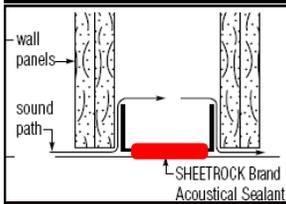
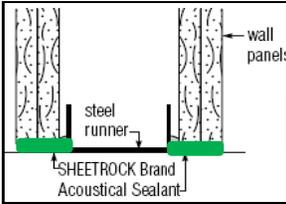




Installation of acoustical sealant at the base of wall:



Incorrect Installation



Correct Installation

Acoustical Sealant Considerations:

Before installing acoustical sealant at the head of your wall system...verify the structural deflection requirements WITH YOUR ARCHITECT

- * Acoustical sealant generally has a movement capacity of 5—7.5% (only a $\pm 1/16"$ movement). This is a concern when installing in a structural deflection track.
- * The general maximum space for the acoustical sealant is $\pm 5/8" \times 1/2"$ and sometimes less—depends on the sealant at the head—this could be a larger gap due to the structural deflections.
- * There are sprays out there that have a larger span, however, the elongation and compression is still far less than what is required for structural deflection.

Damage to the wall system and/or sealant could likely occur due to the structural deflection and sealant limitations...spray is best...

Typically...Sound sealant needs to be tooled...

Noise is the number one cause for a loss in productivity and a cause of stress, anxiety and hostile behaviors. STC (Sound Transmission Class) is a number rating of a wall assembly or just a material to resist the transmission of airborne sound from one side to another. This is a standard which has been in service since the early 1960s. It is a number that is placed on many of our partitions that we are expected to build, which is typically a rating number that was achieved in a laboratory under controlled conditions and more often than not, constructed differently than described on our drawings.



We need to understand what helps the construction get close to achieving this laboratory STC number and what typically detracts from the effectiveness of the wall system. We need to alert the design team when there is a conflict early in order to prevent an issue after construction.

Corey Zussman, AIA, NCARB - Director of Quality Management

BASIC INFORMATION:

- ▶ STC is a measurement of a partition's ability to reduced decibels of a given frequency passing through a partition.
- ▶ Sound transmission can be from both airborne and vibration sources. **The STC rating only covers the airborne.**
- ▶ Airborne sound can transmit through materials, or partitions, as well as pass under doorways, through ventilation, over, under, around, and through obstructions.
- ▶ STC is dependant on the tightness of the partition construction. It is dependent on all trades that penetrate the wall.
- ▶ Any penetration, air-gap, or "flanking" path can seriously degrade the walls ability to block sound.
- ▶ A flanking path is a way for sound to transfer from one space to another without going through the wall. Sound will travel over, under, or around a wall, as well as through ductwork, plumbing or corridors.
- ▶ Loud speech can be understood through an STC 30 wall, but blocked through an STC 60 wall.

HOW TO INCREASE THE PERFORMANCE OF YOUR WALL:

- ▶ **Adding mass** - The weight or thickness of a partition is the major factor in its ability to block sound. When the mass of a barrier is doubled, the STC rating increases 5 dB, which is a clearly noticeable level.
- ▶ **Increasing or adding air space** - An air space within a partition can also help to increase sound isolation. The airspace can be increased or added to an existing partition. A common way to add an airspace is with resilient channels and a layer of gypsum and staggering or adding a stud wall. An airspace of 1 ½" will improve the STC by approximately 3 dB; 3" = 6 dB and a 6" air space will improve the STC by approximately 8 dB.
- ▶ **Adding absorptive material within the partition** - Sound absorptive material can be installed inside of a partition's air space to further increase its STC rating. Installing insulation within a wall or floor/ceiling cavity will improve the STC rating by about 4-6 dB.
- ▶ **Metal stud walls perform better than wood stud walls** because the metal stud has less width for the sound to travel.
- ▶ **Adding a dampening compound of non-hardening glue between sheets of drywall.**

COMMON ISSUES WITH STC RATINGS:

- ▶ The rating does not take into account the barrier's ability to NOT block low-frequency noise, such as the bass in music or the noise of some mechanical equipment.
- ▶ The STC rating is a lab test that **does NOT** take into consideration weak points, penetrations, or flanking paths.
- ▶ A wall must extend to the structural deck in order to achieve optimal isolation. Walls extending only to a dropped ceiling or 6" past a dropped ceiling will result in inadequate results.
- ▶ Typical sound paths:
 - open plenums, over walls & through suspended ceilings
 - adjacent exterior windows
 - electrical outlets & especially back-back outlets
 - HVAC ductwork
 - under doors
 - lighting fixtures & sprinklers
- ▶ Typical noise leaks and poor seal at:
 - wall/ceiling connection
 - wall/mullion connection
 - floor penetration
 - wall/wall connection
 - wall penetration
 - around doors
 - wall/floor connection
 - around outlet penetration
 - metal decks (flutes)
- ▶ Generally, STC ratings are based on studs being spaced 24" o.c....not 16" o.c. and 25ga material.
- ▶ Generally, the lab partition has a ¼" gap around the wall...our walls generally have a space of ½" - 5/8" at the bottom and has variations at the top due to structural deflection requirements.
- ▶ Electrical or junctions boxes on the opposite side of the wall must not be with in the same stud cavity and should be 24" apart. The use of sealant around the penetration and acoustical pads helps this condition significantly.



Overall acoustical performance of a wall system is a team effort. The architect designs the wall system and the means to prevent sound from transferring and the Contractor performs the installation with care and good practices.

The following information was compiled from various sources including STCratings.com and industry experts and associations.