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Sound masking an antidote to the popular open floor plan concept

By Lloyd Jeffords, CTS

It may be impolite to eavesdrop, but it seems nearly impossible to avoid in an open floorplan workspace.

That's because as humans, we're predisposed to the behavior. Researchers have found that intermittent speech, one of the most common sounds in an office, is also one of the most difficult to tune out.

When a co-worker stationed next to you takes a phone call, for example, or two colleagues behind you start up a conversation, the ability to stay focused on the cognitive task at hand diminishes.

Considering that 70 percent of the American workforce currently operates in an open environment — either in open plan workstations or mobile "benching" layouts with low profile modular furniture systems — lack of sound privacy can amount to a significant loss of productivity.

And it's likely to become more problematic with the trend toward densification and barrier-free workspaces, fueled by high real estate costs and a desire for greater collaboration in the work place.

A study on workspace satisfaction conducted by the University of Sydney and published in the Journal of Environmental Psychology analyzed more than 40,000 survey samples collected in 303 office buildings in the U.S., Finland, Australia and Canada by the Center for the Built Environment at the University of California, Berkeley.

Sound privacy loss was identified as the main source of work dissatisfaction, with nearly 60% of occupants in cubicles and 50 percent in other open workspaces expressing dissatisfaction with this condition.

In another study, Steelcase and market researchers Ipsos found that workers lost as much as 86 minutes per day due to noise distractions.

Sound masking, an acoustical technique intended to enhance speech privacy, is now considered a staple in the design of many new offices and offers an easy retrofit for existing offices. Born out of auditory processing research, sound masking is a significant improvement over electrically pure "white noise" because it adds continuous sound tuned to the frequencies of human speech.

It may seem contradictory to enhance privacy by adding noise, but in essence it makes nearby conversations sound further away and less recognizable, thereby easier to ignore. For example, in a typical office environment, speech intelligibility diameter is 50-100 feet.

With a sound masking system, speech intelligibility is reduced to about 15 feet, effectively enhancing privacy.

Working closely with the installation technicians of sound masking systems, the technology consultant establishes the ideal spatially uniform tonality and sound level for the unique environment.

The key is applying the right acoustical levels to the masking noise to ensure the system will not interfere with ordinary conversation between participants at close range, but will reduce the ability for others, within earshot, to distinguish words.

By creating separate controllable zones within the office space, and considering variables such as external street noises, room/floor size, ceiling height and furnishings, the system can be customized to meet each client's unique environmental needs for sound management.

Usually involving cabling and speaker work located above the ceiling, the technology consultant designs and an integration company installs the system, which is connected to a compact control module typically located in the local technology room.

As part of the commissioning process, the consultant engineer will use a sound level meter to verify uniformity of coverage throughout the installed space.

Readings taken are then used to help fine tune the installed noise levels, making certain the levels are effective.

Sound masking systems are visually and architecturally unobtrusive. Two types of speakers are typically used depending on ceiling construction: up-firing speakers housed in open and hung ceiling spaces that diffuse the sound masking signal through the ceiling area, or direct down-firing speakers, deployed where hard ceilings are present.

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A simple network link between floors connects all the sound masking units, and a link to the facility network allows for remote access for system management and troubleshooting.

Sound masking is one element to help improve the acoustic performance of an occupied space. Many systems offer options to add background music (BGM) and paging. Some systems qualify for life safety paging in the event of a fire or other disaster. All valuable additions.

Intrinsically robust, sound masking systems will last for many years without routine maintenance and make a cost effective addition to the modern workplace.

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