

WINDOWS CASE STUDY

# Road Noise Disturbs the Peace at Portland Law Firm

When Portland law firm SBH Legal purchased their office building in 2021, they immediately noticed the road noise. Built in 1925, their 15,741 sq. ft. building faces the busy I-405 freeway on the building's west side. "We were having to modify how we did our court cases and our depositions," said SBH Legal Managing Partner, Krishna Balasubramani. "We had to avoid the west-facing offices, which wasn't going to be tenable in the long-term. It was a big issue for us."

Already working with energy engineering consulting firm, Energy 350, to increase the building's energy efficiency, SBH Legal learned that their noise issues could be solved while also improving their overall efficiency. The building's 90 existing single-pane windows offered little resistance to outside noise, which means they were also susceptible to unwanted heat loss in the winter and heat gain in the summer. These weak spots in the building envelope made the building noisy and uncomfortable while forcing the HVAC system to work harder to maintain interior space temperatures. While a full window replacement would be disruptive and cost-prohibitive for SBH Legal, they discovered a cost-effective, easy-to-install alternative called secondary windows.



"It was a no-brainer for us. I definitely recommend secondary windows. The cost was 20% or less than replacing the windows. And if you're looking for noise reduction or better temperature control, they're as effective as getting a new set of windows. That plus the improved energy efficiency made it a pretty easy decision for us."

— Krishna Balasubramani, Managing Partner, SBH Legal

## Project Overview



Building Type  
**Office**



Location  
**Portland, OR**



Window Area  
**1,168 sq. ft.**



Year Built  
**1925**



Existing Windows  
**Single-pane, wooden frames**



Windows Installed  
**Indow Window Acoustic Grade Inserts**





## SBH Legal relishes the “night and day” difference.

“It feels more like a traditional Class-A building at this point,” said Balasubramani after the secondary windows were installed. “You don’t really hear the road noise at all anymore. It’s a night and day difference. We don’t worry about being on speaker phone with the client or the judge on the other line wondering what’s going on in our background.”

With installation taking less than 20 minutes per window, the secondary windows are sealed within the existing window openings to create a thermal air barrier. This barrier not only blocks disruptive exterior noise, but it also significantly improves the indoor comfort for SBH Legal’s employees and clients. Post-installation metrics demonstrated that after the secondary window installation the glass surface temperature was almost 20 F warmer post-installation (on a cool, mid 40 F morning) and the measured globe (or “feels like” temperature) was 3.6 F warmer primarily due to the warmer glass surface temperature. “You come back after a weekend of 95-plus-degree temperatures, and the offices are still set to the right temperature,” said Balasubramani. “The secondary windows play a huge role in maintaining a comfortable temperature and not overworking the HVAC system.”

## Easy to install and hard to notice.

SBH Legal chose laser-measured secondary windows from manufacturer Indow Windows. By laser measuring every window in the building, Indow Windows custom built attachments for each window, including the irregularly shaped frames such as rounded arches.

“The secondary windows are hardly noticeable at all,” said Senior Associate at SBH Legal, Michael Godfrey. “I had real concerns beforehand about how they would look or how they would feel, but you don’t really notice them at all.”

With each window pre-fitted, the installers could quickly fit each attachment within the existing window opening with ease. “An installer came to my office, and I walked down the hallway to talk to someone else,” remembered Godfrey. “By the time I got back a few minutes later, the secondary windows were already installed.”

And despite their unassuming appearance and easy installation, Godfrey maintains that upgraded windows have had a profound impact on his work life at SBH Legal. “Secondary windows have increased my ability to focus and stay focused,” he said. “Prior to the installation, I was getting interrupted and losing my train of thought. And since the secondary windows have been installed, it’s been much easier to communicate with my clients and colleagues and just focus on whatever task I have in front of me.”

## Healthy, high-performance HVAC.

In 2019, the building underwent another energy-saving upgrade by replacing the original HVAC with a high efficiency dedicated outside air system. By pairing high-performance heating and cooling with a high-efficiency energy recovery ventilator, the office building was able to improve its air quality and comfort, and reduce its HVAC energy usage by approximate 75%.

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## Installation outcomes.



**Reduced noise.** Reduction in ambient noise levels from 52.5 dB to approximately 42.1 dB.



**Energy savings.** 13.4% reduction in air leakage (at 75 pa blower door test) for improved comfort and energy savings.



**Efficient installation.** Averaging 20 minutes per window.



**Increased comfort.** Improved radiant temperature and comfort for desks near windows.



**Seamlessly blended aesthetic.** Secondary windows perfectly match the existing windows to maintain a consistent façade.



“Secondary windows serve as a shield against heat transfer, be it hot air or cold air. And more important for me was the noise impact. They significantly reduced the noise that my office was getting from the cars and people down below. They insulate my office and create a kind of a sound bubble that is very, very helpful.”

— Michael Godfrey, Senior Associate, SBH Legal

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