



Johns Manville

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*Product Testing Laboratories
Test Report*

Report Number : A2014-004

Date: Jan 27, 2014

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**JOHNS MANVILLE TECHNICAL CENTER
Acoustical Testing Laboratory
January 27, 2014**

**Subject;
Whisper Walls 1" System**

For;

**Whisper Walls
10957 E Bethany Dr.
Aurora, CO 80014**

**Submitted by:
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NVLAP LAB CODE 100425-0

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Introduction

A series of measurements were made at the Johns Manville Technical Center (JMTC) Acoustical Laboratory to determine the normal incidence sound absorption of Whisper Walls 1" System with HD Faced Fiber Glass Core. Measurements were made in full accordance with the requirements of current ASTM C423-09a.

Sample Description

As supplied by customer;

Whisper Walls 1" System with HD Faced Fiberglass Core: Whisper Walls 1" acoustical panel consisting of 1" Whisper Walls tensioning track, 1" Acoustitherm 600 fiberglass with high density face covered with a Whisper Walls 100% polyester fabric, mounted on a ½" gypsum board..

The sample consisted of two 4ft x 9ft sections butted together to make an 8ft x 9ft test sample.

Test Methods

The tests were conducted in full accordance with the American Society of Testing and Materials (ASTM) method C 423-09a, "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method".

C 423-09a:

The specimen was tested in a Type A mounting, as defined by ASTM Practice E 795-05. Specimen was placed directly on the reverb room floor. Since the sample was constructed with a hard perimeter, the sample itself was duct taped to the floor.

Test Chamber

The JMTC reverberation room is constructed of 305 mm [12.0 in.] thick reinforced concrete surrounded by 203 mm [8.0 in.] thick solid concrete block walls. The block walls are spaced from the reinforced concrete walls a distance of 203 mm [8.0 in.]. The reverberation room has interior dimensions of 8.66 m [28.00 ft. 5.0 in.] long by 5.49 m [18.00 ft.] wide and 6.71 m [22.00 ft.] high, for a total room volume of 319.00 m³ [11,253 ft³].



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Instrumentation

All sound pressure levels were measured using a G.R.A.S. 12.7 mm [0.5 in.] type 40AQ microphone operating on a Brüel and Kjær type 3923 rotating microphone boom. The microphone was calibrated immediately before all measurements were started using a Brüel and Kjær type 4220 pistonphone with output corrected for local barometric pressure.

The microphone was connected to a National Instruments digital frequency analyzer that was configured to average the microphone output over multiple sample/decay periods. The sound field decay was measured by taking 500 8-millisecond measurements. Each 8-millisecond period was linearly averaged. Measurements were made at the third-octave bands covering a center frequency range from 100 to 5,000 Hz. The rate of sound field decay was determined by the method specified in C 423-08. This method suggests using a regressive fit to the average of 10 ensembles. Each ensemble consists of 5 decays.

The microphone was connected to a National Instruments digital frequency analyzer that was configured to average the microphone output over multiple sample/decay periods. The analyzer was configured to average sound pressure levels (SPLs) over a sampling period of 64 seconds during the measurements of noise reduction (NR) and background levels, and was configured to average the microphone output over multiple sample/decay periods during the measurement of the receive room absorption. The rate of sound field decay was determined by making a regressive fit to the average of 25 decays. All measurements were made at third-octave bands covering a center frequency range from 100 to 5,000 Hz, inclusive.



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Results

C 423:

The detailed results of the tests, including third-octave band absorption data, the Sound Absorption Average (SAA), and Noise Reduction Coefficient (NRC) single number ratings, are presented in Table 2 and Graph 1 of this document. Testing was at 74°F, 45% relative humidity and 84.0kPa ambient pressure. Test data sheets of the specimens' performance, as printed by the test equipment, are kept on record within the laboratory.

Table 1; Random Incident Sound Absorption Performance of Whisper Walls 1" System

Frequency (Hz)	Absorption Coefficient, α (metric Sabins/m ²)
100	0.03
125	0.22
160	0.33
200	0.44
250	0.50
315	0.71
400	0.80
500	0.87
630	0.86
800	0.93
1000	1.07
1250	0.94
1600	0.90
2000	0.92
2500	0.88
3150	0.91
4000	0.94
5000	1.04
SAA	0.82
NRC	0.85

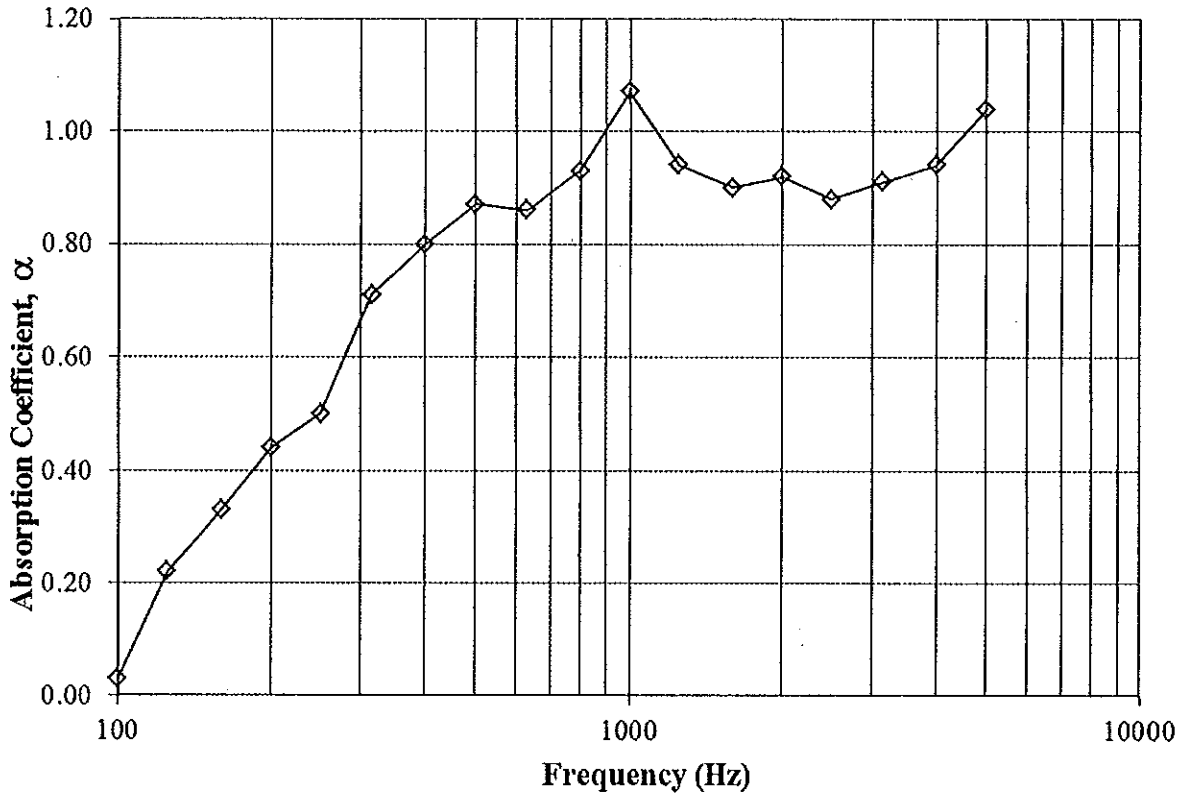


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Graph 1; Normal Incidence Sound Absorption of Whisper Walls 1" System

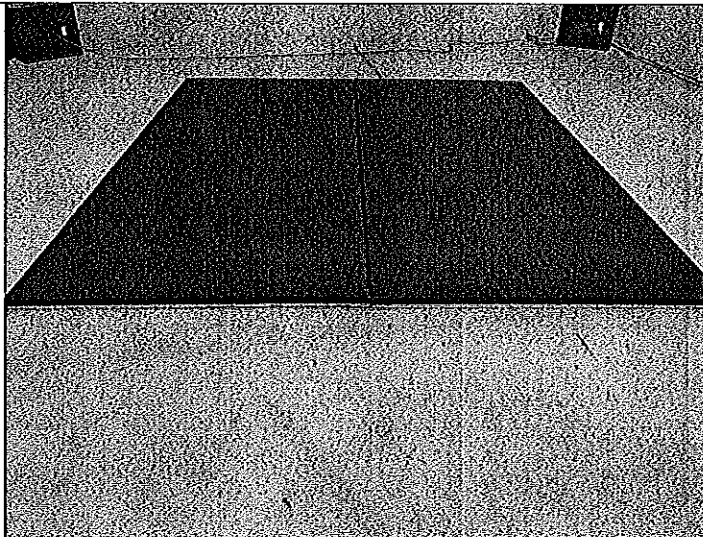


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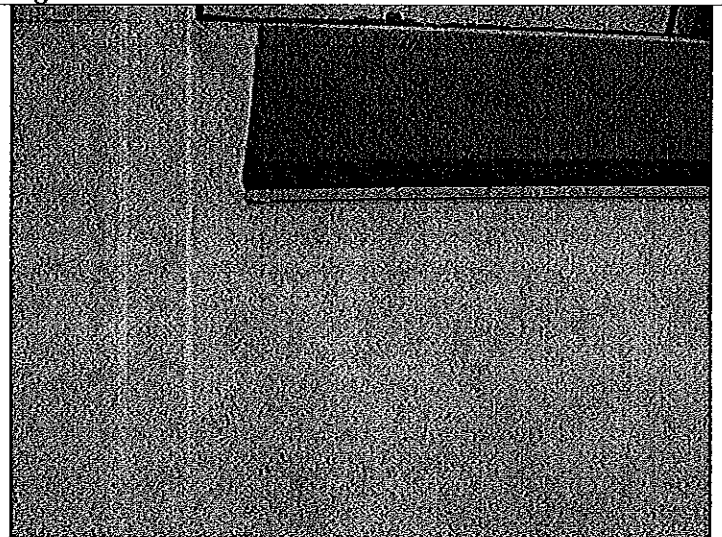
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Photograph 1; Showing sample on reverb room floor prior to testing



Photograph 2; Showing side of sample which included drywall and acoustical board adhered together.



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