

Flanking

The indirect path to annoy your next door neighbor

TYPICAL FLANKING PATHS

Although you may have carefully thought out and specified the right (or correct) wall, unwanted sounds may still travel through undetected flanking paths such as framing, ductwork, concrete slabs, open plenums or wall penetrations.

HOW TO ADDRESS FLANKING

There are a few ways to address flanking. Here are some layout suggestions that can reduce some of the flanking issues:

1. Eliminate direct ducting by running a main line down a corridor or attic and auxiliary lines to each room. The more turns in the ducting, the more difficult it is for sound find its way through it.
2. Avoid back-to-back penetrations by installing or relocating electrical and plumbing penetrations in separate stud cavities.
3. Continue the demising wall assembly up to the floor deck to prevent sound moving through the plenum space.
4. Decoupling the cement slab adjacent to the bottom wall plate may be necessary in sensitive situations.

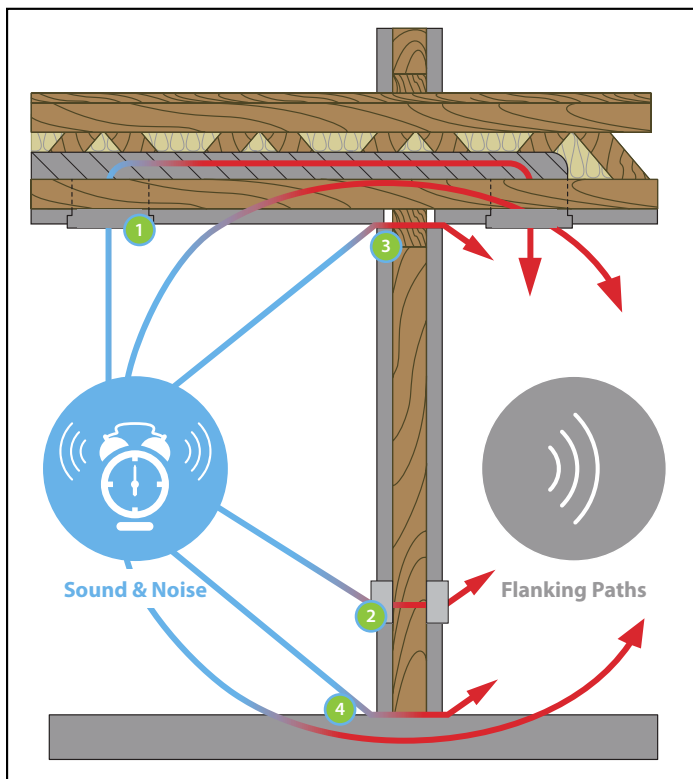


Figure 1: application of acoustic sealants prevent sound leaks and minimize the effects of flanking.

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PREVENTING SOUND LEAKS

Many flanking issues can be easily addressed by properly sealing the wall and ceiling assemblies. In any sound rated assembly it is good building practice to seal the gap at the base of the wall as well as expansion (control) and drywall-to-non-drywall (e.g. window mullion) joints with an acoustical sealant such as QuietSeal® Pro. QuietSeal® Pro will remain soft and pliable, a key factor in choosing a good acoustic sealant. QuietSeal® Pro contains very low VOCs (<0.1 g/L VOC).

Another tool in the fight against flanking is QuietPutty®, an acoustical putty typically molded around outlet boxes and plumbing fixtures to prevent sound from penetrating through the fixtures. QuietPutty® is also fire rated (ASTM E84 Flame Spread Index Class B) and out performs leading fire putties.

Untreated gaps can reduce the effectiveness of your well designed wall and ceiling systems. The use of QuietSeal® Pro and QuietPutty® will enable you to prevent leaks and achieve the best performance of your wall and ceiling systems.

WALL PENETRATIONS AND CAN LIGHTS

In terms of flow and resistance, sound behaves similar to water. It follows the path of least resistance, "searching" for any leaks in a given building assembly partition. Any untreated penetration can significantly decrease a partition's sound isolation.

The ASTM C919 Standard Practice for Use of Sealants in Acoustical Applications specifies that a non-hardening sealant, such as QuietSeal® Pro, must be applied to the partition to prevent sound leakage.

Larger penetrations such as outlet boxes and plumbing fixtures must be effectively plugged to prevent sound leakage. Acoustic putty, such as QuietPutty®, can be applied to create such a plug.

Recessed (Canned) Lights create large open holes in the ceiling and are very difficult to treat. Effective treatment for recessed light penetrations involves building a sound isolation box (QuietRock®) around the light opening inside the joist cavity.

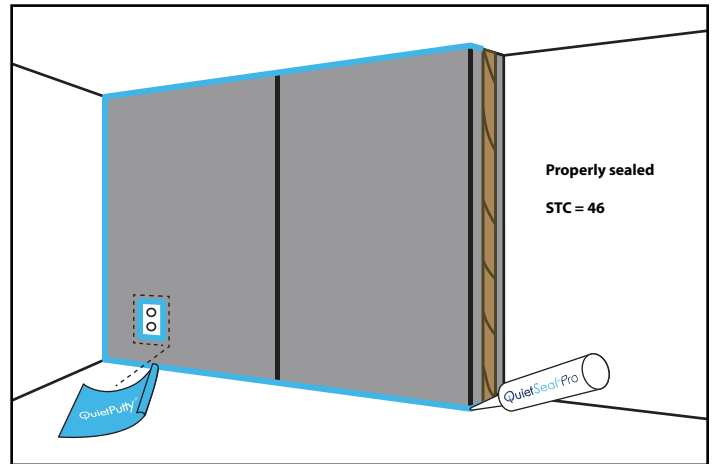


Figure 2: application of acoustic sealants prevent sound leaks and minimize the effects of flanking.

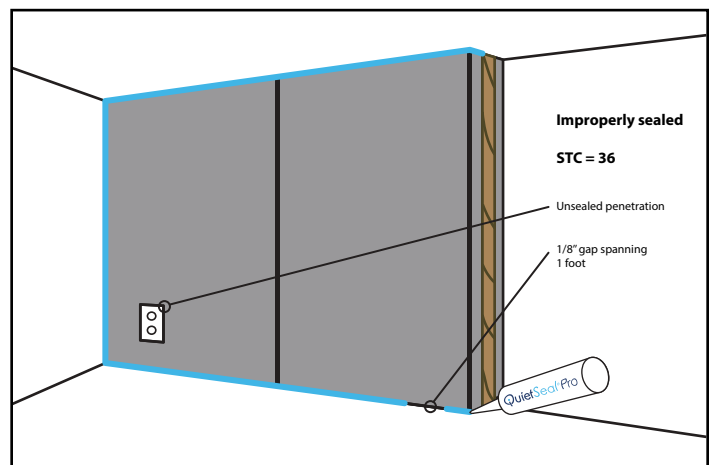


Figure 3: unsealed or improper application of acoustic sealant can open the path for sound to travel (flanking). The effects of sound leaks can reduce STC performance in any acoustically rated assembly.

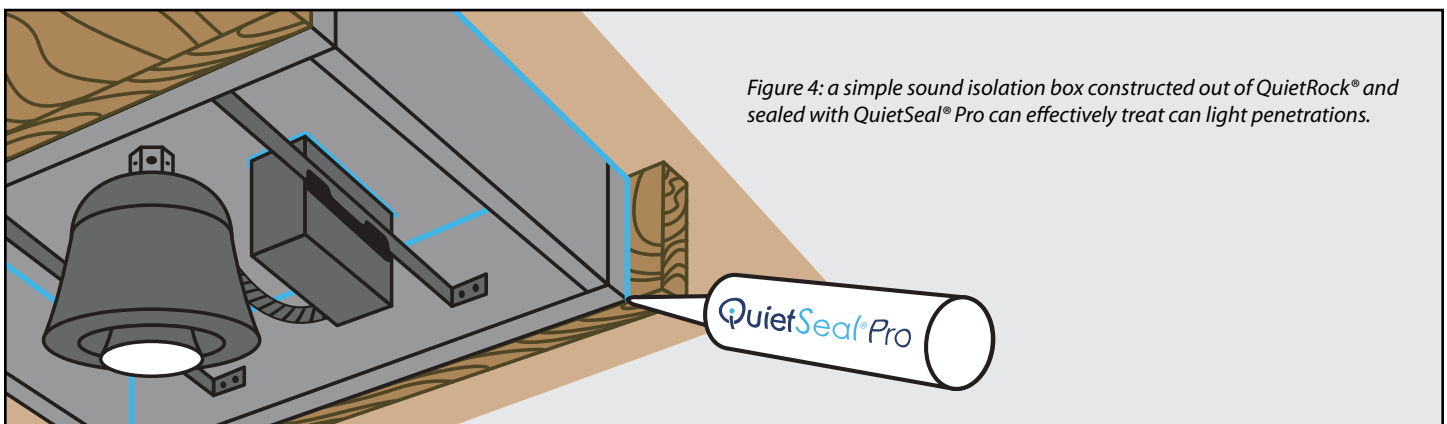
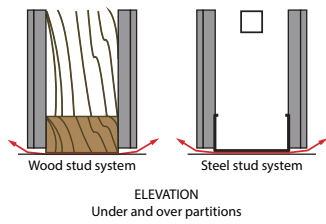


Figure 4: a simple sound isolation box constructed out of QuietRock® and sealed with QuietSeal® Pro can effectively treat can light penetrations.

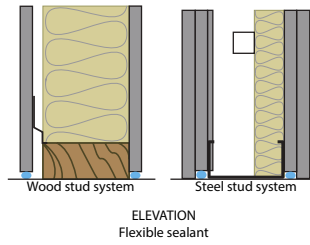
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SOUND ISOLATION CONSTRUCTION

"NORMAL" CONSTRUCTION
ARROWS SHOW
FLANKING PATHS



"SELECT" CONSTRUCTION
SEALING OF RELIEF DETAIL AT
PERIMETER OF PARTITION AND AROUND
CUT-OUTS TO PREVENT SOUND LEKAGE



"PRE-DESIGN" CONSTRUCTION
SIMULATED LABORATORY
CONDITIONS

