RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: Consolidated Systems Inc.
Columbia, SC

Sound Absorption Test
RAL™-A03-176

ON: Versa-Dek® 3.5 LS 20 GA. Acoustical Metal Roof Deck

CONDUCTED: 20 October 2003

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 C423-02a and E795-00. 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. 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 Versa-Dek® 3.5 LS 20 GA. acoustical metal roof deck. The overall nominal dimensions of the specimen as measured were 2.44 m (96 in.) wide by 2.74 m (108 in.) long and 140 mm (5.5 in.) thick. The specimen consisted of four steel deck sections and two full pieces of rigid polyisocyanurate insulation board and one partial. Each steel deck section measured nominally out to out 641 mm (25.25 in.) wide (includes the nominal 32 mm (1.25 in.) lap joint) by 2.74 m (108 in.) long and 89 mm (3.5 in.) thick. Each full piece of rigid insulation was 1.22 m (48 in.) wide by 2.44 m (96 in.) long and 51 mm (2 in.) thick. The partial piece was 305 mm (12 in.) wide by 2.44 m (96 in.) long and 51 mm (2 in.) thick. The specimen was tested in the laboratory's 292 m^3 (10,311 ft^3) test chamber.

A description of the specimen material is as follows: 20 gauge galvanized steel with three (3) ribs per panel at nominal 203 mm (8 in.) on center running the full length of the panel. Ribs on the face of the deck were perforated and tapered and measured 184 mm (7.25 in.) wide at the face and 89 mm (3.5 in.) at the bottom of the taper (open back). The channel width was measured as 121 mm (4.75 in.) wide at the back. Perforations on the face of the ribs consisted of 4 mm (5/32 in.) holes on 8.3 mm (0.324 in.) staggered centers. The rib cavity contained 51 mm (2 in.) thick by 140 mm (5.5 in.) wide 3 pcf density fiberglass batt insulation. A 2.5 mm (0.10 in.) thick by 152 mm (6 in.) wide metal lath was fixed between the fiberglass and the face.

The weight of the entire specimen as measured was 115 kg (253.75 lbs), an average of 17.2 kg/m^2 (3.5 lbs/ft^2). The area used in the calculations was 6.7 m^2 (72 ft^2). The room temperature at the time of the test was 21ºC (70ºF) and 61±1% relative humidity.

TEST REPORT

Consolidated Systems Inc. RAL™-A03-176

20 October 2003

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	Total Absorption In Sabins
100	0.19	13.65
** 125	0.26	18.89
160	0.28	20.23
200	0.45	32.44
** 250	0.60	42.92
315	0.98	70.29
400	1.08	78.06
** 500	1.00	72.32
630	0.98	70.27
800	1.01	72.86
** 1000	1.02	73.68
1250	1.07	76.79
1600	1.04	74.86
** 2000	1.00	72.30
2500	0.89	64.40
3150	0.87	62.48
** 4000	0.87	62.63
5000	0.84	60.66

SAA = 0.93
NRC = 0.90

Consolidated Systems Inc. RAL™-A03-176

20 October 2003 Page 3 of 4

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
Senior Technician

David L. Moyer
Laboratory Manager

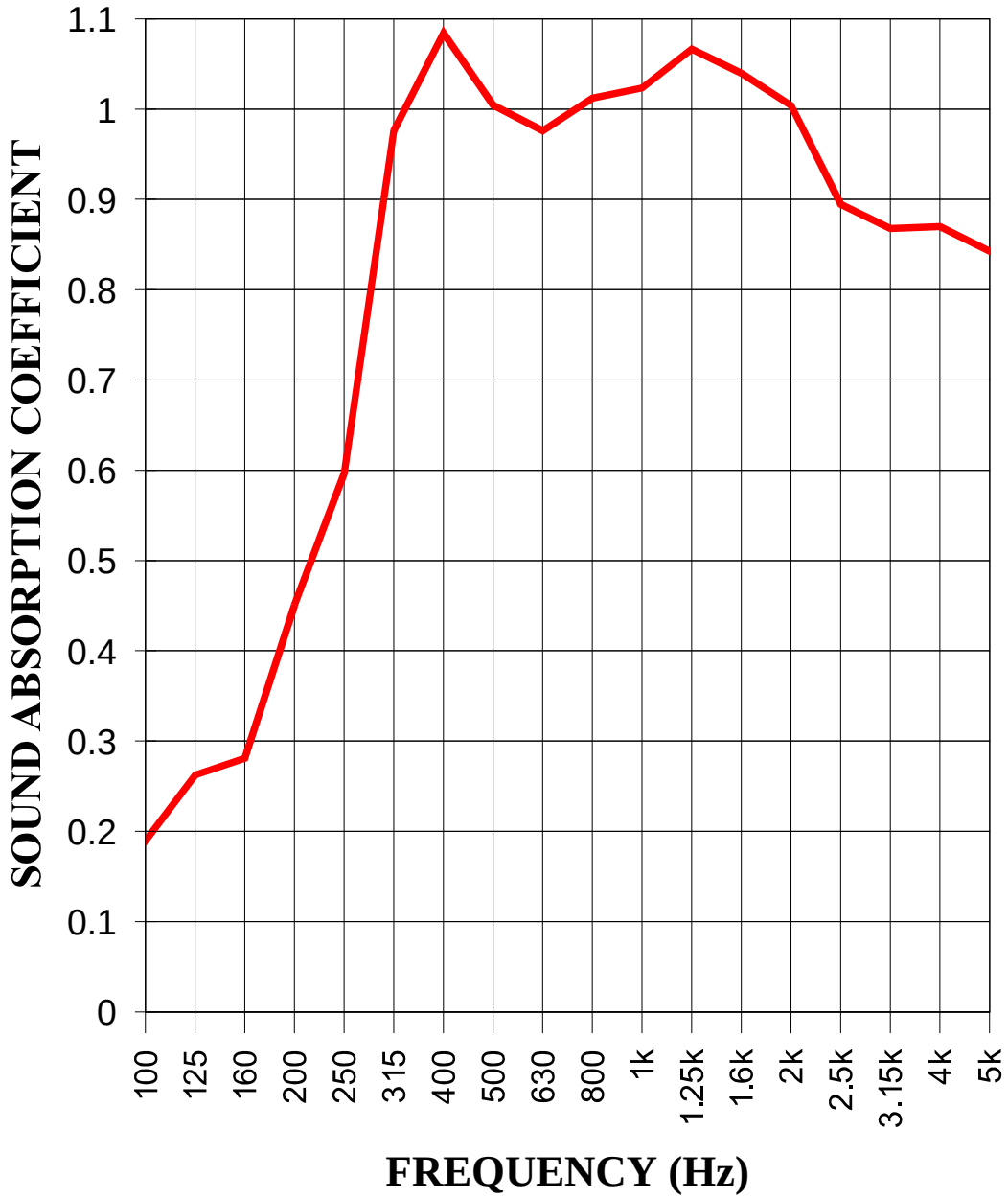
RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT
SOUND ABSORPTION REPORT
RAL - A03-176



SAA = 0.93
NRC = 0.90