Ghost acoustic treatment

Retrofitted acoustic treatment is the economic reality for a good many small rooms. ROB JAMES applies the Ghost treatment to a small working space and assesses the experience.

IF WE LIVED in a perfect world then acoustics would be an integral part of audio workspace design long before the foundations were poured. Even when no compromise, money-no-object, Nirvana is occasionally achieved, the results often fail to live up to expectations. Whatever the design philosophy, there is more of a consensus when a room really does sound good.

For most of us, and this includes not a few broadcasters and facility houses, compromise is a given before you start. Offices, garages and the now legendary 'back bedroom' are all pressed into use for recording, mixing and monitoring, often on a temporary, per project basis *(Temporary as in a decade. Ed)*. Domestic living rooms with thick fitted carpets, curtains and furnishings all contributing to sound absorption can often be very good. They're even better when uneven, reflective surfaces, such as well stocked bookshelves, add some diffusion. A minimalist, functional room is much more likely to exhibit problems. Some of these will be amenable to cost-effective treatment by one means or another; others, such as the basic room dimensions are impractical, impossible, or prohibitively expensive to cure.

Experienced sound folk can generally tell if they are in with a chance within a few minutes of being in a room just by listening to a normal conversation and the odd handclap. If there are obvious problems, identifying the cause and possible ameliorative measures is sometimes easy but often infernally difficult. Even with proper measurement tools, small rooms in the real world are hard to analyse objectively.

If you can't afford Phil Newell or others with decades of experience and expertise then empiricism is going to play a large part in any attempts at a fix.

A new division of the Chinese microphone manufacturer SE Electronics is behind the Ghost range. At launch there are five products, a 600mm square Block absorber (UK£118), 1200mm X 600mm Big Block (£220), 600mm square Wedge Trap (£135), Corner Trap (£135) and a Gobo Stand (£67). Distributor Sonic Distribution emphasises that each situation will require a different mix of units and offers a design service to help clients get it right. However, they do offer a basic Studio Kit of four Blocks, one Big Block, two Wedges, two Traps and a Stand as a starting point and this attracts a 10% discount.

Non structural, stick or screw it on the wall acoustic treatment can be divided into three basic categories, absorbers, diffusers and traps. Despite the manufacturer's titles I would describe all the current Ghost units as absorbers due to their construction and the way they work. Built around an aluminium and steel inner frame they consist of layers of highly compressed glass fibre (100kg per cubic metre) with layers of aluminium foil claimed to help 'break up' low frequencies. The face sides are covered with fully fire retardant thick polyester acoustic felt fabric in light grey or charcoal and the edges are finished with a brushed and punched aluminium frame somewhat reminiscent of aircraft wing ribs.

Each unit comes with a lightweight metal Easy-Mount mounting frame designed to be screwed to the wall. The units simply key slot on to the frames with T-bolts. This opens up the possibility of multi-tasking the basic blocks. The so-called Gobo stand accepts threaded aluminium rods with up to three sections. The basic Blocks have tubes through them in addition to the key slots, so screens up to three Blocks high can be constructed by simply dropping Blocks over the rods. The edges of the heavy steel stand base are chamfered so that an angled wall can be arranged using multiple bases and Blocks.

To evaluate the Studio Kit I enlisted the help of singer/songwriter Jedd Owen-Elliss Clark. Jedd's studio is built into a converted garage and since he often has paying clients in the room with him, it really has to look the part as well as sound good.

The pile of boxes fitted neatly into the back of my truck, demonstrating one of the advantages with this type of treatment. Unlike foam, it is easy to move it to a new studio and can be demounted and used on location if required. Twenty minutes later we made ourselves comfortable in Jedd's studio with a pot of coffee to do some 'before' listening. I also took a few measurements with a TerraSonde analyser. We selected a range of material that Jedd is very familiar with with features likely to show up changes in the acoustic.

There is already some structural acoustic treatment in the shape of double-skinned 12.5mm plaster board with acoustic grade Rockwool insulation in the walls and low-density fibreboard panelling on the ceiling, angled over the mixer, again with acoustic grade Rockwool behind. A booth is constructed similarly but is otherwise currently untreated and a (big) problem for another day.

The immediate requirements were to improve monitoring at the mixer and to provide variable control of the degree of liveness in the area in front of the booth, used for vocal and acoustic instrumental recording and singing tuition. Measurements made with a spectrum analyser and pink noise were, not for the first time, pretty inconclusive. Small space, too many variables, the monitor amp and speakers for a start. However, the analyser did pinpoint the frequencies of the most obvious feature at the mixing position, a bass hump at 160Hz with a dip at 220Hz. The hump neatly matches the width of the room, so no surprises there, and any standard absorber would be highly unlikely to improve it. The dip coincides with the height.

From long and bitter experience this would be extremely difficult to ameliorate in such a small room, let alone cure. Anything likely to work would probably take up half the available space, which obviously isn't practical. There's no point in getting paranoid about something you can't fix and the pragmatic answer is 'learn to live with it', making allowances when monitoring. The other obvious problem, flutter reflections, is much more evident from just listening to speech and music or a handclap than the measurements. Jedd is well aware of this phenomenon and has been experimenting with some budget foam panels and

Before

After

traps but with little noticeable improvement.

Sonic's recommended disposition of units is thoroughly conventional and I saw no good reason to depart from it except where circumstances didn't allow it to be followed. The window and furniture precluded fitting the Big Block in the obvious position behind and between the speakers but it took no time at all to temporarily fit the Corner Traps and Wedges. After considerable listening we decided to add two further Blocks either side of the listening position. The results were convincing if not spectacular. Focus and clarity showed a tangible improvement and imaging was considerably more solid. This is thoroughly worthwhile and should not be taken to mean that the Ghost is not doing its stuff. Rather it is a reflection of the fact that the monitoring position sound was pretty good in the first place. In short, the Ghost absorbers controlled the flutter reflections nicely without adversely affecting the frequency response or making the area feel oppressive, audibly or visually.

Moving on to the other suitable case for treatment, erecting the Ghost Stand was the work of a moment and the resultant acoustic screen proved to be highly effective at controlling liveness when recording an acoustic guitar. With just two Blocks fitted the all-important eye contact between artist and engineer can be maintained and the third Block can be added in seconds to record a standing vocal.

All in all, this was an encouraging (and long) day's work. Ghost acquitted itself well on the acoustics front and almost as importantly we both liked the appearance of the panels. The fabric has a nicely judged texture, easy on the eye and a lot better looking than foam. We both concluded that, with the right complement of panels, the whole room could be considerably improved and that it would be well worthwhile experimenting with them in the booth as well and this could be achieved economically if extra mounting frames are available.

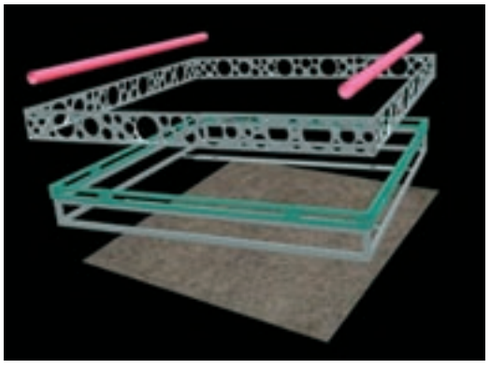
On the downside, the mounting frames seem a little too flexible, but would no doubt stiffen up once attached to the wall. Neither of us could fathom out how the Corner Trap bracket would work on a 90-degree outside corner.

It would be good to see the range further extended with true non-absorbent diffuser panels and maybe tuneable bass traps using different technology to extend lower down the spectrum. The existing ones

are claimed to be 30% effective at 100Hz but that is nowhere near enough to help in this situation.

We concluded that Ghost is a modern, handsome, effective and sensibly priced answer to the most common maladies found in mixing and recording environments, unless there are big anomalies at the bottom end, which are always going to pose a problem. The other main conclusion was that when the room is being used for mixing, a heavy acoustic curtain across the booth and lobby at the back would be a great help. Ghost Blocks would usually do the job but, due to the studio layout, are just not practical in this case.

I've experimented with acoustic foam in the past in my own space and worked in a sound for picture room that had thick foam on every wall surface and the entire ceiling. I've eventually concluded that it has just too many disadvantages. Most foams smell, at least for the first few months after installation and the colour fades and it eventually crumbles. It also attracts and harbours dust and is very difficult to keep clean. Installation is a 'once only' affair. It is



nigh on impossible not to damage the panels when removing them. Despite some manufacturers' claims of a diffusion effect at HF, foam is pretty much an absorber and only really does anything useful above 400Hz. Perhaps most damning of all, few foam products are fire rated for use in public buildings such as schools, colleges and churches. In contrast the Ghost units are about as fire retardant as you can get, can be readily moved about as necessary even during a session, and their useful effect extends down to at least 250Hz as can be seen clearly from the absorption co-efficient graph. This results in a much smoother response.

The Ghost range is off to a good start. It is a clear improvement over foam products in many areas. It isn't cheap but neither is it expensive when you consider what you are getting for the money. These are serious, properly engineered devices with the considerable bonus of the possibility of having Blocks do double duty as recording screens. Installation is simple and well within the capabilities of anyone who can put up a straight and level bookshelf. Obviously, the units should be mounted temporarily until the optimum positions have been determined.

Leaving aside their undoubted acoustic virtues, Ghost units are good looking and the fire retardant performance will make these acoustic control elements a natural for many projects. ■

Contact

GHOST, CHINA:
Website: www.ghostacoustics.com
Sonic Distribution: +44 1582 470260