



# SOUND IN BOARD

*Alex Campbell* talks to the people behind FeONIC, a gadget that can turn any surface into a loudspeaker

It is generally accepted that in the majority of cases, loudspeakers should, unlike children, be heard and not seen. Until recently, making speakers 'disappear' in a room generally meant setting them into walls, which obviously adds thickness and reduces internal floor space. But, according to Brian Smith, founder of FeONIC, this need not be the case. The company has developed a product that can make a speaker out of a range of structural elements already designed into any given room.

The FeONIC device is attached to a panel, such as a plasterboard wall or glazed partition, and vibrates the whole structure with enough energy to turn it into one big sound radiator and a wall, window, or even floor, into to one big speaker.

This is no mean feat, given the force required to vibrate these materials. The FeONIC unit is fundamentally different to

traditional loudspeaker drive units, and the secret lies in the material used in the motor of the unit. Unlike a normal speaker, the unit does not contain a coil that moves: the specialised metal itself transforms its shape and exerts a large force on whatever it is directly attached to.

Of course, there is a limit to the mass even this smart material can excite sufficiently to radiate sound. It's unrealistic to expect a 250mm-thick reinforced-concrete slab to sing very loud, and different materials have different properties that affect their response. That said, a lot of standard building materials can be used. Smith confirms: 'Plasterboard is absolutely fine, as is MDF or plywood. Glass [sounds] delightful.'

As all materials are different, which is best? Well, the ideal panel would be as rigid as possible, with a relatively low mass and high surface tension. FeONIC has been working

with composite panel manufacturer Coretex and its sister company, Corevista, which produces translucent versions. Coretex and Corevista produce sandwich construction panels that comprise a stiff, lightweight outer material (such as aluminium) either side of a honeycomb core constructed from polycarbonate or metal.

According to Geoff Layland, head of the Coretex group: 'When it's fully bonded, the panel is very light and very stiff. This means the panels are sensitive to the vibration inputs of the FeONIC drive units, but don't break up much and can efficiently radiate sound.' The companies are working together to produce proprietary products that can be used by designers, including wall panels and a raised access floor, both of which will form speakers.

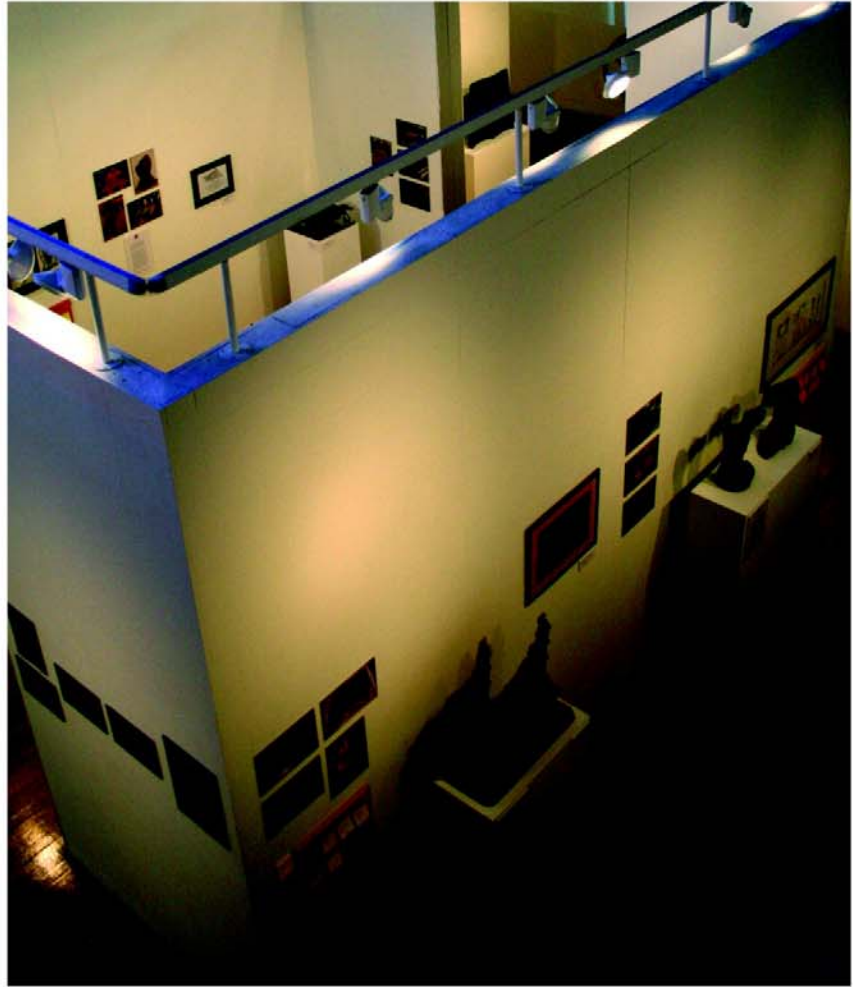
The potential applications are endless and not limited to entertainment venues, >>



*FeONIC has used a cruise liner's structure as a sounding board*



FeONIC drivers were used by Audio Visual Systems to turn a gallery floor into one huge speaker at the Grade I-listed Shire Hall in Stafford



galleries and public spaces. This alternative to a loudspeaker has been installed in cruise liners, using the ship's structure itself as the sounding board. It also solves problems in long, reverberant environments, such as train stations and tunnels, where the speech clarity of traditional public address systems is usually poor. The drive units can be used to excite a metal panel in the ceiling construction spanning the length of a given space.

As to the quality of sound in more comfortable environments, the drive units are also sold to form speakers in surround-sound audio systems. Custom installers Audio Visual Systems use FeONIC drivers to add the 'wow' factor to high specification home entertainment installations. 'They are impressive for what they are,' explains Audio Visual Systems' Phil King. 'We describe them as 'mid-fi' speakers, as opposed to 'hi-fi' speakers, but the units create a sound as loud

as you would comfortably want in your living room or home cinema, with quality comparable to the majority of traditional loudspeaker surround systems.'

Audio Visual Systems has used the devices in retro-fit applications, the most exciting being the excitation of a floor in the Grade I-listed Shire Hall Gallery, in the West Midlands town of Stafford. Tony Flynn, head of Audio Visual Systems, says, 'It was a difficult project in that as a listed building we were very limited in what we could do visually, without damaging the 300-year-old plaster work covered by the protection order. We installed 24 FeONIC sound zones under the 1 inch-thick oak floor, producing the most marvellous sound both as a single PA and music source [one massive speaker], or 24 individual wireless commentary zones for when the gallery was used to show art and sculpture.' ■