



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-55219-0228

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 attached drawing.

Unit Weight per Area: 3.32 kg/m<sup>2</sup>, (0.68 lb/ft<sup>2</sup>)

Sample Size: 1.29 m<sup>2</sup>, (13.9 ft<sup>2</sup>) consisting of one panel.

Conditioning: The test was performed in a test room at 21.9 deg C, (71.4 deg F), and 55.5 %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 was mounted 1.0 meter above the test surface using 13mm wooden dowel rods inserted in a grid of wood strips laying on the floor.

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 m<sup>3</sup>, (9420 ft<sup>3</sup>)

Surface Area: 255 m<sup>2</sup>, (2747 ft<sup>2</sup>)

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 m<sup>2</sup> (461 ft<sup>2</sup>).

Microphone Positions: 6

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



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The results reported above apply to the specific samples tested.

No responsibility is assumed for performance of any other specimen.

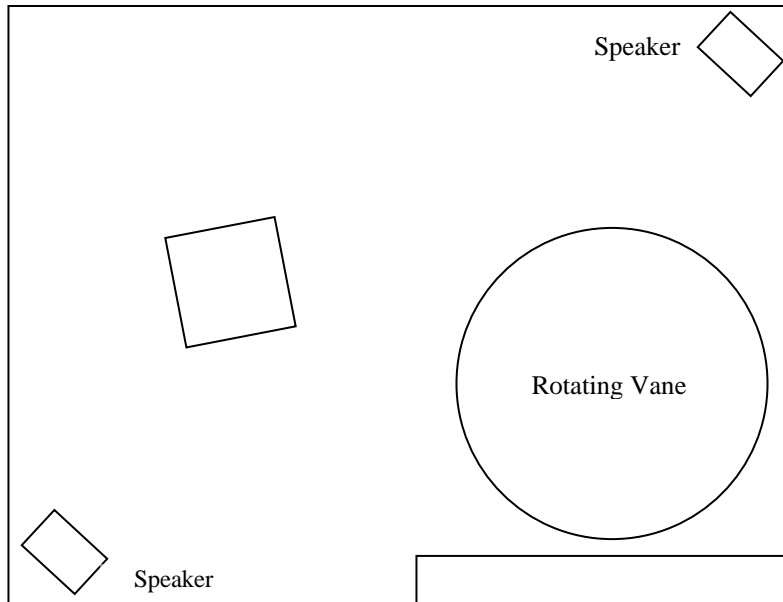
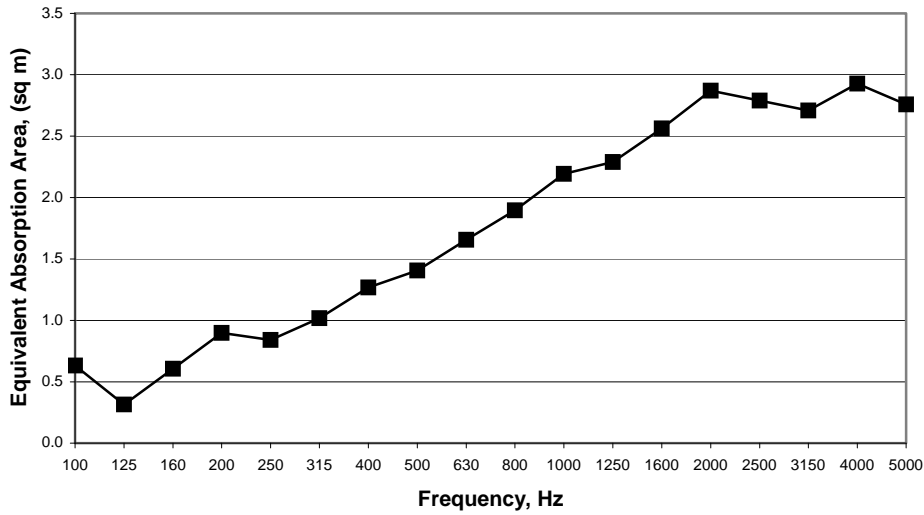
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Equivalent Absorption Area - Alpha (obj)



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 $\alpha_{obj}$	$\alpha_{obj}$ Estimated 95% Confidence Limit
100	5.4	5.9	0.6	0.05
125	5.5	5.7	0.3	0.04
160	5.4	5.9	0.6	0.04
200	5.5	6.2	0.9	0.04
250	5.7	6.4	0.8	0.03
315	5.6	6.5	1.0	0.03
400	5.6	6.8	1.3	0.03
500	5.5	6.7	1.4	0.02
630	5.0	6.1	1.7	0.02
800	4.5	5.7	1.9	0.02
1000	4.2	5.3	2.2	0.01
1250	3.7	4.6	2.3	0.01
1600	3.4	4.2	2.6	0.01
2000	3.0	3.7	2.9	0.01
2500	2.7	3.3	2.8	0.01
3150	2.5	3.0	2.7	0.01
4000	2.3	2.7	2.9	0.01
5000	2.0	2.3	2.8	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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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 m<sup>2</sup> of absorption.

Traceability: These test results are traceable to NIST.

Approved by:

Robert Alan Hallman  
Facility Manager



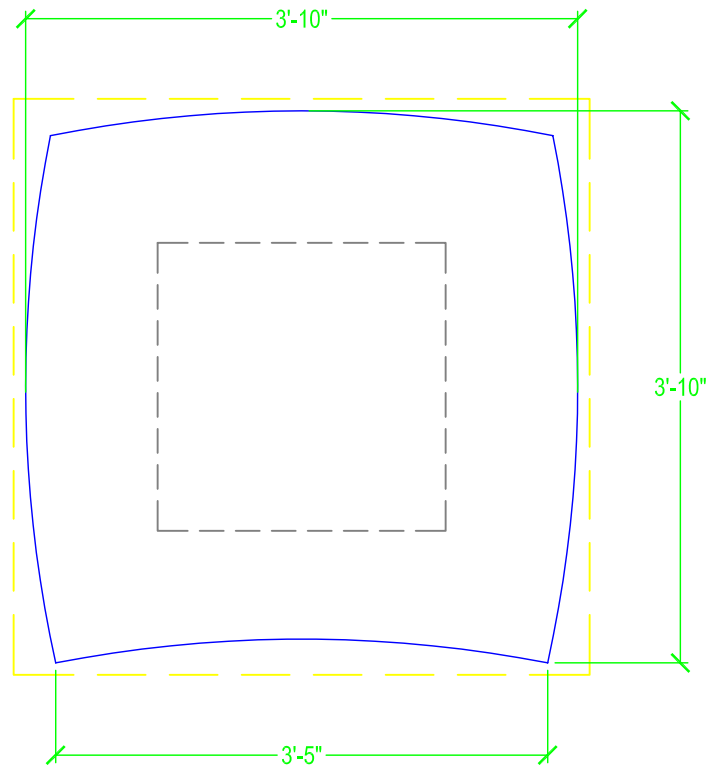
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PROJECT NAME:		CONVEX- NOMINAL 4' X 4' SHAPE	
DWG. NO. ITEM # 5441		REV:	DATE:
DATE: 11/01/07	SCALE: 1:16	DESC.:	
DRAWN BY: CAD	CHK BY:		



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