

## Case Study

### Sound Reduction, Improved Comfort

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### San Francisco Airport Hotels

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Travelers may welcome the convenience of staying in a hotel near an airport, but the noise from the airplanes is not only a nuisance, but repeated exposure to such high decibels can be potentially dangerous. Modern buildings often deal with sound problems because of inefficient windows with air leakage that contributes to loud outdoor noise entering the building.

Thermolite worked with a major hotel in a close proximity to the San Francisco International Airport on their sound control problems. We were able to reduce the sound levels by approximately 50% with the installation of our RetroWAL™ interior curtain wall retrofit system, according to sound transmission loss tests performed by Architectural Testing, Inc.



## Methodology:

While the sound improvement to the major San Francisco hotel was quite perceptible after the installation of RetroWAL™, Thermolite was interested in quantifying these results through sound transmission class (STC) and outdoor indoor transmission class (OITC) ratings performed in a laboratory setting. STC rating measures the sound transmission loss of mid to high frequency noises (such as conversation or television) over a frequency range from 125 to 4000 hertz, while OITC rating measures low frequency sounds (such as airplane noise) over a frequency range of 80 to 4000 hertz. The higher the rating, the better the product is at blocking noise from entering the room.

Product	Glazing (Nominal Dimensions)	STC	OITC
Existing curtain wall	1" IG (1/4" heat strengthened, 1/2" air space, 1/4" heat strengthened)	31	26
Thermolite's RetroWAL™	Primary 1" IG (1/4" heat strengthened, 1/2" air space, 1/4" heat strengthened) sound control glass	47	40

## Results:

The existing single-lite curtain wall system in place at the hotel had a 1" IG (1/4" Heat Strengthened, 1/2" Air Space, 1/4" Heat Strengthened) and measured at an **STC rating of 31 and an OITC rating of 26**. When Thermolite's RetroWAL™ was installed on the interior of the existing single-lite curtain wall system, the Architectural Testing Inc. laboratory findings measured an **STC rating of 47 and an OITC rating of 40**. To put this information into prospective, a 4 point increase is enough for a perceptible reduction in noise, while a 10 point increase is about 50% lower levels of sound, according to the American Architectural Manufacturers Association (AAMA). Since the hotel in which RetroWAL™ was installed was at such close proximity to the low frequency noise from the San Francisco International Airport, the 14 point increase in OITC rating is especially significant because it means that Thermolite reduced the most intrusive sound levels by even more than 50%.

## Conclusion:

Thermolite's sound control interior curtain wall retrofit system is so effective because it increases the existing window's insulating properties with our double pane low-e glazing. This creates an air gap between the panes of glass, which traps excess sound and prevents it from reaching the interior of the room. Since Thermolite's system installs on the interior of existing windows, it also seals up any air leakage which may contribute to noise entering the premises from outdoors. Additionally, Thermolite's interior window system is not only affordable, but it saves money by improving the building's energy performance. Unlike using replacement windows for sound control, our product has a quick and non-disruptive installation that doesn't require hotels to inconvenience guests or close temporarily and lose business. Contact Thermolite today to learn more our sound control products.

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