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# case study

## **ARCHITECT BANKS ON HIGH PERFORMANCE CEILINGS TO PROVIDE AESTHETICS, ACOUSTICS AND ACCESSIBILITY**

*Interior Design Features Use of Grid-Hiding Panels, Coffered Ceilings to Create Feeling of Space in Investment Management Firm's New Offices*

The ability of Armstrong high performance ceilings to provide a combination of grid-hiding aesthetics, exceptional acoustic properties and convenient access to the plenum recently helped a New York City architect meet a demanding design challenge.

Rich Bonsignore of Bonsignore Design was given the task of designing the new offices of a large financial investment management firm that was relocating.

From a design point of view, Bonsignore notes that the new offices had fewer windows, less floor space and lower ceilings than those at the previous location. As a result, one of his challenges was to create the feeling of more space. To accomplish that goal, he employed three design strategies.

### **Coffered Ceilings Provide Sense of Space**

First, he located closed plan spaces in the center of the floor. "There aren't that many, but if we had placed them on the outside, we would have blocked light from the windows from penetrating the interior of the floor. By having circulation around the perimeter, we're able to provide a sense of light and air to the entire space."

Second, he incorporated glass into the workstation partition walls. "Because of the smaller footprint, we had to compact the work areas. To prevent employees from feeling penned in, we opened up their space by introducing glass." In the new offices, the partition walls are 66" high, with the top 15" often including patterned glass.

And third, he created coffered ceilings wherever possible. "The ceilings in the new location are lower than those at the previous location. However, by carefully arranging the ductwork, piping and other obstructions in the plenum, we were able to create coffered ceilings over many of the work areas. The extra ceiling height provides employees with a sense of additional space. The use of indirect lighting enhances the aesthetics of the space even more."



The fine textured surface finish and grid-hiding edge detail of Optima™ Vector™ ceilings from Armstrong provided the "clean" look architect Rich Bonsignore desired.

### **Grid-Hiding Edge Detail Creates Clean Look**

Bonsignore notes that because the ceiling at the new site was lower than that at the previous site, he wanted as clean a look as possible. Drywall was not considered because of its cost, lack of accessibility and poor acoustical properties. To achieve his design goal, Bonsignore chose Optima™ Vector™ and Ultima Vector ceilings from Armstrong, depending on whether the space was open or closed plan respectively.

Both panels feature the unique Vector edge that produces a sleek 1/4" reveal that minimizes the visible grid, creating a ceiling that is much more monolithic in appearance than ordinary suspended ceilings. Both panels also feature a very fine textured finish. "The combination of surface finish and grid-hiding edge detail provided us with the drywall look we wanted," Bonsignore states.

The ceiling panels also provided the acoustical performance required for the space. Robert Lee, a principal with the New York-based acoustical consulting firm of Robert A. Hansen Associates, was responsible for the acoustical environment of the new offices.

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Lee notes that from a consultant's point of view, the project was not typical. "Normally, when a client moves from one space to another, we're able to go to the existing space and conduct tests on various acoustical factors.

"In this case, we weren't able to do that," he states. "Luckily, we were able to obtain the old construction drawings, which told us much of the information we needed. Judging by the drawings, they had a high level of acoustic control and wanted it again."

## High Performance Ceilings Aid Acoustic Control

To help achieve acoustic control in the new offices, Lee used a combination of high performance acoustical ceilings and sound masking. The Optima Vector ceiling used in the open plans, for example, has an Articulation Class (AC) of 190. The AC is a measure of a ceiling's ability to absorb sound that strikes it between 45° and 55°, the angles at which most sound passes over furniture dividers. An AC of 180 is generally accepted as the minimum for obtaining normal privacy in open offices.

In addition to their acoustical properties, the panels also have a High Light Reflectance (LR) value of 0.90. This means the ceiling reflects 90% of the light striking it, greatly improving the effectiveness of the indirect lighting system used in the open plan areas of the new offices. Most ceilings have an LR ranging from 0.70 to 0.82.

"Even though there aren't that many closed spaces, we still needed good acoustical control in them," Lee adds. In this case, the Ultima Vector ceilings worked well because they have a Ceiling Attenuation Class (CAC) of 35. The CAC indicates a ceiling's ability to limit the transmission of sound between adjacent spaces that share a common plenum. A CAC of 35 or higher is recommended where speech privacy is a concern.

"The Optima/Ultima combination was a perfect solution," Lee concludes. "Both have excellent acoustical properties, and from an aesthetic point of view, both have an identical appearance. They look as if they are the same ceiling, so even if there was a change during the construction process, all we had to do was change an Ultima panel for an Optima panel or vice versa."



In addition to their aesthetic appeal, Optima Vector high performance ceilings also provided exceptional acoustical properties to help control noise levels in open areas.

## Downward Accessibility Reduces Ceiling Damage

Suspended ceiling panels with the Vector edge also ensure more damage-free applications because the panels feature downward accessibility. This increases the durability of the ceiling by reducing the possibility of damage to the panels caused by hanger wires and other obstructions in the plenum.

This benefit came quickly into play. During the course of the relocation, the firm often had to move employees, which meant it often had to remove ceiling panels to move or install cabling. However, the construction trades and the building's maintenance staff both found the ceiling easy to work with. As a result, wear and tear on the ceiling are expected to diminish simply because the panels don't penetrate the plenum.