



Acoustical Surfaces, Inc.

SOUNDPROOFING, ACOUSTICS, NOISE & VIBRATION CONTROL SPECIALISTS

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Visit our Website: www.acousticalsurfaces.com

We Identify and **S.T.O.P.** Your Noise Problems

NOISE S.T.O.P. Fabrisorb™ Decorative Fabric Wrapped, Custom Acoustical Wall Panels, 4 Edge Details

Noise S.T.O.P. Fabrisorb™. acoustical panels are generally fabricated using a decorative woven fabric or perforated vinyl over an acoustically absorptive fiberglass core material. The thickness of the absorptive core material is the overriding element that will affect the panel's acoustical performance. Since the fiberglass core is manufactured by relatively few companies such as, Owens Corning, Johns Manville, CertainTeed, Knauf and a few others the acoustical performance should not vary significantly. When comparing one manufacturer to another, it is important to ascertain that the test protocol is the same for a particular application. The densities of the fiberglass used in the manufacture of acoustical wall panels generally will be in the realm of 6 lbs per cubic foot.

Since the various acoustical wall panel manufacturers all purchase their acoustical core materials from the same sources it is highly unlikely that the acoustical performance will vary from one acoustical panel manufacturer to another on a consistent basis. Likewise the decorative fabric coverings are also procured from the same source and thus the performance should be the same or similar.

Acoustical wall panels are used principally for the purpose of reducing the Reverberation Time in a space to make speech more intelligible.

There are a number of applications that can affect the acoustical performance of the panels, using a 2" thickness will improve the overall NRC performance however the performance difference at the voice frequency range of 500 Hz is only in the order of about 8%, therefore it makes no sense to spend 40% in order to gain an 8% improvement. 2" thick acoustical wall panels do provide better acoustical performance at the lower frequencies so if low frequency noise is the problem the thicker panels are appropriate.

Mounting the panels on furring strips will improve the acoustical performance and may be a practical and cost effective feature. In addition using soft edged panels separated by space between the applied panels will also improve the acoustical performance though the "edge effect" and "diffraction".

Most acoustical panels specified by architects employ edge hardening which is not necessary in this day and age with the improvements that have been made in the manufacture of fiberglass core materials. So when comparing acoustical test data be sure to compare the material and test application carefully to determine if you are comparing apples with apples.

The following test results are a typical compilation for various acoustical panels and where conducted at an independent acoustical test laboratory by and under the direction of the author Mike Nixon at Acoustical Surfaces Inc.



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TECHNICAL DATA

ACOUSTICAL TESTS – NOISE S.T.O.P. FABRISORB™ WALL PANELS

Material Thickness/Core Facing	Mounting	Absorption Coefficient						
		Octave Band Center Frequency Hz						
		125	250	500	1000	2000	4000	NRC
3/4" fiberglass-fabric	A-Mod	0.10	0.19	0.57	0.97	1.10	1.02	0.70
3/4" fiberglass-perf. vinyl	A-Mod	0.10	0.44	0.56	0.97	0.90	0.71	0.70
1" fiberglass-fabric	A	0.06	0.24	0.71	1.10	1.15	1.02	0.80
1" fiberglass-fabric	A-Mod	0.21	0.41	0.93	1.15	1.00	0.95	0.85
1" fiberglass-fabric-perforated vinyl	A	0.08	0.33	0.84	1.04	1.01	0.77	0.80
1" fiberglass-fabric-perforated vinyl	A-Mod	0.14	0.51	0.90	1.04	0.95	0.90	0.85
1-1/8" H.I.R. fiberglass-fabric	A	0.09	0.50	0.99	1.13	1.08	0.96	0.95
1-1/8" H.I.R. F/G-perf. vinyl	A-Mod	0.14	0.51	0.90	1.04	0.95	0.90	0.85
1-1/2" fiberglass-fabric	A	0.24	0.72	1.10	1.15	1.13	1.08	1.05
1-5/8" H.I.R. F/G-perf	A-Mod	0.23	0.64	1.16	1.16	1.14	1.02	1.05
2" fiberglass-fabric	A-Mod	0.33	0.71	1.23	1.29	1.22	1.24	1.10
2-1/8" H.I.R. F/G-fabric	A-Mod	0.45	0.91	1.09	1.14	1.02	0.98	1.05
2" L.F.T. fiberglass-fabric	A-Mod	0.67	0.62	0.56	0.39	0.33	0.14	0.50
2" ACOUSTI-SAN wall panel	A	0.27	0.68	0.97	0.95	0.85	0.69	0.85
1/2" Mineral Board-fabric	A	0.05	0.18	0.49	0.63	0.71	0.76	0.50
3/4" Mineral Board-fabric	A	0.10	0.26	0.56	0.81	0.93	0.77	0.65
1-1/16" S.H.I.R. F/G-fabric	A-Mod	0.12	0.39	0.91	1.03	0.99	0.99	0.85
2-1/16" S.H.I.R. F/G-fabric	A-Mod	0.33	0.71	1.23	1.29	1.22	1.24	1.10

- NOTE:**
1. All fiberglass (F/G) core tested was 6-7 p.c.f.
 2. Fabric facing tested was 100% woven polyester.
 3. Perforated vinyl facing tested was GenCorp Web Core vinyl.
 4. H.I.R. refers to High Impact Resistance face, 18-20 p.c.f. fiberglass over core.
 5. Mounting referred to as Mod. (modified) is a test with 3/16" air space between panel and substrate to simulate mechanical mounting.
 6. All testing conducted by certified NVLAP independent testing laboratory in accordance with ASTM C-423 – "Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method".



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TECHNICAL DATA

ACOUSTICAL TESTS – NOISE S.T.O.P. FABRISORB™ CEILING PANELS & CLOUDS

Material Thickness/Core Facing	Mounting	Absorption Coefficient						
		Octave Band Center Frequency Hz						
		125	250	500	1000	2000	4000	NRC
1" ACOUSTI-SAN Ceiling Tile	E	0.65	0.83	0.91	0.98	1.02	1.74	0.95
1" Nubby Ceiling Tile	E	0.69	0.95	0.85	1.06	1.11	1.08	0.95
1-1/2" Nubby Ceiling Tile	E	0.67	0.95	0.97	1.13	1.15	1.08	1.05
3/4" Painted Mat-Euromat	E	0.69	0.62	0.61	0.89	1.91	0.79	0.75
1" Painted Mat-Euromat	E	0.56	0.93	0.96	1.01	1.12	1.20	1.00
2" Painted Mat-Euromat	E	0.50	0.92	0.99	1.09	1.15	1.19	1.05
1/2" F/G - 1/2" Min. Board-Fabric	E	0.40	0.44	0.62	0.86	0.92	1.02	0.70
1" F/G - 1/2" Min. Board-Fabric	E	0.48	0.65	1.00	1.05	1.10	1.15	0.95
1" F/G - Fabric - Ceiling Cloud	E	0.56	0.93	0.96	1.01	1.12	1.20	1.00
2" F/G - Fabric - Ceiling Cloud	E	0.50	0.92	0.99	1.09	1.15	1.19	1.05

- NOTE:**
1. All fiberglass (F/G) core tested was 6-7 p.c.f.
 2. Fabric facing tested was 100% woven polyester.
 3. Perforated vinyl facing tested was GenCorp Web Core vinyl.
 4. All testing conducted by certified NVLAP independent testing laboratory in accordance with ASTM C-423 – “Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method”.



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TECHNICAL DATA

ACOUSTICAL TESTS – NOISE S.T.O.P. FABRISORB™ SUSPENDED CEILING BAFFLES

Material Thickness/Core Facing	Mounting	Absorption Coefficient						
		Octave Band Center Frequency Hz						
		125	250	500	1000	2000	4000	NRC
2" F/G Baffle-Fabric	H	2.8	6.5	12.3	15.2	15.2	15.7	12.3
2" ACOUSTI-SAN Baffle	H	2.7	6.2	12.1	14.9	15.1	15.3	12.0
Rectangular Prism- 12"x12"x48"	H	5.6	11.0	13.8	17.5	16.1	12.2	14.6
Triangular Prism- 12"x12"x48"	H	4.4	10.6	15.2	17.6	15.9	12.0	14.8
Cylinder Prism- 9" Long x 36" Long	H	2.0	4.2	6.4	7.0	7.8	5.4	6.3

TECHNICAL DATA

ACOUSTICAL TESTS – DIFFUSERS-ABSORBERS

Material Thickness/Core Facing	Mounting	Absorption Coefficient						
		Octave Band Center Frequency Hz						
		125	250	500	1000	2000	4000	NRC
Barrel Diffuser-Paint Finish	A	0.20	0.22	0.10	0.05	0.04	0.07	0.10
Barrel Diffuser-Fabric Finish	A	0.18	0.27	0.18	0.14	0.19	0.15	0.20
Pyramid Diffuser-Paint Finish	A	0.20	0.22	0.10	0.05	0.04	0.07	0.10
2" F/G-Absorber-Fabric Finish	A-Mold	0.33	0.71	1.23	1.29	1.22	1.24	1.10

- NOTE:**
1. All fiberglass (F/G) core tested was 6-7 p.c.f.
 2. Fabric facing tested was 100% woven polyester.
 3. Perforated vinyl facing tested was GenCorp Web Core vinyl.
 4. All testing conducted by certified NVLAP independent testing laboratory in accordance with ASTM C-423 – “Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method”.