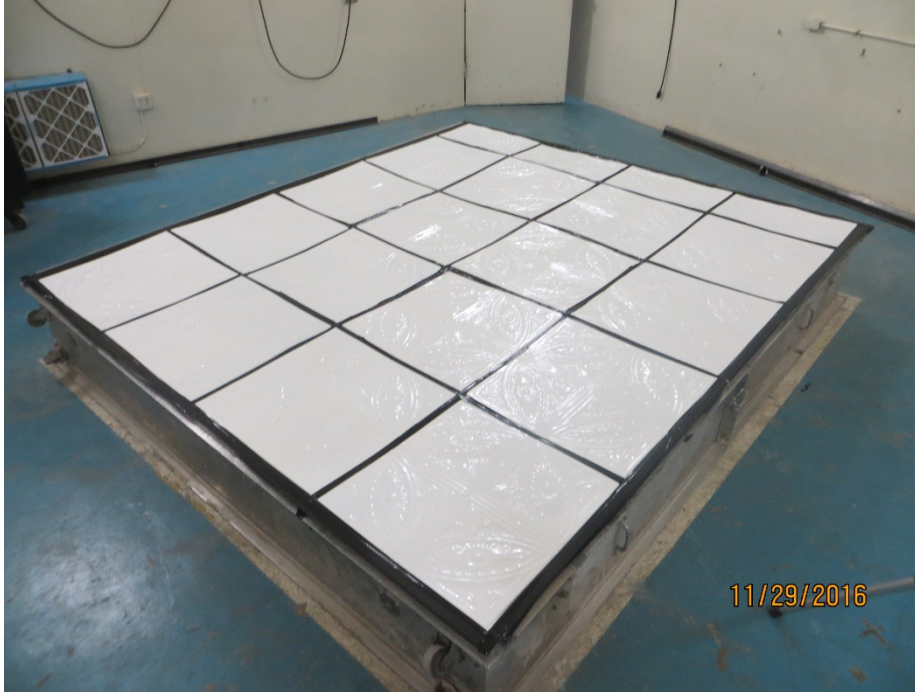


Figure 1 – Specimen mounted in the test chamber.



Figure 2 – Detail of the test specimen.



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**Test Report****American Tin Ceilings, LLC**  
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Page 4 of 8**MOUNTING METHOD**

Type E-400 Mounting: The test specimen was mounted with an airspace behind it. The number designates the distance in mm from the exposed face of the test specimen to the test surface. The perimeter was sealed using metal framing.

**TEST RESULTS**

1/3 Octave Center Frequency (Hz)	Total Absorption (SI) (m <sup>2</sup> )	Total Absorption (IP) (Sabins)	Absorption Coefficient (Sabins / ft <sup>2</sup> )
100	6.93	74.65	1.04
** 125	5.52	59.39	0.83
160	5.27	56.69	0.79
200	6.33	68.10	0.95
** 250	6.28	67.58	0.94
315	5.76	61.99	0.87
400	5.91	63.64	0.89
** 500	6.64	71.52	1.00
630	6.75	72.63	1.01
800	6.57	70.74	0.99
** 1000	6.29	67.66	0.95
1250	5.38	57.87	0.81
1600	4.54	48.88	0.68
** 2000	3.69	39.75	0.56
2500	3.24	34.89	0.49
3150	2.98	32.11	0.45
** 4000	2.54	27.38	0.38
5000	2.18	23.48	0.33

**SAA = 0.85**  
**NRC = 0.85**

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### TEST RESULTS (Continued)

The sound absorption average (SAA) is defined as a single number rating, the average, rounded to the nearest 0.01, of the sound absorption coefficient of a material for the twelve one-third octave bands from 200 through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of this same test method as the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Tested by



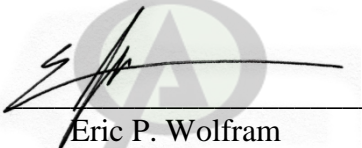
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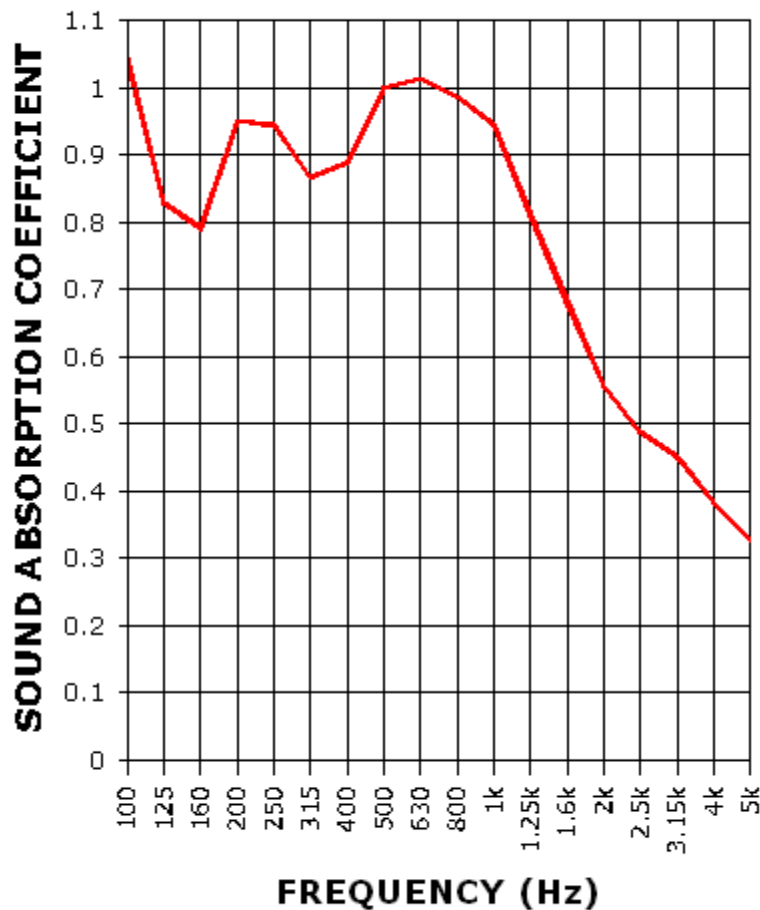
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### SOUND ABSORPTION REPORT Perforated Tin Ceiling Tiles with acoustical pad



**SAA = 0.85**

**NRC = 0.85**



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

Specimen: Perforated Tin Ceiling Tiles with acoustical pad (See Full Report)

*The following non-accredited data were obtained in accordance with ASTM C423-09a, 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 (Sabins / ft <sup>2</sup> )
31.5	27.96	0.39
40	31.05	0.43
50	75.12	1.05
63	39.39	0.55
80	48.03	0.67
100	74.65	1.04
125	59.39	0.83
160	56.69	0.79
200	68.10	0.95
250	67.58	0.94
315	61.99	0.87
400	63.64	0.89
500	71.52	1.00
630	72.63	1.01
800	70.74	0.99
1000	67.66	0.95
1250	57.87	0.81
1600	48.88	0.68
2000	39.75	0.56
2500	34.89	0.49
3150	32.11	0.45
4000	27.38	0.38
5000	23.48	0.33
6300	20.92	0.29
8000	17.32	0.24
10000	12.74	0.18
12500	3.33	0.05



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### APPENDIX B: Instruments of Traceability

Specimen: Perforated Tin Ceiling Tiles with acoustical pad (See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certification</u>	<u>Calibration Due</u>
Bruel & Kjaer Pulse Analy	Type 3560-C	2647140	2016-04-12	2017-04-12
Bruel & Kjaer Mic And Pre	Type 4943-B-001	2311439	2016-03-17	2017-03-17
Bruel & Kjaer Pistonphone	Type 4228	2781248	2016-07-25	2017-07-25
EXTECH-Temp	SD700	A074985	2016-10-03	2017-10-03

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