



SOUNDBLOX – SOUNDCELL FAQ

Most Frequently Asked Questions About SOUNDBLOX® and SOUNDCELL®

How do SOUNDBLOX and SOUNDCELL units work?

SOUNDBLOX and SOUNDCELL units work on the principle of a Helmholtz resonator. It is well known that it is possible to produce a tone by blowing across the mouth of a bottle or jug. As the jug is emptied, the resonant frequency will decrease. The air in the neck of the resonator vibrates back and forth somewhat as a single mass, and the larger volume of air acts as a spring or restoring force. Systems of this kind are called Helmholtz resonators. A car muffler is a good example of a Helmholtz resonator. In such resonators, frictional resistance is encountered by the alternating flow of air in and around the neck. Hence, sound energy is absorbed mainly in the region of the resonant frequency, and dissipated as heat energy. By adding absorptive materials such as the fibrous filler, the frequency range in which sound is absorbed, is broadened. Dividing the cavity with a metal septum creates two different sized resonators, further broadening the sound absorption frequency range. The slot/cavity design of SOUNDBLOX and SOUNDCELL units, coupled with the fibrous fillers, function together in providing their excellent sound absorption performance.

What are the "A, B, C's" of SOUNDBLOX and SOUNDCELL?

Three considerations in noise treatment are:

"A" - Absorption "B" - Barrier and "C" - Composite

"A" - The rate of ABSORPTION is indicated by the Noise Reduction Coefficient, or NRC. The NRC is the average of the sound absorption coefficients at the four middle frequencies, 250, 500, 1000 and 2000 Hertz, rounded to the nearest .05. Generally speaking, the higher the NRC, the more absorptive the material is. However, since the NRC is simply an average and only includes the middle four frequencies, its practical use is limited. For example, if one has a noise problem concentrated near 125 Hz (such as transformer noise), trying to select the best sound absorptive material on the basis of its NRC would not apply, because the four values averaged to get the NRC do not include the value obtained at 125 Hz. In this case, attention should be directed to the sound absorption coefficients at individual frequencies.

"B"- BARRIER refers to the ability to block the movement of sound through a partition, designated as the Sound Transmission Loss, or STL. While sound absorption is a measure of how much sound is absorbed by a given material in a room, STL is a measure of how much sound is transmitted from one room to another through a partition constructed of the test material.

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Even though SOUNDBLOX and SOUNDCELL units have slots in one face shell, they still have somewhat better sound transmission loss than ordinary hollow concrete masonry units of the same thickness and composition, because of other acoustical effects of the resonator mechanism. Although the primary function of SOUNDBLOX and SOUNDCELL units is sound absorption, they can also be relied upon to do an excellent job of keeping noise in one room from being transmitted to another through the SOUNDBLOX and SOUNDCELL wall itself. Sound Transmission Class, or STC is a "one-number" measure of the overall efficiency of a barrier. "Please note that although only one type of SoundBlock is represented for each thickness in The SoundBlox STC chart, it is expected that other SoundBlox types of the same thickness will yield similar STC performance ratings. "

"C" - Composite; simply a combination of A and B.

Are SOUNDBLOX and SOUNDCELL units load-bearing?

YES, providing they are made of the same aggregate necessary to produce regular load-bearing units to conform to ASTM C90 or C129, and are installed with the closed top up in a full horizontal bed of mortar. And, because SOUNDBLOX and SOUNDCELL are load-bearing, noise control can be built right into the structure of the building! SOUNDBLOX units have also been allowed 90% of the shear value of ordinary hollow concrete masonry units of the same thickness. (See International Conference of Building Officials Research Recommendation No. 2539 and Los Angeles Department of Building and Safety Report No. RR 23609.) Please contact The Proudfoot Company, Inc. for the ICBO report, and other structural test reports, physical properties, and drawings.

Can SOUNDBLOX and SOUNDCELL units be vertically reinforced?

YES, both SOUNDBLOX and SOUNDCELL provide for vertical reinforcement. The 8", 10", and 12" SOUNDBLOX Type RSC/RF units have separate cavities to allow for vertical rebar, and grout. The 12" SOUNDCELL units can accommodate vertical reinforcement bars and grout with the use of a grout shield to separate the sound absorbing cavity from the reinforcing cavity. Dimension drawings, wall details, and structural properties are available on request.

Which type and thickness of SOUNDBLOX and SOUNDCELL units shall I use?

For outdoor noise problems, it is recommended that the Type A-1 or Type Q units be used although the Type RSC or RSR units have also been used outdoors with no ill effects. For structural reasons, an 8", 10", or 12" unit is generally required in this type of application. Sometimes, especially for partition walls, only a 4" thick unit can be used, in which case it is necessary to choose the 4" Type RSC or possibly, the 4" A-1. By far, the best way to select the most efficient unit for the job is to obtain, by measurement, a frequency characteristic of the noise from the source. If high sound levels are distributed over a wide frequency range, a Type RSC or RSC/RF unit would be a good choice since these units have excellent absorption at nearly all frequencies. If the noise level measurements indicate a pronounced peak at specific frequency the unit with the highest sound absorption coefficient at that frequency is usually the best choice, e.g. for a noise with a high peak at 125 Hz, the 8" Q unit would be a good choice since it has excellent absorption at 125 Hz. If the noise is concentrated at the very low frequencies (below 500 Hz) the Type A-1, Q, or RSC units can often be used to advantage. Architectural finishes are optional on SOUNDBLOX and SOUNDCELL as well, such as: scoring, ground-face, split-face, and DECRO-FACE®.

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How many SOUNDBLOX and SOUNDCELL units shall I use?

There are formulas to calculate how many blocks should be used to achieve a certain amount of absorption for gymnasiums, auditoriums, and natatoriums, etc. However, when understanding speech is critical, it is best to use the service of an acoustical consultant. When the problem is not too complex, we can often be of help. A rule of thumb for mechanical equipment rooms and noisy manufacturing areas is to construct a wall area equal to 30% to 40% of the total area of walls, floor and ceiling with SOUNDBLOX and SOUNDCELL units, if this amount of area is available. Note that as a room becomes larger by increasing the length and width while keeping the ceiling height constant, the wall area becomes a smaller part of the total area and in some cases even constructing 100% of the walls of SOUNDBLOX and SOUNDCELL units may not be sufficient. Some ceiling treatment should be used as well. For school classrooms and gymnasiums it is recommended that the SOUNDBLOX and SOUNDCELL treatment begin above door height.

How much noise reduction can I achieve using SOUNDBLOX & SOUNDCELL units?

The maximum practical reduction in sound level that can be achieved using sound absorption alone is 10 decibels, and generally the achieved reduction may be more like 6 to 8 decibels. However, most people perceive a drop of 10 decibels as resulting in a noise only half as loud, in effect, doubling the reduction, so even 6 to 8 decibels can be well worthwhile in providing increased comfort.

Can SOUNDBLOX and SOUNDCELL units be painted?

YES. For their sound absorption, SOUNDBLOX and SOUNDCELL units do not depend on the porosity of the material from which they are manufactured. SOUNDBLOX and SOUNDCELL units were both painted before sound absorption tests were performed. Most SOUNDBLOX and SOUNDCELL units (with exception of the split-rib units) are painted in the field. Therefore, published sound absorption values are achieved in the field no matter what type of aggregate is used in the manufacture of the blocks. However, it has been shown that when SOUNDBLOX and SOUNDCELL units manufactured out of a highly porous aggregate are left unpainted, they exhibit increased sound absorption, particularly at higher frequencies due to the porous absorption of the aggregate.

Can SOUNDBLOX and SOUNDCELL units be used outdoors?

YES. Millions of SOUNDBLOX units have been used for transformer and other types of Can SOUNDBLOX an outdoor noise screens and for highway noise barrier SOUNDCELL units be used outdoors?rs. For outdoor use the Type A-1, Type Q or Type RSR units are recommended, although the Type RSC units have also been used outdoors. Because the units are installed with the open side of cavities facing down, water drains easily out of the open slots. In over thirty years of use there have been no complaints about damage or deterioration to the fiberglass filler. SOUNDCELL and ACOUSTADE units are not suitable for outdoor use. It is also recommended that water repellency be added to the aggregate prior to producing the units.

Can SOUNDBLOX and SOUNDCELL units be cleaned with water or steam?

YES. Type A-1 and Type Q units only can be hosed down with water or steam-cleaned. Units incorporating the fibrous filler insert should not be used in areas that are to be hosed or steam-cleaned due to the possibility of dislodging the filler from its precise placement in the unit. The optional Spectra-Glaze® finish is readily cleaned as well. Dust and dirt may be vacuumed from the cavities if necessary. In areas of constant high humidity, such as a natatorium, the use of fibrous fillers sealed in 2 mil polyethylene bags is an available option and is recommended.

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What is the purpose of the SOUNDCELL grout shield?

When a 12" SOUNDCELL unit is being vertically reinforced, it becomes necessary to fill the rear chamber with grout. To prevent grout from encroaching on the sound- absorbing portion of the unit a grout shield must be used. The shield is inserted in the slot that separates the grout filled chamber from the sound-absorbing chamber.

Can SOUNDBLOX and SOUNDCELL be made in split face units?

A split face is available on the backs of 12" Type RSC/RF and Type RSC/RF4 SOUNDBLOX units. Please call customer service for availability. SOUNDCELL and ACOUSTADE units are not available in split face.

How much does a SOUNDBLOX or SOUNDCELL unit weigh?

The weight of any concrete masonry unit is dependent on the concrete mix design used to manufacture the unit. The most important component affecting a masonry units' weight is the type of aggregate used. Please consult the SOUNDBLOX or SOUNDCELL licensee on your particular project for the weight of the acoustical masonry units to be made.

How much does a SOUNDBLOX or SOUNDCELL unit cost?

It is not our policy to quote pricing. Pricing is available from your local SOUNDBLOX or SOUNDCELL licensee.

How do I locate SOUNDBLOX and SOUNDCELL licensees?

Call the Sound Seal customer service department at 1-413-455-9787 for the location of the licensee nearest your project.

