

# MOLO DESIGN LTD.

## ACOUSTICAL PERFORMANCE TEST REPORT

### SCOPE OF WORK

ASTM C423 SOUND ABSORPTION TESTING ON  
A 9.25" PAPER MOLO SOFTWALL, COLLAPSIBLE WALL DIVIDER

### REPORT NUMBER

M5229.07-113-11-R0

### TEST DATE

07/29/21

### ISSUE DATE

08/04/21

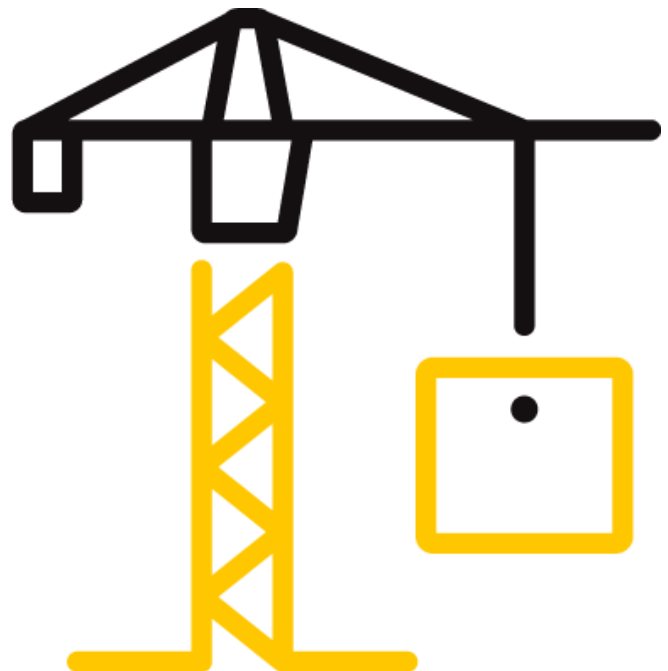
### PAGES

10

### DOCUMENT CONTROL NUMBER

RT-R-AMER-Test-2755 (01/04/21)

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## TEST REPORT FOR MOLO DESIGN LTD.

Report No.: M5229.07-113-11-R0

Date: 08/04/21

### REPORT ISSUED TO

#### MOLO DESIGN LTD.

1470 Venables Street

Vancouver, British Columbia V5L 2G7

CANADA

### SECTION 1

#### SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Molo Design Ltd. 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.

Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Andrew M. Johnston	<b>REVIEWED BY:</b>	Kurt A. Golden
<b>TITLE:</b>	Technician Acoustical Testing	<b>TITLE:</b>	Project Lead Acoustical Testing
<b>SIGNATURE:</b>		<b>SIGNATURE:</b>	
<b>DATE:</b>	08/04/21	<b>DATE:</b>	08/04/21

AMJ:jmc

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## TEST REPORT FOR MOLO DESIGN LTD.

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### SECTION 2

#### SUMMARY OF TEST RESULTS

<b>SERIES/MODEL</b>	9.25" Paper Molo Softwall							
<b>SAMPLE TYPE</b>	Collapsible Wall Divider							
<b>MOUNTING TYPE</b>	K							
DATA FILE NO.	1/3 OCTAVE SOUND ABSORPTION COEFFICIENTS AT THE OCTAVE BAND FREQUENCIES						NRC	SAA
	125	250	500	1000	2000	4000		
M5229.01G	0.09	0.05	0.18	0.29	0.51	0.43	0.25	0.27

### 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\**

\* The test specimen exceeded the ASTM E795 test standard maximum product thickness.

### SECTION 4

#### SPECIMEN MOUNTING

For the Type K mounting, the test specimen was free standing in the reverberation room in an "S shape" position.

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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 Card	National Instruments	PXI-4462	Data Acquisition Card	63763-3*	04/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65125*	05/20
Data Acquisition Card	National Instruments	PXI-4462	Data Acquisition Card	65126*	05/20
Receive Room Microphone	PBC Piezotronics	378B20	Microphone and Preamplifier	64907	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64908	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64909	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64910	01/21
Receive Room Microphone	PCB Piezotronics	378B20	Microphone and Preamplifier	64911	11/20
Receive Room Environmental Indicator	Comet	T7510	Receive Room	64915	01/21
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 <sup>3</sup>	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
Andrew M. Johnston	Intertek B&C
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.

The specimen was returned per the client's request.

**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.

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### SECTION 9

#### TEST SPECIMEN DESCRIPTION

<b>SERIES/MODEL</b>	9.25" Paper Molo Softwall
<b>SAMPLE TYPE</b>	Collapsible Wall Divider
<b>MOUNTING TYPE</b>	K

The test specimen was an accordion style textile wall divider that was 96" tall and 9.25" thick. The textile material used to construct the wall divider was 0.005" thick. The specimen was stretched to 193" long in the form of an "S shape" position. The total weight of the test specimen was 17.69 kg (39 lbs). The test specimen exceeded the ASTM E795 test standard maximum product thickness.

DESCRIPTION	THICKNESS	WEIGHT
9.25" Paper Molo Softwall	234.95 mm	1.46 kg/m <sup>2</sup>
Collapsible Wall Divider	9.25"	0.30 lbs/ft <sup>2</sup>

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**
**M5229.01G DATA**

<b>SPECIMEN AREA</b>	23.91 m <sup>2</sup>	
<b>MOUNTING TYPE</b>	Type K	
	<b>EMPTY</b>	<b>FULL</b>
<b>TEMP °C</b>	21.6	22.4
<b>RH %</b>	45	47
<b>B.P. (mb)</b>	986	986

<b>FREQ</b> (Hz)	<b>EMPTY ROOM</b> <b>ABSORPTION</b> (m <sup>2</sup> )	<b>UNCERTAINTY</b>	<b>FULL ROOM</b> <b>ABSORPTION</b> (m <sup>2</sup> )	<b>UNCERTAINTY</b>	<b>ABSORPTION</b> <b>COEFFICIENT</b>	<b>RELATIVE</b> <b>UNCERTAINTY</b>
80	5.64	0.374	12.01	0.127	0.27	0.017
100	5.50	0.503	9.94	0.440	0.19	0.028
125	5.72	0.445	7.98	0.218	0.09	0.021
160	5.08	0.123	6.72	0.157	0.07	0.008
200	4.79	0.104	6.08	0.128	0.05	0.007
250	5.19	0.118	6.42	0.070	0.05	0.006
315	5.31	0.028	7.13	0.049	0.08	0.002
400	5.48	0.054	7.78	0.046	0.10	0.003
500	5.59	0.048	9.78	0.516	0.18	0.022
630	5.20	0.016	17.44	0.021	0.51	0.001
800	5.30	0.025	12.56	0.013	0.30	0.001
1000	5.34	0.029	12.31	0.027	0.29	0.002
1250	5.62	0.020	12.91	0.016	0.31	0.001
1600	5.66	0.010	17.04	0.008	0.48	0.001
2000	5.67	0.005	17.85	0.082	0.51	0.003
2500	5.98	0.007	14.55	0.037	0.36	0.002
3150	6.37	0.010	13.78	0.008	0.31	0.001
4000	6.92	0.007	17.15	0.002	0.43	0.000
5000	7.54	0.006	18.32	0.003	0.45	0.000

<b>NRC RATING</b>	0.25	(Noise Reduction Coefficient)
<b>SAA RATING</b>	0.27	(Sound Absorption Average)

**Notes:**

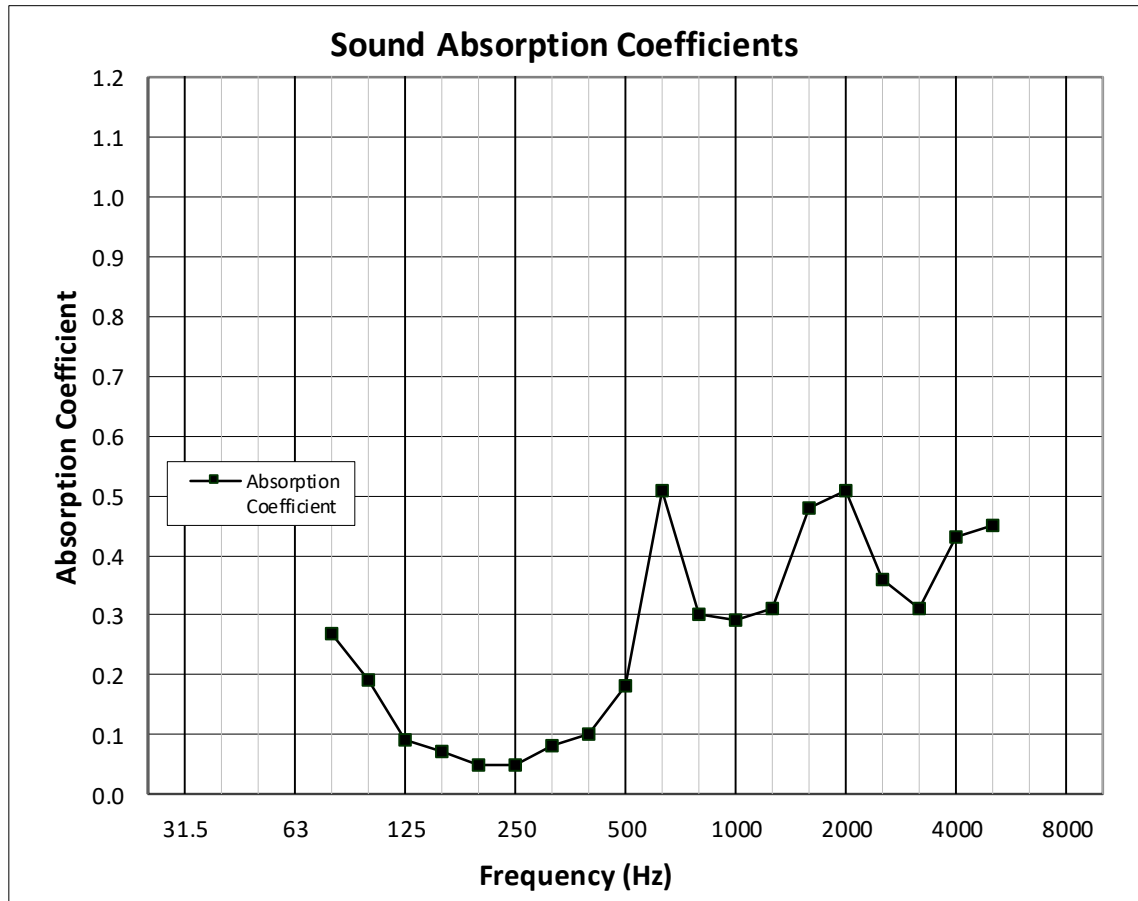
- 1) The NRC rating is the arithmetic average of the sound absorption coefficients at 250, 500, 1000, and 2000 hertz. The average is rounded to the nearest multiple of 0.05.
- 2) The SAA rating is the arithmetic average of the sound absorption coefficients at the frequencies ranging from 200 to 2500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

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**M5229.01G GRAPH**





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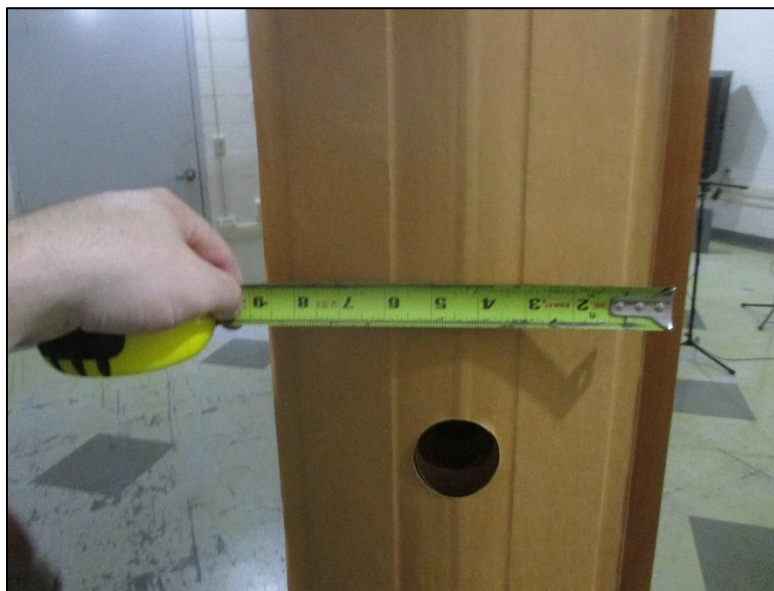
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### SECTION 11

#### PHOTOGRAPHS



**Photo No. 1**  
**View of Installed Test Specimen**



**Photo No. 2**  
**Close-Up View of Test Specimen**



Total Quality. Assured.

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### SECTION 12

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	08/04/21	N/A	Original Report Issue