



**Title: Sound Absorption Test Results**

**Product: 1-3/8" Envirocoustic Wood Wool with 1" CFAB Backer**

Application: Ceiling with open plenum

Testing Standard: ASTM C423-E400

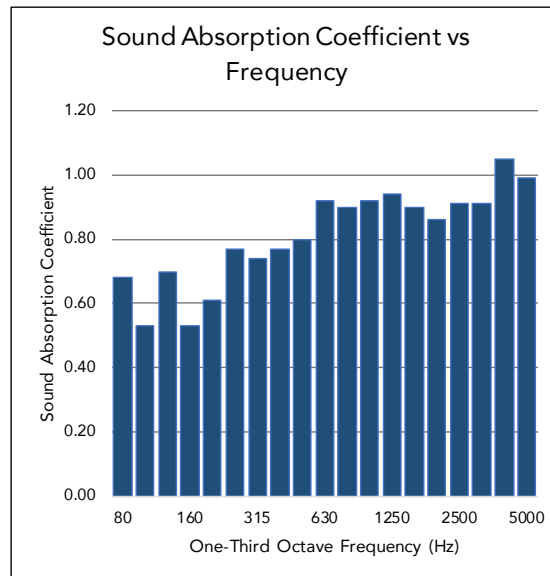
Test Date: 4/2/2018

*Why this test:* This test evaluates a products efficiency of absorbing sound at multiple frequencies. The test simulates the product installation in a ceiling with a plenum above, i.e. ceiling tile installed into ceiling grid.

Test Result Summary: NRC - 0.85; SAA - 0.84

<b>NRC</b>	<b>SAA</b>
<b>0.85</b>	<b>0.84</b>

Frequency (Hz)	Absorption Energy (m <sup>2</sup> )	Absorption Samples (m <sup>2</sup> )	Absorption Coefficient
80	4.35	4.54	<b>0.68</b>
100	5.36	3.53	<b>0.53</b>
125	3.99	4.69	<b>0.70</b>
160	3.69	3.55	<b>0.53</b>
200	3.93	4.09	<b>0.61</b>
250	3.95	5.15	<b>0.77</b>
315	3.83	4.97	<b>0.74</b>
400	3.95	5.12	<b>0.77</b>
500	4.45	5.32	<b>0.80</b>
630	4.68	6.13	<b>0.92</b>
900	5.02	6.01	<b>0.90</b>
1000	5.34	6.12	<b>0.92</b>
1250	5.82	6.27	<b>0.94</b>
1600	6.49	6.00	<b>0.90</b>
2000	7.27	5.77	<b>0.86</b>
2500	8.15	6.06	<b>0.91</b>
3150	9.42	6.06	<b>0.91</b>
4000	11.87	7.04	<b>1.05</b>
5000	14.24	6.61	<b>0.99</b>



Test ID: ESP027746P-4

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**SOUND ABSORPTION TESTING CONDUCTED ON a  
1-3/8" Cementitious Wood Fiber Acoustic Board with 1", 3# CFAB Backer**

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Date: April 2, 2018  
Author: John Wegscheider  
Report Number: ESP027746P-4



TESTING CERT #1479.01

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## Noise Reduction Coefficient (ASTM C423)

### INTRODUCTION:

This report presents the results of acoustical testing of a 1-3/8" Cementitious Wood Fiber Acoustic Board with a 1", 3# Density CFAB Backer. This testing was requested by Mr. Conor Cook of ASI and was conducted on March 6<sup>th</sup>, 2018.

This report must not be reproduced except in full without the approval of Element Materials Technology. The test results contained in this report pertain only to the specific assemblies tested and not necessarily to all similar constructions.

The results stated in this report represent only the specific construction and acoustical conditions present at the time of the test. Measurements performed in accordance with this standard on nominally identical constructions and acoustical conditions may produce different results.

### TEST RESULTS SUMMARY:

<i>Noise Reduction Coefficient (NRC) Test Type E400 Mount</i>				Test Results		
Test #	Sample Identification	Total Weight (lbs)	Weight (psf)	NRC	SAA	--
4	1-3/8" Cementitious Wood Fiber Board with 1", 3# Density CFAB Backer	225.5	3.13	<b>0.85</b>	<b>0.84</b>	--

Tabular and graphical presentations of the data are presented under "TEST RESULTS" below.

### SPECIMEN DESCRIPTION: (Also see "Test Results")

The Specimen was described as a 1-3/8" Cementitious Wood Fiber Acoustic Board. A 1", 3lb Density CFAB Backer material was placed under the specimen. The overall sample size was 108.75" x 95.25" or 71.9 ft<sup>2</sup>. Four wood fiber panels measured 23.75" x 95.25" and one panel measured 13.75" x 95.25". The CFAB Backer was supported from the bottom using a wire frame. The edges of the specimen where exposed were sealed with tape.

**TEST PROCEDURE AND EQUIPMENT:**

*Sound Absorption Test*

ASTM C 423-17, "Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method", was followed in every respect. The samples were placed in a Type E-400 mounting method in accordance with ASTM E795-16.

NRC was calculated by rounding the sound absorption coefficients for 250, 500, 1000 and 2000 Hz to the nearest 0.05. SAA was calculated by rounding the sound absorption coefficients for the twelve frequencies from 200 Hz to 2500 Hz to the nearest 0.01.

**TEST EQUIPMENT:**

Item Description	ID #	Manufacturer/Model	Serial #	Calibration Due
1/2" Pressure Condenser Microphone	PT-162-216	BSWA/MP253	450005	11/2/18
Microphone Calibrator	PT-162-076	Norsonic/1251	29144	6/30/18
Data Acquisition Module	PT-162-107	National Instruments/NI9234	1735986-1893EB3	6/1/18
Temp and Humidity Transmitter	PT-162-077	Dwyer Instruments/Series RH	M90714-E4SV-Y	6/1/18

**Test Result:**

**SOUND ABSORPTION**  
ASTM C423

**General Information**

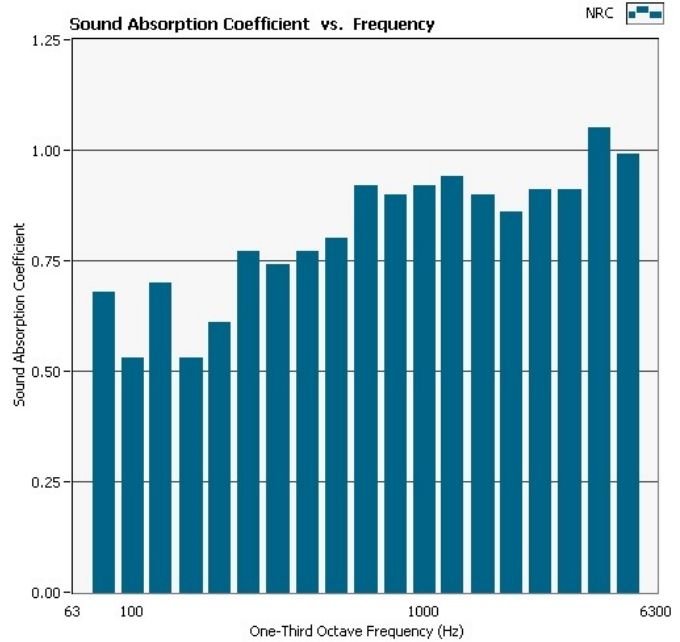
Project No:	ESP027746P-4
Customer:	ASI
Test Date:	03-05-2018
Specimen ID:	1-3/8" Cementitious Wood Fiber Acoustic Board
Specimen Description:	1 Inch CFAB E400
Specimen Dimensions - Area:	108.75" W x 95.25" H - 71.93 ft <sup>2</sup>
Operator:	MJC

**Data Table**

	absorption empty (m <sup>2</sup> )	absorption * sample (m <sup>2</sup> )	Absorption Coefficient
80	4.35	4.54	0.68
100	5.36	3.53	0.53
125	3.99	4.69	0.70
160	3.69	3.55	0.53
200	3.93	4.09	0.61
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4000	11.87	7.04	1.05
5000	14.24	6.61	0.99

**Room Conditions**

Temperature	21.2 °C
R.H.	48 %
ATM	976 hPa



**NRC**  
**0.85**

**SAA**  
**0.84**

\* based on an extended plane area of 71.93 ft<sup>2</sup>



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