CAMBRIDGE
SOUND MANAGEMENT

Qt Quiet technology™
A generation ahead™

CASE STUDY

Williams College Schow Science Library
Williamstown, MA

Space Description
This aesthetically beautiful library with 40-foot ceilings, skylights and surfaces of brick, glass and plaster board, was created by connecting two buildings and maintaining the outside facades of each.

Problem
The library was too quiet; the slightest noise was distracting. Low amounts of continuous background sound created an environment where intermittent activity noise (such as whispers, the opening of a book, a stapler, pencil dropping) created acoustical startle and distraction to patrons throughout the entire space.

Solution
A Qt *Quiet technology*™ sound masking system: *Oasis* Qt™ from Cambridge Sound Management.

Result
Audible distractions were minimized while aesthetics were maintained.

Take one look at Williams College Schow Science Library in Williamstown, MA and it's obviously unlike any other library. It comprises two 6,000 square foot atria with extremely high (40-foot) ceilings, skylights, and walls made of sound reflective brick, glass, and plaster. While the aesthetics of this wonderful library are unique, the acoustics are similar to many other libraries.

In early 2006, Acentech, an acoustical consulting firm, was asked to help find a solution. Noted acoustician Rein Pirn performed diagnostic tests that showed that the spaces had both high reverberation times (2.5 seconds - similar to a good concert hall or a church) and very low background noise (36 dBA). He found that the low noise was the major problem – it led to unacceptable amounts of acoustical startle and distraction of users. Startle occurs when an unexpected sound suddenly permeates a space with low background noise. Intermittent activity sounds such as whispers, pencils dropping, and computer keyboarding measured 40 - 45 dBA, standing out dramatically against the 36 dBA background sound. Furthermore, distracting sounds carried throughout the atriums because of the highly sound reflecting finishes.

"Libraries are supposed to be quiet, but with whispers heard 40 feet away—I knew we had a unique acoustics problem. With the help of an acoustical consultant and Cambridge Sound Management's sound masking solution, we now have a library that seems quieter and is still beautiful. We are delighted."

Bob Jarvis
Buildings and Grounds
Williams College

"Our library was so acoustically lively, the students were shushing the librarians! Now, our space is as appealing functionally as it is visually."

David M. Pilachowski
College Librarian
Williams College

Pirn pointed out that heavily treating the walls with thick sound absorbing panels could provide some attenuation of the annoying sounds at a distance from the talker or keyboarder, but installing enough panels to be effective would be very costly and would change the architectural environment substantially. In addition, they would provide very little relief for patrons close to the talker. He instead recommended increasing the continuous background sound to a level comparable to the activity sounds. An electronic sound masking system was proposed as a means to accomplish this.

The challenge was to find a way of introducing the masking system in an aesthetic manner, respecting the purity of architectural design and considering that there was no acoustical ceiling or plenum in which the emitters (masking loudspeakers) could be installed. At Acentech's recommendation, Williams College approached Cambridge Sound Management.

Cambridge Sound Management proposed an installation of the *Oasis* Qt™ sound masking system. Standard, miniature emitters placed in special housings were painted black to match existing perimeter lighting, then mounted to the lighting instrument bars already in place, high up on the atrium walls.

This unique space required a unique installation. Cambridge Sound Management's analysis showed that just eight emitters were adequate to cover each 6,000 square foot atrium because of the reverberant nature of the space. The flexibility of installing emitters in attractive housings on existing structure simplified the installation and made it transparent to the patrons. And most importantly, the Qt *Quiet technology*™ system enabled the selection of the appropriate sound spectrum and volume level to achieve the ideal sound masking environment.

Williams College selected a cable installer who had previously worked on standard cabling and sound equipment, but who had no previous experience with the *Oasis* Qt™ system. Because of the simplicity of the system, he was able to install the equipment easily.

The final results of this unique sound masking installation have more than accomplished the goals set out. The formerly routine complaints about the acoustics have ceased, once again affirming the positive role that small amounts of electronic background sound can play in enhancing the acoustics of library spaces.

Oasis Qt™ Sound Masking System based on Qt *Quiet Technology*™

"Library patrons don't even know that [Oasis Qt™] is installed in our theatrical lights; it's neither seen nor heard—just does it's job."

Helena F. Warburg
Schow Science Library Librarian
Williams College

Standard *Oasis* Qt™ Emitters painted black and installed in special housing to existing structure

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Cambridge Sound Management, LLC, located in Cambridge, MA, is the developer of Qt *Quiet technology*™, a low-voltage distributed audio system for sound masking, paging and background music distribution in the workplace. Our systems are sold direct and by select partners worldwide; they are deployed in millions of square feet of space. Installations range from modest home offices to spaces of unlimited size. Applications range from providing acoustical comfort in open workspaces to settings such as doctor's offices, where sound masking is used to ensure confidential speech privacy.

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