

Sound Advice

Helpful Information from *Stewart Acoustical Consultants*

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PRIVACY AND SOUND BLOCKAGE

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In many situations, it is desirable to provide isolation from disturbing sounds or speech privacy. This involves more than blocking sound, and blocking sound in itself is a more complex matter than many people understand. Background sound must also be controlled. Different voice levels and different degrees of privacy must be considered. Each change of one step in voice level equals a change of one step in the degree of privacy. If you have confidential privacy for a normal voice, you will only have normal privacy for a raised voice. Most offices provide only normal privacy for a normal voice. This allows freedom to work without distraction. A careful effort is needed to provide confidential privacy, especially for a raised voice.

Consider first the case of speech privacy between two enclosed rooms. It is very important to provide adequate blockage of sound. When there are solid walls between the speaker and the potential listener, the "STC" rating of the wall can be used to compare wall performance. It also can be used with other information on the rooms and the construction to estimate the blockage of sound. However, privacy depends on more than the wall performance. You must consider other paths of transmission and the masking sound available. The primary path of the sound may not be through the wall between spaces. Sound coming over walls and through ceilings, or through doors, must be considered. There is also the phenomenon of flanking, where sound travels along common side walls or floors. The size and amount of sound absorption in both the source and listening rooms will influence the overall isolation. A most important factor often overlooked is the amount and character of any available background masking sound in the listening space. If it is so quiet you can hear a pin drop, you will probably hear the pin drop. Privacy is a function of a signal to noise ratio. The signal is the spoken word and the noise is the background sound provided by the ventilation system or other source. With modern lightweight construction methods, careful control of background sound levels is often essential to achieve adequate privacy.

Control of background sound becomes especially important in open plan offices. There, it is just possible to achieve acceptable freedom from distraction if everything is done right. Good open-plan design requires attention to detail. There must be the right ceiling, the right divider panels, proper use of absorption on vertical surfaces, good planning of arrangement, and usually an electronic background masking sound system.

The STC rating is very useful in evaluating a structure's ability to block sound. Unfortunately, this rating is also often misused. It is a compromise rating. Two walls that have similar STC ratings can produce very different results. One can be much better for blocking speech, while the other could be much better for blocking low-frequency sounds. A wall with a lesser STC may actually produce a more desirable result in some cases. Walls or windows with air cavities are usually poor blockers of low frequency sound. Heavy solid walls may do a better job at low frequencies, but a poorer job in the speech range.