



Classroom Acoustics and the Americans with Disabilities Act

With all that kids have to cope with in schools these days — the violence, drugs, gangs and the universal angst of just growing up — how many of us stop to consider whether the classroom itself could prevent learning and academic success? Just as asbestos and lead paint in old buildings can be hazardous to our children's physiological well-being, can poor architectural acoustics pose a threat to their overall achievement in life?

W. C. Sabine, a grandfather of acoustical science, once said that architectural acoustics was the most neglected branch of the science of sound. And it would probably still be as neglected, but for the passage of the Americans with Disabilities Act (ADA) of 1990, and a crusade begun by a Seattle-based acoustical engineer, the late Robin (“Buzz”) Towne.

The ADA prohibits “architectural barriers.” For many years, research audiologists had demonstrated that background noise and excessive reverberation constitute major barriers to communication and learning. Since such acoustical problems are intrinsic to the architectural design of a classroom, could they be considered “architectural barriers” prohibited by the ADA?

At the 1996 meeting of the Acoustical Society of America (ASA) in Indianapolis, Buzz Towne presented an impassioned argument, providing compelling evidence that poor classroom acoustics hinder learning and academic success for millions of American children. His presentation precipitated the formation of an interdisciplinary Task Force with members from the fields of Acoustics, Noise, Speech, Communications, Psychology, Physiology, the California Department of Education and the Federal ADA “Access Board”. Later, a Coalition for Classroom Acoustics was formed.

An abortive attempt in 1998 to have classroom acoustical standards incorporated into the ADA Accessibility Guidelines precipitated the Access Board’s issuance of a Request for Information on Classroom Acoustics. The Coalition responded strongly. In October 1999, the Access Board published an announcement calling for the development of acoustical standards for school facilities. In late 2000, a national standards working group convened by the ASA will review the drafted standards and present them to the Access Board for review and subsequent adoption into the ADA Accessibility Guidelines.

This may mean new costs for builders of new and refurbished schools and classrooms, since it demands the adoption of a more sensitive approach to room acoustics, with special consideration for quiet HVAC systems, sound-absorbent materials to arrest reverberation, and sound-rated windows to limit intrusive exterior noise. But the return on the investment in human terms is priceless — it lies in the opening of new opportunities for millions of American children to fulfill the true potential of their minds, to achieve their academic goals, and, in turn, to shape our future.

[In 2002, almost three years after this article was published, the work of the US Access Board and the ASA working group became ANSI/ASA Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools. This ANSI standard is voluntary unless incorporated into a State code, ordinance or regulation. It sets the maximum background noise level at 35 decibels and reverberation time for unoccupied classrooms to 0.6-0.7 seconds.]

© 2008

Wieland Acoustics, Inc.
All rights reserved.

This article may not be republished without written permission from Wieland Acoustics, Inc.