



The Great STC Myth

Sound transmission class (or STC) is a widely misunderstood concept in the building industry. As a result, projects are probably being built that don't comply with Code requirements. With this article, we hope to explain what "The Great STC Myth" is, and in the process explain a little about STC and how to avoid its pitfalls.

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The great myth about STC is that all assemblies (such as windows and doors) that provide the same STC rating will provide the same acoustical performance. Wrong! They can actually provide wildly different performance levels.

This leads us to a second myth about STC, i.e., that higher STC ratings always perform better at reducing noise. Wrong again! Some assemblies with low STC ratings actually outperform some assemblies with higher ratings, even within a product family.

What is an STC?

As you probably know, the noise that we hear from traffic, aircraft, etc., is made up of a spectrum of frequencies, much as light is made up of a spectrum of colors. In order to mitigate a noise source, we therefore need to know what frequencies are involved. We can then identify which building materials are best suited to mitigate those frequencies.

But you can imagine the look on a builder's face if he/she received an acoustical report that recommended installing windows that reduce noise by 12 dB at 125 Hz, 18 dB at 160 Hz, etc. They wouldn't know what to do and, frankly, neither would most window suppliers. That's why the STC rating system was developed—to provide a simple one-number method for classifying the acoustical performance of an assembly at the various frequencies.

What is it not?

As with any single number rating system, a lot of details are lost in the translation. The STC rating tells us nothing of how the assembly performs at low frequencies, high frequencies, or any frequencies in between; just how it compares with a standard curve.

Here's the problem. Imagine you're building a residence that requires windows with a particular STC rating to mitigate a low frequency noise source. You shop around and find a window you like that achieves the recommended STC rating. Unfortunately, unbeknownst to you, you selected a window that is very poor at reducing low frequency noise, even though it meets the STC requirement. The result is a house that's almost as noisy inside as it is outside because the window isn't performing well at your key frequencies.

How to protect yourself

As you can see, the STC rating system is convenient but loaded with potential pitfalls. To protect yourself, insist that your acoustical consultant recommends not only STC ratings, but specific manufacturers and model numbers for assemblies that will achieve those ratings and provide the performance you need in order to mitigate the frequencies of your noise source.

If you want to use a different assembly, have your consultant check it out first. Better yet, let your consultant know up front which manufacturers you prefer, then he/she can narrow down the search. If you keep the STC myths in mind, you'll design and build a better project.

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