

# CASE STUDY: Sound Masking in Academic Environments



## Williams College, Schow Science Library

### Challenge

#### Beautiful Aesthetics, Imperfect Acoustics

The Williams College Schow Science Library in Williamstown, MA is unlike any other library. It comprises two 6,000 square foot atria with 40-foot-high ceilings with skylights. The walls are made of sound reflective brick, glass, and plaster. While the aesthetics of this wonderful library are unique, library patrons and staff noticed that the environment was not as acoustically comfortable as they'd like. Noise distractions permeated the space, particularly from human speech, making it more difficult for students to concentrate and study.

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

David Pilachowski  
Director of Libraries  
Williams College

To help find a solution, the college sought the expertise of an acoustical consulting firm. The firm performed diagnostic tests that showed that the spaces had both high reverberation times, similar to a concert hall or church, and very low background sound. The low background sound was determined to be the library's primary reason for acoustical startle and noise distraction issues. 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 stood out dramatically against the low background sound. Furthermore, distracting sounds carried throughout the atria 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

# Solution

## QtPro™ Sound Masking System

The consulting firm pointed out that heavily treating the walls with thick sound absorbing panels could provide some attenuation but 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. The firm instead recommended a sound masking system from Cambridge Sound Management as a means to quell unintended noise distractions. Sound masking is the process of adding a low-level, unobtrusive background sound to an environment, specifically tuned to the frequency and amplitude of human speech, to bring the ambient noise level of the environment up and mask excess noises in the environment. The sound is typically added through Qt Emitter (loudspeakers) installed in the ceiling.

This unique space required a unique installation. Cambridge Sound Management proposed an installing the emitters in special housings and painting them black to match existing perimeter lighting. The emitters would then be mounted to the lighting instrument bars already in place, high up on the atrium walls, making the system completely unnoticeable to the patrons and thus not impacting the space's aesthetics. Most importantly, the QtPro system enabled the selection of the appropriate sound spectrum and volume level to achieve the ideal sound masking environment.

# Result

## A More Acoustically Comfortable Environment

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, affirming the positive role that sound masking, and QtPro, can play in enhancing the acoustics of library spaces and other quiet areas.

*"Library patrons don't even know that sound masking is installed in our theatrical lights; it's neither seen nor heard—it just does its job."*

Helena Warburg  
Head of the Science Library  
Williams College

## About Williams College Schow Science Library

Schow Science Library is named for Howard B. Schow, Williams Class of 1950 and is located in the Science Center. The library contains book and journal collections in the fields of astronomy, physics, biology, chemistry, computer science, mathematics, geosciences and psychology. Schow Science Library has a collection of over 100,000 volumes, seating for approximately 250 individuals, nine study rooms, an instruction lab and two classrooms.

## About Cambridge Sound Management

The world leader in commercial sound masking, Cambridge Sound Management, Inc. manufactures QtPro and Dynasound sound masking systems to help organizations protect speech privacy, reduce noise distractions, and fuel workplace productivity in their offices. Its next-generation sound masking systems work by emitting a uniform, barely perceptible background sound at the frequencies of human speech. The systems also include office paging and background music capabilities to help facilities meet all of their masking and audio needs with one affordable system. Cost effective and easy to install, Cambridge Sound Management's systems are deployed in over 15,000 organizations' spaces throughout the world including commercial businesses, healthcare facilities, financial services, government agencies, and educational institutions. For more information about Cambridge Sound Management, visit [www.cambridgesound.com](http://www.cambridgesound.com).



## Case Study Overview

### SPACE

A college library with two 6,000 sq ft atria with 40-foot-ceilings, skylights, and exposed brick.

### CHALLENGE

Reducing speech distractions and acoustical startle.

### SOLUTION

QtPro sound masking system



### RESULT

An acoustically comfortable environment where it's easy to concentrate and study.