RIVERBANK ACOUSTICAL LABORATORIES

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Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: Verco Manufacturing Co.
Phoenix, AZ.

Sound Absorption
RAL™-A14-048

CONDUCTED: 26 February 2014

ON: #44 - N3 Web Perforated Metal Deck - Plain 0.75pcf Fiberglass 3.25"x3" Over 0.5" DensDeck over 2"Poly ISO Board

TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-09a and E795-05. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP Lab Code: 100227-0). A description of the measuring procedure and room qualifications is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as #44 - N3 Web Perforated Metal Deck - Plain 0.75pcf Fiberglass 3.25"x3" Over 0.5" DensDeck over 2"Poly ISO Board. A visual inspection by Riverbank staff verified the manufacturer's description. The thickness of the metal was measured as 0.94 mm (0.04 in). The perforation in each web (sides only), measured as 165.1 mm (6.5 in) (bottom) and 97.0 mm (3.82 in) (top) were as follows: 4.0 mm (0.16 in) diameter, round perforations with 11.0 mm (0.43 in) staggered centers (11.99% open area in perforated region). The acoustic core of each web consisted of un- encapsulated 0.75 pcf fiberglass strips measured as 2.74 m (108 in) long by 82.55 mm (3.25 in) wide and 76.2 mm (3 in) thick. The entire metal deck was backed by DensDek and polyisocyanurate roof board (dense foam panels with reinforced felt facing) measured as 12.7 mm (0.5 in) and 50.8 mm (2.0 in) thick, respectively.

The specimen consisted of 3 sections of web-perforated metal deck, each measured as 2.75 m (108.50 in) long by 0.84m (33.0 in) wide and 76.2 mm (3 in) thick. Laid together as a single rectangular patch, the overall dimensions of the specimen as measured were 2.75 m (108.50 in.) long by 2.49 m (98.00 in.) wide and 139.70 mm (5.50 in.) thick. The area used in the calculations was 6.83 m^2 (73.50 ft^2). The weight of the entire specimen as measured was 160.80 kg (354.50 lbs), an average of 23.53 kg/m^2 (4.82 lbs/ft^2).

The specimen was tested in the laboratory's 292.0 m^3 (10,311.0 ft^3) test chamber. The room temperature at the time of the test was 21.0±0.0ºC (69.8±0.0ºF) and 61.7±0.1% relative humidity. The atmospheric pressure was 99.3 kPa.

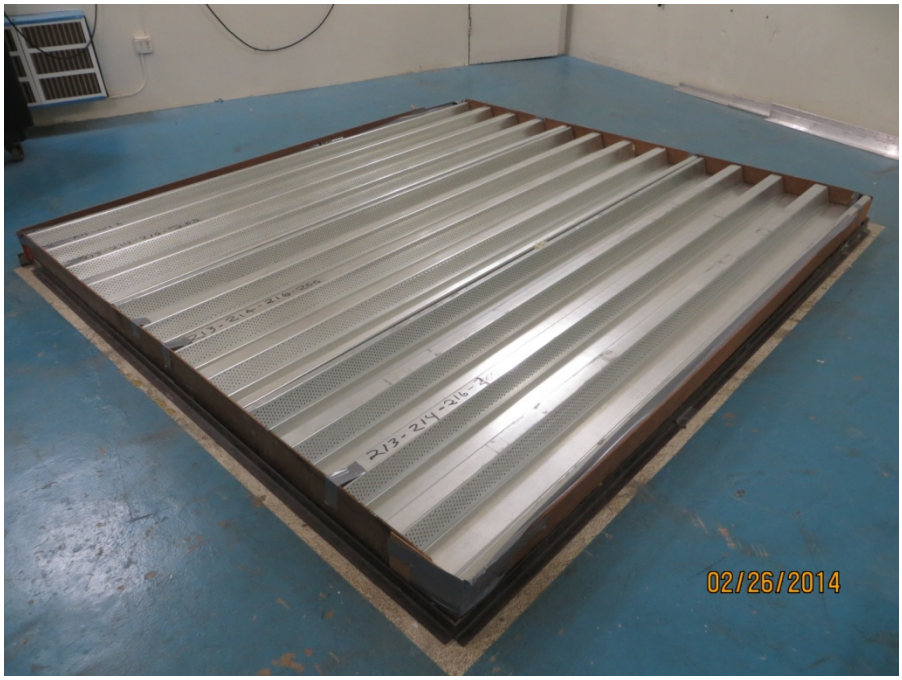

Figure 1 - Specimen mounted in the test chamber.

Figure 2 - Detail of the test specimen.

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MOUNTING A

The test specimen was laid directly against the test surface. The perimeter was sealed using wood and metal framing.

TEST RESULTS

1/3 Octave Center Frequency (Hz)	Absorption Coefficient (Sabins / ft^2)	Total Absorption In Sabins
100	0.11	8.00
** 125	0.27	20.03
160	0.32	23.23
200	0.33	23.99
** 250	0.56	41.13
315	0.73	53.57
400	0.80	58.45
** 500	0.84	61.98
630	0.88	64.43
800	0.94	69.00
** 1000	0.88	64.99
1250	0.77	56.27
1600	0.53	39.04
** 2000	0.52	38.47
2500	0.46	33.47
3150	0.37	27.27
** 4000	0.36	26.22
5000	0.32	23.79

SAA = 0.69
NRC = 0.70

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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 _____ Approved by _____

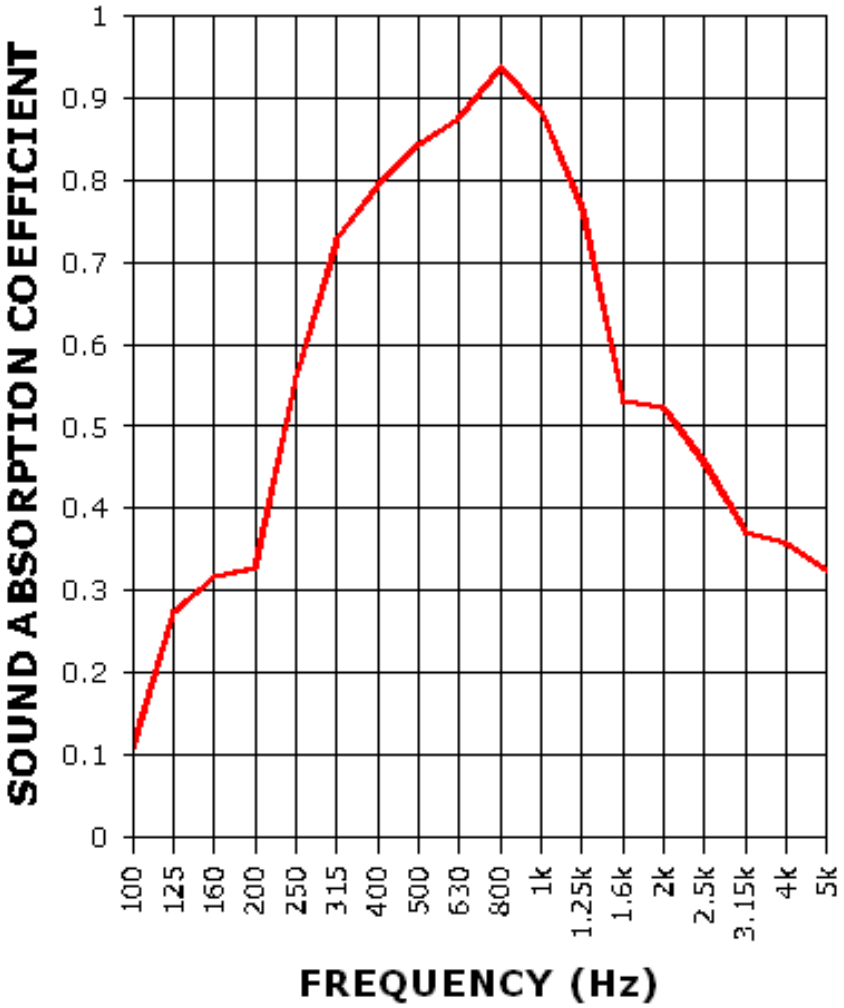
Marc Sciaky
Experimentalist

Eric P. Wolfram
Laboratory Manager

Digitally signed by Eric Wolfram
DN: cn=Eric Wolfram, o=Alion Science and Technology, ou=Riverbank Acoustical Laboratories, email=ewolfram@alionscience.com, c=US
Date: 2014.03.07 11:16:30 -06'00'

SOUND ABSORPTION REPORT

#44 - N3 Web Perforated Metal Deck - Plain 0.75pcf Fiberglass 3.25"x3" Over 0.5" DensDeck over 2"Poly ISO Board



SAA = 0.69
NRC = 0.70

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Appendix to ASTM C423 Sound Absorption Test
Extended Frequency Range Data

Product Description: #44 - N3 Web Perforated Metal Deck - Plain 0.75pcf Fiberglass 3.25"x3" Over 0.5" DensDeck over 2"Poly ISO Board (See Full Report)

Riverbank Acoustical Laboratories is accredited to perform sound absorption coefficient measurements for the frequency range of 100Hz to 5,000Hz. However, we calculate sound absorption values at additional test frequencies as a service to our clients.

Although these measurements were made in accordance with the procedures described in ASTM C423-09a, they do not qualify as part of the standard. Since the results are representative of the test environment only, they are unofficial and intended for research and development guidelines rather than for commercial purposes. The sound absorption values at additional frequencies were as follows:

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1/3 Octave Center Frequency (Hz)	**Absorption Coefficient** (Sabins / ft^2)	**Total Absorption** (Sabins)
40	0.08	5.56
50	0.07	5.04
63	-0.08	-5.73
80	0.04	3.25
6300	0.33	24.19
8000	0.27	19.97
10000	0.29	21.65