Armstrong® World Industries

NVLAP LAB CODE 100228-0

ARMSTRONG ACOUSTICS LABORATORY

Testing performed at:
Armstrong World Industries
2500 Columbia Avenue
Lancaster, PA 17603
717 396-2089

Test Number A-181908-0228

Sound Absorption Test

Test Date: 05/10/2024 Report Issued: 05/22/2024

For: Turf
41 Prairie Pkwy
Gilberts, IL 60136

Specimen Designation: TURF™ Arcade Ceiling Tile

The test method conforms explicitly to the requirements of ASTM C423-23 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method and ASTM E795-23 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests except as noted in the Comment section. 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. Descriptions of the facility and measuring technique are available separately.

Material Description:	5mm thick non-woven layered and formed polyester felt (PET) fiber panels with color throughtout.
Nominal Unit Size:	24 by 24 in. Thickness varies
Physical Unit Size:	610 by 610 by 152.4 mm (24.000 by 24.000 by 6.000 in.). Thickness measurement taken at the largest dimension.
Unit Weight per Area:	1.81 kg/m² (0.37 lb/ft²)
Specimen Installation:	The specimen was mounted using the E-400 mounting technique according to ASTM E795.
Specimen Size:	5.95 m² (64.00 ft²) consisting of sixteen (five different styles) full units arranged in a 2.44 by 2.44 m (96.00 by 96.00 in.) contiguous array.
Conditioning:	The test was performed in a test room at 21.8°C (71.3°F), 53.8% RH and 990 hPa. The conditions during the bare room test were 21.6°C (70.8°F), 56.3% RH and 990 hPa. The sample was conditioned at least 16 hours at 21 ± 3°C (70 ± 5°F) and 50 ± 5% RH.
Significance:	The coefficients measured by this test method should be used with caution because not only are the areas encountered in practical usage usually larger than the test specimen, but also the sound field is rarely diffuse. Both of these factors will influence the absorption in practical usage. Regardless of the differences and the necessity for judgment, the coefficients measured by this test method have been used successfully by architects and consultants in the acoustical design of architectural spaces.
Traceability:	These test results are traceable to NIST.
Comments:	None

Sound Absorption Test

Reverberation Room

Size: 8.18 by 6.22 by 5.23 m (26.83 by 20.40 by 17.17 ft) with 4.04 by 0.70 by 1. 11 m (13.25 by 2.31 by 3.65 ft) box for collapsed test frame.

Volume: 262.9 m^3 (9286 ft^3).

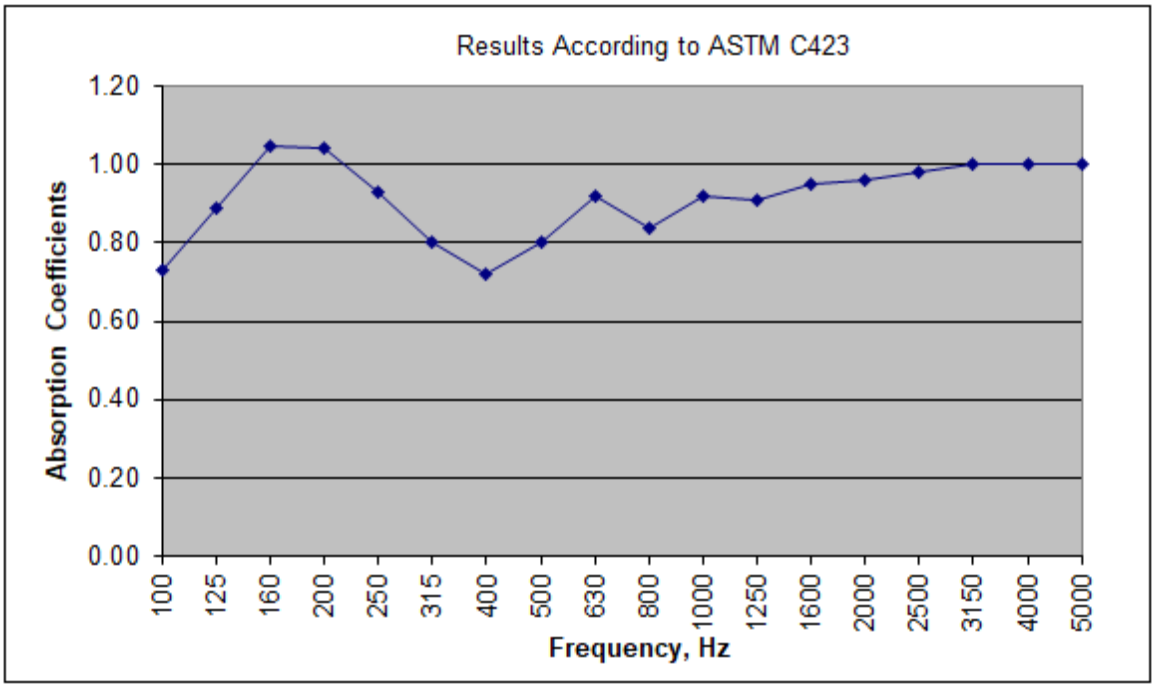
Surface Area: 252.4 m^2 (2717 ft^2).

Diffuser Configuration: One rotating diffuser system which consists of a conical section extending from the floor to ceiling and 3 flat diffusers mounted about the axis of the cone. The area of the diffuser is 42.9 m^2 (462 ft^2).

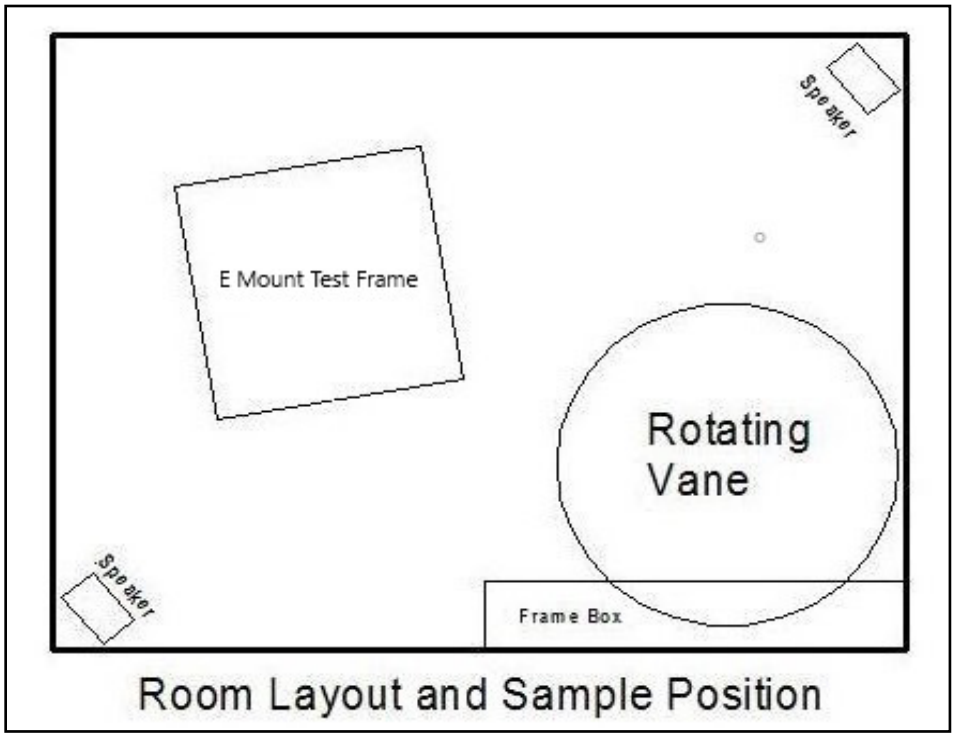
Microphone Positions: 6

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

Sound Absorption Test

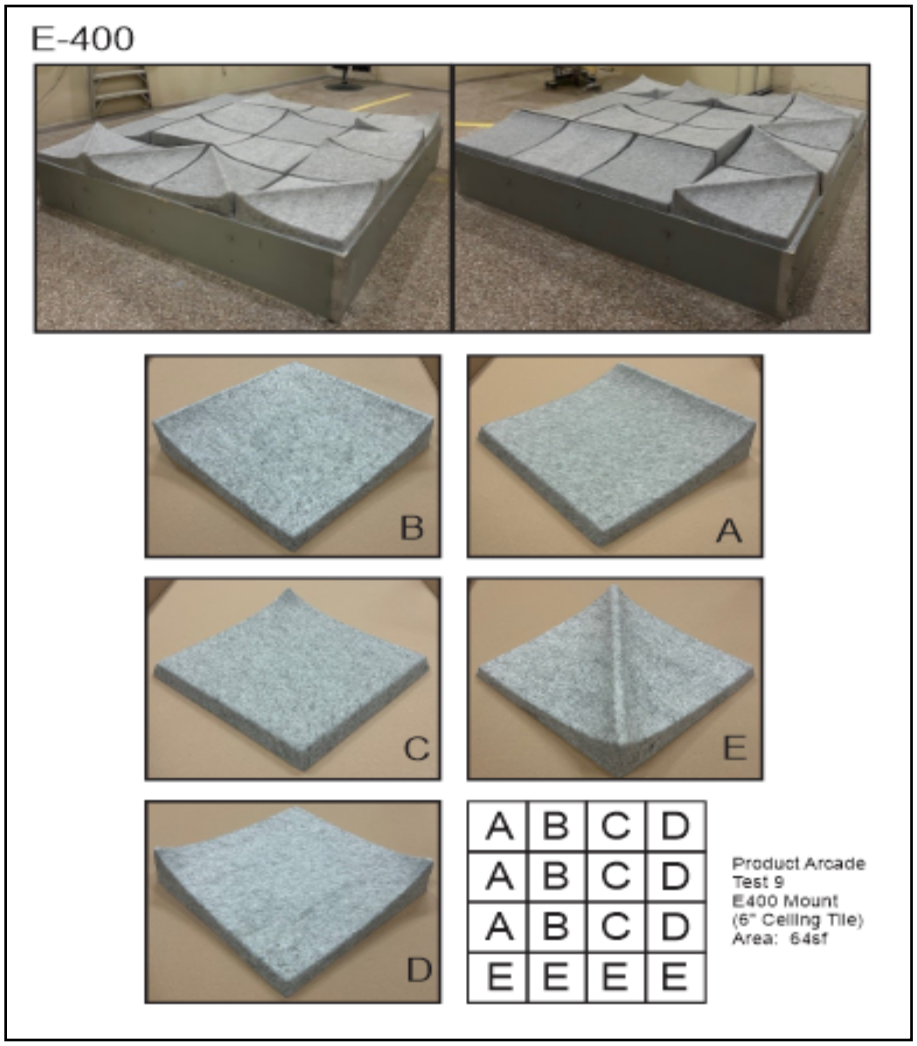


Sound Absorption Test



Room Layout and Sample Position

Sound Absorption Test



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Results According to ASTM C423

Frequency Hz	Absorption Coefficient	Absorption Coefficient For E-400 Frame	
		Reproducibility	Repeatability
100	0.73	0.49	0.23
125	0.89	0.33	0.16
160	1.05	0.27	0.11
200	1.04	0.14	0.08
250	0.93	0.17	0.07
315	0.80	0.12	0.07
400	0.72	0.08	0.05
500	0.80	0.09	0.06
630	0.92	0.08	0.06
800	0.84	0.09	0.04
1000	0.92	0.09	0.03
1250	0.91	0.11	0.05
1600	0.95	0.13	0.04
2000	0.96	0.11	0.05
2500	0.98	0.09	0.04
3150	1.00	0.10	0.04
4000	1.00	0.10	0.07
5000	1.00	0.13	0.09

SAA 0.90 **NRC 0.90**

The reproducibility and repeatability are from the Precision and Bias section of ASTM C423. The Sound Absorption Average (SAA) is the average of coefficients between 200 and 2500 H, expressed to the nearest integral multiple of 0.01. The noise reduction coefficient (NRC) is the average of coefficients at 250, 500, 1000, and 2000 Hz expressed to the nearest integral multiple of 0.05.

Approved by: Zachary A. Bock

Zachary A. Bock

Facility Manager

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