

Low frequency noise from air handling units – ABB points the way forward

One kind of noise experienced in the office environment is low frequency noise, usually coming from air-handling systems. Its effects can be very debilitating to workers exposed to it. Just how debilitating it can be remains the subject of intense study, particularly in Scandinavia.

Nonetheless, since it is commonly agreed that such noise at the very least will lead to worker efficiency losses, there is a market for solutions. ABB is developing a way to cut out this noise in ventilation and air conditioning systems.

To date, silencer systems have tended to be heavy pieces of equipment, depending mostly on using fibrous sound muffling material. The higher the frequency of noise the more of this fiber needs to be used. Since it is packed into the system it will often block the air flow channels, leading to

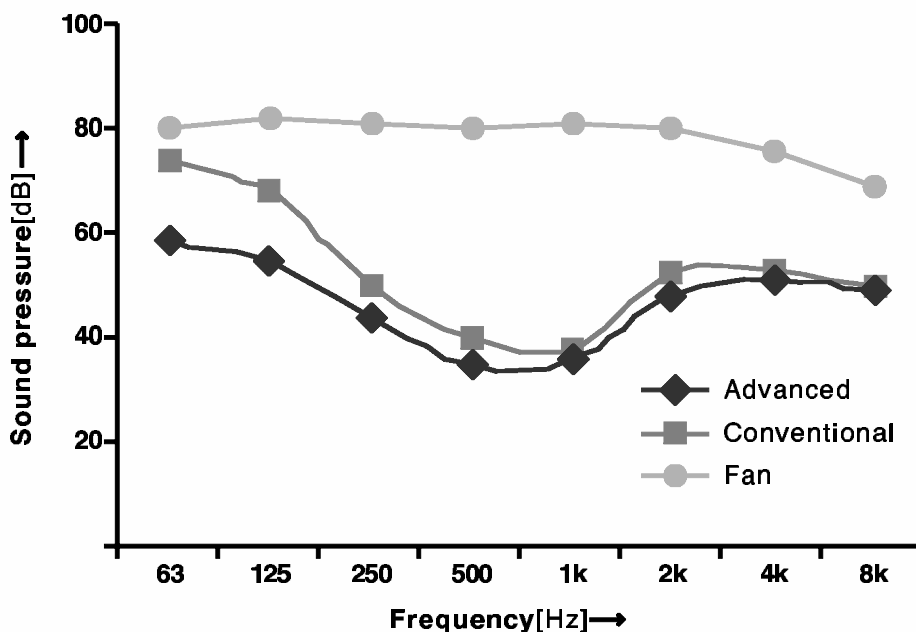
a loss of pressure in the air unit and therefore reduced performance.

Another disadvantage is that traditional methods can do nothing about low-frequency noise.

ABB has now developed an advanced silencer that not only reduces high-frequency noise with less dampening material but also for the first time offers a way to get rid of low-frequency noise.

The new silencer takes an active approach to attacking low-frequency noise. This involves a microphone fitted ahead of the silencer unit that records the low-frequency sound. The sound is then fed into a controller, where the phasing of the sound waves is manipulated digitally. The controller kills the low-frequency sound by producing a precise opposite of the sound wave formation.

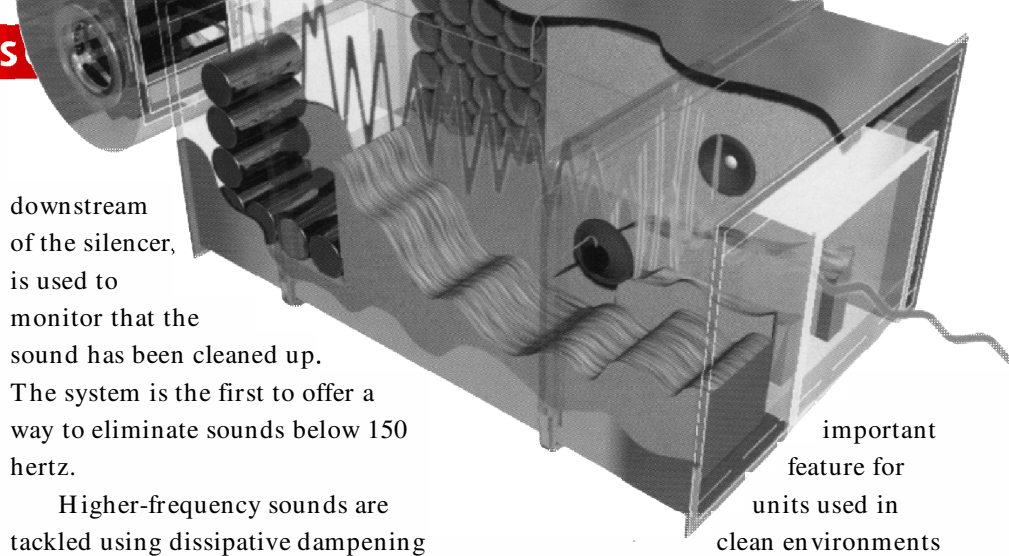
A second microphone, fitted



downstream of the silencer, is used to monitor that the sound has been cleaned up. The system is the first to offer a way to eliminate sounds below 150 hertz.

Higher-frequency sounds are tackled using dissipative dampening techniques. The difference here is that fibrous material is replaced by a plastic muffling material. This is less bulky, meaning that dampening is achieved with a lower pressure drop than at present. A further benefit of using the plastic material is that no micro-fibers are blown into the air – a particularly

With acknowledgments to ABB Review



important feature for units used in clean environments like hospitals, laboratories and clean rooms.

The advanced silencer, which will be marketed beginning in autumn 2001, is designed to work with the latest air units made by ABB but can be retrofitted to older systems already installed in buildings.

Falsetto's rights

A Rockford anti-abortion activist fined for violating the city's noise ordinance is asking the U.S. Supreme Court to strike down the law. Street evangelist Adrian Horien was fined \$100 for shouting outside the Northern Illinois Women's Center on June 8, 2001. A nearby resident called police after Horien refused to stop yelling in a falsetto voice, "Mommy, Daddy, please don't kill me." Horien was found guilty of violating Rockford's noise ordinance, which bans "any unnecessary or unusual noise at any time which annoys, injures or endangers the comfort, repose, health or safety of others" unless the noise is necessary to protect a person or property.

The Pensioner, the dogs, and the vandals

Gordon Maitland, who took his neighbours to court over their yapping dogs has been targeted by vandals. The culprits poured paint stripper over the 75-year-old, car when it was parked outside his Aberdeen home. He believes they may be dog lovers who struck after reading about the district court case in the press. The paint stripper was poured over the bonnet, doors, roof and back door causing £1,500 of damage. "I don't know who did it and can't point the finger because I didn't see anything. "But I think it must be to do with the court case," said Mr Maitland. He brought a case against his neighbours Roy and Sue Butler, who live in Auchmill Road over their nine dogs. JP John Logan gave the Butlers 30 days to reduce the noise of barking from their eight papillons and poodle, or face a fine or having them rehomed. The 10-year-old Land Rover Discovery had been parked in Cairnfield Place and was the only car targeted.