



NVLAP LAB CODE 100228-0



ARMSTRONG
ACOUSTICS
LABORATORY

Armstrong World Industries
Innovation Center, P. O. Box 3001
Lancaster, PA 17604
717 396-6225

SOUND ABSORPTION TEST REPORT

Test Number: A-55223-0228

Report Issued: 4/3/2008

Test Date: 3/19/2008

For: Armstrong World Industries Inc.
2500 Columbia Avenue
Lancaster, PA 17604

Specimen Designation: Armstrong Item 5441 – SoundScapes Shapes Convex

The test method conforms explicitly to the requirements of ISO 354-03 – “Acoustics - Measurement of sound absorption in a reverberation room”. The Armstrong Acoustics Laboratory is accredited by NVLAP of the Department of Commerce as having the competence to perform this test in accordance with the prescribed test method. A description of the facility and measuring technique is available separately.

Substrate: Fiberglass

Face Finish: Factory-applied acrylic latex paint on DuraBrite acoustically transparent membrane

Back Finish: None

Nominal Unit Size: 1.2 m x 1.2 m x 22 mm (48” x 48” x 7/8”)

Physical Unit Size: See the attached drawing.

Unit Weight per Area: 3.32 kg/m², (0.68 lb/ft²)

Sample Size: 1.29 m², (13.9 ft²) consisting of one panel.

Conditioning: The test was performed in a test room at 21.9 deg C, (71.4 deg F), and 55.3 %RH. The conditions during the bare room test were at 21.8 deg C, (71.2 deg F), and 57.5 %RH. The sample was conditioned at least 20 hours at 21+/-3 deg C, (70+/-5 deg F), and 50+/-5% RH.

Specimen Installation: The specimen with mounting clips was mounted against the test surface. The mounting clips provided a 25mm gap between the panel and the test surface.

Reverberation Room

Size: 8.18 x 6.22 x 5.23 m, (26.83’ x 20.40’ x 17.17’) with
2.44 x 2.44 x 0.29 m, (8’ x 8’ x 0.95’) recess in ceiling and
2.93 x 0.70 x 0.53 m, (9.60’ x 2.31’ x 1.75’) box for collapsed test frame.

Volume: 266.7 m³, (9420 ft³)

Surface Area: 255 m², (2747 ft²)

Diffuser Configuration: One rotating diffuser system which consists of a conical section extending from floor to ceiling and 3 flat diffusers mounted about the axis of the cone. The area of the diffuser is 42.9 m² (461 ft²).

Microphone Positions: 6

Noise Source: Two speaker cabinets in opposite upper trihedral corners broadcasting broadband Pink noise (50 Hz – 10,000 Hz).



NVLAP LAB CODE 100228-0

The results reported above apply to the specific samples tested.

No responsibility is assumed for performance of any other specimen.

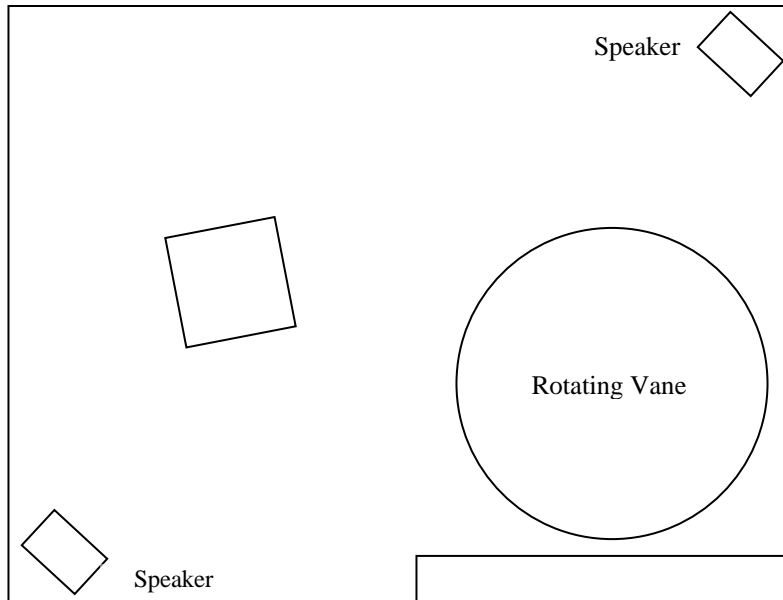
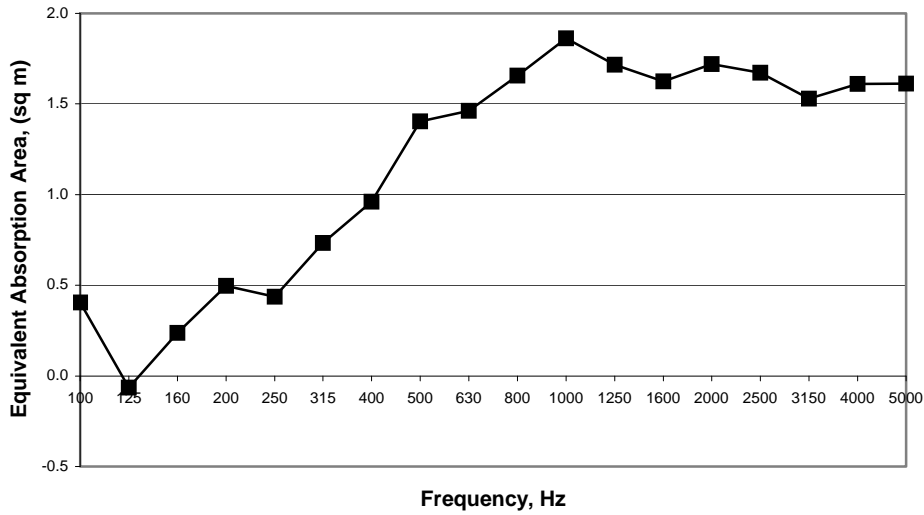
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Equivalent Absorption Area - Alpha (obj)



Room Layout and Sample Position



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Results According to ISO 354-03

Frequency Hz	T1 Treated Room Reverberation Time (Seconds)	T2 Bare Room Reverberation Time (Seconds)	Equivalent Absorption Area α_{obj}	α_{obj} Estimated 95% Confidence Limit
100	5.6	5.9	0.4	0.05
125	5.8	5.7	-0.1	0.04
160	5.7	5.9	0.2	0.04
200	5.8	6.2	0.5	0.04
250	6.0	6.4	0.4	0.03
315	5.8	6.5	0.7	0.03
400	5.9	6.8	1.0	0.03
500	5.5	6.7	1.4	0.02
630	5.1	6.1	1.5	0.02
800	4.7	5.7	1.7	0.02
1000	4.3	5.3	1.9	0.01
1250	3.9	4.6	1.7	0.01
1600	3.7	4.2	1.6	0.01
2000	3.2	3.7	1.7	0.01
2500	2.9	3.3	1.7	0.01
3150	2.7	3.0	1.5	0.01
4000	2.4	2.7	1.6	0.01
5000	2.1	2.3	1.6	0.00

The relative standard deviation of the reverberation times are calculated as outlined in section 8.2.2 of ISO. The presented uncertainty is the root of the sum of squares for the bare and treated room reverberation times multiplied by the absorption.



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Page 4 of 4

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Comments: At the request of the customer, a single panel was tested knowing that the area of the panel might provide less than the required 1 m² of absorption.

Traceability: These test results are traceable to NIST.

Approved by:

Robert Alan Hallman
Facility Manager



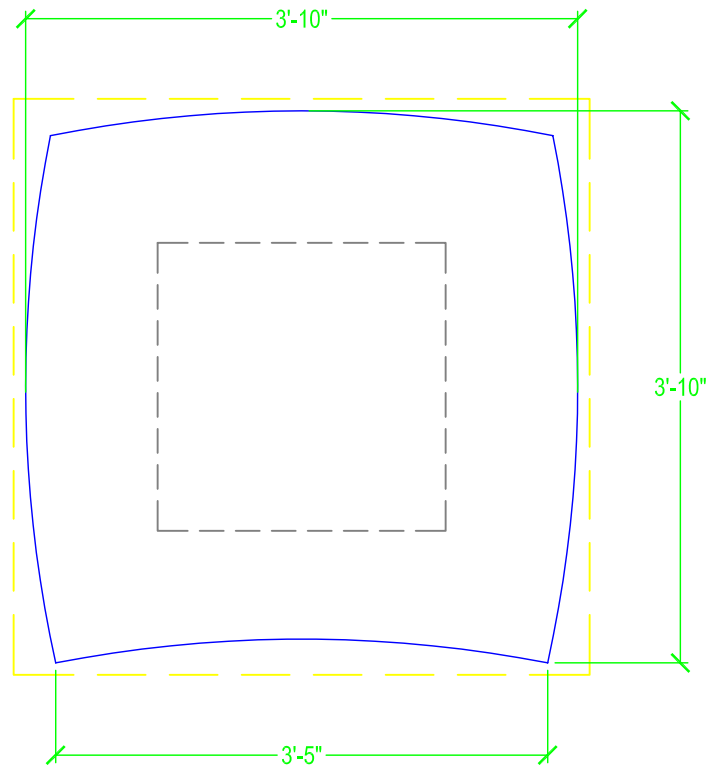
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These drawings show typical conditions in which the Armstrong product depicted is installed. They are not a substitute for an architect's or engineer's plan and do not reflect the unique requirements of local building codes, laws, statutes, ordinances, rules and regulations (Legal Requirements) that may be applicable for a particular installation.

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PROJECT NAME:		CONVEX- NOMINAL 4' X 4' SHAPE	
DWG. NO. ITEM # 5441		REV:	DATE:
DATE: 11/01/07	SCALE: 1:16	DESC.:	
DRAWN BY: CAD	CHK BY:		



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