



Albert

Phil Ward salutes the maintaining of Victorian values in a London icon . . .

The phrase 'pride of place' has extra wallop, here. From its inception in the 1860s, this particular corner of Kensington, West London has been a shrine to British achievement. The grand combination of The Royal Albert Hall itself and the neo-gothic monument to Queen Victoria's husband opposite speaks of Empire, industrial strength and cultural confidence, and no visitor to England's capital can fail to grasp its meaning. Over the years the requirements of the Hall as an acoustic space have changed with the times, but the association with both excellency and excellence has remained a constant.

No wonder, then, that all those with a contribution to its success as a venue take a well-earned share in that proud tradition, and when one of those contributors turns out to be a home-grown but relative newcomer on the cusp of top-table status, the sense of yet more Anglo-accomplishment is palpable.

Surrey Keys

As LSi detailed in October last year, EM Acoustics is an ambitious yet disarmingly unassuming manufacturer of high-end loudspeakers: a small team of passionate and dedicated innovators, founded by Ed Kinsella and Mike Wheeler and based in a modest facility somewhere in the green acres of the Home Counties that harbour so much English talent. Pro audio here has its own heritage, its own legacies of imperial span that keep the world watching even as it globalises beyond anything Gladstone, Disraeli or Brunel could imagine. And now, in the latest round of improvements to Victoria's arena of power, EM Acoustics has added to that ancestry with an installation that will inject new life into the old dear for many years to come.

The great conductor Sir Thomas Beecham once said that this hall could be used for a hundred things, but music wasn't one of them. However, thanks to gradual acoustic improvements and nearly two decades of audio ministrations by Surrey-based installer Sound By Design (SBD), nobody shares that cynicism any more. And thanks to SBD's



Memorial

Photography: Phill Chapman

adoption of the HALO Compact small-format line array, made by EM Acoustics, all one hundred of those other things the Albert Hall gets used for will get the same precision-engineered benefits of transparent sound reinforcement as any orchestra.

"The new system is required to address more applications than any previous one," confirms Ed Kinsella, surveying the finished installation with justifiable satisfaction, "which is why it has a 'stereo' element - although it's physically impossible to achieve true stereo here. About 70% of the house has a kind of stereo, with a centre source providing an LCR feel. That makes it more flexible, because today more productions are asking for left-right capability. It won't cater for Eric Clapton concerts and the like, which will obviously still 'tour in', but it meets a great deal of the very difficult challenges: not just the acoustics, but the physical constraints. We've had to install new flying points, in such a way as to avoid the trusses and motors used for visiting rigs and regular events like The Proms. Our system has to withdraw right up into the roof and disappear.

"It's quite nerve-racking to create a CAD that you will demand someone taking a saw and cutting into the Albert Hall's roof - all because of what you've asked for! But you've also got to avoid the 'mushroom' sound diffusers that were attached in 1969, and allow all of the other motors to have precisely accurate movement up and down. It's an incredibly tight set of boundary conditions, and effectively there was only one location that we could go and still have the desired results."

The system will cater for all orchestral recitals, while its other potential was typified by its very first deployment: a presentation by The Institute of Directors demanding speech and VT reinforcement. "That's one of the first and foremost requirements: intelligibility of speech," Kinsella continues, "especially taking care of the most notorious spots right at the end of the circle. The advantage of the large L-R hangs is that it's much easier to add a small sub-hang to reach these areas; if you only had the pumpkin-like centre cluster you'd have a problem getting out that far. It's much smoother right along that line of seating now.



Cabling the RAH

All the cabling for the new PA system was from the Van Damme cable, supplied to Sound by Design by VDC Trading. Sound By Design's operations manager Phill 'Chappie' Chapman says: "We have worked with Van Damme cable for many years and in fact the previous system in the RAH was with VDC cable too. Much of that we have retained and reused with the cables running from an input panel at the back of the stage to a new amplifier room behind the organ."

"In the RAH there are no direct cable routes to anywhere and over the years we have found most of the ways through. This time, though, we still found a couple of new spaces we didn't know existed! We used both analogue and digital multicores plus Cat5 cables for data with tie lines to the rear of arena and to positions under the stage to allow for the addition of powered sub-woofers and conventional monitors."

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"In terms of music I believe we'll see productions opening up the SPLs through this system now; the Hall is keen to promote it as a resource as much as possible because, from their point of view, using the in-house system involves far less load-in and load-out time and far less wear and tear on the building."

Ring of Confidence

There are 82 HALO-C line array elements in the permanent system: 20 each side for that fundamental L-R hang; six choir-fills divided into two hangs; and 18 in-fills for the circle and the boxes spread between four more hangs. In the centre is an exquisitely subtle arrangement of 12 more HALO-C elements topped by an audacious cardioid sub, custom designed with four 18-inch drivers. Six more HALO-C elements are stored separately for occasional front-fill duties, while power is supplied by EM Acoustics-branded AQ10 Class D, 4-channel amplifiers - 14 of them - and a single 2-channel AD-9, all designed under the auspices of EM's product partnership with MC2 Audio. For speaker management, Sound By Design has settled on four of EM Acoustics' new DSC48 Loudspeaker Control System units.

The remainder of the HALO-C units are dedicated to supplementary performance spaces, including the Elgar Room, that host up to 200 events each year - something of a pocket secret weapon within the Albert Hall's ever-widening programme, and an acoustic question to which EM Acoustics' EMS range provides the low-end answer via two EMS-118 subs.

The centre hang is designed to "pull the image together", according to Kinsella, as the left and

right hangs are relatively high. "They have to be, because of the sight lines. That really is the story of this venue: there are so many competing factors, from where you can put motors to productions that, say, want to put a screen right in front of the choir."

Indeed, such an iconic setting has inevitably become video saturated. Even when not requiring screens at various locations on and around the stage, performances might well be broadcast as they are - placing the demands of the television cameras at the top of the production agenda, as ever. "It's an extremely flexible venue, considering," adds Kinsella, "but the trouble with sound is that there is a line beyond which you have to say you cannot go, otherwise it will suffer. With that in mind, the team here has been very understanding and accommodating."

Sound By Design has been servicing the Royal Albert Hall for over 20 years, as well as being an early adopter of EM Acoustics products when Kinsella and Wheeler began manufacturing some 10 years ago. Sure enough, Kinsella's co-designer on this project, Dave Shepherd, is a former employee of SBD and brought his considerable experience of the venue to bear during long discussions as the plan unfolded.

"Sound By Design wanted to do something different, something new," Shepherd says, "and when the opportunity came Ed and I sat down and crunched the numbers, working out how it would work in theory. Working here with SBD for so many years you get to know everything about the place - where all the reflections come from, things you've really got to look out for that might trip you up. The focusing is key: it has to



Above, L-R: Andy Callin of Sound by Design; Ollie Jeffery, senior technical manager, RAH; Paul Keating, director of Delta Sound (sister company of Sound by Design); Ed Kinsella of EM Acoustics; Tom King, head of show management, RAH; Dave Shepherd, freelance audio engineer and sound designer.



stop at the top of the circle and keep out of the gallery or it will really come back at you. The height is also an issue, which we've compensated for with a slightly bigger front fill, and you have to be aware of the many different shows that come in here and allow for up to 2m of rise and drop in the hang."

Love Me Tender

Andy Callin is Sound By Design's founder and former managing director. "We first attracted the attention of the Albert Hall on the basis of a very discreet system that we brought in for a one-off event," he recounts, "only a year after we started SBD, largely because it was so much more subtle than the usual rented rigs. We began working with the show management team here - one of the first events was sumo wrestling! - and within a couple of years we landed the regular contract. It was a huge turning point for us, and we set about replacing an existing system that probably dated back to the 1960s.

"The systems we've put in here have evolved with the company, going through several iterations as the techniques matured for reinforcing an orchestra with maximum musicality. We got better at designing them; the last major change was around 2006-2007. This time around, however, the Albert Hall was obliged to go out to competitive tender - so it was no longer a given that we would continue. We wanted to up our game: we wanted a system that gave us the option of doing a sort of pseudo-stereo - as much as you can do in this place - and we knew that there would be something better out there.

"It's always a balancing act here between something that will deliver the SPLs you want for some shows and something that is aesthetically acceptable - plus the need for touring systems to rig around you. HALO Compact ticks all those boxes, and then some."

The tender was won following a series of concerts here using HALO Compact as the FOH system, and further trials for suitability held at several other acoustically

challenging venues. One visiting client moved to enquire how much of his audio experience was coming directly from the stage and how much of it was coming through the PA. "I honestly didn't know the answer," smiles Kinsella, "certainly not in terms of SPL percentage, but what pleased me most was the fact that he had to ask. For the system to be that transparent meant that we'd got the balance right on that occasion, which was pretty good timing as the contract for the permanent system was coming up for review!

"Sound has got to be a crucial part of the experience that people have, and their expectations of sound have changed over the years. I haven't known the Albert Hall as long as Andy has, but I do know from the West End that levels in general have risen over the years and audiences demand more excitement and engagement - and we need systems that can do that. In an acoustic space like this it's no good just putting in tons of horsepower and turning it up: that won't solve anything. What you need is headroom, the ability to let the system breathe without pushing the hell out of it.

"Having 20 HALO Cs hanging, rather than 10 boxes that may be twice as powerful, is a far better solution because you can have much finer articulation between the elements and you don't have compromising gaps. It gives you more control over both dispersion and SPL, and each box being compact makes it a more accurate hang - especially towards the bottom of the curve where the gaps open up. And you get this level of control with much less impact on the sightlines, which simply cannot be ignored."

A physically larger system would also, Kinsella argues, repel classical audiences and even some engineers, if it were one of the more world famous brands that they happened not to endorse. "There's a notch down from the ultra-A-list that avoids the preconceptions and allows people to approach the system with an open mind, provided it's convincing according to all



the usual parameters. I think the Albert Hall has been realistic in avoiding the temptation to put in something more like a festival system, because that would carry too great a risk of sending out the wrong messages."

Speech Bubble

That first event to exploit the new permanent system - the Institute of Directors' annual convention with speeches and presentations to members - was in a way the ideal bleeding of a subtle reinforcement solution with a few basic requirements to get right before anything else. "That was an important first test," Kinsella observes, "because the clarity of the spoken word is paramount. It must not be fatiguing and difficult to make out what somebody is saying from a lectern. If you can't get that right . . . Anyone can throw horsepower at something but, with long-running events like an all-day conference, the last thing the audience needs is a system honking and droning at them until they just switch off."

EASE Focus was used as far as possible for acoustic modelling, but the lack of original or even accurate drawings of the building prevented a full 3-D study. "We concentrated on the coverage," says Kinsella, "making sure for example that the top box in each array finished at head height when you're stood at the top of the circle and, ideally, doesn't come up and wash around in the gallery. They've kept the original small in-fills up there, so it's important that the main house doesn't reach that far. Another priority was keeping the stage clean, because the last thing the orchestra wants to hear is a load of PA dropping onto them - they get very animated about that!"

It's often overlooked that the Albert Hall is a truly multipurpose venue, hosting everything from live music and performing arts to exhibitions, conferences, public meetings, film events, premieres and even sport. For all of this, HALO Compact will offer the ideal solution while a wider expansion into multimedia promotions like the recent screening of Disney classic *Fantasia* with orchestral accompaniment - HALO Compact's triumphant debut in the hall before its permanent installation - now beckons as the arrival of EM Acoustics galvanises the repertoire.

"That type of event," reflects Kinsella, "with a huge screen mounted in front of the organ, does enable you to achieve genuine stereo because the PA flies so far up stage that the whole house is within the field. That wouldn't be the house system, but it would be HALO: Sound By Design is looking to invest in a rental system from us for supplementary use here."

One way or another, then, the Empire is in good hands. Or, perhaps, both empires: the one that lives more in the imagination than in reality, thanks not least to this beacon; and the one under construction in this day and age of pro audio courtesy of Mssrs Kinsella, Wheeler, Callin and Shepherd.

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