

Sounding out an exit

In a fire, where smoke results in low to no visibility, exit signs become almost redundant. Hearing your way to safety is a new solution, writes **Caroline Kearney**.

When the new lighting Standard AS2293 was released in 2005 the primary change was the replacement of the word 'exit' on emergency lighting with the internationally accepted pictograph of a running man. In May 2006 the BCA picked up the changes.

In many emergency situations – bomb scare, severe weather, train, bus or ferry crash – this change should help ensure the safe evacuation of more people. But industry has still failed to recognise the extra precautions required in case of a fire emergency, where reduced visibility caused by smoke means an exit sign – no matter what symbol it features – does very little to help guide someone to safety.

Studies show that even in light smoke, visibility can be reduced to just 4m, in thicker smoke it's unlikely you'll be able to see even 1m in front. Combine this with the fact that exit signs are usually installed at heights of 2.1m to 2.7m above the floor – right in the smoke layer – and it's very unlikely you'll be able to see an exit sign until you are directly underneath it ... and that's not taking into account the affect smoke has on your eyes.

A solution is SoundEscape. Developed and manufactured in Australia by Clevertronics, SoundEscape is incorporated into exit signs and uses locatable sound to direct evacuees to an exit. Independent studies show that the product improves evacuation times by as much as 70% in smoke conditions and 32% in clear conditions.

The directional sound technology behind SoundEscape was developed by professor Deborah Withington from the University of Leeds. Only sounds that contain a large spectrum of frequencies (broadband) are



In heavy smoke it is unlikely evacuees will be able to see an exit sign until they are directly under it. SoundEscape uses locatable sound to direct people to an exit, improving evacuation times.

localisable. The location of pure tones, simple tone combinations or narrowband noise cannot be pinpointed. Directional sound is vital for survival as it puts us into high alert mode, the frequency triggering a response in the primitive part of our brains which responds to threat.

Traditional warning alarms give no location clues; they merely alert you to the emergency. Warning alarms are also often ignored when mistaken for drills or test runs. In contrast, SoundEscape ignites your instinct to move, as well as directing you to the exit point.

Locatable sound also helps overcome common human instincts. Studies show that in an emergency people like to leave the same way they came into a building – which is not necessarily the quickest way out. People also instinctively want to go down stairs, rather than up them, even though their nearest exit may be above them. With SoundEscape, even in trials with no briefing, people instinctively follow the location of the sound.

I discovered this first-hand when Clevertronics took a group through a real-life demonstration of the product. We had to find

our way to an exit through corridors filled with theatre smoke.

Scenario one: Without SoundEscape. Due to thick smoke I was unable to see any exit signs until I was almost directly underneath them. After numerous wrong turns, wrong doors and dead-ends, I eventually found my way out ... in 4m 46s. If this had been a real fire it is very unlikely I would have survived, especially considering the impact real smoke would have on my eyes and ability to breathe.

Scenario two: With SoundEscape. Even though we had to find our way through the same set of corridors as in the first scenario, because I was so disoriented during scenario one there was no advantage the second time around. I was completely reliant on following the pulse sounds to find my exit and was out in just 1m 54s, nearly a three minute improvement.



SoundEscape is used in conjunction with exit signs, which now feature the internationally accepted pictograph of a running man.

The system is language independent, using sound pulses, but can be programmed to use spoken words such as "exit here", "exit left", "exit right" or "exit ahead".

The sound unit is incorporated into the exit sign and is therefore easily installed by an electrician and can be retrofit. It is ideal for buildings, even though they don't strictly

require a warning alarm under the BCA, as it helps reduce duty of care and OH&S exposure. Extension of egress paths under alternative design solutions also provides greater building design flexibility. It can also help in an emergency where smoke is not a problem, for example a busy shopping centre or airport where exit signs may be obscured by clutter.

SoundEscape installations have included Haymarket hostel in Sydney, London's BDC Exhibition & Conference Centre, Munich International Airport, and the University of Wisconsin. ■

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