



Trademark
SOUNDPROOFING

STC Box Seal

Information Sheet

Why the Box Seal is Necessary for Noise Control:

- Partitions are tested for sound isolation under ideal laboratory conditions and are given a rating for the amount of sound they stop from passing through called the Sound Transmission Classification (STC). This generally ranges in value from STC-38 to STC-60, measured in decibels, for common gypsum board partitions.
- Recessed outlets are essentially **holes in the wall that let sound through from one side to the other**. A pair of outlets on each side of a partition has a value of only STC-19 so they stop much less sound than the wall. Depending on the size and number of outlets in the wall, overall performance of the sound isolation separation is severely compromised.
- **Increasing the STC performance of the partition does nothing to improve the overall sound isolation** since the sound still comes through the recessed outlets. Consider a pail of water with holes in it – increasing the thickness of the shell of the pail does nothing to keep water from pouring through the holes.
- **The outlets need to be sealed to obtain the performance level of the partition.** Calculated projections, lab tests and field tests all show that the Box Seal improves the value for the outlet from STC-19 to STC-26.2, an increase that translates to significant improvement in the overall sound isolation performance of the separation. Full recovery of the partition STC value is usually achieved, given a reasonable number of outlets and normal sound absorption values in the receiving room.

The amount of sound absorption in the receiving room will have an effect on overall performance for portions of the room at a distance from the outlets. Sound absorption will lower the invading sound level in the reverberant field, but will have little effect on the sound level close to the outlets (near field) or a short distance away (free field).

The presence of sound attenuation blankets (insulation) in the stud cavity of the partition will also have an effect on the performance of the Box Seal. According to calculations based on laboratory and field tests, an unsealed set of back-to-back outlets in a partition **without** sound attenuation has a **STC-19** and improves to **STC-26.2** with the Box Seal. For comparison, an unsealed set of back-to-back outlets in a partition **with** sound attenuation is calculated to have a **STC-22** and improves to **STC-27.5** with the Box Seal.