RIVERBANK ACOUSTICAL LABORATORIES

OF
IIT RESEARCH INSTITUTE

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR:

Sound Absorption Test
RAL™-A00-103

ON: 12 in. Sound Cell with Fiber Inserts

CONDUCTED: 14 September 2000

TEST METHOD

The test method complied explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-90a and E795-93. 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 technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as a 12 in. Sound Cell with fiber inserts. The overall dimensions of the specimen as measured were 2.38 m (93.75 in.) wide by 1.94 m (76.5 in.) long and 295 mm (11.625 in.) thick. The specimen was tested in the laboratory's 292 m^3 (10,311 ft^3) test chamber.

The sample consisted of concrete blocks with one side spread open at an angle of 30° in two places to expose the inside cavities. The two cavities each had an insert of mineral fiber measuring 184 mm (7.25 in.) wide by nominally 152 mm (6 in.) high and 38 mm (1.5 in.) thick. Each of the two cavities measured nominally 165 mm (6.5 in.) by 152 mm (6 in.) and the height of the block. The overall dimensions of each block were 394 mm (15.5 in.) wide by 295 mm (11.625 in) high and 191 mm (7.5 in.) thick. The blocks were arranged in 10 rows of 6 blocks.

The weight of the specimen as measured was 1,241.4 kg (2,736.75 lbs), an average of 268 kg/m^2 (55 lbs/ft^2). The area used in the calculations was 4.63 m^2 (49.8 ft^2). The room temperature at the time of the test was 21°C (70°F) and 59% relative humidity.

MOUNTING A

The test specimen was laid directly against the test surface.

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TEST RESULTS

1/3 Octave Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins	% Of Uncertainty With 95% Confidence Limit With Specimen
100	1.20	59.89	2.23
**125	0.95	47.32	2.55
160	0.96	47.73	2.42
200	0.89	44.13	1.73
**250	0.64	31.82	1.73
315	0.55	27.60	1.14
400	0.54	27.07	1.25
**500	0.55	27.46	0.96
630	0.60	29.72	0.83
800	0.72	35.62	0.74
**1000	0.74	36.70	0.66
1250	0.76	37.97	0.60
1600	0.79	39.52	0.59
**2000	0.81	40.09	0.49
2500	0.75	37.16	0.52
3150	0.73	36.53	0.49
**4000	0.72	35.77	0.43
5000	0.73	36.49	0.35

NRC= 0.70

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TEST RESULTS (con't)

The percentage of uncertainty for the required 95% confidence limits indicated above must fall within the prescribed limits designated in par. 13.2 of ASTM C423-90a. It states that for the absorption of the reverberation room containing the specimen the testing laboratory shall obtain data with less than 4% uncertainty at 125 (hertz) and 2% uncertainty at 250, 500, 1000, 2000, and 4000 (hertz). The method of calculation is described in ASTM STP 15D and outlined in section 13 of the standard.

The noise reduction coefficient (NRC) is the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Tested by _____ Reviewed by _____

Dean Victor
Senior Experimentalist

Roger P. Harmon
Research Engineer

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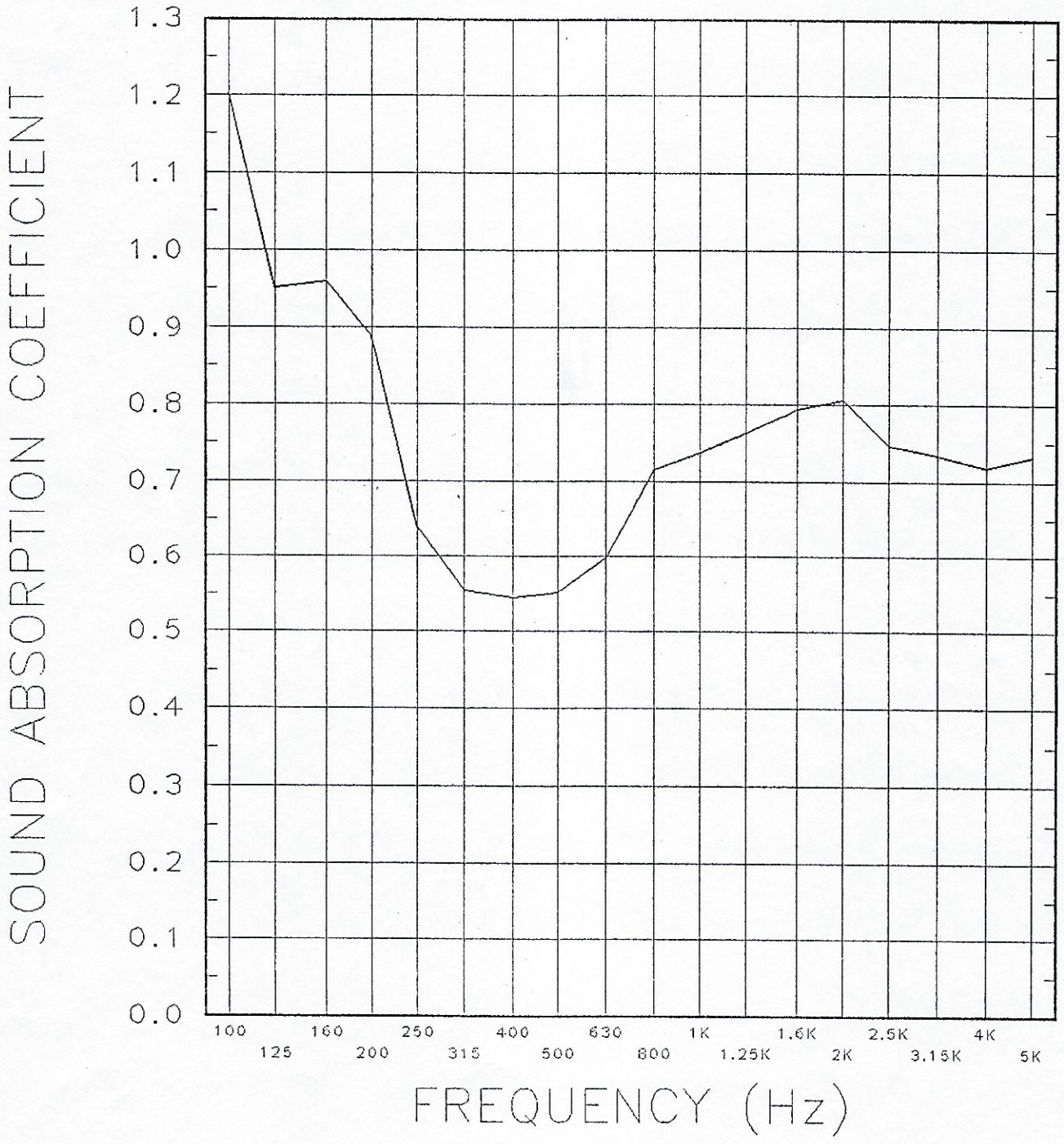
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SOUND ABSORPTION REPORT
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