

SOUNDS GRATE ... SOUND ADVICE

AMBICO subscribes to daily reportage on project plans filed across North America. These reports are based on search criteria and are focused on specialized door and frame products. The percentage of acoustic door and frame products being specified is an eyeopener: 95% of all specialized door products being specified are acoustic wood and acoustic steel doors and frames. Is there an "acoustic revolution" underway?

The sixties are famous for many things but one innovation, which revolutionized homes, educational facilities, and the work-place, was the introduction of a design phenomenon which became known as the "open concept". Homes were designed with large un-walled areas and unobstructed views throughout main floors and stretching to upper levels. Schools were being built with few, if any walls and large common areas. Established schools were being renovated with all but privacy areas and load-bearing walls removed. Meanwhile, in the work place, a similar revolution was taking place. Private offices were replaced with "work stations", often consisting of a desk and the few feet surrounding it. Entire floor areas were wall and barrier free. The typical office building today is characterized by large open areas divided by a maze of pods, work stations and softwalled cubicles, encasing workers and their equipment.



This concept was believed to foster team-work, camaraderie, creativity, a sense of freedom of space and imagination. The truth has been far from it. Sean Michael Kerner, July 9, 2003, at www.builder.com, believes that today's cubicle fans are "refugees" of open concept. He states that the cubicle, "a home away from home", provides personal space, easier concentration and less distraction. However, cubicles are almost entirely made from sound absorbing materials with walls only 4-6 feet in height. The major dissatisfaction with both the open concept and the evolution of the cubicle is the constant distractions which result from the din emanating from co-workers, office traffic, computers and other office equipment. Kerner's research indicated that in the open concept environment there is no room for personal conversation or privacy.

Where will the "refugees" of cubicles go?

Motoko Rich, in The Wall Street Journal Online ("Fed-Up Employees Revolt Against Open-Office") reports that "... architects and interior designers are heeding the call to restore some peace and quiet ..." in the workplace. His report goes on to say that regardless of the failure of the open concept to foster creativity, communication and collaboration among workers, the reality is that a combination of the savings in costs of construction, the flexibility this concept affords and the "atmosphere" of teamwork, will be used as excuses to retain open concept and cubicles.

In the field of education, open concept has been viewed by most as a complete disaster. The underlying vision that all children will thrive in one, common environment was short-sighted and has proven to be a major miscalculation. Children have largely varying learning abilities, attention spans and most importantly, physical abilities (i.e. ranges of hearing, sight, and mental capacities). This led to chaos whether on a large scale or in "corners" of each open concept area. A recent New York Times article, "Office Messes", explores the challenges faced by office workers (and students, both children and adults) who suffer from learning difficulties such as ADD and ADHD. An



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open concept facility made teaching these students a nightmare for all concerned and has seriously affected their ability to learn. Quoted in the article is Dr. John Ratey, co-author of "Driven To Distraction", who states, "If I were to create an environment that is bad for ADHD, it would be today's typical office."

The basic problem to be solved through architectural acoustics is simple: keep the distractions of unwanted sound (noise?) out of certain areas or, conversely, keep sounds encapsulated within a certain area.

Noise Control is a Serious Problem

Jack Shinder, President of AMBICO LIMITED, in his published article, "Crashing Through The Sound Barrier" (www.ambico.com/news/crashing.asp) explains the problems surrounding noise control:

"Noise seeps through walls and floors as well as doors. This is known as flanking noise, i.e., noise that goes around things, because parts of a building are not isolated from one another.

Noise control in doors is particularly difficult to achieve because a door (unlike a wall or floor) must be operable.

Walls and floors have the luxury of achieving their acoustic goals in a 6" to 9" thick space, whereas architectural aesthetics demand that an acoustic door will appear and function as a normal 1-3/4" thick door. The process of developing a product to achieve these goals takes a great deal of expertise and many years of research and development. Very few firms in North America possess this knowledge and manufacturing capability."

Shinder's article provides an explanation of "Sound Transmission Class" (STC) and goes on to outline the dilemma in manufacturing "operable" structures which will provide the STC levels required by a project. The Research & Development team at AMBICO continues to investigate ways of optimizing the performance of all door and frame products, particularly when faced with the challenges of oversized openings and/or unusually shaped openings. A most recent advance is AMBICO's newly developed and performance tested acoustic windows described in "AMBICO Solutions Involve Research and Development ♦ A Window of Opportunity" of this newsletter.

The supply of performance-rated acoustic doors and frames which consistently maintain the required STC rating of an area, has been a large part of the formula for success at AMBICO Limited. The addition of acoustic windows, rated to STC 57, builds on that success.

Masking and Filtering Sound

NASA's Glenn Research Center has produced an educational CD, "Auditory demonstrations in acoustics and hearing conservation". This excellent arrangement of demonstration tracks, provides recordings of common noises, their "usual" levels, escalated levels, and the same noises with masking and filtering applied. This CD clearly demonstrates the effects of these agents on both tonal and broadband sounds. In fact, masking and filtering and the use of "white noise" have become useful weapons in the war against unwanted sound and noise. To download the intriguing CD produced by NASA, Auditory Demonstrations in Acoustics and Hearing Conservation Featuring the sounds of NASA Glenn Research Center [[browse CD](#)].



Acoustics a Top Priority for Facilities Designers

For all of the reasons noted above, architecturally, sound transmission is a major concern in the design of homes, apartment and condominium complexes, educational, health, and business facilities, as well as government buildings, penal institutions and transportation facilities. AMBICO fully realizes the importance of the STC ratings required by project designers and has gained a world-wide reputation for manufacturing door and frame products, in steel and/or wood, which meet or surpass these requirements. ■