

A WHOOSH OF AIR MASKS UNWANTED SOUNDS

by Osie Gabriel, Contributing Editor: **FACILITIES DESIGN & MANAGEMENT**

When you talk about privacy in the open office, what do you really mean? After all, most people whose work is confidential are sitting in closed offices. For them, privacy means protecting their own conversations from outsiders. However, in most open office settings, the situation is reversed. Privacy does not mean keeping your voice in; it means keeping other people's voices out. For example, who has not been annoyed by a worker in the next cubicle trying to justify a questionable expense report item over the phone?

While workers in open offices are used to concentrating despite the repetitive electronic noises of office machinery, other people's voices remain a major distraction and a stumbling block to concentration - and productivity. What's worse, the sound-absorbing materials used in open plan systems often absorb background noise, but not speech, ensuring that every detail of your colleague's expense report comes through loud and clear.

Should you throw up your hands in despair?

Absolutely not.

Open office privacy problems have a solution. It works on a simple premise of reintroducing background noise, much like the sound of your building's HVAC system, but at the frequency levels of human speech. This will effectively drown out voices coming from other offices, enabling employees to concentrate on their work without distractions.

Sound masking is a good cover-up

Sound masking will not make a noisy office quiet. What it will do is contribute to speech privacy, reducing the understandability of conversation - speech intelligibility - among neighbors.

You may have heard of sound masking under the heading of "white noise." Although this term is widely used as a generic name for sound masking, it is not technically correct. White noise is actually the full spectrum of noise, much as white light is the full spectrum of light. More accurately, sound masking is filtered noise, a pleasant-sounding background noise intended to mask speech.

Does sound masking work?

Facilities managers seem to think so.

In a recent survey, about one-third of FM respondents report using sound masking in their facilities, almost exclusively in the open office environment. FMs responsible for large areas of open plan (500,001 sq.ft. or more) report using sound masking at almost half of their sites. And, in what signals an increasing recognition of sound masking as part of an acoustical program, most FM's surveyed (84 percent) say they are familiar with the concept of sound masking, and one-half say they have evaluated its use. In addition, the survey by The Concord Consulting Group, headquartered in Concord, Massachusetts, found that sound masking ranks high with users: fully one-half those who use sound masking presently plan to use more in the future, as do an additional 10 percent of FMs who have not tried it yet.

Sound masking grows out of open plan

In order to understand sound masking's growing popularity and the technology's concepts, it's important to look at the history behind it.

Since sound masking works best in the open office, it is not surprising to find its roots in the same era that gave rise to open plan: the late 1960's. At that time, "it was long-recognized in closed offices that the privacy enjoyed between adjacent spaces was not completely related to sound transmission loss," explains Harold Reiher, president, Geiger & Hamme, a consulting firm in Ann Arbor, Michigan.

Reiher adds, "Something else was involved: background noise. The background noise level was known to be as important in controlling privacy as the effectiveness of the sound barrier. It was discovered that the sounds of ventilation, traffic, office machines, and the like actively contributed to the background noise and were useful in concealing speech sounds."

Not quieter, but more private

"Today's well-designed system electronically reproduces the background condition that would exist in a well-working HVAC system." "It sounds like the 'rushing noise' of air through grilles. the sound is created by a digital noise generator, which goes through an equalizer to adjust the frequency. The sound is amplified and passed as an electrical signal through the wires to the speakers and down to the occupied space." (Alternately, some sound masking systems are individual units, where each loudspeakers has as individual noise generator and can be plugged into a wall outlet. However, these are more appropriate for smaller spaces.)

Sound masking does increase the background noise level in the office - to approximately 46-48 decibels. But then, the mission is not to make open offices quieter, only more private. The analogy to use is that of a home air conditioner. If you are sitting near an A/C unit home and someone starts talking to you from the other room, you'll probably shout, "I can't hear you, the air conditioner's on!" I you turn it off, you can hear what he or she is saying. Sound masking is more

sophisticated, but not more complicated. If you shut it off, you'd suddenly hear everything around you.

As simple as A-B-C

The A-B-C method to plan office acoustics: Absorb-Block-Cover. To absorb sound, open plan panels should be treated for sound absorption, and the ceiling should have a good NRC rating. (NRC is Noise Reduction Co-efficient, and the higher the number, the better the product's acoustic performance.) To block sound, panels should be at least 60-in. high and arranged to block line-of-sight and "seal" each cubicle off as much as possible. To cover distracting sounds, particularly voices, sound masking should be installed. "Masking is the most potent ingredient, but don't play trade-offs. All of these are extremely important together, and you must look at all three."

Sound masking can even be used in closed offices, particularly those constructed with walls only to the ceiling, not beyond it. Realistically, unless closed offices feature expensive drywall construction through the ceiling, heavy doors, and minimal use of glass, some degree of sound will travel both into and out of walled offices. Realizing this, FMs are opting for sound masking not only in the open office (which accounts for 91 percent of sound masking area, according to the Concord Consulting Group survey), but also in private offices and public space (9 percent combined).

When should you install sound masking?

The simplest and most cost-effective installation opportunities are during construction and renovation, because buildings are unoccupied and the ceiling plenum is accessible. According to the survey, renovations and construction indeed account for a majority of sound masking installations (67 percent). An

additional 15 percent of installations occur after a problem is discovered in a new facility, and 13 percent happen in existing facilities.

The survey also finds that acoustical consultants are the most likely source for system design. Keep in mind that some consultants manufacture their own systems, while others design systems using components made by a variety of manufacturers. Other system designers named in the survey were sound system vendors, in-house staff, and architects/designers. Sound system vendors did most of the installation, followed by electrical contractors, in-house staff, and acoustical consultants.

The survey concludes that a combination of sound masking and other elements - including carpets, panel materials, panel configuration, and ceiling and floor tiles - is the best speech privacy solution. Adds Reiher, "People have become accustomed to working in close proximity to each other, and their expectations about privacy have changed. On the other hand, to improve productivity, you must allow people to concentrate better. With sound masking, they aren't distracted every time someone nearby is talking. It serves a very tangible benefit."
