

Sound Isolation Clips for Soundproofing Result in Reduced Perceived Noise

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Abstract

Sound isolation clips for soundproofing have been proven to effectively reduce perceived noise in buildings when retrofitted onto existing walls. A reduction of 8 - 10 dB sound transmission has been confirmed in extensive field testing.

I. Introduction

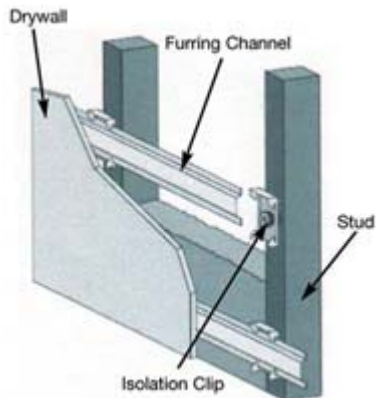
The effectiveness of perceived noise reduction assemblies for walls has been intensively debated due to very few potential solutions having been validated by actual tests from accredited soundproofing acousticians. Recent field tests using sound isolation clips, however, indicate that a significant improvement in perceived noise can be achieved by adding on to an existing wall using soundproofing clips. An 8 -10 dB sound transmission reduction using the materials shown in Figure 1 equates to a perceived noise reduction of 45% - 50%.

Figure 1



In order for the installation of sound isolation clips to be effective in reducing perceived noise, they must be implemented appropriately. The clips must be fastened to the substrate with a fastener approved for a minimum pull-out and shear of 120 lbs as shown in Figure 2. The metal ferrule (steel sleeve) channel must be tight to the substrate. The gypsum board must be installed with a 1/4" minimum gap around the perimeter (using shims), and the gaps must be filled with non-hardening acoustical caulking.

Figure 2



The RSIC clips and the proper caulking or sealant of the gypsum board will result in sound reduction by effectively absorbing, distributing and containing sound waves. The RESILIENT Sound Isolation Clip (RSIC-1) assembly can produce a Field Insulation (Isolation) Class (FIIC) in the 60s and a Field Sound Transmission Class (FSTC) in the 70s, both of which are more than double the building code requirements to ensure adequate noise isolation.

II. Discussion

Before undertaking any retrofit solutions, it is important to check to see if the current wall was installed properly. In many cases, drywall contractors will flush the gypsum board to the ceiling to achieve a snug fit, which can leave space at the base of the floor. If base board has been installed this will be hard to detect, yet it is worth proper inspection -- lack of adequate sealant at the base of the wall can compromise soundproofing integrity substantially, and proper caulking can preclude the need for retrofitting.

Wall retrofitting using the Resilient Sound Isolation Clip (RSIC-1) is consistently effective in reducing noise. The most common issue with floor and ceiling sound is footfall impact noise, which is difficult to mitigate. Impact Insulation Class noise requires both decoupling of the ceiling gypsum board to terminate the structure born path of noise transmission and/or lessening of the noise at the source (carpets or sub-flooring mats) in the living space above. This issue is particularly ubiquitous with the spread of hardwood and concrete flooring, which have become increasingly popular over the years as consumer tastes have changed. The solution is to install the Resilient Sound Isolation Clip (RSIC) at the ceiling and to treat the floor surface from above with a layer of acoustical under-layment.

III. Conclusions

Extensive field testing has shown that the Resilient Sound Isolation Clips can reduce perceived noise in walls and floor-ceiling assemblies (both retro fit and new construction) when installed properly. It is important to note the Resilient Sound Isolation Clip (RSIC-1) require very little physical space (1-5/8") when installed directly onto the framing members.

References

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Biography

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