The Sage, Gateshead
A five-sided notebook: 1996-2001
DanceCity, Newcastle-upon-Tyne
An introduction to tension wire grids
Corporate Manslaughter Bill
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Explosives Regulations

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Cover: Hall Two, The Sage, Gateshead. Photo: Nigel Young / Foster and Partners.
The Sage, Gateshead

The Sage is really three buildings: the large hall, small hall and rehearsal room, placed in a row covered by a huge undulating tin tent

In my view, what makes Norman Foster and his office great architects is not their use of materials, which tend to be from a rather limited palette, but their ability to surprise by making the complex seem simple. This is achieved through a rigorous analysis of the brief and the creation of a highly rational organisational diagram for a building, which suppresses the secondary service spaces and allows the primary spaces to be read with great clarity. Stansted Airport by Foster and Partners is one of the best examples of this approach, where the service areas, which make the building work, are all placed under a podium and the space above, where passengers arrive and depart, is expressed as an elegant single volume with uninterrupted views from landside to airside (or at least they would be were it not for the endless Sockshops and Tie-racks, which are now mandatory in a modern airport.) The Sage, Gateshead exemplifies the same rigorous approach applied to the practice’s first performing arts building. Time has moved on of course and whereas at Stansted the building envelope was elegantly rectilinear, at the Sage it is curvaceous, made possible by the advanced three-dimensional computer modelling which is available to architects and engineers today.

The Sage is really three buildings: the large hall, small hall and rehearsal room, placed in a row and covered by a huge undulating tin tent. Each is expressed as a freestanding volume with the stairs to the upper levels sitting in the clefts between them and outside them at either end. The great roof floats over all three, without touching them, supported on slender raking masts. At podium level an enormous bow fronted foyer space, overlooking the River Tyne, links all three spaces, below which is the Music Education Centre, providing studios and teaching spaces for an ambitious community music programme. The building is entered through the glazed walls at either end and the foyer acts as a street, leading from one to the other. The result is a building with enormous clarity which, like all good public buildings, is instantly legible and accessible to everyone. My only quibble is that the foyers are, if anything, too big, which results in a rather subdued atmosphere, like a railway station after the last train has left. When audiences leave the auditoria during intervals they tend to stay on the upper galleries around each space, which are well provided with bars and toilets, and the main concourse remains curiously under-populated.

Externally I think the building is less successful, looking like a giant three-headed bullfrog squatting on the steeply sloping riverbank. It has a rather self-aggrandising presence, which seems to bear no relation to the cityscape around it. The stages of all three-performance spaces are one level above the main concourse and correspond with the ground level at the back of the building, where the loading bays are located.

The Sage was originally conceived by Northern Arts and Gateshead Council as a home for the Northern Sinfonia and Folkworks, a respected local organisation specialising in folk, jazz and world music. Only after the building work was underway did the individual users merge to create a single organisation, which now operates the building. The northeast was relatively well served by theatres but had no purpose-built music facilities. This gap in the market has now been filled in spectacular fashion and music lovers in Tyneside must think they are in heaven. The building is run in a refreshingly open way, with all the main spaces open to the public throughout the day. The customer service team are a cheerful band of multi-tasking young people in red tee-shirts, who act as ushers, guides, bar and box office staff, and even technical crew. The musicians of the Northern Sinfonia
are permanent members of staff and also contribute to the music teaching programme. They are all rightly proud of their building.

The acoustic designers for the project were Arup Acoustics and their usual rigour has been applied throughout. The large hall is a classical shoe-box concert hall with 1700 seats and the small hall is a flexible galleried space with 450 seats. The management are keen to point out however that there is no classical/non-classical divide and both spaces are programmed with both types of music. As a result both spaces are designed with a variable acoustic, starting with high volumes for unamplified music, which can then be damped down with moving ceilings and motorised banners for amplified music. Background noise levels in both auditoria are claimed to be an amazingly low NR10. To achieve this each section of the building is physically isolated, deep sound lobbies are everywhere, displacement ventilation trickles air in at the bottom of the spaces and all equipment which might make a noise, like moving lights, is banned during unamplified concerts. The intention is admirable but comes at a considerable cost and one wonders if a slightly less rigorous standard would have really been noticeable. It would certainly have liberated some money for important pieces of equipment, like stage elevators, which had to be cut to stay within budget.

The large hall (Hall One) is being written about elsewhere in this issue, so I will confine myself to a few comments about the architecture. As mentioned above, it is classical shoe-box hall in the manner of proven European models such as the Musikvereinssaal or the Concertgebouw. It is kept refreshingly simple, with three levels of balconies at the sides and rear and few concessions to multi-purpose use. The entire room is lined in blond timber, a departure for the Foster office, with curved plywood balcony fronts and vertically slatted walls. Overhead, large perforated ceiling panels with lighting bars between them can all be driven up and down to vary the acoustic volume. They are controlled by a computerised system, which is preset for different musical modes. There is one curiosity, which is the doors in the side walls. These are treated in an identical manner to the walls either side of them and have no handles or push plates. The only thing to indicate where they are is a discreet exit sign at high level. The effect is somewhat disconcerting for those of a claustrophobic disposition.

The small hall (Hall Two) was conceived by Iain Mackintosh of Theatre Projects Consultants and is another example of the galleried courtyard space, here applied to a flexible music space rather than a theatre. What distinguishes it from others of the genre is its five-sided geometry. This is most evident at the stage/stalls level where three sides of the audience face two sides of stage. At the two upper galleries the geometry is subdivided into ten faces, of which seven face the stage, with warm red timber balcony fronts, and three, with more discreet steel mesh fronts, are behind it. Although the space can be used in-the-round, a strong directional axis remains and it is probably most successful in the end stage format. Flexibility at stalls level is achieved relatively simply by two rows of bleachers, which retract under the lowest gallery, with the rest of the central seating consisting of chairs on the flat floor. The front part of the stage...
is made up of Steeldeck rostra, which can be reconfigured to create a straight or thrust platform or removed altogether for music-in-the-round. A single rectangular elevator forms the central part of the stage and descends to basement level, allowing rostra, seats or equipment to be stored in the space below. A more elaborate system of elevators was apparently a victim of ‘value engineering’ but this arrangement seems to strike a reasonable balance between practicality and economy.

I attended a concert in the small hall by ‘Los de Abajo’, a high-energy ten-piece band from Mexico, touring Europe for the first time, and a joyous affair it was too with driving percussion, mariachi brass, a break-dancing bass player and a female vocalist on trombone. I was struck by how much more fun it was than a lot of dreary theatre I have seen and this set me thinking about the differences between the design of spaces for drama and for this type of music. Most popular music takes place in auditoria designed for other things, from old
cinemas to football stadiums and there are very few purpose-designed spaces for popular music, which is not generally considered worthy of serious architectural consideration.

I don’t suppose Iain Mackintosh has been to many gigs in his time, but nevertheless his principles of ‘sacred geometry’ work just as well here as they do in a theatre. The fact is, a successful performance space with a proper sense of intimacy and focus will work for any kind of live performance from hip-hop to Hamlet. My only criticism is that the stage riser, which is high by theatre standards, is too low when the audience stand up and dance, which doesn’t often happen in Hamlet.

Tim Foster is chair of the ABTT Theatre Planning Committee and a partner of Tim Foster Architects (www.timfosterarchitects.com)
Above: Hall Two with band performing ‘In the Round’ configuration, photo: Richard Bryant / arcaid.co.uk
Right: The rehearsal room

Credits
Architects: Foster and Partners
Structure/services: Mott Macdonald
Specialist engineer: Arup Happold
Quantity surveyor: Davis Langdon
Acoustics: Arup Acoustics
Theatre consultant: Theatre Projects Consultants
Lighting: Equation Lighting Design
The concept of The Sage as a building is extremely impressive, and a considerable credit to those who first conceived the idea of bringing two totally dissimilar music performing organisations together as residents under one roof, along with a really serious intent towards musical education in its widest sense.

With all its facilities as described by Tim Foster, the complex is busy throughout the day with adult performers, teenagers and school children mixing together along with members of the public visiting for a meal or a performance. Particularly attractive to me is the 'open rehearsal' policy of the Northern Sinfonia, with members of the public able freely to come and go – a feature I was able to avail myself of after the ABTT tour had finished. Altogether this seems the ideal way in which to get young people interested in music in all its forms, and a wonderful demonstration of what a really imaginative local authority can achieve given appropriate leadership. The Sage was built by Gateshead Metropolitan Council, but is now run by a totally-independent Trust with full responsibility for all aspects of the complex, in the management of which the Northern Sinfonia orchestra and Folkworks are an integral part.

No one could deny the wonderful outlook from the concourse over the Tyne towards Newcastle, but I did wonder about the lack of connection with the mainstream of life in Gateshead, although there is ample car parking close by and a frequent bus service past the
door; however, not much visitor traffic was observed during the day – other than a couple of joggers running through the concourse as the evening audience was assembling – although the many box-office counter staff seemed to be busy on the telephone or taking on-line bookings. The multi-tasking policy for members of the customer service team is another good idea.

Hall Two as described by Tim Foster has a very ‘theatrical’ character although intended and used – so far – purely for music. For my money the space would have benefited from another metre or so on its diameter, which would have improved sight lines from the balconies and reduced the strong ‘cylindrical’ emphasis that I found a little disconcerting – as is the very dominant red colour of the walls, although that turned out to be a very welcome contrast to the totally sterile decor of Hall One. Altogether I found Hall Two a very stimulating space and regretted that I was not able to attend a performance there. I do not always agree with Iain Mackintosh on matters of auditorium design, but I think he has produced something quite excellent here, and congratulate him wholeheartedly. This seems a fine demonstration of what a good theatre consultant can contribute to a project.

Unfortunately however, Iain’s influence seemed to be totally lacking in Hall One – the 1700 seat main auditorium. It appeared quite evident that this space was planned by the acousticians with one view only, and few concessions to modern attitudes towards live performances. I spent much of my time wondering quite what part Foster & Partners had played in its design, since it is basically a smaller version of Birmingham Symphony Hall with many of the same gadgets to vary the acoustics and even the same cumbersome way of achieving the orchestra and choir steppings. The incredibly bland panelling used throughout obviously was designed entirely for acoustic reasons, and the only colour in the space is the rather subdued fabric of the seats.
In visual terms I found the space cold and clinical, and not likely to enthuse an audience before the music starts.

As for the acoustic, I enjoyed the performance by Il Giardino Armonica baroque orchestra enormously; they are a highly skilled team of 15 instrumentalists, and their playing of Vivaldi and others came over with enormous clarity, which allowed one also to admire the virtuoso dexterity of the violin concerto soloist Viktoria Mullova. At the same time there was a good sense of ‘ensemble’ and a sound that was both clear and warm. I came away feeling impressed by the acoustic – at least for that type of music – although somewhat disheartened by the sterility of the overall experience; that format of auditorium does nothing to generate any sense of shared experience or cohesion amongst the audience, and I was disappointed that a great architectural practice had not taken the opportunity to develop something rather more stimulating and original for its first venture into the Performing Arts.

At an entirely practical level, my enjoyment was somewhat marred by an inability to get a cup of coffee during the interval; the bars at each level of Hall One do not serve coffee, but by the time I had discovered this and descended four floors to concourse level I was at the back of a long queue, with no possibility of obtaining and drinking a cup before the interval bells ring – something to which the franchise caterers should give attention!

My worries about the dominance of the acoustician were reinforced the next day when Chris Durant, Head of Technical Operations, described for ABTT members the number of important technical and other facilities that had been cut during construction to pay for what to some of us felt like rather extravagant acoustic refinements – refinements that nobody in an audience could possibly detect. NR10 for background noise levels may be necessary in a recording studio, but surely an audience itself generates more noise than that, while moments of absolute stillness
requiring such silence in musical performance are not all that common? With the work and cost involved in humping rostra and building stage extensions by hand, I felt the eventual users of Hall One had been poorly served by an unfortunate balance in allocation of limited resources based largely upon purely acoustic considerations – even now continuing with the intended replacement of all the emergency exit fittings that to most people would seem totally silent at way above heads in the side balconies, but which have now been deemed to create a noise.

My original enthusiasm for the acoustic as experienced with the baroque orchestra was somewhat diminished when I sat in on the rehearsal by the Northern Sinfonia with 35 players. It might be that the acoustic devices had not been properly adjusted for this larger group playing more romantic music, and the hall was effectively empty. But my reaction was that the clean and bright sound that had been so effective the previous evening was totally unsuited to the music I was now hearing, with individual instruments – and their mistakes – being far too prominent, and an almost complete lack of warmth in the ensemble sound.

I know one should not make quality judgements on the basis of limited listening during a rehearsal, but on this particular occasion the results were disappointing – at least for me!

All in all, I think The Sage is a fantastic concept generally well served by the building that Foster & Partners have designed, although I would have wished for more original thinking in the design of Hall One, and that someone had been able to exercise more control over the often theoretical excesses of the acousticians. From what we were told it would seem that the client gave top priority to acoustic excellence – which is not unusual in concert halls – though perhaps not appreciating that the ideal musical experience should result from a blend of more than one component – otherwise why not stay at home listening to a CD? A real sense of drama and excitement is present in the foyers and in Hall Two, but Hall One seemed to have been designed by a different hand?

Over the long life that can be anticipated for the building the omission of certain technical installations that I personally would regard as essential in any modern new concert hall, is bound to affect financial viability and programming, while to provide them now will also cost materially more than would have been the case within the building contract. So much for the ‘value engineering’ exercises which we were told had played such a big part in the design process. But were these ever applied also to acoustic aspects?

Nine out of ten for the complex as a whole and Hall Two, but only six out of ten for Hall One.

Martin Carr
Theatre Consultant

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In 1996 a literate, intelligent and wholly delightful client, Linfield College, Oregon inspired the design of this 5-sided 250-seat open stage theatre with surround stepped galleries and a preference for wide scenic space (Fig 1.) The next year the site vanished in a mudslide and the college rearranged its priorities before even they got around to finding an architect.

But the idea festered. Was not man the measure of all things as this 15th century sketch by renaissance artist/architect Alberti suggested? (Fig 2.) And what of the Fibonacci series (1,1,2,3,5,8,13,21, etc.) where each number in the sequence is the sum of the two preceding numbers, which produces the ratio ‘phi’ (1.6180339….) that results in the formula of the golden mean. Thus this is the key both to beauty and to the growth of all animate things. Think of the sunflower. 4,6 or 8 are the proportions of dull inanimate matter. The Fibonacci series is correlative to musical harmonies. Perhaps a musical application? Had anybody ever designed a performance space based on 5-sided geometry? The Royal Exchange Manchester is based on 7-sided geometry which is as interesting but different.

In 1997 a limited competition took place to find an architect for the North of England Music Centre at Gateshead. I took the 5-sided notion to Keith Williams, one of the seven architects selected and this isometric was included in his unsuccessful entry. (Fig 3.) Foster and Partners won the day with an entry led by partner Spencer de Grey and young designer Jason Flanagan working with the practice head, Sir Norman Foster.

Jason Flanagan turned out to be a fellow geometric freak and warmed immediately to the 5-sided idea. On 12 March 1998 TPC sent Foster & Partners the attached. (Fig 4.) Jason contributed the vital link how to break open the 5-sided geometry into 10 sides above. The lower floor is five-sided and has five retractable units of two rows of seats, which fold into a
narrow slot under a continuous encircling slab. This was so crucial that as early as 24 March 1998 my colleague Liz Bury sent our drawings to Audience Systems to check whether this was feasible. They said ‘yes’ and six years later installed the units, 450mm wide seats with no arms, into the slot, which I had eyed so suspiciously during construction (two inches out and we would be in trouble). Audience Systems got the contract for all the seats in Hall Two: a family of different seats. Arup Acoustics, led by Bob Essert, and Foster and Partners provided a sketch, which succinctly provides the acoustic rationale. (Fig 5.)

Is it a theatre, is it a concert hall? Neither and both. At the point of design there were two creative clients: Folkworks were led by Alistair Anderson and Ros Rigby. Folkworks were and still are Britain’s best folk people with more than a foot in jazz and with a Northumbrian breeding of pipes and accordion. Then there was the Northern Sinfonia, boss John Summers now at the Hallé, all driven forward by the energetic Peter Stark. Now there is a single management led by Anthony Sargent which combines the creative, producing, educational and building management under a single seamless team: The Sage, Gateshead. This was a unique case of an emergent building, itself a metaphor for sheltering different endeavours under a uniting umbrella, triggering a client reorganisation which works so well today.
The 5/10 sides encourage the theatrical threads of music making. The focus shifts from centre to one end which is emphasised by 3 of the 10 gallery sides being pulled back and up a row. The whole is a regular frame with all staging possibilities contained within the regular ten side walls. One wonders how soon before Alan Ayckbourn, Sam Walters or Braham Murray will work in this space. Already The Sage Gateshead has staged two plays and will present their own musical for a week’s run in December of Howard Goodall’s version of *A Winter’s Tale*.

A larger 10-sided playhouse? Hall Two at The Sage, Gateshead holds 400 plus. Could this be taken up to 1000 plus? The years 2000 and 2001 saw me sketching – with the assistance of Gavin Green – ‘a renaissance theatre for the 21st Century’ for the RSC. Note the word ‘renaissance’ rather than Shakespearian which accounts for the adoption of the Alberti man (Fig 2.) for all our studies. Our solution introduced the notion of progressively steeper stepped galleries which was my contribution to Graham Law’s wonderful design for Eden Court, Inverness on which we worked in 1970/71, but this time a regular progression of 7 of the 10 equal sides down to the 3 sides reserved for the stage. We used every trick in the book to celebrate the human scale of the actor lest he be dominated by what could feel like a stadium holding one thousand.

But this was for the now vanished triumvirate of artistic director Adrian Noble, administrator Christopher Foy and architect Erick van Egeraat. The diagram shown here was for a 1,000 seat space which had to transform itself once a year into a wider than present proscenium space without loss of capacity (Fig 6.)

Priorities and personalities have changed and no doubt the new team will come up with something different, half circles and parallel horizontal sides more like the “muscular” temporary theatre promised for July 2006. The aim in 2001 was to avoid the elongation of an oversize Swan and learn from the surprising success of Wanamaker’s Globe where the architecture embraces the actor.

Excavations on London’s Bankside in 1989 and 1990 had revealed that the 1587 Rose had 14 sides and the second, 1614, Globe 20 sides. Hitherto scholars had proposed 8, 12, 16 or 24 sides. It had been wonderful to discover that the two Elizabethan playhouses, of which we have tangible remains had geometry based on 5 and 7.

I guess we have only just started on rediscovering a geometry, which is more magic and pregnant with human possibilities than the more familiar squares, half circles, hexagon and octagons.

As I completed these notes Charlotte Higgin, arts correspondent, reported in The Guardian of 27 October 2005: “Violinist Peter Cropper, late of the Lindsay String Quartet, was playing in a newly formed piano trio in the smaller auditorium – an intimate, beautiful space that can be reconfigured so the performers are in the centre or at the side. Tonight they were in the centre. There’s a visceral intensity to being so close to the performers that you can almost feel their breath. You start to feel bound up in the drama.”

Good to see an explicit connection between music and drama. All that geometry is simply a means to this end.

*Iain Mackintosh*

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*Iain Mackintosh is Chairman Emeritus of Theatre Projects Consultants. Before his enthusiasm for 5/10 sided geometry his design collaborations at the Wilde Bracknell, Martha Cohen Calgary, Cottesloe, Tricycle, Glyndebourne and Lawrence Batley Huddersfield dealt with the ad quadratum rectangle and the circular geometry.*