Shell Shock

Frustrated with the acoustic problems of outdoor performances, acclaimed classical music conductor Mark Stephenson garnered a team of experts and devised the Mobile Acoustic Performance Shell. **Rob Hughes** catches up with Stephenson as the concept gathers momentum...

Let's face it, while we probably wouldn't choose our tiled bathrooms to mix a major label album in, if there is one place that convinces us that a rendition of *New York, New York* is a good idea, the bathroom is it.

This notion certainly isn't lost on Mark Stephenson and, ten years ago, when he began to get downright fed up of lacklustre outdoor orchestral performances, he would probably have preferred a suitably-sized bathroom over an acoustically inert tent for conducting the musicians in his orchestra.

"You only need to sing in the bath to know that it sounds much better and it feels much better and, because of that, you just want to carry on singing," enthuses Stephenson. "Well, a musician operates the same way. It doesn't matter if he's got a Stradivarius violin, if he's playing in bad acoustic conditions, it's not very rewarding, so he doesn't play so well. He can't hear his colleagues properly either, so the overall quality of the performance is third rate."

Now before you get excited, I have you tell you that the idea of using a bathroom as an outdoor stage never came to fruition. You see, as lively sounding as they are, a bathroom's acoustics aren't always ideal, and furthermore, an orchestral-sized bathroom would probably be a little on the cumbersome side for the very mobile world of live outdoor performance.

Happily, Stephenson anticipated this and, rather than waste his time designing a very large portable bathroom, theorised a much more bespoke solution. A decade on and after teaming up top architect Jason Flanagan and consulting with Arup Acoustics' Ian Knowles, his concept is on the cusp of becoming a functional reality. The Mobile Acoustic Performance Shell (MAPS), as it is known, has been fully designed, modelled and tested, and the team's company, Sound Forms, is currently raising two million pounds under the Government's Enterprise Investment Scheme to build the first full-size prototype.

The quandary to which the quest for a solution became the driving force behind MAPS is that, since the musicians at outdoor events are typically surrounded by nothing more than a traditional tented structure, the sound waves they create are not reflected and therefore travel upwards and behind them as frequently as they do towards the crowd. This is a double-edged sword for acoustic acts, because they also struggle to hear themselves, which leads to problems with timing, tuning and the multitude of intricacies that lead to a great performance.

MAPS has been designed to provide three major advantages over a standard, tented rock and roll stage. By including sound reflecting panelling above and to the side of the orchestra, a stage acoustic can be created that will assist the musicians to hear themselves and each other, motivating them and promoting better performances. Miking requirements, either for amplification or broadcast, will be less complex and yield better results without signal processing and finally, by extending the shell in front of the platform edge, sound is projected out of the shell and redirected onto the audience area, thereby increasing the direct sound level.

"The profiling shape means that sonic energy hits the ceiling and most goes forward, but some goes back onto the musicians, so you do get a stage acoustic," explains Arup's Ian Knowles. "It's not very live, but it's not like playing outdoors

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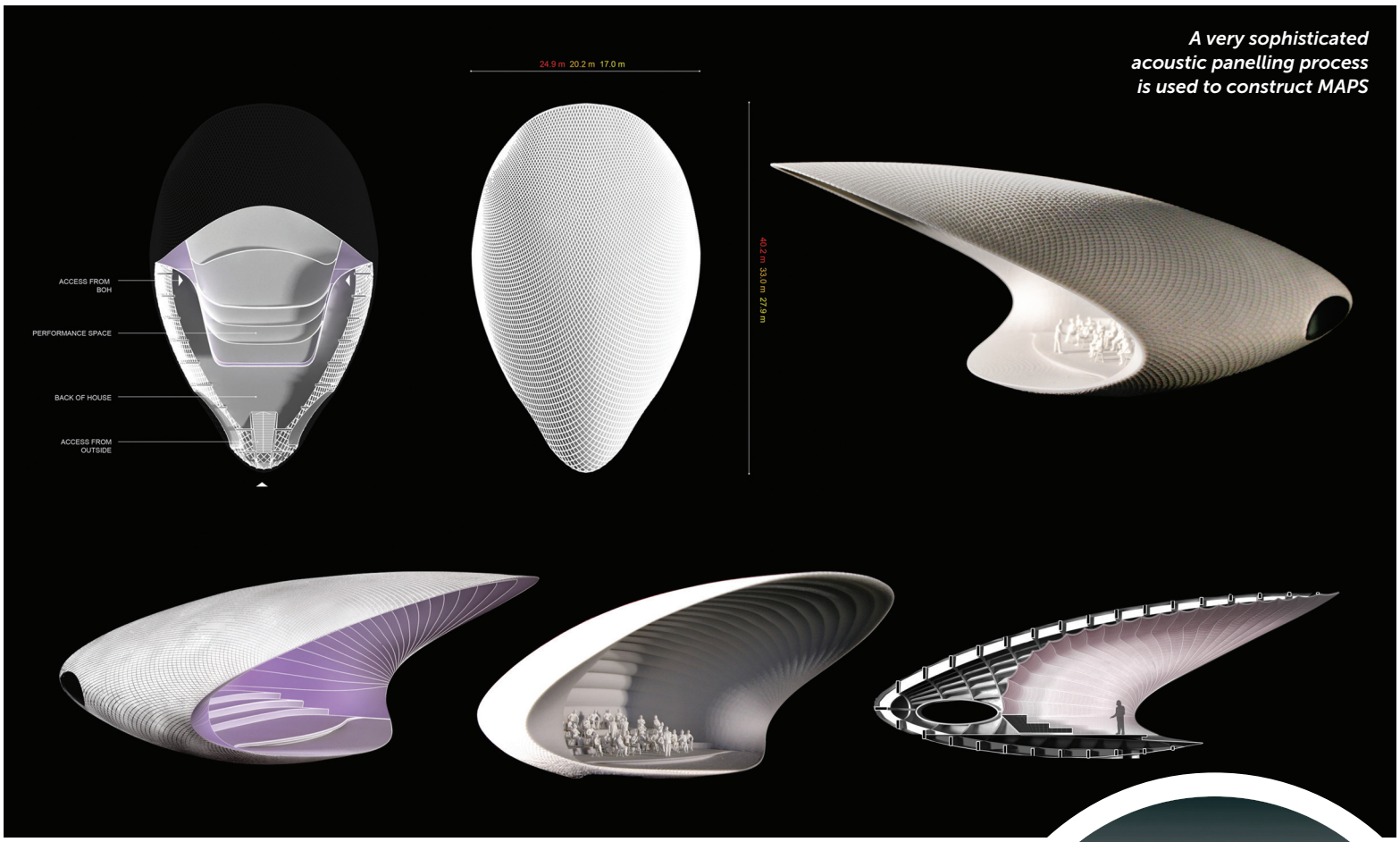

where there's no support, no reverberance at all. The intention was to improve the acoustic conditions on the platform and by doing so improve the performance, but we've taken that a stage further by introducing an extension of the shell forwards. We call that the 'peak' and that extends the reflected sound onto the audience. We looked at optimising the height and shape of the platform, the angle of the peak and the extension of the peak, and the patent that has been lodged actually deals with the ratios involved. We've modelled it in Odeon (acoustic software) so we know the subjective improvements it makes and the support figures we're getting on the platform – a measure of how much energy is reflected back to individual musicians – are comparable to those of a good quality concert hall."

"From my point of view, as a classical musician, the idea that half of the sound I make isn't going to just disappear off the back of this thing is fantastic," adds Stephenson. "It's a terribly obvious principal, but it's just not been done before, other than in permanent structures such as the Hollywood Bowl. The premier league orchestras in the States have got quite good outdoor summer versions, but the second league orchestras such as Pittsburgh, which are huge, still have nothing. Even New York Philharmonic, which is already very interested in MAPS, doesn't have a quality outdoor performance shell yet.

"I want the top-class, premier league orchestras to be prepared to go and play outside and at the moment quite honestly, they're not. I was a cellist in the Philharmonia for ten years and I put up, as we all did, with the conditions of playing outside and felt that the audiences were getting second best. We've had the BBC's chief acoustician look at MAPS, because at the moment what you've got is the wonderful Royal Albert Hall for the Last Night of the Proms with that great big resonant sound, then you zoom up to Glasgow and you hear this farting French Horn in a tent. And however hard the BBC tries – and its brilliant, still the best broadcaster in my mind – it can't mitigate that."

Exciting stuff, but what about the traditional values of a music stage? What about speed and ease of setup and, moreover, how many people would have the need or desire to make a serious investment in a platform that was exclusively for the use of orchestras and other acoustic performers? Well, on the first point, remarkably, Olly Watts from the ES Group, which will construct the full-size shells, has predicted that they will come in on the standard orbit installation and dismantling times, which can be considered a great achievement given the sophisticated acoustic panelling process used to construct the mobile stage. This brings us to the second question, which could be bluntly summarised as: what about good old rock n roll acts? Well, it seems they're catered for too.

"No-one in their right mind would design something purely for orchestral music," Knowles astutely points out. "If you were the operator of a venue or a festival, you would want to put on a mixture of different types of music from one day to the next, or even consecutively. To this end, all the acoustic panels are easily demountable and you're left with essentially a rock n roll stage, which is suitable for amplified stuff. And I'm sure that there's a halfway house. For example if you were doing some jazz stuff, maybe you'd want to leave some of them in place. It's up to the operator how they use the different acoustic conditions that the platform can provide.

"But one of the greatest benefits of what we've created, is that you won't need 40 or 50 sets of microphones and an enormous console to try and make head and tail of it all. Not only will this make rigging a lot easier, but the pickup sound quality will be better. You'll get a better performance, better sound quality, easier rigging, less processing and, overall, a better product."

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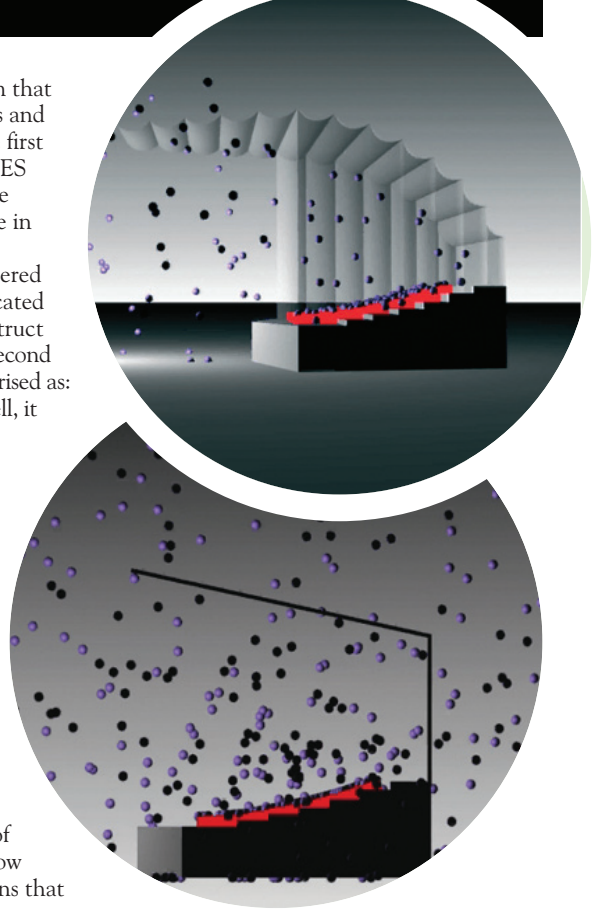

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