SOUND SOLUTIONS
CASE STUDY

PANDUIT

CHALLENGE:

Panduit, a global developer and provider of leading-edge networking and electrical solutions, completed construction in 2010 on its new world headquarters building located in Tinley Park, IL. Panduit's goal was to build a state of the art, environmentally friendly facility that would drive continued business success by increasing employee collaboration, improving occupant comfort, and optimizing building performance. A change resulting from this move would be a shift from traditional closed plan office environments to an open plan and the acoustics were expected to play a major role in the acceptance of this change by Panduit employees.

Panduit decided to study the planned environment by creating a mock-up within the existing facility that could be tested over a several month period by actual employees. Within this mock up they installed raised floors, demountable walls, various furniture systems and other new technologies.

For testing purposes, Panduit also installed an under floor sound masking system (not a Lencore system) to promote good acoustics in the test environment. However during the testing phase Panduit felt that the under floor masking system did not perform to their expectations and that the sound was harsh and uneven.

Since the majority of raised access floors are constructed through a combination of dense materials such as steel, wood and concrete, it can be very difficult to adequately diffuse sound masking to the intended areas.

In addition, vents and joints allow direct noise penetration and can introduce the issue of "hot spots" where the sound is too loud and "cold spots" where the sound is too low. Panduit realized that they needed a better solution and a higher quality masking system.

SOLUTION:

Panduit's Darrin Norbut, Senior Manager of Global Workplace Services, enlisted the services of an acoustical consultant who supported the use of sound masking and recommended an in-plenum design. Lencore was brought in to prepare a mock-up within the space that enabled Panduit to compare their in-plenum system against the under-floor system.

Since acoustical ceiling material is porous it creates a better medium for sound to filter through it and this makes plenum spaces extremely useful in creating a uniform field of sound in occupied space. The plenum distribution method coupled with Lencore's Sound Masking, made all the difference in Panduit's space and ultimate satisfaction. "The sound quality and uniformity of the Lencore system was superior. It also seemed to be easier to hear it and to make adjustments to it as necessary," said Norbut.

Both Panduit and their acoustical consultant agreed that the Lencore in-plenum system masked the noise more effectively. Norbut added. "Surprisingly, maintenance prefers the system in the ceiling because it is easier to access. The issue with the under floor

system is that the speaker locations are often under furniture which makes it more difficult to reach whenever system access is needed."

RESULT:

Panduit has installed the Lencore Spectra i.Net® System in their new 280,000 square foot world headquarters building. The Lencore system provided what Panduit needed: speech privacy and a superior sound. Given the design, the in-plenum system allowed for easier access while the system's network capabilities allowed for better zoning controls and monitoring. Furthermore, as Panduit's Information Technology department becomes more familiar with the Lencore system's extensive capabilities and they are exploring ways to further utilize the system's networking, paging and music options.

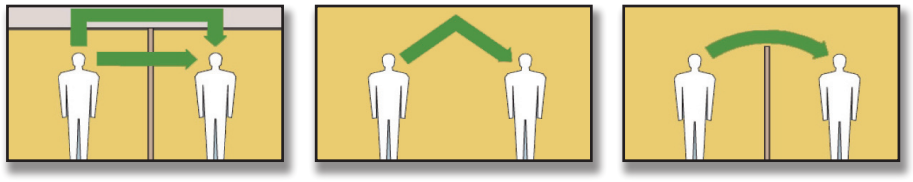
INDEPENDENT COMMENTARY:
SOUNDING OFF ON ACOUSTICS

by John Longman, Principal Cerami & Associates, BOM (2002):

"Given the potential expense involved in a large commercial high-rise development, it is worthwhile to study thoroughly the effects of various design solutions before implementing them. Commercial tenants are increasingly looking beyond the surface when evaluating Class A space; today, good acoustics are an integral part of that evaluation. An investment up front in effective acoustic planning, design and technology offers an excellent return over the life cycle of the building."

How Sound Travels

Sound is a wave which is created by vibrating objects and propagated through a medium from one location to another. Sound either travels directly or is transmitted, reflected, or diffracted. When sound hits something rigid, part of the energy of the wave front will set up a wave front within the wall. The rest of the energy is reflected off the surface. When the wave front hits a rigid object with a hole in it a small portion of the wave energy leaks through the hole and begins propagating. This is known as diffraction.



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