



STUDIO SUPPLIES

# STM STUDIO SUPPLIES ACOUSTICS

## 101

STM Studio Supplies  
by Professionals for Professionals

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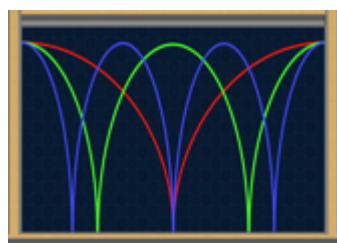
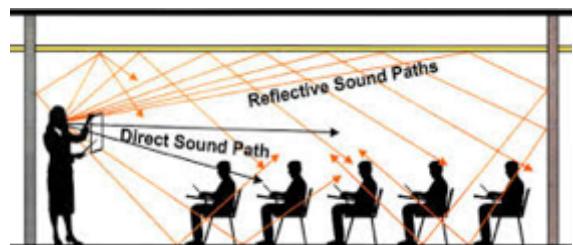


### STM Studio Supplies and the The Dark Art of Acoustic Enhancement

We often hear from clients who want solutions to noisy spaces. It could be the carryover noise from one room to another or neighbouring tenants who don't share the joy of baby tap class, or your preferred playlist! STM Studio Supplies has a number of options available. We are masters in the dark art of acoustic enhancement!

To fully understand the spell that acoustics can place upon your environment it is a good idea to be familiar with the magic words; Reflection, Reverberation, NRC (Noise Reduction Coefficient), STC (Sound Transmission Class) and Decibels, (and the word that must not be spoken).... Soundproofing.

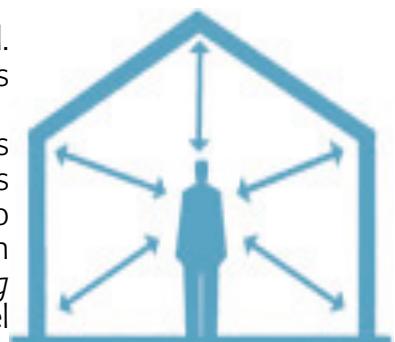
**Reflection:** Occurs when sound strikes a surface or several surfaces before reaching the receiver. Corners or peaked ceilings can create a megaphone effect causing reflections and loud spaces and have unwanted or even disastrous consequences in a dance studio. Reflective parallel surfaces lend themselves to a unique acoustical problem called *standing waves*.



**Standing waves** create a fluttering of sound between two surfaces and make the combination of music and voice difficult to balance. Reflections can be attributed to the shape of the space as well as the material on the surfaces. Domes and concave surfaces cause reflections to be *focused* rather than *dispersed*. Acoustic treatments can help to eliminate both reverberation and reflection problems.

**Reverberation:** Is essentially a collection of reflected waves of sound. Technically, it is the time taken for reflected sound to die down by 60 decibels from the conclusion of the original sound.

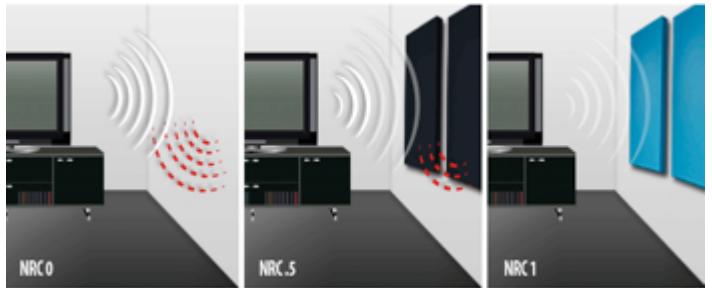
In an enclosed space it takes some time for the sound to become inaudible. This persistence of sound in the room caused by continued multiple *reflections*, is called *reverberation*. Reverberation time plays a crucial role in the quality of two integral elements of a room, music and the ability to understand the spoken word clearly. The effect of this condition is described as *a live space with a long reverberation time*. A high reverberation time will cause a build-up of noise level in a space.



## Noise Reduction Coefficient (NRC)

NRC is the rating of the effectiveness of a material at absorbing sound. NRC Ratings can range from 0, indicating a perfectly reflective material to 1, indicating a perfectly absorptive material.

For example, an NRC rating of .7 would indicate that the material absorbs 70% of sound waves.

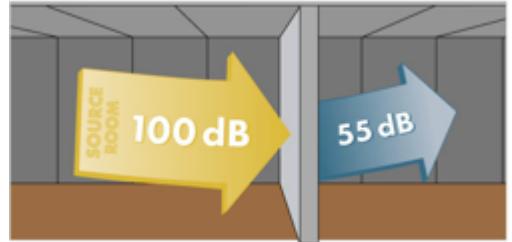


## Sound Transmission Class (STC)

Describes the rating of a material's barrier efficiency.

Higher STC values are more efficient for reducing sound transmission. The STC ratings roughly reflect the decibel reduction in noise that a partition can provide.

For example, loud speech can be understood fairly well through an STC 30 wall but should not be audible through an STC 60 wall. The rating assesses the airborne sound transmission performance at a range of frequencies from 125 Hertz to 4000 Hertz. This range is consistent with the frequency range of speech. Special consideration must be given to spaces where the noise transfer concern is other than speech, such as music.



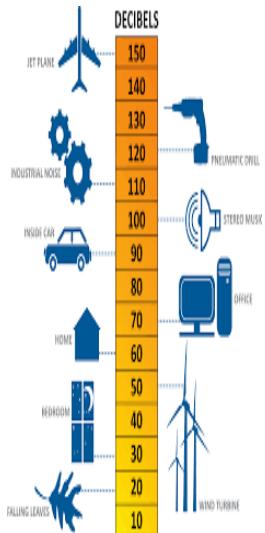
## NRC V STC

NRC is used to rate materials that **ABSORB** sound  
STC is used to rate materials that **BLOCK** sound.

## Decibels - dB

Decibels are simply a measurement of the volume of a noise. 20dB is as quiet as the falling autumn leaves, while 150 dB is a jet plane taking off, so loud that it can immediately injure your ears.

Think of dB as the volume knob to the world!



## Soundproofing

*Acoustic treatment* and *soundproofing* are terms that have completely different meanings. Both terms share some of the same physics to arrive at their meaning, but both have completely different acoustical objectives. We have looked at reflection and reverberation as they apply to acoustic treatments for your studio, soundproofing is effectively the isolation of sound. A near impossible task and normally not what you need to achieve.

### Just remember.....

The many hard surfaces in a room are highly reflective and lend themselves to creating a high degree of reverberation. Correctly adjusted acoustic levels in any space will make the difference between a happy and successful experience and one that has adversely affected communication and increased fatigue levels.

We don't like the term soundproofing because it is almost impossible to achieve total isolation from sound, the best is a reduction in level.

We can supply a range of options to suit all budgets and requirements, from paneling to curtains. We also have a great double purpose option which means you can have your photos printed on the acoustic panels.