

DiffusorBlox®

1D Diffusion



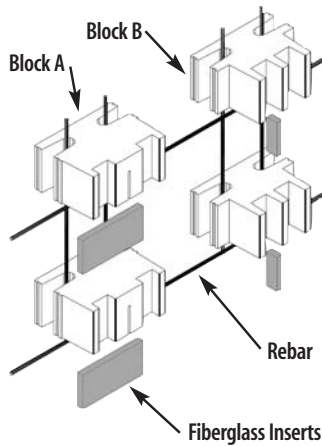
*The Next Generation of Acoustical Concrete Masonry
From The Acoustical Industry's Leading Innovator*

Now for the first time in the history of architectural acoustics, a new acoustical concrete masonry unit offers unprecedented economy by making it possible to incorporate complete acoustical performance into the structural walls of music, speech, athletic, and multipurpose facilities. DiffusorBlox® simultaneously offer a distinctive appearance, extended low frequency absorption, sound isolation, and sound diffusive reflection control.



The Sound of Innovation™

Problem and Solution



Problem

In 1917, Straub patented CinderBloX, the first concrete masonry unit (CMU). In 1965, slotted blocks were introduced to provide low frequency absorption. While useful for noise control, the flat or split face of these blocks actually creates reflection problems which degrade acoustics. This interference and their commercial appearance prohibit use in music and speech facilities.

Solution

In 1990, RPG® patented DiffusorBloX®, a unique, cost effective acoustical block that integrates with and installs as easily as conventional CMU. It provides an attractive interior finish treatment, plus extended low frequency absorption and sound diffusion to minimize interfering reflections.

Performance Specifications

Absorption

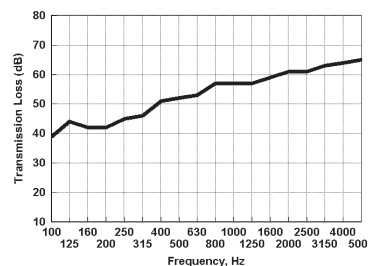
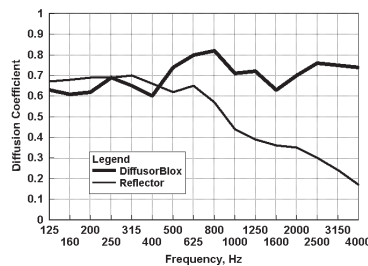
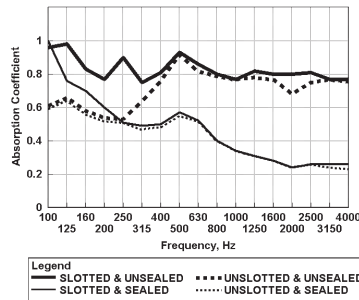
Now you can use CMU to effectively control noise over a wide frequency range. DiffusorBloX® are the only acoustical CMU to utilize two slotted Helmholtz resonator chambers, as well as the phase grating pressure gradient absorption mechanism to provide 100% absorption at 100 Hz. Painting reduces the high frequency absorption, but does not affect diffusion or low frequency absorption. Slotted and unfinished, stained or lightly painted DiffusorBloX® have a Noise Reduction Coefficient (NRC) of 0.85. Non-slotted and unfinished, stained or lightly painted DiffusorBloX® have a NRC of 0.75. Slotted and fully sealed DiffusorBloX® have a NRC of 0.41. Non-slotted and fully sealed DiffusorBloX® have a NRC of 0.40.

Diffusion

Traditional slotted masonry offers low frequency absorption, but actually creates reflection problems which degrade speech intelligibility and corrupt sound quality. DiffusorBloX® solve this problem by uniformly scattering sound in many directions so the sound level in any one direction is minimized. Their shape is based on the reflection phase grating (RPG). These surfaces are designed using number theory sequences which insure uniform diffusion over a wide frequency range.

Isolation

As noise pollution continues to escalate, we need powerful tools to reflect, absorb, and diffuse offending noise sources. DiffusorBloX® help environmentally by isolating noise sources like power transformers, HVAC, highway traffic, railroads, outdoor amphitheaters, airports, and machinery. 12" slotted and fully sealed DiffusorBloX® offer a Sound Transmission Class (STC) of 55, allowing them to be used in demanding sound isolation applications.



FEATURES

- QRD® sound diffusion
- Two low frequency absorption mechanisms: Helmholtz and Pressure Gradient
- High sound isolation
- Distinctive textured appearance
- Production by local block producers
- Can be painted
- Available as 12" reinforced block and 8" block
- Available with or without low frequency absorption slots
- Can be used with conventional block structural piers for high flexural strength
- Structural and load bearing

BENEFITS

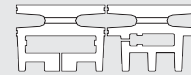
- Distinctive appearance complements architectural designs
- Can be used for all noise control, speech, and music applications
- Simultaneously offers structure, absorption, and diffusion in the same CMU, resulting in unprecedented economy

APPLICATIONS

Broadcast studios, Recording studios, Arenas, Gymnasiums, Auditoriums, Residential noise control, Music practice rooms, Performance facilities, Convention centers, Amphitheaters, Transportation facilities, Classrooms, Highway barriers, Power generation facilities

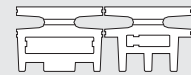
SPECIFICATIONS

- 12" Reinforced Block:
7-5/8" (H) x 15-5/8" (W) x 11-5/8" (D)



Model: **dB12S**

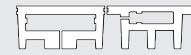
Acoustics: Diffusion and LF Absorption



Model: **dB12NS**

Acoustics: Diffusion

- 8" Block:
7-5/8" (H) x 15-5/8" (W) x 7-5/8" (D)



Model: **dB8S**

Acoustics: Diffusion and LF Absorption



Model: **dB8NS**

Acoustics: Diffusion

- DiffusorBloX® conform to ASTM C-90, Grade N Type 1, with a net compressive strength of 1900 psi. No individual unit shall be less than 1700 psi.