

## What you need to know about sound control

Customers across a growing spectrum of industries are demanding better and more reliable acoustical control. For a long time, the concept of sound control focused on venues such as concert halls and theaters, where performances needed protection from external sound intrusions. However, today, nearly every type of environment has a need for sound control at some level.



“The expectation of privacy is much greater now,” explains Jerry Heid, AHC/CSI, National Sales Manager for Zero International. “In healthcare, for example, HIPAA and the confidentiality of patient-doctor communications must be considered. Additionally, Medicare reimbursement is influenced by patient satisfaction scores—and the number one patient complaint hospitals and physician offices battle is noise.”

Heid says schools and office buildings also have an increased need for sound control and privacy.

“Audible conversation is an inherent problem for all facilities where private communication is important,” he says.

In schools, sound-controlled areas may include the offices of a principal, counselor or nurse. And, in office buildings, personnel offices or conference rooms may require more sound isolation due to expectations of privacy.

“Bottom line, sound treatment is critical in many more environments today,” says Heid, “and providing effective sound control remains one of the most demanding of all challenges for door openings.”



### Higher STC leads to better sound isolation

Understanding acoustics and its application to door openings is necessary to minimizing risks and potential dissatisfaction. The first step in solving any noise problem is quantifying the precise level of sound control required to meet objectives. The resulting sound level is stated as the Sound Transmissions Class, or STC, value that must be achieved for the door opening.

STC is determined by a weighted average of transmission (TL) values taken over 16 frequencies, which are fitted to a curve in a method defined by the ASTM E413 Classification Standard for Rating Sound Insulation. The higher the STC value, the better the rating—and the better the performance of the door in blocking out noise.

### Sound Transmission Class (STC) table

STC	Performance	Description
50-60	Excellent	Loud sounds heard faintly or not at all.
40-50	Very Good	Loud speech heard faintly but not understood.
35-40	Good	Loud speech heard but hardly intelligible.
30-35	Fair	Loud speech understood fairly well.
25-30	Poor	Loud speech understood easily and distinctly.
20-25	Very Poor	Loud speech audible.

The standard practice at architectural testing is first to test sound doors as panels, with the panel completely sealed in the opening. This is known as “static” condition. But static alone is insufficient.

“It is important to test the sound effectiveness of a door in an operable state with door gaskets, as it would be used out in the field,” explains Heid.

Both static and operable testing methods are recommended in ASTM E1408 Standard Test Method for Laboratory Measurement of the Sound Transmission Loss of Door Panels and Door Systems.

### Importance of a good sealing system

Achieving a high operable STC, Heid says, is directly impacted by the quality of the sealing system.

“The better the sealing system, the higher the STC rating. Doors and gaskets will need to function properly through thousands of cycles over many years, and differences in materials and construction can have major impact on durability, ease of use and service life,” he says. “Sometimes a lower quality sealing system is chosen because of cost or design decisions, but then you may end up with lower quality sound control.”

Acoustical consultants recommend the following features for a sealing system:

- Good quality neoprene with consistent density and solid footing in gasket housings
- Consistent quality in the housings and any moving mechanisms
- Adjustable features to offset alignment problems or help compensate for poor installation
- Engineered door bottoms that function reliably
- Mounting brackets and other options designed to eliminate the need to cut into gasketing when installing closers or other rim exit devices

For best results in the field, engineered door assemblies with adjustable gasketing, tested as a unit, are always recommended. These assemblies provide full accountability through a single manufacturer and its installers because all components are engineered and tested as one system. By minimizing and controlling the variables that impact functionality and can lead to disappointment, tested assemblies are especially important for high-demand sound control, as well as all applications where performance to precise STC levels is needed.

### Sounding a solid performance

Doorways are the critical link in blocking noise from the outside, as well as protecting conversation on the inside. And acoustical gasketing plays a vital role in door assemblies designed to deliver specified STC sound performance. Understanding that role and its many challenges can enable architects to add value and guide client sound control specifications to more certain success.



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#### Additional resources

- [Sound Control Brochure](#)
- [Effective Sound Control for Doors](#)
- [Meeting Market Expectations for Effective Sound Control](#)
- [Practical Guide to Sound Control & Acoustical Gasketing](#)

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