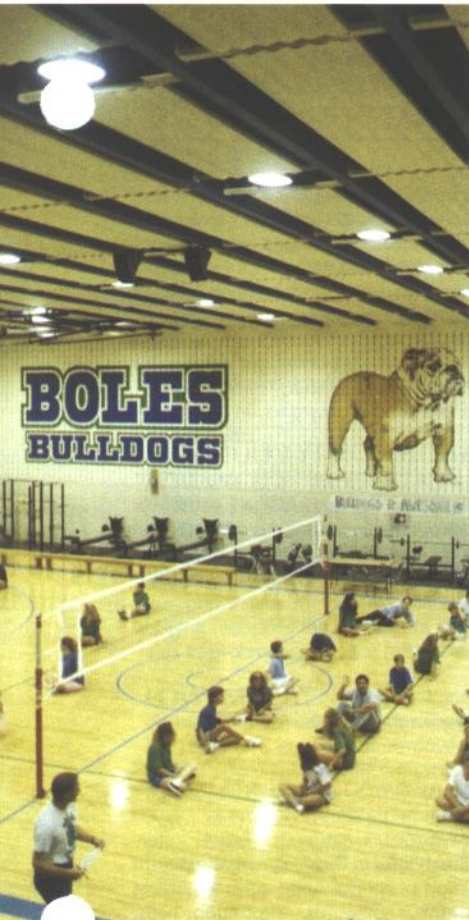


NOISE CONTROL PANEL SYSTEMS



Standard and Custom Wall & Ceiling Treatments

ECKEL

NOISE CONTROL PANEL SYSTEMS

Effective, Attractive Methods for Reducing Background Noise & Reverberation

For over four decades, Eckel has been a leader in the design, development, and manufacture of high-quality, dependable sound control products and systems. From sophisticated anechoic chambers for research and product testing, and audiometric rooms for medical diagnostics, to noise control enclosures for equipment and machinery sound isolation/modification, and through to pre-engineered, versatile, sound-absorbing panels for treating room/area acoustics, Eckel offers effective, economic, time-proven systems.

High Performance Systems For Improving the Acoustic Environment in New and Existing Facilities

Several standard panel systems are available to satisfy noise control needs in buildings. These systems are excellent for facility renovation, rehabilitation and upgrading programs.

Schools, Libraries, & Other Institutional Buildings

- Eckoustic® Functional Panels
- Textured Functional Panels
- Acoustic Lay-in Panels

Recreational Facilities

- Eckoustic Functional Panels
- Textured Functional Panels

Industrial/Manufacturing Operations

- Eckoustic Functional Panels
- Eckoustic Modular Panels

High Security & Correctional Institutions

- Eckoustic Security Ceiling
- Eckoustic Correctional Panels
- Type HD Eckoustic Functional Panels

Commercial, Retail, & Office Space

- Eckoustic Functional Panels
- Textured Functional Panels
- Acoustic Lay-in Panels

ECKOUSTIC FUNCTIONAL PANELS



Eckoustic Function Panels (EFP's) are highly effective, sound absorbing, fire resistant panels which can be located on walls or ceilings to achieve maximum noise control. Ideal for gymnasiums, auditoriums, swimming pools, industrial plants and municipal facilities, including water treatment and power plants.

See also facing page and specifications on back cover.

TEXTURED FUNCTIONAL PANELS



Textured Functional Panels (TFP's) are ideal for improving the acoustic environment in facilities where a "level of quietness" needs to be achieved without compromising the rooms visual attractiveness. For offices, schools, recording studios, music practice rooms etc.

See also specifications on back cover.

ACOUSTIC LAY-IN PANELS



Acoustic Lay-in Panels (ALP's) offer an attractive method for quickly improving acoustics in rooms having marginal acoustic ceilings. Installation requires minimum labour and interruption. Engineered to standard 2 x 2 and 2 x 4 lay in grid systems. Available with solid backs where an attenuating ceiling is required.

See also specifications on back cover.

ECKOUSTIC SECURITY CEILING



Eckoustic Security Ceiling (ESC) an extremely rugged noise control system for correctional institutions & high security areas. Continuous acoustic treatment with extra strong 2" thick acoustic panels.

See also specifications on back cover.

CUSTOM ACOUSTIC TREATMENT



Custom Acoustic Treatment, Eckel offers extensive capabilities in the design, manufacture and installation of special noise control systems for auditoriums, coliseums, exposition halls, mass transit stations and any other facility requiring custom acoustic treatment.

Contact Eckel Industries for further details.

ECKEL

ECKOUSTIC® FUNCTIONAL PANELS (EFPs)

Eckoustic Functional Panels (EFPs) are attractive sound-absorbing, fire resistant panels which can be spot located on walls or ceilings to achieve effective noise control.

Since EFPs are independent panels they can be put into place without disturbing existing utilities.

EFPs also help solve other noise control problems. They can be added to barriers to increase noise reduction capability. Special aluminum EFPs, for example, have been attached to concrete in sewage treatment plants. These panels can be manufactured with solid backs, and they will then act as barriers themselves.

Noise Reducing Applications

- gymnasiums, swimming pools, weight rooms, and similar facilities
- auditoriums and theatres
- libraries
- machine shops
- computer rooms
- restaurants and other food service operations
- offices
- subway stations and other rapid transit facilities
- churches and religious buildings
- open-plan school rooms and multi-purpose rooms
- factories, assembly, and production areas

Construction

EFPs are fabricated with facings of 22 ga perforated zinc coated and stiffeners of 18 ga zinc coated paintable steel (aluminum also available). Facings are perforated with 3/32" holes on 5/32" staggered centers, ridged on 6" centers and flanged at sides and top for stiffness. Insulation is 2" thick, fine fibered, fibrous glass. Acoustical insulation may be enclosed in 2 mil plastic when panels are exposed to high humidity, oil, or grease vapors; and in dust-free clean rooms.

ADVANCED ACOUSTICAL CONSTRUCTION—The special EFP design offers outstanding acoustical performance. "V" ridging improves sound absorption by holding the polyethylene encased acoustical fill away from the perforated metal face. In addition, the ridging increases the stiffness of the panel and aids in protecting the face from damage.

LOW MAINTENANCE—Panels can be cleaned in place without removing the acoustic fill. Dust, dirt, etc. can be removed by wiping the EFPs down or washing with soap and water. Panels can be repainted. They should be taken down and the acoustical fill should be removed prior to spray painting. Aluminum panels with polyethylene bagged acoustical fill can be hosed down with water.

Room Noise Reduction

Reduction of reverberent noise in rooms is a function of the increase in the amount of sound absorption, as would be obtained through addition of EFPs. The noise reduction formula is:

$$NR = 10 \log_{10} \frac{A_2}{A_1}$$

NR = noise reduction (dB), A_1 = absorption before and A_2 = absorption after treatment (sabins)

Sound absorption expressed as Sabins per Panel.

FREQ (Hz)	SIZE (30" wide x length)				
	LENGTH				
	4'	5'	6'	8'	10'
125	3.0	3.8	4.5	6.9	6.2
250	8.5	10.6	12.7	17.8	20.5
500	14.9	18.7	22.4	28.4	35.3
1000	14.5	18.2	21.8	27.3	34.5
2000	13.2	16.5	19.8	25.5	31.5
4000	13.8	17.3	20.7	27.9	33.1
NRC	12.8	16.0	19.2	24.8	30.4

Room Reverberation Reduction

Reverberation time is the time in seconds that it takes a noise level to decay 60 dB. Desired reverberation time is selected from the graph and the additional absorption required is determined from the following formula:

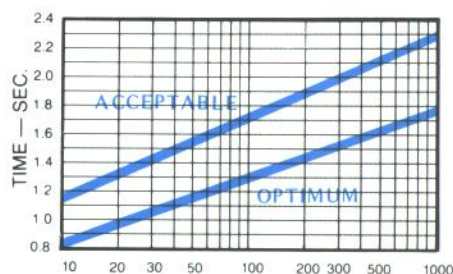
$$\text{additional absorption required (sabins)} = \frac{.05V}{R_1} - A_1$$

V = volume

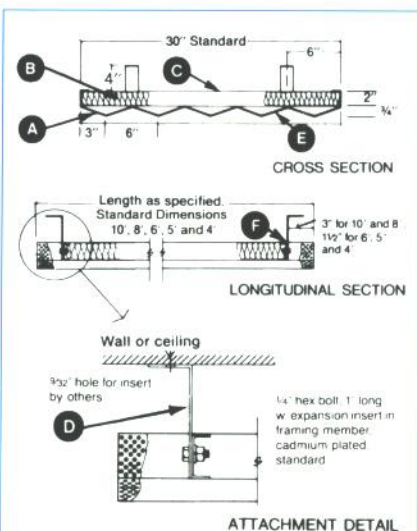
R_1 = desired reverberation time

A_1 = absorption before treatment (sabins)

The number of panels required is determined by dividing the amount of additional absorption required by the sabins per panel at 500 Hz.



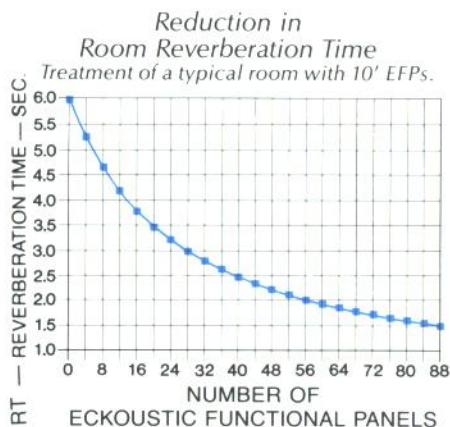
Ranges of acceptable reverberation times at 500 Hz. The lower portion of the band is most suitable for rooms intended primarily for speech, while the upper portion is better for music rooms. For general purpose rooms, a reverberation time in the middle portion of the band is recommended.



- A. V ridge facing—22 ga galvanized perforated or .032" aluminum optional—for improved acoustical performance, structural rigidity.
- B. High performance acoustical fill.
- C. Optional protective poly or fiberglass wrap.
- D. 11 ga wall or ceiling bracket.
- E. White polyurethane enamel finish—standard.
- F. 20 ga transverse framing member.

OPTIONAL ACCESSORIES

1. Solid attenuating backs, steel, and transite.
2. Floor stands.
3. Non-standard lengths.
4. Special mounting brackets.
5. Non-standard colors.
6. Aluminum construction for outside use, for swimming pool applications.
7. Fiberglass cloth or poly wrapped acoustic fill.
8. Textured surface facing.
9. 18 ga perforated facings (Type HD).



ECKEL

CONDENSED SPECIFICATIONS

Eckoustic® Functional Panels

Acoustic treatment in the "shall be Eckoustic Functional Panels as manufactured by Eckel Industries, Morrisburg, Ontario.

PANEL FACINGS shall be fabricated of 22 gauge zinc coated steel, perforated with 3/32" holes on 3/2" staggered centers, "V" ridged on 6" centers to a depth of 3/4" and suitably stiffened with transverse framing members. There shall be a minimum of two framing members on Panels up to 8' in length. Panels over 8' in length shall have 3 framing members.

FRAMING MEMBERS shall be manufactured from 20 gauge zinc coated steel. Each framing member shall be supplied with two 1/4"-20 blind threaded inserts for attachment of Panel to mounting bracket. (Inserts must meet the following specifications: ML Spec 5.901C (Navy), ASTM-B117, and MILB-202c. Tensile strength shall be at least 220 pounds per insert in 20 gauge steel.) 1/4" long 1/4"-20 cadmium bolts shall be supplied for attachment of the 11 gauge wall or ceiling brackets.

ACOUSTICAL INSULATION shall be 2" thick fine fibered, fibrous glass having a density of not less than 1.5 lbs./cu. ft. and meeting Federal Specification H.H. 558, Form B, Type 1, Class 7.

LABORATORY TEST DATA: Independent laboratory test data shall be provided to verify the sound absorption characteristics of the Panels. Test shall be conducted per ASTM-C-423-81a and shall exhibit at least the following sound absorption as expressed in sabins for a standard 30" x 120" Panel with two mil flame guard polyethylene wrapped acoustic filler.

125	250	500	1000	2000	4000Hz
6.2	20.5	35.2	34.5	31.5	33.1

A fire test of the panel system shall be provided, if this option is required. The test shall be conducted per ASTM-E84 (81a) and shall demonstrate no more than: flame spread 10; and smoke density 5. For outdoor applications, a fiberglass cloth wrapping of #1526 cloth is recommended.

FINISHES: Standard finish is white polyurethane enamel. Colors may be specified from manufacturer's standard paint chart.

NOTE: In special applications, such as swimming pools, institutional kitchens, clean rooms, etc., acoustical insulation shall be sealed in flame guard polyethylene. Fiberglass cloth wrap shall be used for outdoor and subway stations treatments. In areas of high corrosion, 0.032" aluminum shall be substituted for the perforated facing; inserts shall be aluminum; bolts shall be 316 stainless steel; all other requirements shall remain the same. Brackets for wall panels shall be 316 stainless steel.

Four support brackets per Panel shall be provided for either ceiling or wall mountings, as required.

Eckoustic Functional Panels shall be dispersed on ceiling and wall areas to provide a relatively uniform distribution of absorption.

Textured Functional Panels

Textured Functional Panels (TFPs) shall be fabricated from 24 ga perforated steel which has been textured and embossed to a depth of 3/64" (0.078") to give a nubby, cloth-like appearance. Overall thickness shall be 2"; width, 30"; and standard lengths, up to 10'0". Acoustic fill shall be 2" thick fine fibered fibrous glass having a density of not less than 1.5 lbs./cu. ft. Fire test: TFPs shall demonstrate a flame spread of 10 or less and smoke density of 10 or less when tested per ASTM E84 (81a). Finish shall be durable polyurethane enamel; standard color is white. Optional features include: polyethylene encased fill, special or matched colors, aluminum facing, special hardware, and special mounting systems.

Detailed specifications sheet is available upon request.



Textured Functional Panels

Acoustic Lay-in Panels

CONSTRUCTION: Panels shall be fabricated from 24 ga electrozinc steel or aluminum. The faces shall be .030" thick finely perforated with an open area not to exceed 23%. Facing shall be textured and embossed for maximum depth of 3/64" (0.078").

Texturing of the perforated face shall give a cloth-like appearance when finished. Acoustic fill shall have a density of not less than 1.5 lbs. per cu. ft. Panels shall have been tested in accordance with ASTM E84 (81a) and shall demonstrate a flame spread of 10 or less and a smoke density of no more than 10.

FINISH: Panels shall be finished with a durable catalyst activated polyurethane enamel. Standard color is white. Special or custom matched colors available.

SIZE: 22 3/4" x 46 3/4" facing with 1/2" flanges to fit standard 2 x 4 lay-in grid system.

ACOUSTICAL PERFORMANCE: Panels shall have been tested by an independent certified acoustic laboratory in accordance with ASTM C-423 84a and shall meet the results indicated in left column chart.

OPTIONS: Solid backs, aluminum construction, poly bagged acoustical fill.

Eckoustic® Correctional Panels

Panel facings shall be fabricated of 16 gauge zinc coated steel, perforated 3/32" holes on 3/16" staggered centers. Panels shall be flat faced with all edges returned. Panels shall be surface mounted to the walls or ceiling. A minimum of four 10 gauge mounting angles shall be provided with each panel. Each mounting angle shall be provided with 1/4" - 20 blind threaded inserts for attachment of the panel. Panels are attached to the mounting angles with 1/4" - 20 button head socket security cap screws made of 18-8 stainless steel. Mounting angles shall be hidden beneath the panels and attached to the mounting surface with appropriate anchors. Acoustical insulation shall be 2" thick fine fibered, fibrous glass having a density of not less than 1.5 lbs. per cu. ft. Acoustical insulation shall be wrapped in 2 mil polyethylene.

Panels shall have been tested by an independent laboratory in accordance with ASTM-C423-84a. The manufacturer shall certify that the panels are manufactured the same as those tested and shall exhibit at least the following sound absorption, as expressed in sabins, for a standard 17" x 96" panel.

125	250	500	1000	2000	4000Hz
2.7	7.0	16.2	17.8	15.5	14.3

Panels with fibrous glass insulation

2.7	7.0	16.2	17.8	15.5	14.3
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ECPs are offered in standard sizes of 17" wide by 5', 6', 8' and 10'.



Acoustic Lay-in Panels

Eckoustic® Security Ceiling

Continuous acoustic treatment with extra strong 2" thick acoustic panels

CONDENSED SPECIFICATIONS*

The Eckoustic Security Ceiling Panel system shall have panels on an 18" module. Maximum unsupported span shall be 96". Panels shall be removable without releasing more than the two adjacent panels. Panels will be held in place with 1/4" - 20 button head socket security cap screws made of 18-8 stainless steel. Panels shall be fabricated from 16 gauge zinc coated steel, perforated 3/32" holes on 3/16" staggered centers. Panels shall be formed to a 2" depth. Acoustical insulation shall be 2" thick fine fibered glass having a density of not less than 1.5 lbs. per cu. ft. The acoustical fill shall be wrapped with a 2 mil polyethylene heat sealed bag. The ends of each panel shall be supported on a 14 gauge 3" x 3" angle. On spans less than 96", the angle shall be attached to adjacent walls with appropriate anchors. On ceiling spans greater than 96", the 14 gauge angles shall be welded back to back and supported from the structure above by the installer. An 11 gauge specially formed clamping piece will engage each end of the panel and shall be held in place with a minimum of three 1/4" screws as described above.

All parts to the ceiling system shall be finish painted with a white polyurethane enamel.

Panel systems shall have been tested by an independent laboratory in accordance with ASTM-C423-84a. The manufacturer shall certify that the panels are manufactured in the same manner as those tested. The system shall exhibit at least the following sound absorption, as expressed in sabins:

125	250	500	1000	2000	4000Hz
.44	.96	1.00	1.07	.97	.78

Mounting A with wire mesh placed between the polywrapped acoustic fill and the perforated facing.

.44	.96	1.00	1.07	.97	.78
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NRC = 1.00

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Specifications are subject to change without notice.

*Additional specifications and information - available upon request.