

THE WOOD VENEER HUB ACOUSTICAL PERFORMANCE TEST REPORT

SCOPE OF WORK

ASTM C423 SOUND ABSORPTION TESTING ON SLATPANEL, ACOUSTICAL WALL PANELS

REPORT NUMBER

N5313.01-113-11-R0

TEST DATE

03/30/22

ISSUE DATE

04/08/22

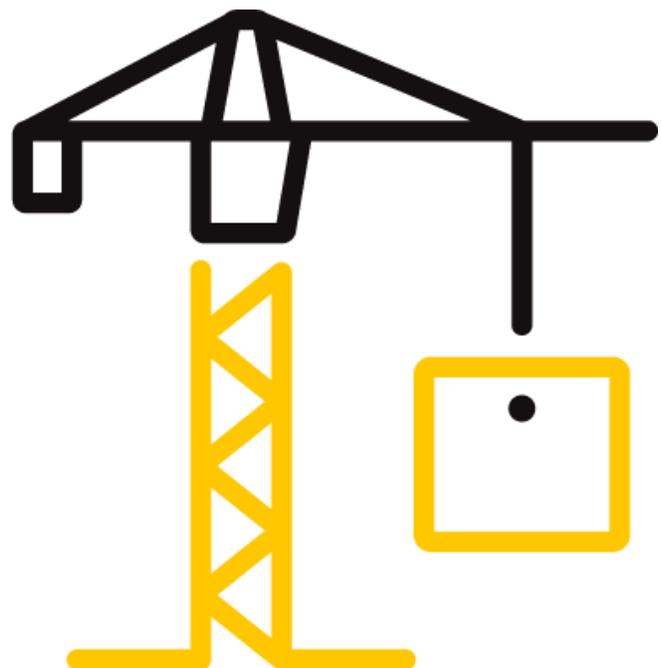
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TEST REPORT FOR THE WOOD VENEER HUB

Report No.: N5313.01-113-11-R0

Date: 04/08/22

REPORT ISSUED TO

THE WOOD VENEER HUB

831 North Tatnall Street, Suite M #104

Wilmington, Delaware 19801

SECTION 1

SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by The Wood Veneer Hub to perform a sound absorption test. Results obtained are tested values and were secured by using the designated test methods. 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 York, Pennsylvania.

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.

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For INTERTEK B&C:

COMPLETED BY:	Zachary P. Golden	REVIEWED BY:	Kurt A. Golden
TITLE:	Technician Team Leader Acoustical Testing	TITLE:	Senior Project Lead Acoustical Testing
SIGNATURE:		SIGNATURE:	
DATE:	04/08/22	DATE:	04/08/22

ZPG:jmcs

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SECTION 2

SUMMARY OF TEST RESULTS

SERIES/MODEL	SLATPANEL							
SAMPLE TYPE	Acoustical Wall Panel							
MOUNTING TYPE	A							
DATA FILE NO.	1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS AT THE OCTAVE BAND FREQUENCIES						NRC	SAA
	125	250	500	1000	2000	4000		
N5313.01A	0.05	0.07	0.23	0.64	1.02	0.84	0.50	0.50

SERIES/MODEL	SLATPANEL							
SAMPLE TYPE	Acoustical Wall Panel with 2" mineral wool insulation							
MOUNTING TYPE	C50							
DATA FILE NO.	1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS AT THE OCTAVE BAND FREQUENCIES						NRC	SAA
	125	250	500	1000	2000	4000		
N5313.01B	0.44	0.95	0.98	1.00	0.96	0.80	0.95	0.97

SECTION 3

TEST METHODS

The specimens were evaluated in accordance with the following:

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*

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SECTION 4

SPECIMEN MOUNTING

OPTION N5313.01A

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 plywood and duct tape.

OPTION N5313.01B

For the Type C50 mounting, the 24" by 48" mineral wool bats were placed directly against the floor of the reverberation room with wood furring strips between each mineral wool cavity. The acoustical wall panels were placed over the mineral wool and on top of the wood furring strips. A furring strip was placed at the end of each system to act as an "end cap" and completely enclose the airspace below the specimen. The perimeter of the specimen was sealed to the floor with duct tape.

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
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02581	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02583	03/22
2-Channel Analog Input	National Instruments	NI-9250	2-Channel Analog Input	INT02584	03/22
2-Channel Analog Output	National Instruments	NI-9260	2-Channel Analog Output	INT02582	03/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64907	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/22
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	01/22
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	02/22
Microphone Calibrator	Norsonic	1251	Acoustical Calibrator	Y002919	04/21

*- Note: The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

TEST CHAMBER

	VOLUME	DESCRIPTION
RECEIVE ROOM	234 m ³	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor

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SECTION 6

LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Zachary P. Golden	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.

Intertek B&C will store samples of test specimens for four years.

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 m². 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.

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SECTION 9

TEST SPECIMEN DESCRIPTION

OPTION N5313.01A

SERIES/MODEL	SLATPANEL
SAMPLE TYPE	Acoustical Wall Panel
MOUNTING TYPE	A

Nine, 2.40 m by 0.32 m (94-1/2" by 12-5/8"), panels were arranged to produce the 2.40 m by 2.74 m (94-1/2" by 108") test specimen. The total weight of the specimen was 42.64 kg (94 lbs).

DESCRIPTION	THICKNESS	DENSITY	WEIGHT
Medium Density Fiberboard (MDF)	9.68. mm 0.381"	N/A	0.19 kg/linear m 0.13 lbs/linear ft
Felt	8.89. mm 0.350"	142.86 kg/m ³ 8.91. lbs/ft ³	1.27 kg/m ² 0.26 lbs/ft ²

OPTION N5313.01B

SERIES/MODEL	SLATPANEL
SAMPLE TYPE	Acoustical Wall Panel with 2" mineral wool insulation
MOUNTING TYPE	C50

Nine, 2.40 m by 0.32 m (94-1/2" by 12-5/8"), panels were arranged to produce the 2.40 m by 2.74 m (94-1/2" by 108") test specimen. The acoustical panels were placed over one layer of 2" mineral wool insulation. The total weight of the specimen was 93.44 kg (206 lbs).

DESCRIPTION	THICKNESS	DENSITY	WEIGHT
Medium Density Fiberboard (MDF)	9.68. mm 0.381"	N/A	0.19 kg/linear m 0.13 lbs/linear ft
Felt	8.89. mm 0.350"	142.86 kg/m ³ 8.91. lbs/ft ³	1.27 kg/m ² 0.26 lbs/ft ²
2" Mineral wool insulation	50.80 mm 2"	100.39 kg/m ³ 6.27 lbs/ft ³	5.10 kg/m ² 1.045 lbs/ft ²

Photographs are included in Section 11.

The client did not supply a report drawing of the test specimen.

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SECTION 10

TEST RESULTS

N5313.01A DATA, Acoustical Wall Panel

TECHNICIAN	Zachary Golden	
SPECIMEN AREA	6.94 m ²	
MOUNTING TYPE	Type A	
	EMPTY	FULL
TEMP °C	20.6	21.7
RH %	50	48
B.P. (mb)	1023	1023

FREQ (Hz)	EMPTY ROOM ABSORPTION (m ²)	FULL ROOM ABSORPTION (m ²)	ABSORPTION COEFFICIENT
80	5.25	5.26	0.00
100	6.04	6.02	0.00
125	5.24	5.62	0.05
160	4.59	4.87	0.04
200	5.06	5.38	0.05
250	5.41	5.91	0.07
315	5.30	6.02	0.10
400	5.24	6.35	0.16
500	5.26	6.86	0.23
630	5.06	7.57	0.36
800	5.30	8.75	0.50
1000	5.23	9.68	0.64
1250	5.51	11.14	0.81
1600	5.53	12.24	0.97
2000	5.45	12.54	1.02
2500	5.78	13.16	1.06
3150	6.40	12.82	0.93
4000	6.95	12.77	0.84
5000	7.35	12.41	0.73

NRC RATING	0.50	<i>(Noise Reduction Coefficient)</i>
SAA RATING	0.50	<i>(Sound Absorption Average)</i>

Notes:

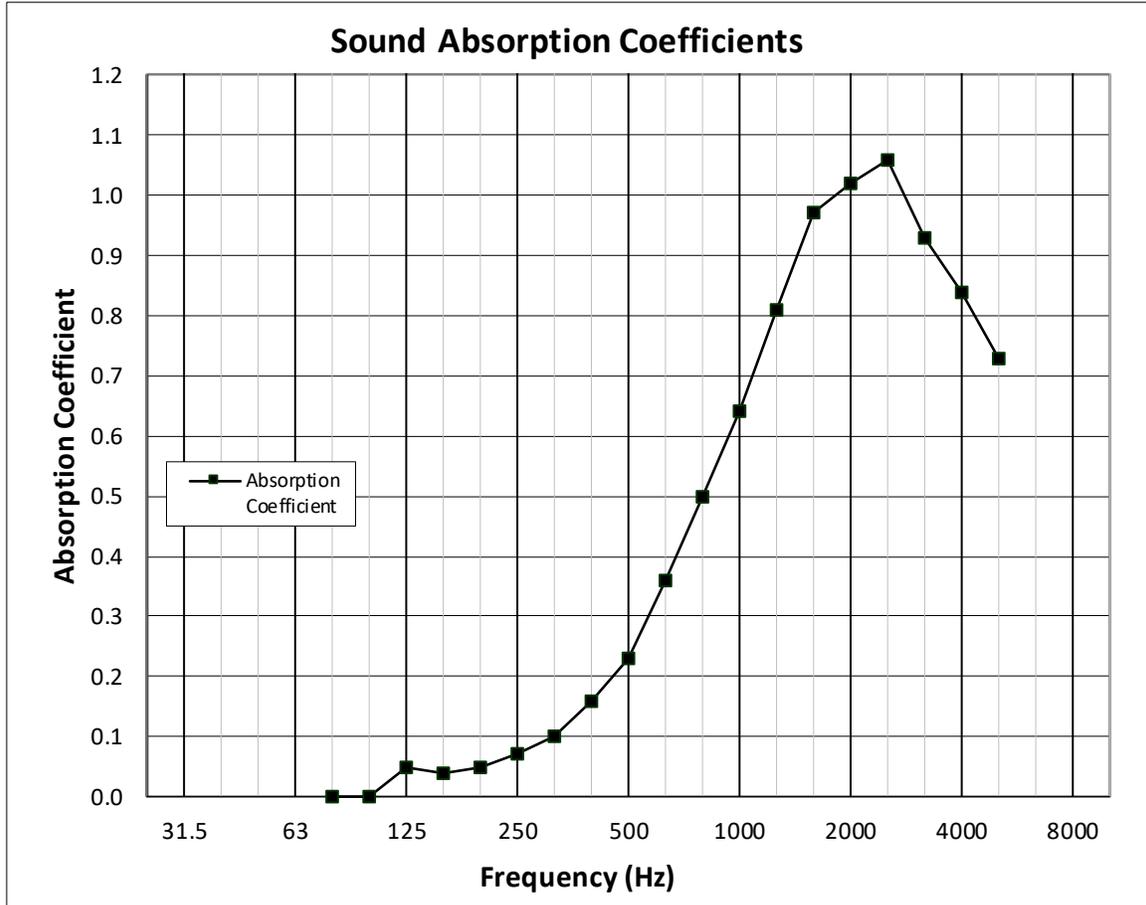
- 1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.
- 2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

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N5313.01A GRAPH, Acoustical Wall Panel



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N53613.01B DATA, Acoustical Wall Panel with 2" mineral wool insulation

TECHNICIAN	Zachary Golden	
SPECIMEN AREA	6.94 m ²	
MOUNTING TYPE	Type C	
	EMPTY	FULL
TEMP °C	20.6	20.7
RH %	50	49
B.P. (mb)	1023	1023

FREQ (Hz)	EMPTY ROOM ABSORPTION (m²)	FULL ROOM ABSORPTION (m²)	ABSORPTION COEFFICIENT
80	5.25	6.02	0.11
100	6.04	7.68	0.24
125	5.24	8.30	0.44
160	4.59	8.24	0.53
200	5.06	10.26	0.75
250	5.41	11.97	0.95
315	5.30	12.22	1.00
400	5.24	12.10	0.99
500	5.26	12.09	0.98
630	5.06	11.93	0.99
800	5.30	12.22	1.00
1000	5.23	12.17	1.00
1250	5.51	12.51	1.01
1600	5.53	12.54	1.01
2000	5.45	12.12	0.96
2500	5.78	12.37	0.95
3150	6.40	12.27	0.85
4000	6.95	12.50	0.80
5000	7.35	12.47	0.74

NRC RATING	0.95	<i>(Noise Reduction Coefficient)</i>
SAA RATING	0.97	<i>(Sound Absorption Average)</i>

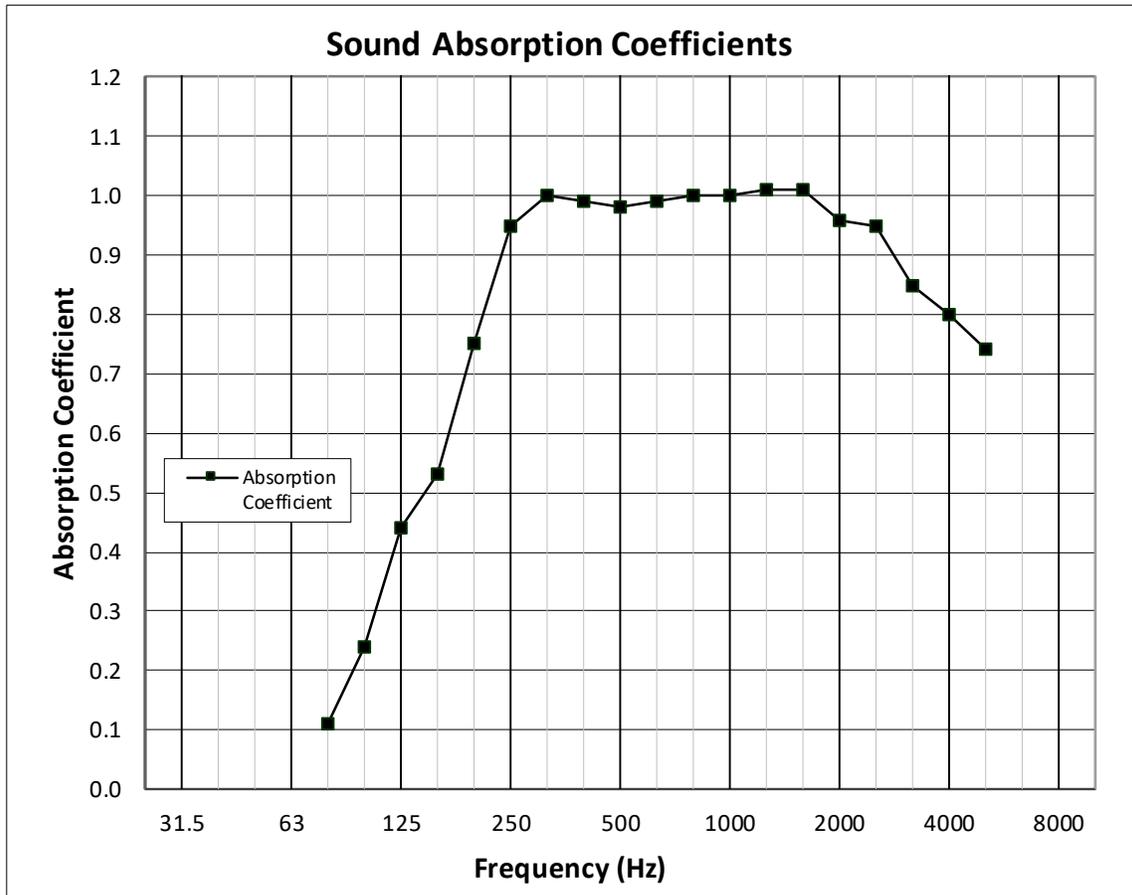
- Notes:
- 1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.
 - 2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500 hertz. The average is rounded to the nearest multiple of 0.01.

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N5313.01B GRAPH, Acoustical Wall Panel with 2" mineral wool insulation



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SECTION 11

PHOTOGRAPHS



Photo No. 1

View of Installed Type A Mount - Test Option N5313.01A



Photo No. 2

Side View of Type A Mount - Test Option N5313.01A

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Photo No. 3

View of Type C50 Mount Setup – Test Option N5313.01B

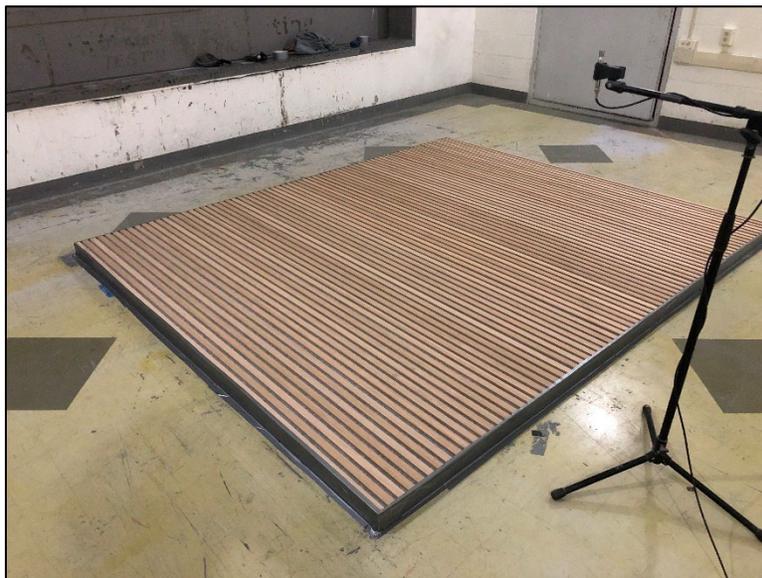


Photo No. 4

View of Installed Type C50 Mount - Test Option N5313.01B

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Photo No. 5
Side View of Type C50 Mount - Test Option N5313.01B



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SECTION 12

REVISION LOG

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