

# SMITH & FONG

# ACOUSTICAL PERFORMANCE TEST REPORT

**SCOPE OF WORK**

ASTM C423 SOUND ABSORPTION TESTING ON A FUTURA SOUND, WALL PANEL

**REPORT NUMBER**

J0508.01-303-11-R0

**TEST DATE**

10/31/18

**ISSUE DATE**

12/07/18

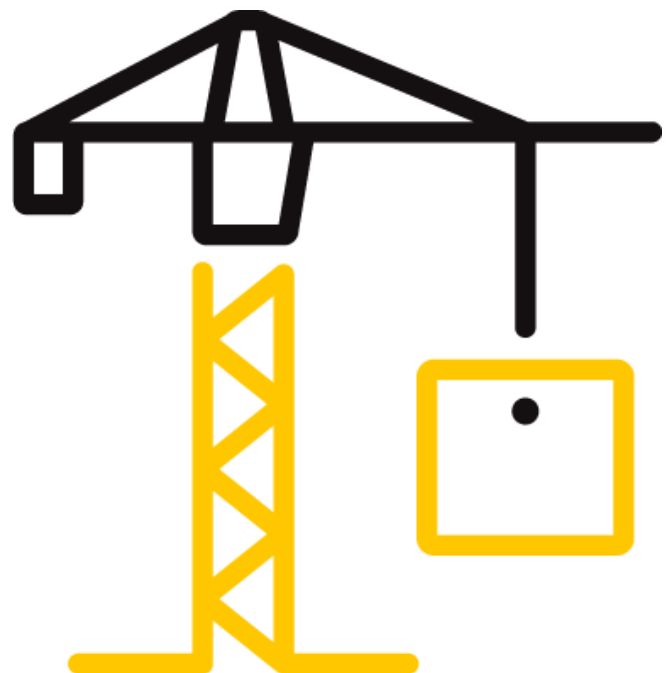
**PAGES**

9

**DOCUMENT CONTROL NUMBER**

RT-R-AMER-Test-2755 (10/17/18)

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## TEST REPORT FOR SMITH & FONG

Report No.: J0508.01-303-11-R0

Date: 12/07/18

### REPORT ISSUED TO

#### SMITH & FONG

475 6<sup>th</sup> St.

San Francisco, California 94103-4706

### SECTION 1

#### SCOPE

Intertek Building & Construction (B&C) was contracted by Smith & Fong to perform a sound absorption test. Results obtained are tested values and were secured by using the designated test method(s). The complete test data is included herein. The client provided the test specimen. All measurements were conducted in the HT test chambers at Intertek B&C located in Lake Forest, California.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	David A. Pendleton	<b>REVIEWED BY:</b>	Leeland S. Hoover
<b>TITLE:</b>	Technician II Acoustical Testing	<b>TITLE:</b>	Laboratory Manager Acoustical Testing
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	12/07/18	<b>DATE:</b>	12/07/18

DAP:LSH:ab

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**SECTION 2**

**SUMMARY OF TEST RESULTS**

<b>SERIES/MODEL</b>	Futura Sound							
<b>SAMPLE TYPE</b>	Wall Panel							
<b>MOUNTING TYPE</b>	A							
<b>DATA FILE NO.</b>	<b>1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS AT THE OCTAVE BAND FREQUENCIES</b>						<b>NRC</b>	<b>SAA</b>
	<b>125</b>	<b>250</b>	<b>500</b>	<b>1000</b>	<b>2000</b>	<b>4000</b>		
J0508.01A	0.04	0.33	0.87	0.90	0.52	0.41	0.65	0.67

**SECTION 3**

**TEST METHODS**

The specimens were evaluated in accordance with the following with the exceptions stated in the Test Procedure section of this report:

**ASTM C423-17**, *Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method*

**ASTM E795-16**, *Standard Practices for Mounting Test Specimens During Sound Absorption Tests*

**SECTION 4**

**SPECIMEN MOUNTING**

For the Type A mounting, the test specimen was placed directly against the floor of the reverberation room with the absorptive side facing the sound field. The perimeter of the specimen was sealed to the floor with duct tape.

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### SECTION 5 EQUIPMENT

The equipment listed below meets the requirements of the test methods stated in Section 3 of this report.

INSTRUMENT	MANUFACTURER	MODEL	DESCRIPTION	ASSET #	CAL DATE
Data Acquisition Unit	National Instruments	PXIe-1073	Data Acquisition Card	INT00626	07/17
Microphone Calibrator	Norsonic	1251	Pistonphone calibrator	INT00289	08/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00229	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00230	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00231	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00232	03/18
Receive Room Microphone	PCB Piezotronics	378C20	Microphone and Preamplifier	INT00233	03/18
Receive Room Environmental Indicator	Comet	T7510	Temperature and Humidity Transmitter	INT00299	04/18

<b>HT RECEIVE ROOM VOLUME</b>	231
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### SECTION 6 LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Leeland S. Hoover	Intertek B&C

### SECTION 7 TEST PROCEDURE

The sensitivity of the microphones was checked before measurements were conducted. Empty room sound absorption measurements were conducted before the specimen was installed. Full room sound absorption measurements were conducted after the specimen was installed.

For the empty and full room measurements, ten decay measurements were conducted at each of the five microphone positions. Data was obtained at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the measurements.

The specimen was returned per the client's request.

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### SECTION 8

#### TEST CALCULATIONS

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the area of the sample in m<sup>2</sup>. The Sound Absorption Coefficient is dimensionless.

The Noise Reduction Coefficient (NRC) rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000 and 2000 hertz. The average is rounded to the nearest multiple of 0.05.

The Sound Absorption Average (SAA) rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

The Sound Absorption Coefficient is the full room absorption minus the empty room absorption divided by the number of units being tested. The Sound Absorption Coefficient is dimensionless.

### SECTION 9

#### TEST SPECIMEN DESCRIPTION

<b>SERIES/MODEL</b>	Futura Sound
<b>SAMPLE TYPE</b>	Wall Panel
<b>MOUNTING TYPE</b>	A

4, 1212.85 mm by 1212.85mm (47.75 in by 47.75 in) panels, were arranged to produce the 2.44 m by 2.74 m (96 in by 108 in) test specimen. The total weight of the specimen was 58.059776 kg (128 lbs).The client did not supply a report drawing of the test specimen.

<b>DESCRIPTION</b>	<b>THICKNESS</b>
Futura Sound panel	19.10 mm 0 75"
Insulation	22.17 mm 0 87"

\* - Stated per Client/Manufacturer

Photographs are included in Section 12.

## TEST REPORT FOR SMITH & FONG

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### SECTION 10 TEST RESULTS



TEST DATE	10/31/2018
DATA FILE NO.	J0508.01A
CLIENT	Smith & Fong
DESCRIPTION	Series/Model: Futura Sound , Wall Panel
TECHNICIAN	Ryan R. Lau
SPECIMEN AREA	5.9 m <sup>2</sup>
MOUNTING TYPE	A

	EMPTY	FULL
TEMPERATURE	20.3°C	20.5°C
RH	61%	62.3%
B.P.	1017.4 mb	1017.7 mb

FREQ (Hz)	EMPTY ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	FULL ROOM ABSORPTION (m <sup>2</sup> )	UNCERTAINTY	ABSORPTI COEFFICIE	RELATIVE UNCERTAINTY
50	4.7	2.48	4.5	2.44	0.0	0.59
63	5.6	0.62	5.7	0.51	0.0	0.14
80	4.8	0.27	5.1	0.24	0.1	0.06
100	4.7	0.28	4.8	0.36	0.0	0.08
125	4.7	0.14	4.9	0.27	0.0	0.05
160	4.8	0.10	5.3	0.06	0.1	0.02
200	6.0	0.17	7.2	0.14	0.2	0.04
250	6.6	0.11	8.6	0.09	0.3	0.02
315	6.5	0.03	9.6	0.03	0.5	0.01
400	5.6	0.08	9.8	0.06	0.7	0.02
500	5.0	0.05	10.1	0.14	0.9	0.02
630	5.2	0.03	11.1	0.05	1.0	0.01
800	5.1	0.02	10.8	0.01	1.0	0.00
1000	5.0	0.02	10.3	0.01	0.9	0.00
1250	4.9	0.04	9.6	0.02	0.8	0.01
1600	5.0	0.01	9.0	0.01	0.7	0.00
2000	5.7	0.02	8.7	0.04	0.5	0.01
2500	5.8	0.01	8.5	0.10	0.5	0.02
3150	5.8	0.02	8.1	0.01	0.4	0.00
4000	5.8	0.00	8.2	0.01	0.4	0.00
5000	6.1	0.01	8.8	0.01	0.5	0.00
6300	6.3	0.01	8.7	0.01	0.4	0.00
8000	6.3	0.01	8.1	0.01	0.3	0.00
10000	6.3	0.01	7.5	0.01	0.2	0.00

NRC RATING	0.65 (Noise Reduction Coefficient)
SAA RATING	0.67 (Sound Absorption Average)

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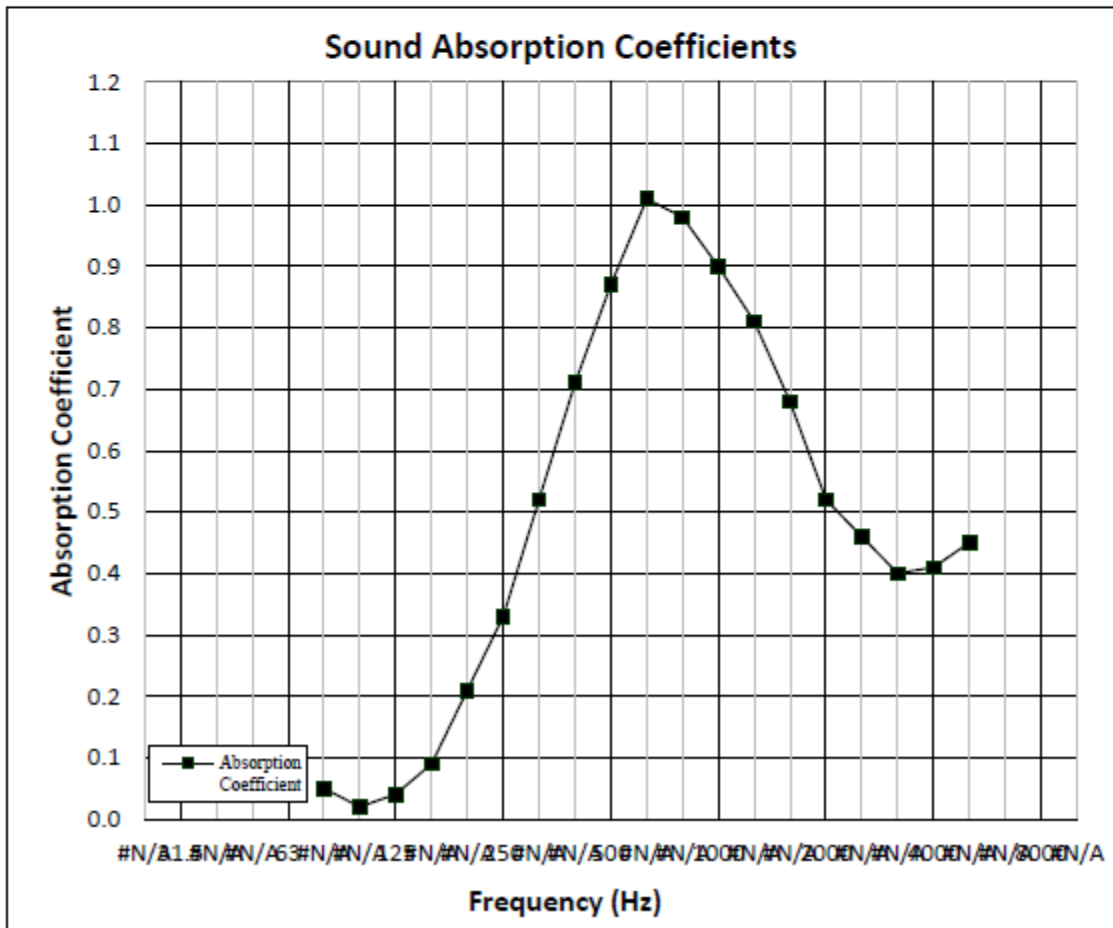
Date: 12/07/18

### SECTION 11 RESULTS GRAPH



TEST DATE	10/31/2018
DATA FILE NO.	J0508.01A
CLIENT	Smith & Fong
DESCRIPTION	Series/Model: Futura Sound , Wall Panel
TECHNICIAN	Ryan R. Lau
SPECIMEN AREA	5.9 m <sup>2</sup>
MOUNTING TYPE	A

	EMPTY	FULL
TEMP °C	20.3°C	20.5°C
RH %	61%	62.3%
B.P. (mb)	1017.4 mb	1017.7 mb

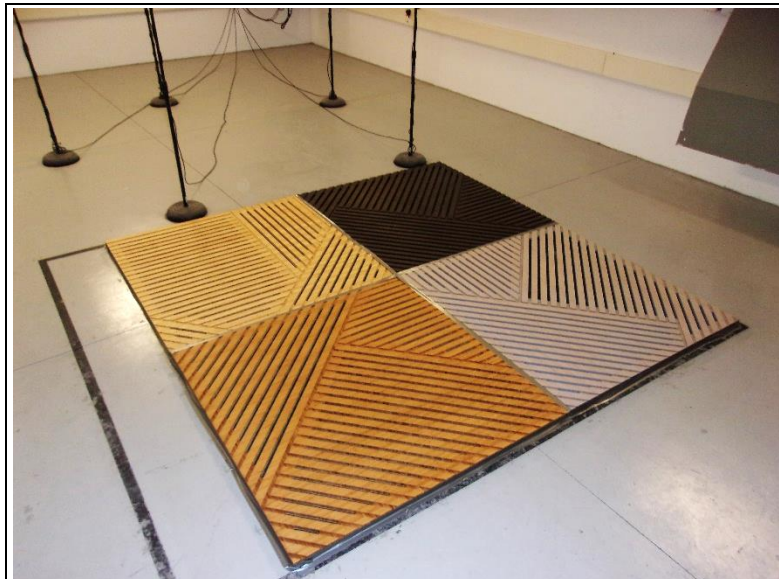


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### SECTION 12 PHOTOGRAPHS



**Photo No. 1**  
**View of Product**



**Photo No. 2**  
**Cross Section view of Product**





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### SECTION 10 REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	12/07/18	N/A	Original Report Issue