

# Sightline

Journal of Theatre Technology and Design

Winter 2020

Completed projects:  
Octagon, Bolton  
Contact Theatre, Manchester  
The Malthouse, Canterbury

Performing Arts in Higher Education:  
The Value of Talent in a Post-Covid World  
The Scale Model in Contemporary Design







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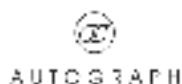
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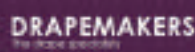
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# Sightline

vol. 43 no. 4

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Cover photo: *The Dance Studio at The Malthouse Canterbury.*  
Photo by Philip Vile.

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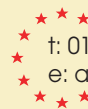
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# Editorial

At the time of writing this, England is back in lockdown, and all theatres are closed. By the time that this edition of *Sightline* is distributed we'll know if the promised end of lockdown has come about, and if theatres can re-open in time for their Christmas shows. We can only hope!

What has been encouraging over the last few months has been seeing theatre doors re-opening throughout the UK, and performances, albeit socially distanced, taking place. This has been encouraging in so many ways. Not only has it brought a small amount of work to the incredibly beleaguered freelance sector, but it has demonstrated that the demand for live theatre has not gone away. Bookings have been high and audiences have responded well to the new experience of theatre-going. The latest lockdown has been yet another challenge for the sector in England, who have had to shut shows down mid-run, and have had to make the call about whether to keep rehearsing for a run which might not be allowed.

One of the casualties of this was the National Theatre's production of *Death of England* – the first of a series of plays in the re-configured Olivier – with the production sadly closing on its press night. We had been planning an article on the re-configuration into the round, both its technical implications and the audience experience, and we now hope to run this in the next edition of *Sightline*. In the meantime, Terry Lane has written to us, reminding us of Stephen Joseph's role in the development of theatre in the round.

Anette Ollerearnshaw has been tracking the impact of Covid on the Higher Education sector over the last two editions of *Sightline*. In her final article, she looks at the challenges and opportunities that graduates and industry newcomers are now finding in this "new normal" world.

Covid has resulted in many theatre capital projects being delayed, so we haven't been able to feature any in the last couple of editions. However, we now have something of a bonanza, with three schemes being featured. Two (Contact Manchester and

Bolton Octagon) are re-developments of existing theatres, and the third (Malthouse Canterbury) involves the conversion of an existing building. In the words of Contact's Matt Fenton, the situation is currently "bittersweet" for both Contact and the Octagon as both schemes are finished but audiences are yet to return. I only hope it won't be too long until large numbers of people can see work in all of these excellent buildings. I'm also hoping to visit them all!

Another recently completed scheme is the Laidlaw Recital Room at St Andrew's University. Nicholas Edwards is the acoustic specialist on the project, and has provided us with a detailed piece on what the Concert Hall can achieve acoustically, which I found fascinating.

Equally fascinating (although very different) is Rose Montgomery's article, which looks at the role of the scale model, and the relationship between that and the work of designers. I would welcome responses to this from practising designers and others!

And finally, one of the sources of support for theatre workers in these difficult times has been the Theatrical Guild, which has provided funding for many more people than usual this year. They have been assisted in this by a grant from the Arts Council, but they still need to fundraise so that they can continue to provide support. And, sadly, many of their usual avenues for fundraising aren't going to happen in the short-term – one of them was the ABTT Christmas Drinks, for example. However, as their Chair, Jan Carey, explains here, a previous recipient of funding, Adam Tartaglia, has decided to pay something back. Adam has developed a book of musical themed cocktail recipes, which is now on sale via etsy. I can't help thinking it would be a great Christmas present for any cocktail loving musical theatre fan... And I, for one, plan to be drinking a cocktail from the book, whilst virtually attending the ABTT Christmas Party! I very much hope to see some of you there.

Rebecca Morland  
Editor  
[sightline@abtt.org.uk](mailto:sightline@abtt.org.uk)

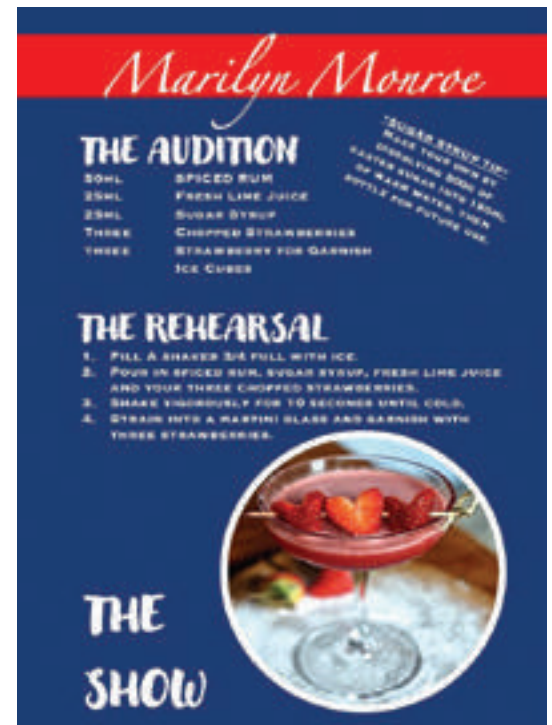
# The Theatrical Guild – and Cocktails!

Jan Carey, Chair



The Theatrical Guild (TTG) was founded as the Theatrical Ladies Guild almost 130 years ago by the indomitable actress Kitty Carson whose husband Charles Carson was co-founder of The Stage. Its purpose was to help support all theatre workers throughout the UK, specifically to support women. In the last 20 years the TTG has made several nuanced changes to its defining remit and now embraces and supports all front of house and backstage workers with the purpose of enabling them to get back on their feet. TTG prides itself on its accessibility and the support offered, and in addition to emergency grants, includes counselling, re-training within the profession, and advice.

The lockdown in March has had a hugely negative impact on the theatre workers that the TTG supports. To put this in perspective, in 2019 TTG helped 112 backstage and front of house theatre workers. This year, to date, TTG has provided support to 1,018 individuals across the UK. As a very small charity with limited funds this would not have been possible without support from the Arts Council who, at the beginning of the pandemic, chose TTG to distribute £450,000 on their behalf. This enabled us to support the high number of

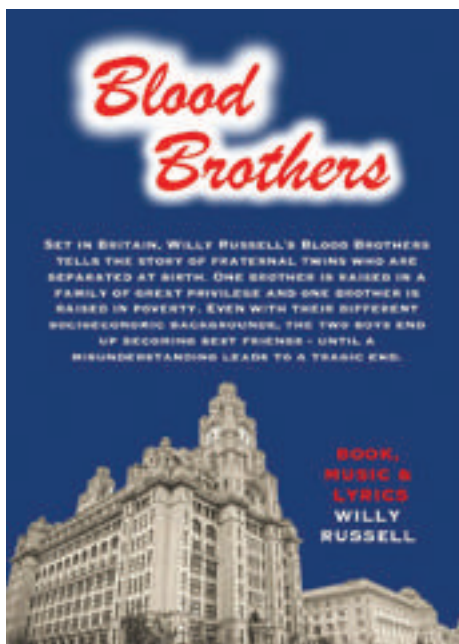


requests and also widen the range of skilled workers we helped.

The need for ongoing donations to the TTG to carry on its valuable work is essential and it has been wonderful to see individuals in the theatre industry using their own skills to create and fundraise on our behalf. The A-Z of Musical Inspired Cocktail Recipes by Curtain Call came to TTG as a very generous thank you for support, from Adam Tartaglia who said "Losing a job that you absolutely adore is devastating. The Theatrical Guild have been able to help me and many others through such a terrible time and by creating this book in aid of TTG it allows me to give something back to an industry which means so much."

With no knowledge of when the restrictions for theatres will be lifted, and with no sign of the demand for support slowing, Kitty Carson's vision is no less relevant than it was nearly 130 years ago.

Copies of **The A-Z of Musical Inspired Cocktail Recipes** can be purchased via Etsy (put title of book into Etsy browser).







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# Contact Theatre

Rebecca Morland

Contact Theatre was in many ways ahead of its time when it was rebuilt in the 1990s. Its most notable feature was the extraordinary ventilation chimneys that dominate its skyline. They were the vision of architect Alan Short, and ensured that its environmental performance has always been exceptional.

However, by the early 2010s, the building as a whole was becoming increasingly unfit for purpose, in its role as an arts venue with a focus on young people. It was looking and feeling tired, with its infrastructure starting to fail, and its public areas difficult to navigate. Most importantly, the building was close to capacity.

The £6.7 million scheme that has resulted, has retained Contact's highly distinctive existing structure, but has transformed the interior. The project mainly focused on the non-performance areas of the building, as the theatre spaces were felt to work well and only in need of a technical upgrade. Both public areas and back of house spaces were re-designed and overhauled, and an additional floor was built back of house – overall this resulted in an additional increase of around 300 sq m. As well as the

increase in space, internal re-organisation and improved sound separation has also enabled a more effective use of space. Core infrastructure including plant and dimmers have been renewed, and accessibility overall has been much improved with an additional lift installed.

The design sought to apply the principles of the existing building to the new extension. i.e. two ventilation chimneys were included in the extension design to continue the natural ventilation principle of the existing building into the new. The original architect, Alan Short, was consulted by Sheppard Robson at any early stage of the project, and the original engineering consultants, Max Fordham, were used again, providing more continuity. Additional sustainability improvements include naturally lit offices, LED lighting throughout, and a new BMS system.

James Jones, associate partner at Sheppard Robson, said: "The team's ambitions are to significantly improve the experiences of visitors, performers and staff whilst also looking at how Contact can make the most of its setting along Corridor

*New exterior  
Photo courtesy of  
Contact Theatre*







Manchester, which is quickly becoming the commercial, educational and cultural spine of the city.

“As a practice, we have been heavily involved in shaping the Corridor through recently completed projects such as Citylabs, Birley and the Alan Gilbert Learning Commons. We are delighted to be working on such a diverse range of projects that are having such an impact on this part of the city.”

I spoke to Matt Fenton, Artistic Director and Chief Executive of Contact, in late October. At the point that we spoke, the scheme was finished, but of course, due to Covid, the theatre was not fully in operation, with the performance spaces and restaurant not open. So, whilst he is “over the moon” about what has been achieved, he acknowledges that it feels bittersweet at the moment.

At the time of the interview, every space was being used in the evenings for socially distanced work with young people. Sessions are smaller than usual, but it means that the groups can be off Zoom and actually meeting in the real world. In the daytime, spaces are

being used by artists in residence, and a side-effect of Covid is that there is probably more space available than usual for these as performances can't take place.

I asked Matt how young people were responding to the building, and he pointed out that because of the way the project had worked, with the role of Con:Struct at its core, the building was not a surprise to them! They would obviously have to wait and hear how the public felt the performance spaces worked and this will also be the time when they finally discover whether issues around poor soundproofing and audience flow have been entirely resolved.

The role of Con:Struct in the development of the scheme was key, with a group of about 15 young people becoming involved in every aspect of the project. Matt stressed that this was a development of Contact's usual way of working, with youth people involved in decision-making and providing young people with genuine power. Due to the length of time that it takes to progress through a capital project, many of the young people involved had grown up with the scheme. Of

*Upper foyer  
Photo courtesy of  
Contact Theatre*



*Lower foyer area  
Photo by Helen Davison*

course, this also means that some left (to go to University, for example), but others had joined. The group had been involved in areas such as recruiting the project team, appointing the caterers, providing fundraising consultancy, providing input to the interior design, and were now involved in the snagging process. The architects had been very open to this co-design/creation way of working, and had accepted that it did take longer overall.

Arts Council England were major funders for the project, funding 55% of the cost. Another significant funder was the Wellcome Foundation, who funded the Arts and Health Research space. This was a development of the existing relationship which Contact has with Wellcome, who have a great understanding of the work that Contact do, especially working with hard to reach communities and building on lived experience. Their location near the health campus was also important. Another partnership was with Youth Music, who had partly funded the new Music Studio and a programme of work there, involving PRUs (pupil referral unit).

Overall the project was a year over schedule (which was mainly not Covid-related) and pretty much on budget. There was a final fundraising push at the moment, to raise funding for various loose items. Funders had remained supportive throughout.

During closure they had been doing projects out in the community and learnt a lot about site-specific work. The aim had been to bring those new communities back into the theatre when it re-opened. This has not yet happened, of course. However the gains from this way of working has made them realise that working out of the building and within communities needs to be part of their model going forward. This would also free up some capacity within the building for additional activity which might generate income, such as conferences and events.

I asked Matt, as I do every first-time client for a capital project, what he would do differently next time.

He said that he would definitely ask more fundamental questions at an early stage, and want to go with his hunch! And, of course, have more contingency within the





Photo courtesy of  
Contact Theatre



Staircase  
Photo by Helen Davison

budget! Despite that he had very much enjoyed the experience and felt enthused and excited. As well as a great relationship with the architects, and design team, he had been very appreciative of the contractor (F Parkinson Ltd). They were a North West based company, with no theatre experience, but a real commitment to quality and detail. They had also been open to working with Con:Struct.

Project Team	
Architect:	Sheppard Robson (James Jones with Jasmin Eastwood and Haroon Iqbal)
Building Contractor:	F Parkinson Ltd
Project Management:	MACE
Civil Engineer:	Civic
Mechanical & Electrical Consultant:	Max Fordham
Theatre Consultant:	Theatre Projects
Technical:	White Light
Quantity Surveyor:	Simon Fenton Partnership

# The Malthouse, Canterbury

Tim Ronalds of Tim Ronalds Architects introduces their most recent theatre project

The Malthouse stands beside the railway tracks near Canterbury West Station. It was built around 1898 to malt barley for Mackeson's Stout. It is a handsome vernacular industrial building, a fine example of what is known as the Functional Tradition in architecture.

By the 1960s it was being used as a car parts warehouse and in 2011 the owner, a King's School parent, offered the building and site to the school with the thought that it would make a school theatre. The Performing Arts are an important part of life at King's and the school has had great drama teachers and excellent productions. The empty building was extraordinarily atmospheric. A school production of *Scheherazade* in the as found building is memorable, the action appeared and disappeared in the low columned spaces – it felt as though one was in the columned mosque at Cordoba.

Tim Ronalds Architects were chosen as architects for the project following a competition. The building offered more space than one could hope for in a school theatre and space which had a form and character that would be hard to invent. It had the potential to make a drama centre for the school and the city of a very different kind to Canterbury's Marlowe Theatre.

To describe the building and project it is helpful to say a little about the process of

malting barley which has three stages. In the first the dampened barley is spread on tiled floors to sprout; then it is spread and raked on perforated floors and dried by hot air from coke-fired kilns, and finally it is sieved, stored in giant hoppers and put into sacks. The Malthouse looks monolithic, but within has three distinct parts which mirror the process. The larger part has five floors of low ceiling spaces, tiled floors and many cast iron columns. The middle part has three monumental brick kilns, with perforated drying floors above. The warehouse has large spaces for sieving, above tall spaces for hoppers and warehousing. The spaces were exciting, but not what you need for a theatre.

There was no auditorium sized volume and one had to be created by structural surgery. New steel trusses and columns were inserted in the roof which allowed some of the columns, beams and floors in the heart of the building to be cut out so as to make a triple height space surrounded by support spaces. King's do ambitious, big cast productions and need a flexible auditorium with flying facilities, an understage and orchestra pit and technics that let students safely be the crew, but they needed a seating capacity of only 400. The longer the run, the happier the cast were!

The kiln part of the building became the foyer. Most of the middle kiln was removed to make a volume, and in this we built three flights of





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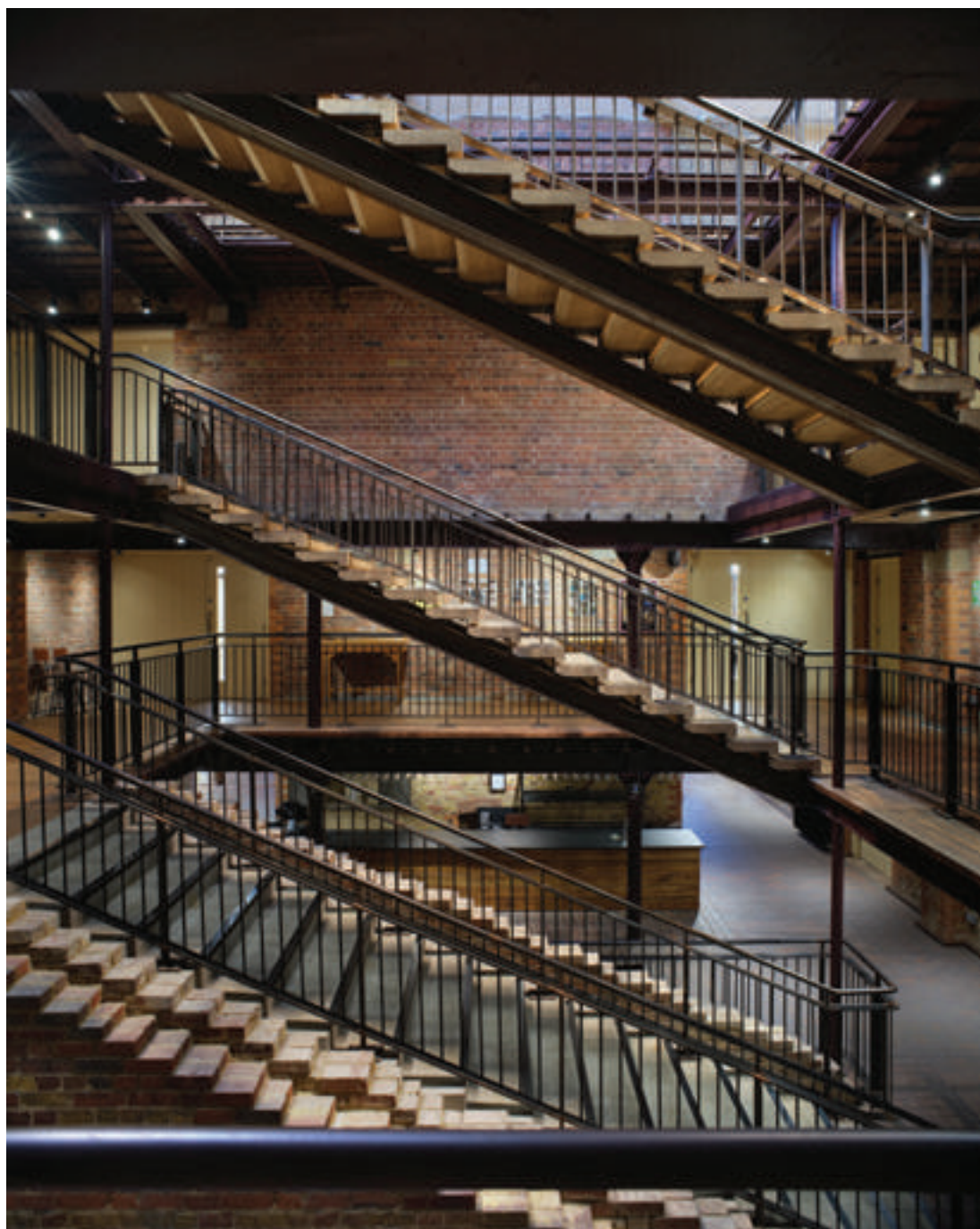
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stairs, each spanning floor to floor to connect the four levels.

The warehouse part of the building made two big studios on the top floor, for dance and for drama. The original giant timber trusses were replaced with lattice steel beams to give headroom. The level below became a hall and classroom and the vaulted ground floor the kitchens and toilets.

The building is more extensive than you would dream of. There is a whole floor of Wardrobe and Prop making studios. Ample dressing rooms for large cast and visiting

companies, high studio and rehearsal rooms with charred timber trusses just above your head, a voluminous backstage, workshops and scene dock, made in a surviving corrugated iron extension.

In each part our aim was to preserve the quality of the found space – dramatic but inexplicable movement – the warm rough texture of the thick brick walls, the muscular cast iron columns and beams, the heavy timber floors and trusses. When we did Wilton's Music Hall we established a principle of 'doing no more than was necessary' and



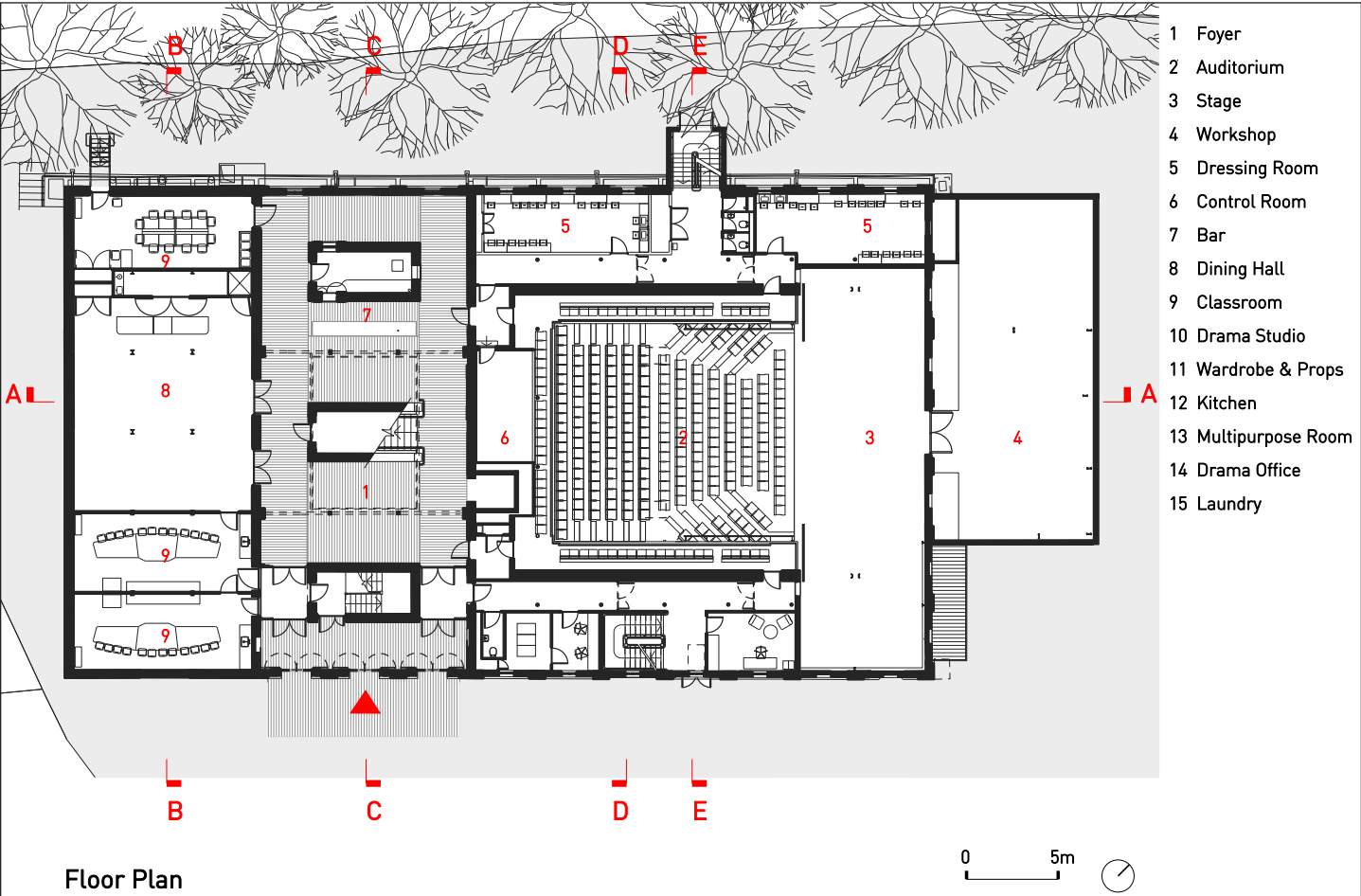
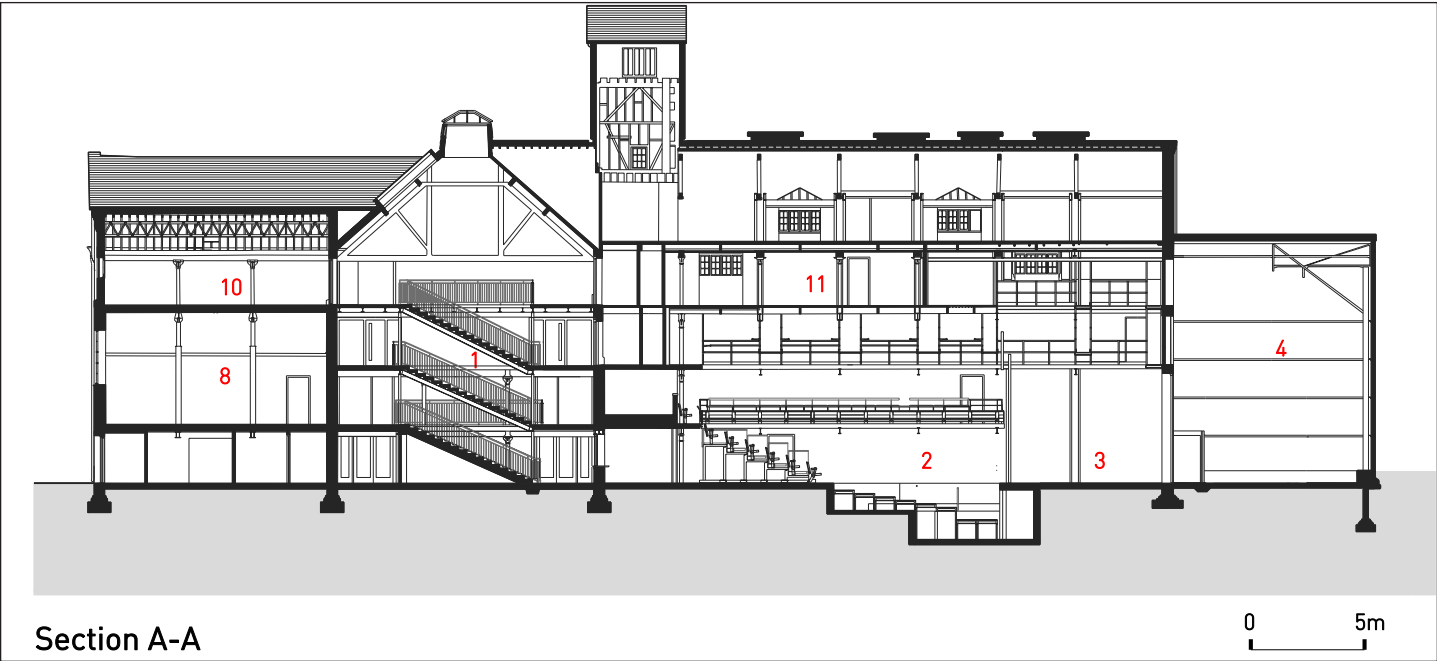
we did the same at the Malthouse – at every turn questioning whether what we proposed was essential.

We kept, for example, the perforated terracotta tiles that the sprouting barley was spread on, the pinholes allowing hot air from the kilns to dry the seeds. And we kept the iron frameworks supporting them, with daylight from new rooflights filtering through. We wanted the new elements to be neither distinct nor in 'period' style. We wanted them to have the same quality as the original building. Stairs and balustrades of industrial strength, everything was made plain and built to last. Theatre balconies were the simplest construction of boards and brackets. Services were concealed, structures left exposed. No plasterboard, little paint. In the auditorium the timber joists and steel beams roof the space, with bridges with tensioned wire floors hung below. Outside our task was to undo the alterations that had been made to the original. We reinstated the white painted wooden chimneys and hoists that give brio to the bulk of the building and closed up the enlarged window openings to their original size. The building stands firm in its yard. We painted the word Malthouse in large letters on the façade. But the entrance was left as three unadorned unidentified brick openings at the base, so entering is uncertain, mysterious.

All this was made possible by the skill and ingenuity of our collaborators. Fanshawe looked after the money, Price & Myers, Charcoalblue and Skelly & Couch integrated state of the art systems and structures without diluting the concept.

The opening production was a steam punk version of *A Midsummer Night's Dream* which exploited every part and technique in the theatre. It was brilliant. Their energy, creativity and uninhibited talent engrossed us all. The school love their new theatre and what they can do in it.







# The Scale Model in Contemporary Design for Performance

This article is an abridged version of a research project I completed for my Master of Fine Arts degree (Design for Performance) at the National Institute of Dramatic Art, Australia (NIDA). The project involved interviews and conversations with five theatre designers<sup>1</sup> and reflection on my own emerging practice.

Although there are extensive guides on practical model making for scenographers (Orton 2004<sup>2</sup>, Winslow 2008<sup>3</sup>, Curtis 2013<sup>4</sup>), there is little research on the relationship between model and model maker; on the value of the model as a physical and performative object in contemporary theatre.

I set out to explore the dialogue between the model and model maker in contemporary scenography, through both theoretical and practical lenses. This is especially pertinent within the context of our increasingly digitised world, where technology and virtual world-making are revolutionising many traditional theatre practices. I believe that the physical model continues to be relevant to our practice in spite of this, and that it sits irreplaceably at the core of the creative process, separate to that of computer-aided drawing and modelling.

Brejzek and Wallen describe the [theatre] model as no mere pragmatic tool but instead 'a three-dimensional laboratory' for generating spatial ideas<sup>5</sup>. The model carries 'cargo,' a presence of its own. It is a reflective tool; it 'talks back to us'<sup>6</sup>, acting both as material object and immaterial idea.

In 'The Thinking Hand'<sup>7</sup> (2009) author Juhani Pallasmaa highlights the importance of hand-mind-eye fusion in the design process. The text emphasises the crucial primal instinct involved of working with one's hands, enabling creativity's unconscious intuition to emerge.

Although computer-aided design

undoubtedly has increasing value, its lack of tactile connection separates the maker from the model and therefore from the expressive and emotional instrument of the hand - from the haptic connection.

Stephen Curtis' *Staging Ideas* emphasises the importance of a sense of play, and of a rotation of methods when designing: always returning to the model box to consolidate these ideas in physical space. Curtis sees the three-dimensional scale model as 'a very tangible way of seeing and understanding' every element of the set design. 'The idea is to play and to experiment... our design will evolve before our very eyes'<sup>8</sup>.

David Eastwood's essay *Artist and Model* from the collection *A Working Model of The World* (2017) lends a broader perspective. As a formally trained painter and sculptor Eastwood looks at the greater creative context in asking how and why artists use models. Coming from outside the theatre context, the text adds value to our understanding of model making practice as a whole: 'The space of the model can transcend its miniaturisation, intimately coaxing the viewer toward a visually immersive or voyeuristic experience, like peering through a keyhole'<sup>9</sup>.

UK scenographer Es Devlin (2012), in discussing a model she had created for the opera *Les Troyens*, finds indispensable value in using it to jump between the physical and the digital worlds. The model 'allow(s) us to see the larger picture, the form of the objects in the space and how they relate to one another'<sup>10</sup>. Here we gain an insight into what the physical model offers an artist who also works so naturally within the digital realm. 'Sure you can make digital models, but for me there's nothing quite like the information gained from a physical model'.

In summary, the core ideas found across my research are that: (1) The model creates a miniature reality, existing as an autonomous object in a cultural context, (2) Models can transcend reality to offer a set of symbolic representations, and (3) Physical model making remains a crucial part of 'world-making' that is scenography, because of our ability to play, observe and test ideas spatially.

Rose Montgomery

1 Stephen Curtis, design mentor and lecturer at NIDA, Sydney based set and costume designer; Sue Field, professor and researcher based at NIDA, and has completed a PHD on the intersection of drawing and model making; Charles Edward Davis, production designer and model maker; teacher of scale model making at NIDA; Mel Page and Michael Hankin, contemporary designers for theatre in Sydney

2 Orton, K. 2004, *Model Making for the Stage: A Practical Guide*, The Crowood Press Ltd., Ramsbury, UK

3 Winslow, C. 2008, *The Handbook of Model-making for Set Designers*, The Crowood Press Ltd., Ramsbury, UK

4 Curtis, S. 2013, *Staging Ideas: Set and Costume Design for Theatre*, Currency Press Pty Ltd, Sydney, Australia

5 Brejzek, T & Wallen, L. 2017, *The Model As Performance: Staging Space in Theatre and Architecture*, Bloomsbury Sydney, Australia p 19

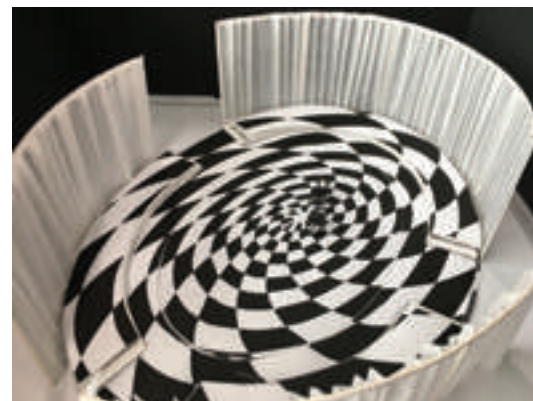
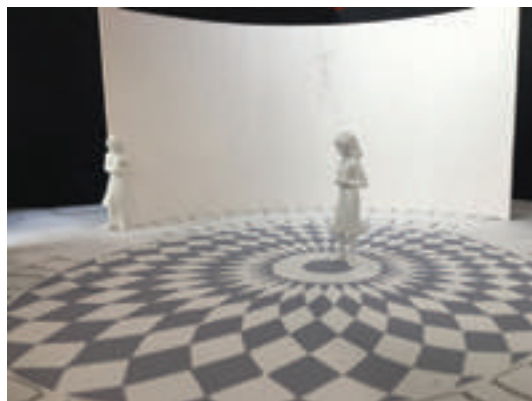
6 Schön, D. 1983, *The Reflective Practitioner: How Professionals Think In Action*, Basic Books, New York, NY USA, p 79

7 Pallasmaa, J. 2009, *The Thinking Hand: Existential and Embodied Wisdom in Architecture*, John Wiley & Sons, Ltd. Chichester, UK

8 Curtis, S. 2014, *Staging Ideas: Set and Costume Design for Theatre*, Currency Press Pty Ltd, Sydney, Australia p105

9 Eastwood, D. 2017, 'Artist and Model,' from: *A Working Model of The World*, digital journal article, website visited August 2018, <<http://workingmodeloftheworld.com/Artist-and-Model>> p10

10 Devlin, E. 2012, *Les Troyens: Es Devlin on designing for The Royal Opera*, (Online video), viewed August 2018, available at: <[https://www.youtube.com/watch?reload=9&v=MtOUL-WO\\_h1c](https://www.youtube.com/watch?reload=9&v=MtOUL-WO_h1c)>



*From page to space: shaping ideas for The Way of The World (left), using scaled figures to test positioning (centre), and playing and iterating with stage shape and twisting floor tiles (right).*

Colin Winslow states that the purpose of a model is to 'demonstrate a future creation'<sup>11</sup>. My findings affirm that the scale model in design for theatre goes far beyond this simple and practical explanation and instead establishes it as *the* prime tool for communication in design for theatre on both practical and theoretical levels. The scale model elicits communication with:

- oneself and one's own ideas,
- others of the production team, and finally
- a future audience as a relic of the production post- production-season.

### Communication with oneself

Curtis always begins with iterations of quick sketches as a visualising tool, but does not to go too far with design development through drawings because it is a little bit of a 'fool's paradise,' which is to say that when model-making he immediately finds the 'gaps' in the design thinking.<sup>12</sup>

Field also highlights the importance of haptic connection in her process, especially during what she describes as the 'sensitive and vulnerable early phases of the design process'

<sup>13</sup> The manual sketch, drawing or physical model is moulded in the same flesh of physical materiality that the material object being designed and the designer themselves embody – whereas computer-generated models and imagery take place in 'a mathematical and abstracted immaterial world'<sup>14</sup>. It is the generative sketch model that manifests a special cognitive relationship, as the designer 'creates multiple future realities'<sup>15</sup>. Working in miniature enables a myriad of possibilities and for Field the iterative model is a pure and

untroubled thing - valuable in its separation from the practicalities of realism. Free from inhibitions, it is within this crucial early stage of 'pure play' that innovation is born<sup>16</sup>.

Interestingly, although he has not specialised in lighting design, Davis sees the core value of the physical model existing in its ability to interact with light. He states that his approach is 90% driven by how it interacts with various light conditions: 'I find that putting something in the box, and lighting it, you get 'offers back' [from the model] that you wouldn't necessarily if you were still in a sketching, two-dimensional stage'. Curtis states that even if a director or production didn't require him to make a model he would always still make one for *himself* – for his own purposes of using the model as a constant way of reflecting on the nature of the production as a whole entity.<sup>17</sup>

### Communication with others

In my own design process, I have found the scale model to be particularly useful in collaboration with directors and lighting designers.

"...the relationship of the audience to the performance space, the volume of the performance space and the rhythm of movement within it, all of the aesthetic choices, the stylist and conceptual framework within which the production sits... these are almost instantly communicated by a model. The whole team can look at it and understand the kind of production that they are going to be building. I think we literally see the production as a whole with the model - we are seeing the wide shot – the conceptual envelope as one."

Curtis 2018 <sup>18</sup>

<sup>11</sup> Winslow, C. 2008, *The Handbook of Model-making for Set Designers*, The Crowood Press Ltd., Ramsbury,

<sup>12</sup> Interview with Stephen Curtis, 2018

<sup>13</sup> Sue Field interview 2018

<sup>14</sup> Pallasmaa op cit p95

<sup>15</sup> Sue Field interview 2018

<sup>16</sup> Brown, S. 2010, *Play: How it Shapes the Brain, Opens the Imagination, and Invigorates the Soul*, The Penguin Group, New York, NY, USA

<sup>17</sup> Stephen Curtis interview 2018

<sup>18</sup> Curtis interview op cit



Davis is of the same opinion as Curtis, that there is no clearer way of conversing with a director (or other creatives involved) than with using a model, because it is 'literally the thing you are going to make together reduced in size 25 times. The model is the way to get on the same page instantly. If you (the designer) have done a precise job of the final model then all of the workshops involved should have the information they need'<sup>19</sup>.

Emphasising the importance of accuracy and attention to detail in the model, Winslow concludes that: 'The more detailed and accurate the model is, the more magic it contains'<sup>20</sup>. In my interview with Curtis he strongly offers an alternative perspective: that the designer instead needs to be aware of the model as a propositional tool in the design creation process, for both the designer and director to meet in conjectural states of mind. The model needs to be in 'a looser and freer state'<sup>21</sup> in order to keep the designer-director conversation dynamic and productive as the design moves nearer to finalisation.

The model not only acts as a conversation tool during the design creation phase, but can also be a key figure within the rehearsal space as the production takes shape with the performers' involvement. Davis describes the model as a kind of 'creative contract' in the rehearsal room – a constant reminder of what you're working with. The presence of the model is crucial in this formative space.

As design assistant for Michael Hankin on the Belvoir Street Theatre production *The Sugar House* (2018), I found it fascinating how Hankin would consistently use the 1:25 scale model as a design tool and visual reference throughout the development of the production. To my surprise, he continued to adapt and change the model right up until opening night. He worked to make sure it remained a true reflection of the finalised and realised stage set – as though it was a mirror of the physical stage. This is similar to Curtis' working method, where he explained his need to always return to the model to find if any changes that are being made to the set are working within the 'big picture' of the production. The model is iteratively responsive and therefore a working prototype for collaboration during the production creation process.

### Communication with a future audience

Although each designer that was interviewed had similar tendencies when it came to



*Digital collage using the final presentation model to illustrate the design for cast and crew*

models as tools for communication *during* the creation of a production, they seem to hold different beliefs on the use of the model post-production. For Field, value can be found in the models of productions past – even the early iterative ones – as she may develop and use ideas that didn't necessarily end up in the final version of the previous production.

Although some designers might want to preserve a model as something of an 'antiquity,' Curtis holds the strong opinion that there is 'nothing sadder than a model treated as a relic to be exhibited or displayed once the production has finished, as it holds no connection to what the production actually became'. This concept can be linked back within the practice-led-cycle: to the dynamic and rigorous conversation that happens with oneself throughout the creative process – and the need to perhaps 'start the cycle anew'.<sup>22</sup>

To draw upon my own experience, once *The Way of The World* production had opened my final 1:25 presentation model was displayed in the exhibition of NIDA graduates – a relic simultaneously celebratory and somewhat sad. I am in agreement with Curtis that at a certain stage the model is surpassed by what the *real* performance becomes and at that point the miniature space becomes obsolete.

### Conclusion

Perhaps the reason scale models carry with them such enduring importance in the theatre-making practice is because we are designing for *live* theatre which is in itself a model for *life*. On the stage we create a representation

<sup>19</sup> Davis interview op cit

<sup>20</sup> Winslow, C. 2008, op cit p 1

<sup>21</sup> Curtis interview op cit

<sup>22</sup> Curtis interview op cit



*A still from the final production of The Way of The World*

of ourselves and our world and the scale model performs this same mirror-like role for us as we create it. What theatre portrays is not reality itself but instead an alternate reality, a concentrated projection of thoughts and ideas and stories - just in the way that the model is a concentrated projection which speaks back to us.

Even within the context of rapid technological advancement, the tactile process of model making is unique in how it communicates: ideas back to the designer, instantly communicating multiple levels of detail simultaneously to production teams, and communicating with the past and future of the design. This study does not aim to deny the benefits of computer-aided programs, but to study the nuanced way in which different designers work by hand with the model box. The physical model offers what digital technologies cannot - that of its inherent physical, three-dimensional, and context-dependent presence. We interact with it in real time and space, as theatre productions themselves are experienced. It is this hand-brain interdependence that is central not only to the design for performance practice, but profoundly also to the origin of

human intelligence<sup>23</sup>. We call upon our inner child's sensibilities of ignoring the practical and perfect outcome for stretches of time to allow for creative play.

In our highly-digitalised world, and in an industry with ever-tightening budgets and ever-quickening deadlines, an area of significant concern is continuing to make time for haptic thinking: to play, experiment and converse with our ideas through the model.

*I would like to thank my interviewees and mentors for sharing their sage advice and insights into their creative practice. Additionally thank you to Dr. Suzanne Osmond, Marilyn Higgins and Neil Montgomery for their assistance with editing.*

<sup>23</sup> Wilson, F. 1999, *The Hand: How Its Use Shapes the Brain, Language, and Human Culture*, Random House, New York, USA



# LETTER TO THE EDITOR

## COMING ROUND AT THE NATIONAL

The National Theatre is adapting the Olivier auditorium to present plays in-the-Round! Stephen Joseph would have given a wry smile, a slight shrug of his shoulders, turned – and walked away. Who was Stephen Joseph? He was the son of self-made man, publisher Michael Joseph and Hermione ‘La’ Gingold, star of stage, radio and cinema.

He started mounting performances in the Round in London at the Mahatma Gandhi Hall and in 1955 established what was to become the first full time professional Theatre-in-the-Round company in the U.K. in Scarborough and on tour to theatreless towns. For ten years he struggled to keep his company going, even delivering coal in London to earn money to pay his actors, in the face of virulent mockery from leading members of the profession from Peter Hall and Kenneth Tynan down.

In 1962 his Company converted an old cinema in Stoke on Trent which became the Victoria Theatre and was directed by Peter Cheeseman; then a year later his ex stage manager Terry Lane built and was Artistic Director of the Traverse Theatre Club in Edinburgh. Joseph’s theatre in Scarborough became the Stephen Joseph Theatre, until recently under the Direction of Sir Alan Ayckbourn. Joseph died in 1967.

Now, 99 years after his birth, the dream he gave his life to is about to happen. Recognition. Recognition of the value of theatre, and of its’ essence – the exploration between Actor and Audience which can enthrall the spectator and send a shiver down the spine. To be engulfed and immersed into the drama which is the essence of Theatre-in-the-Round

- “Stephen Joseph had been the first person in Britain to conceive a Stage Management Course in a drama school; the first to recommend speech therapy as a university subject.
- He was the first person to hold playwriting courses and one of the first to advocate Local Radio (1946). His was the first full time Theatre-in-the-Round company in Britain and the first to champion new as opposed to West End writing.
- He was certainly the first person to startle his listeners by advocating a Fish and Chip Theatre – years before Pub performances gained ground, and his Promenade Performance in Manchester ranks as the first of their kind in Britain . . .
- Stephen was unconventional, eccentric and revolutionary and he was aware that society

is afraid of anarchy. Its’ leaders, rulers, those in positions of authority, attain those positions because of the powers inherent in them, and he was opposed to power. . . .

- “He was an extremist for the round, but then . . . He was an extremist about everything . . . Being a pioneer makes you extreme and you have to take an extreme point of view to get your point across . . . He believed you should go the full Round or not at all.” (Alan Ayckbourn) . . .

In his time he had been an artist, scene designer, scene painter, actor, director, writer and teacher. His stage lighting caught the attention of commentators from his student days on . . .

It was undoubtedly his enthusiasm and determination that carried the inception of the ABTT, and his resolution to capitalise, at last, on his expertise which brought about the Society of Theatre Consultants. He was an apparently tireless champion whose followers were left to carry the day. His M.U. Colleague, Peter Thomson, now Emeritus Professor of Exeter observed that Stephen was greater than anything he achieved.

He championed Theatre-in-the-Round to rediscover the role of theatre and break the barriers between actor and audience . . . To revitalise the relationship between the two . . . Stephen never lived to see how his inspiration influenced so much and so many other people. He was indeed greater than anything he achieved . . .”

Excerpts taken from **The Full Round** – The several lives and theatrical legacy of Stephen Joseph – Terry Lane, 2006, (ISBN 88 – 901721 – 8 – 5). See also **the traverse theatre SIDE BY SIDE** – Terry Lane, 2007, (ISBN 978-88-95506-02-9).

see: <https://www.vam.ac.uk/archives/unit/ARC123452>

The archive contains the only complete documentation of the inception of the Traverse Theatre club, press cuttings, programmes, reviews and photographs, etc.; also to the work of Theatre-in-the-Round pioneer Stephen Joseph together with research matter connected to Lane’s biography of Joseph.

*Terry Lane*

# Octagon, Bolton

Rebecca Morland

In an alternate universe, audiences would be preparing to flock back to the Octagon this autumn and responding to the changes that have been made to this much-loved local theatre, following its £12 million major renovation project. And either I or a colleague would also have been visiting the theatre, and being shown round by Roddy Gauld, Chief Executive, in order to report back for this edition of *Sightline*.

Instead, I spoke to both Roddy, and to architect David Jennings (from jmarshitects) down the phone, to hear more about the project.

The theatre was now planning a phased re-opening, with the previously announced major opening season postponed until later in 2021. In the immediate future, they were planning to re-open the kitchen and bar, and to announce a smaller scale programme which would still be bold and adventurous, but (because of social distancing) would need to be of a smaller scale. Octagon shows normally needed 75% attendance, but with social distancing would only be able to manage between 24% and 35%, depending on layout and distancing requirements of capacity. So, this particular model would not be sustainable for long. The intention was for a festival type programme, building on the work that had been done during the closure period. This included a project which has been collecting untold stories from Bolton's Black, Asian and ethnic minority contribution to Bolton's fabric industry – the theatre is still exploring how best to use these materials. As well as its productions, the theatre's three floors of front of house spaces would in the short term, provide additional capacity for the theatre's role as a social and community hub, enabling all the work that been done out of the building over the last couple of

years to come back in safely.

The project has had a long gestation. When Roddy joined in 2012, there had already been some conversations about building works, as the building was clearly in need of investment. A small capital project, mainly involving FOH decoration and technical improvements, had sparked a conversation with the Council, who then commissioned a study. The initial priority for the project was backstage improvements, but also upgrading plant and roof, and concerns about the viability of the original (1967) moveable seating bleachers in the auditorium.

As conversations progressed, it became clear that a coherent re-design was needed, and this resulted in a bigger scheme which retained the auditorium at the heart of the theatre. As a result, the auditorium and walls of the auditorium remained, whilst the front of house areas were stripped back and the back of house was demolished and re-built. As David said, it was really hard and expensive to construct around an existing auditorium – it would almost certainly have been cheaper to knock everything down and start again!

The theatre sits on a really tight site – constrained in every direction. As the plans show, they packed a lot into the limited space. The gross internal area increase was from 2136m<sup>2</sup> to 3182m<sup>2</sup>, an increase of 49%.

David confirmed that the agreed deliverables for the project were as follows:

1. A building that is accessible to all users – audiences, participants and staff. This includes sensory as well as physical needs.
2. Sufficient space for rehearsals, participatory work and small performances to take place in the building, without the main auditorium production needs (get-in, dressing rooms) compromising these activities.
3. A better environmentally managed building, with improve comfort for all users and reduced environmental impact.
4. A modern and durable main auditorium seating structure that delivers the flexibility, intimacy and permanency that the Octagon is known for; and improved desirability of the gallery seats.
5. Reliable lift access to all areas of the building, both for disability access and also for staff/goods access, with the ability to evacuate effectively.
6. Improved public impact and customer experience: a more attractive street presence, refreshed front of house décor, and increased toilet provision.

Photo courtesy of  
Willmott Dixon





7. Infrastructure for digital technology and capacity for future growth.

8. A building that maximises revenue generation potential wherever it can.

I asked what the most significant improvements were in terms of operating the theatre. Roddy said that a proper scene dock and loading bay would be transformative, as previously the rehearsal room/studio had to be used as a scene dock every time there was a production week, taking out masses of capacity for the studio. In addition, there was now decent acoustic separation for the studio, so it could be used much more. Backstage accessibility had also been improved, with a lift, which would also make moving rehearsal furniture and similar much easier.

The additional space Front of House would eventually ensure the theatre had an expanded hospitality offer.

The much loved auditorium remains unchanged at the centre of the theatre. The main change there is new moveable seating bleachers, which now ensures that there can be four seating formats rather than three – the ability to work in the traverse has now been added. It's role as the centre of the theatre is emphasised by cladding its outside walls in birch plywood (also used for the guarding and treads on the feature stair) – which allows for orientation from throughout the building. Previously, it was a building very hard to navigate around, with pinch points – for example particularly poor links from the box office to the studio. The relationship between the auditorium and the rest of the theatre is also emphasised through the re-use of the original teak stage floor throughout the building – it is now the bar counter and part of the green room fittings – marked by generations of use.

I asked both about project delivery. Bolton Council was the client, but there had been an excellent relationship between the Octagon and the Council, with the Octagon acknowledged as end-users, so they had been given a seat at the decision making table. There had been full transparency on decision-making including costs. It had been a contractor-led project, with Willmott Dixon, who were committed to making decisions for the overall benefit of the project.

The procurement structure had used the scape framework which is most often used by schools, and was described as being close to design and build but with more flexibility built in. From the perspective of the Octagon, it allowed for cost certainty and less risk, but also provided transparency and control.



David added that jmachitects had been appointed at the start of RIBA Stage 4, but in reality joined at RIBA Stage 3 as they had had to redesign the external envelope and most internal spaces from the original concept design. There had also been flexibility to move around resource to enable more aesthetic lighting and more M&E equipment Front of House.

Roddy added that the whole team were dedicated and passionate about the project, which had been helped by many of the construction team being local and familiar with the theatre. David added that the budget had been tight, but everyone had worked together through the value engineering process to find a cost-effective solution for the things that really mattered. For example the plywood covered auditorium wall was seen by everyone as important, so had been retained.

Apart from delaying the full re-opening of the theatre, Covid had also had an impact on aspects of the scheme. In particular it had delayed the delivery of the auditorium seats, which came from a Dutch company, but with components from several European countries.

I asked Roddy about the implications of the project both for the Octagon and indeed for Bolton. It had been a catalyst for a process of change for the Octagon, and he felt that it had meant the Octagon team has adapted well to Covid issues because have already been adaptable – working out of building for 2 years. The team have been brilliantly positive and resilient.

More widely, the Octagon has become a

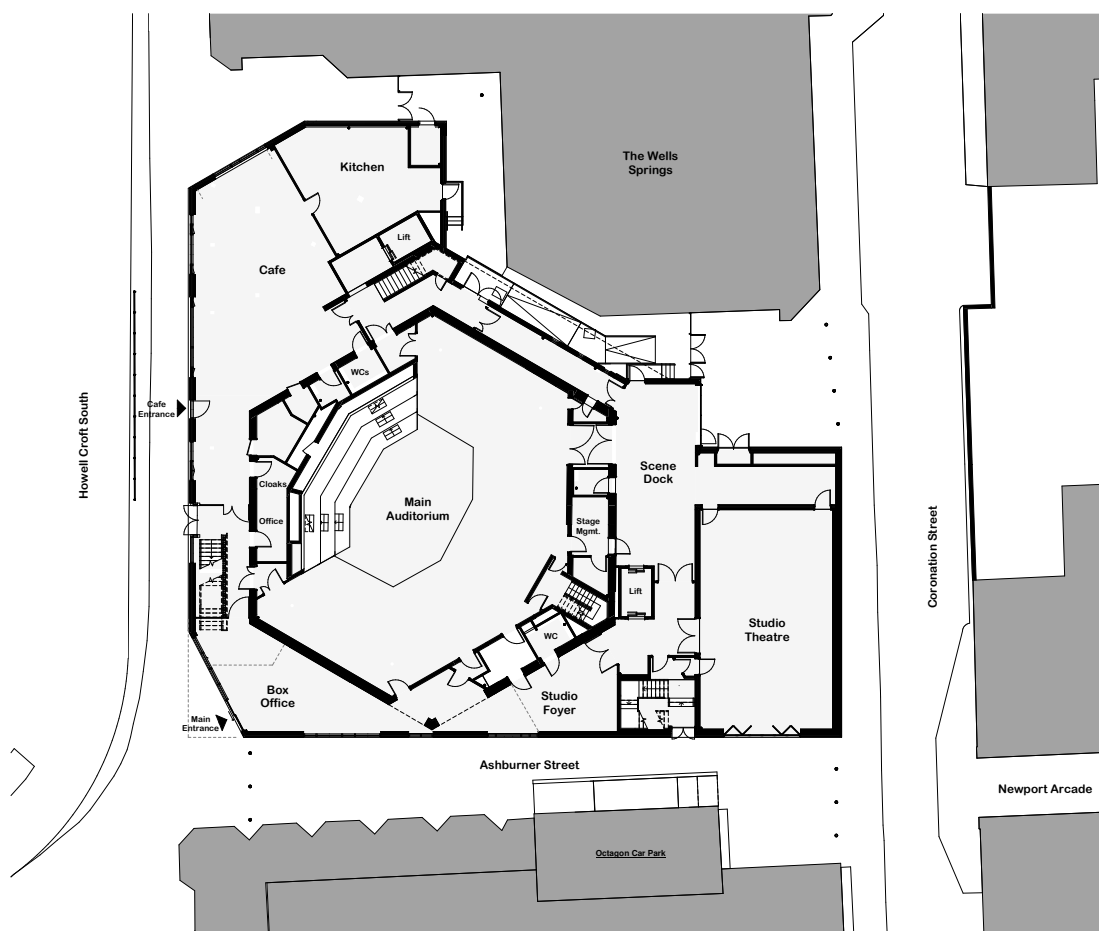


catalyst for cultural regeneration within the town. An early economic impact study had been an important part of the initial case to the Council. They had subsequently developed their masterplan for regeneration, with a cultural quarter around the Octagon, which will therefore be a flagship building for the quarter.

And, finally, I asked Roddy in retrospect, what would he have done differently – if he'd known at the beginning what he now knew!

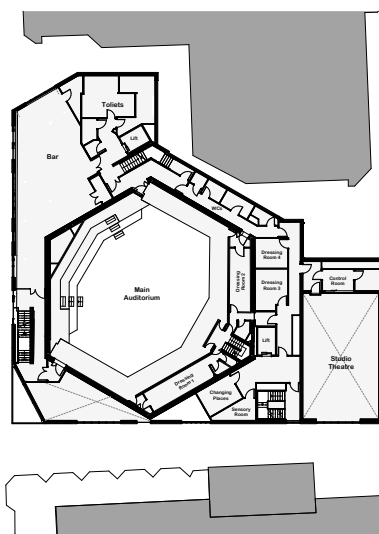
He had two points. Firstly, start from the point of defining what the deliverables are for the project, rather than being fixed on the spaces that you think you need within the building. When they'd gone through Value Engineering exercise they'd started cutting rooms from the schedule. They had then decided to look at it the other way round which had opened up their thinking.

And also – project costs will only every go one way!

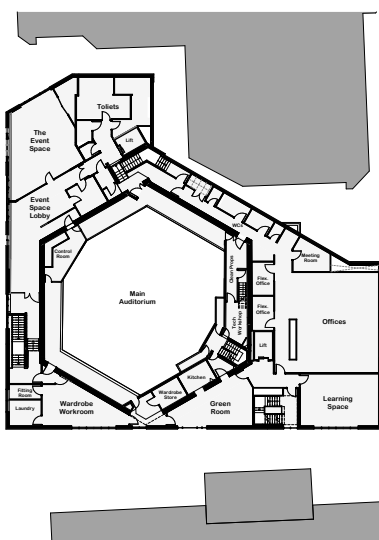




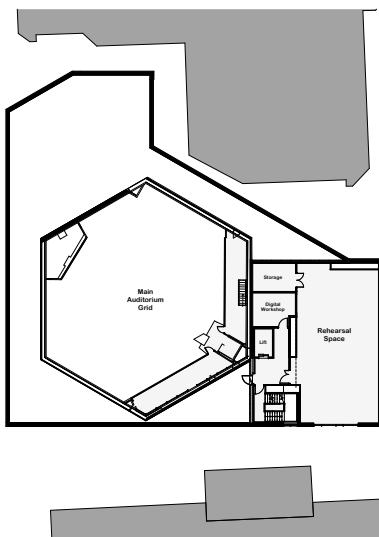
Level 01



Level 02



Level 03



### Project team

Contractor: Willmott Dixon

Architect: jmarchitects

Structural Engineer: Renaissance

Theatre Consultant & Acoustic

Engineer: Charcoal Blue

M&E Sub-contractor A&B Engineering

Fire Engineer: Hoare Lea

All images (except p 24)  
courtesy of jmarchitects

# Performing Arts in Higher Education

## – The Value of Talent in a Post-Covid World

Anette  
Ollerearnshaw

This article is the third and last in my C-19 response series: where I am exploring the many facets of the challenges and opportunities for graduates and industry newcomers. I have investigated their journeys in search of employment, sitting tight in creative ways or generating their own innovative enterprises in response to the complex changes we are facing.

The UK is currently in the midst of another lockdown and it is now undeniable that this crisis has placed us at a tipping point of historic proportions. We are presented with a fundamental task to re-imagine, plan and act, in order to rebuild a cohesive and successful next-normal for the cultural industries.

As some die-hard parts of our sector stoically attempt to work through a repeated start and stop circle, life for most is steeped in continued uncertainty and hardship. Following this large-scale financial crisis that is deeply affecting all parts of the industry, it has become very clear that our landscape has contorted, even before we had a chance to plan and implement any changes.

Seasoned professionals have had their fair share of self-generated and unexpected reinvention that we can reflect on and gain strength from; for recent graduates and industry newcomers this is a tough new reality. Where do they gain motivation and direct their energy, having had their dreams swept away from under their feet?

Whilst at present (November 2020) people are encouraged to work from home if possible; education, construction work, rehearsals and streaming shows are allowed to continue in person under Covid-safe conditions. For university staff and students, life continues in a blended learning model, adhering to working in bubbles and consequently going into 2 weeks of self isolation when someone in the bubble tests positive for C-19.

From an economic point of view, university teams are reassured that against worst predictions, student recruitment numbers have been surprisingly good with EU and UK intake stronger than international. Although with the next set of open days being held fully online and Brexit imminent, this may adversely affect our short- to mid-term outlook.

Over recent weeks I have held interviews with colleagues, graduates, industry representatives and policy makers from: Royal Opera House (ROH), National Theatre (NT), Guildhall School of Music & Drama (GSMD), Creative Cultural Skills (CCS), Broadcasting, Entertainment and Communications and Theatre Union (BECTU), Creative United (CU),

University of the Arts London (UAL), Lamp & Pencil, Teatro Vivo, Welsh National Theatre (WNT) and Creative England (CE).

The research I have undertaken led me to a structure of 4 main clusters: **individuals, educators, employers and policy makers**. I will define and elaborate on these more as I delve into the relationships and tensions between them.

### 1. Individuals / Talent

*Everyone has talent, what is rare is the courage to follow the talent into the dark place where it leads.'* (Erica Jong)

For the graduates who have left their university safety nets and ventured into the world of employment there have been unexpected turns, a renewed search for direction and in many instances a realignment of ambitions.

Some universities still plan to have a physical showcase of their graduates' work over the next 6 months; for designers, performers, technicians and makers this is where they hope to celebrate the fruits of their studies with each other and the professional network. Some would have won prizes and residencies that no longer exist.

For well-organised students with a 3-5 year plan, some pivotal thinking is in order to make that relevant to the new economic and cultural landscape. The industry has had its power structures severed and it is now that individuals and small enterprises can seek to fill some of this void with innovative ideas and agile ways of working.

### 2. Skills / Employability

*'Graduates and apprentices need trade unions to ensure that they have the best start to their career, not only in representation if things go wrong. But also for the support network and career development that trade unions provide.'* (BECTU)

Some young professionals are cautiously taking things day-by-day in fear of jumping ahead and facing more disappointment; others are applying for vacancies that are relevant to their skill sets in order to keep their application muscles flexed. Applicants are acutely aware that the competition for each role is enormous in comparison to the pre-pandemic period.

Many job adverts now state that they will only respond to those who are shortlisted, and are giving being overwhelmed by numbers as a reason; this adds to the demoralisation and to me seems like a missed opportunity for stakeholder relations.



Application processes can be time consuming to respond to meaningfully. It is a simple sign of professional conduct to send a timely decision thanking unsuccessful applicants for their interest. Recruitment trends have been transformed drastically with an increase in remote working and a new division between labour and automation we need a framework review for metrics and investment in human and social capital.

Few made it through to their first professional interviews, some have talked of disappointment in the lack of feedback after not being selected. As an industry community each one of us needs to ensure to be mindful at point of interaction and this might be particularly challenging when it takes place through a TV monitor. Young people's confidence is delicate, as they are uncertain as to how they are able to contribute now. To harness human potential towards greater prosperity and diversity, talent from areas of decline needs to be realigned to areas of growth in the sector.

For many seeking employment in digital growth areas, it can mean addressing limitations around home working. Do they have suitable office space to work and concentrate, do they have up-to-date hardware, and do they have a stable Internet connection? There is potential for the re-emergence of inequities that we have worked for years to address, which must be prevented in order to continue to build a diverse and inclusive sector.

Entry into industry via junior roles was the traditional way of finding and building networks and positioning; how this can be mastered in the digital realm and with social distancing preventing informal connections from flourishing is unknown territory.

When it comes to new and emerging technologies, however, graduates are often better equipped with skills and knowledge than employees who have been working in rigid organisational hierarchies that are now needing to level up.

Higher Education Performing Arts programme teams have already created new courses that are responsive to the government's 2016 Culture White paper and the 2019 Augar Review for example. Courses such as University of the Arts London's BA Creative Technical Theatre, Rose Bruford College's BA Virtual Theatre and Digital Experiences and Nottingham Trent's MSc Creative Technologies are designed to inspire and educate the innovators and change makers of the future.

### 3. Business / Enterprise

*'Luck is what happens when preparedness meets opportunity.'* (Seneca)

Established professionals who have fallen between the cracks of government funding schemes, or are made redundant are finding a multitude of ways to earn a living.

Some have turned their side-hustle into a main income, as platformed through the Instagram group @notonthewestend for example; whilst others are turning their talent to teaching online, working at checkouts or delivering web orders. Unsurprisingly their abundance of transferable skills has made them shine bright in their approach to timekeeping, customer relations, adaptability, problem solving and collaborative working.

Scholar Nassim Nicholas Taleb's publications 'Black Swan' and 'Antifragile' present uncertainty as a desirable necessity for survival. When it comes to random events, robustness and resilience is not good enough, as the form stays the same at best. His point is that complex systems are weakened when deprived of stressors. In opposition to fragility being antifragile means getting better and better, as exposure to shock helps us to grow and thrive in response.

My conversations with colleagues at Lamp & Pencil (L&P) and Teatro Vivo (TV) have been rays of light in these dark times; both are small innovative businesses led by passionate and imaginative teams.

For L&P, who define themselves as creating theatrical magic, this quiet time in the industry has been a great opportunity to look at how to improve business functions and operations. They were able to expand their full-time team

*The House That Slipped –  
Teatro Vivo – Live at The  
Albany August 2020 – photo  
by Matthew Kaltenborn*



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Production: The 1975

Location: Cardiff, Motorpoint Arena

Company: Rigging Co. Ltd [www.rigging.co](http://www.rigging.co)

Rigger: Kieron Holbeche

Hardware: BW-S475-TL Twistlink Load Shackles,  
BB-S325 Bluetooth Load Shackles,  
Visual Alarm, BW-RM1 Relay Module

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during the first lockdown, as a result of robust business planning and just having been too busy to recruit beforehand. The company now boasts 2 new employees into their Graduate Training scheme and a new multi-skilled fabrication specialist with a wealth of production line experience.

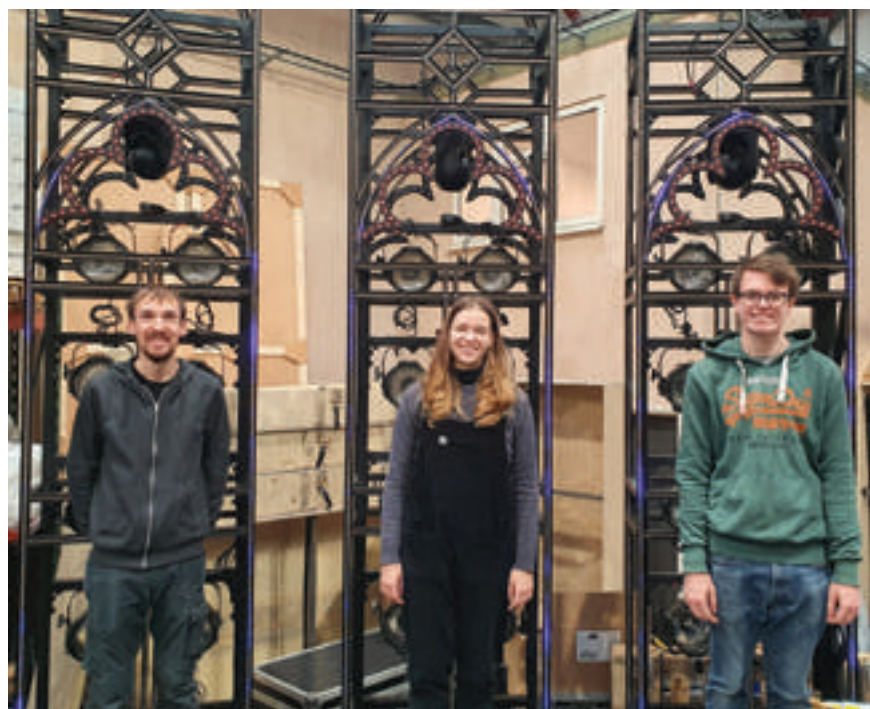
For small companies like L&P recruitment is not purely based on skill sets; to thrive and generate success having a team that is dynamic is equally important. 'Skills we can teach, candidates need to bring the right personality'. Bringing graduates into the team is an opportunity to build their skills and help them to grow. Everything the company produces is bespoke and unique, and learning takes place for everyone every day.

TV are creators of live theatre, their business model is to create immersive shows in unusual spaces and this includes the internet, so theatre buildings being closed has not affected them negatively. Productions are often based in community engagement and are usually produced with resources bid for via funders and Trusts and Foundations. Their most significant shift since the pandemic started has been that funding streams have shifted, as interest on investments has been diminished and with significantly increased competition for funds.

TV has been in much demand for their online immersive works and unusually well-established creatives are approaching them for the opportunity to collaborate. The increased audience engagement during lockdown via streaming platforms, has opened access to a much larger international audience. The balance of power between virtual and building based productions appears to have shifted already.

TV has always used Zoom for meetings and business functionality in order to be able to spend money on shows and not renting office space. This has been visionary and in addition to being small and nimble this company is in a fortunate position to look confidently at taking digital disruption and multi-channel output head on.

Creative United (CU)'s work is centred on supporting small and large cultural enterprises by running innovative business growth programmes. Their work as an umbrella organisation is to help creative makers and innovators advance their skills in business planning, thus developing a better understanding of their business model and promoting leadership acumen. Paradoxically right now, they too have to change their



business model and are moving all elements of the programme online.

Their work with volunteer organisations, for example, has shown people coming together with good will and an abundance of talent wanting to add meaningfully to society, building an awareness of their skills gaps and identifying action needed to be effective and sustainable. Organisations like these are the most under pressure in this crisis.

In CU's experience, freelancers and sole traders find it hard to access funding and support structures, as they are innovative by DNA, but may need astute business leadership and financial management to overcome market failure.

#### 4. Policy / Funding

*'I've learned that you can tell a lot about a person by the way he/she handles these three things: a rainy day, lost luggage, and tangled Christmas tree lights.'* (Maya Angelou)

Whilst the UK government's Job Retention scheme has provided a helping hand for a percentage of entertainment professionals, BECTU has been extremely busy managing employment relations over recent months. Their role of supporting individuals and organisations in redundancy negotiations, collective lobbying and holding space as a support network has been crucial in protecting hard-fought employment rights and conditions.

Arts and entertainment workers have always faced challenges of a low paid culture,

*Lamp & Pencil new team members Andy Pierce, Ola Przytula and Matt Dean  
Photo by Robin Barton*

excessive use of freelance crew and zero hours contracts, no sick pay, unsociable hours and excessive hours, poor recruitment practices and gender pay disparity. There is increasing awareness and holding leadership to account, and as we build a new industry these vital breakthroughs must continue. For young people who may not have previous experience of what is acceptable, there is a concern that they are too unsure to speak up and there is a concern that they are too unsure to speak up and that consciously or unconsciously this can lead to lowering of working conditions and standards.

The Society of London Theatres' (SOLT) for those working on West End productions, and UK Theatre for people working across the rest of the UK, have long-standing agreements and rates of pay that now have C-19 Variation Agreements put in place for their members.

Large scale redundancies have been unavoidable for most parts of the live entertainment economy, especially colossi such as the ROH and NT.

Core staff teams in development, marketing, HR, finance and executive leadership are busy reworking strategic mid- to long-term planning, technical and financial approaches to recovery, in some instances seconded to C-19 response roles, and they too cannot be certain that their role will still be in existence next year.

My conversations with colleagues from CCS and DCMS around policy, meta-narrative and funding strategies have pointed very clearly at growth ahead of us. In the short term, this is of course hinged on the roll out of a vaccine; the mid-term prediction is that it will take about 2 years to get back to a working infrastructure. The long-term growth over the next 10-20 years is predicted to be massive for the sector; even supercharged by C-19.

Technologically the nation has leapt about 7 years ahead in the last 9 months. The focus on digital experiences over lockdown has allowed us to edge closer to wider transformation; however going digital doesn't just happen by buying kit and flipping switches. The notion that 'culture eats technology for breakfast' may seem a cliché, but to truly engage staff and audiences in enduring multi-channel activity content needs to be co-created and merged meaningfully using the right technologies.

In many cases the pandemic has laid bare problems we already knew existed but had the luxury to ignore. In smaller organisations and enterprise mistakes are much more visible; whilst large organisations can continue to function without an acute awareness of the

areas that are not continuously improving or evolving. According to CCS we have an abundance of creative aptitudes amongst us, what we need now is to invest in financial, digital, leadership and business skills development.

The key to success will be leveraging the human potential that is at the heart of the creative industries. Soft power in global terms serves as the primary currency of public diplomacy and as such is the secret sauce for international positioning.

In most cases that the individuals remaining in positions of power are the ones that led us to a somewhat fragile and exclusive economic model. We urgently need progressive and diverse teams that can boldly challenge each other in order to envision, innovate and enable a more equitable culture.

The sector has a reputation for elitism, privilege and bias; and continues to be largely dominated by impenetrable networks. Funding frameworks and targets can attempt to address this, but rarely do the good intentions lead to embedded cultural change. It is time to empower and hand over decision-making roles to those that have identified as under-represented.

In the freelance economy this is a more fundamental concern, as, all hires take place by recommending from within our network or getting your mates in, those who you trust to do the job well; this inevitably means personal biases will be dominating.

## Looking ahead

I see the new creative economy as an opportunity to generate wider networks and exciting partnerships. With government funding schemes are being geared towards them as the quickest economic fix through this unprecedented recession.

Now is the time to dream big, lead the way with vigour and a fearless desire to thrive united. With nothing to lose, it seems that we have everything to gain.



# Laidlaw Music Centre – McPherson Recital Room

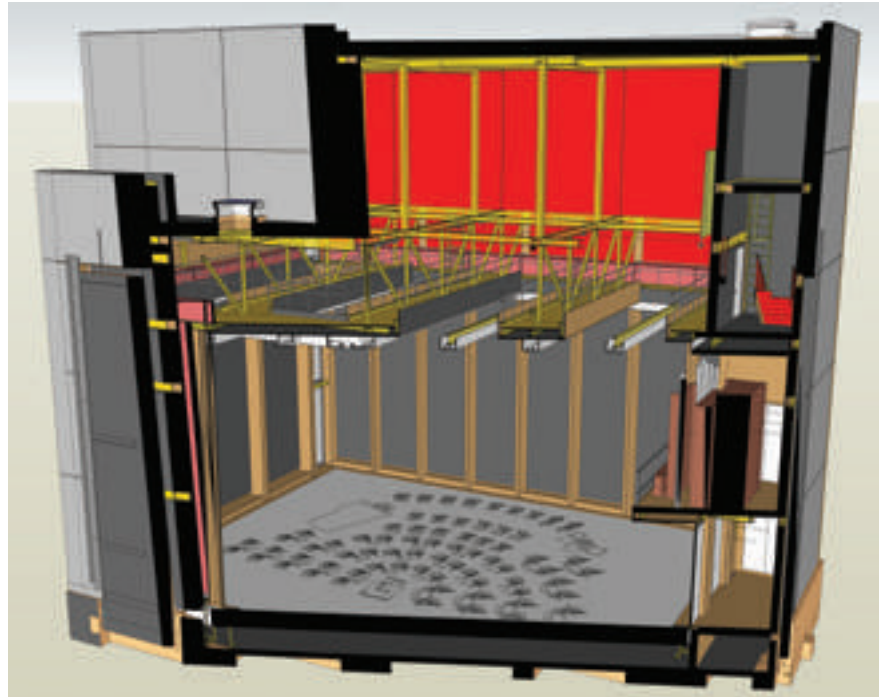
Nicholas Edwards

Standing alone in one of the most interesting acoustic spaces in St Andrews, I clapped my hands and listened to the sound as it decayed smoothly. The rectangular shape of the space and its totally flat marble walls and floor provided a very exciting room acoustic. With an acoustic this good, why build a new recital room?

One reason is that there was no space for audiences or performers – I was in the empty foyer of Younger Hall, the University's graduation hall – and these reverberant room acoustic qualities are lost once the audience arrives. The University's new recital room would need an exciting acoustic but one that works for performances with an audience of 250.

The artistic aspiration for the McPherson Recital Room in the Laidlaw Music Centre was to build a room that is a joy to perform and listen in; for recitals and for rehearsals by choirs and orchestras. We aimed to design a room that provides both clarity and reverberance. We informed our room acoustic design by following the science – which is quite different from following convention.

By convention a recital room would be designed to a reverberation time, it would have surface diffusion on the walls and ceiling, and there would be acoustical clouds hanging from the ceiling. But this recital room has not



one of these conventional features and yet achieves a far higher acoustical standard than a conventional room. Conventional room acoustics is not yet properly founded in science.

The rectangular room is a safe starting point for good acoustics, but many practitioners fear strong reflections from wall surfaces and flutter echoes from inter-reflections across the room. But science shows that audiences **prefer** strong reflections that contribute to clarity and loudness. If wall surfaces are broken up with “sound diffusing” treatment, or by skewing the room geometry to avoid parallel walls the strength and warmth of the reflected sound is reduced. The strongest reflections will come from flat surfaces.

Historical precedent supports this approach: for example the Musikvereinssaal and Wigmore Hall, London both have largely flat walls with very thick and heavy masonry behind the finish, and more recently we took the same approach in designing Symphony Hall Birmingham and the Meyerson Symphony Hall in Dallas.

In some recent concert halls, micro-shaping of the surface with random patterns about 30mm deep has been implemented:

The microshaping reduces loudness (above 9 kHz), but no scientific research supports the need for this. Any small effect this shaping may have is inaudible to most people.

The McPherson Recital Room is not designed to meet a reverberation time: the walls are located to accommodate the room



*Below the pediments, the walls of the Musikvereinssaal are flat but richly decorated in colour and materials*



*Micro-shaping surface diffusion is an effect above 9kHz and is inaudible*

uses and the ceiling height is set low enough to meet the time-delay requirements for overhead reflections and high enough to prevent the room becoming over-loud.

Our approach also departs from an acoustical norm in that it does not have reflective “clouds” on the ceiling. With the architects, Flanagan Lawrence, we developed a design where ceiling “beams” conceal openings that allow sound into the reverberation chamber above.

Yes, a reverberation chamber. The McPherson Recital Room is the only recital room in the world with a reverberation chamber. It has a reverberation chamber because this is the only way to get an exciting quality of reverberance when a recital-sized room is occupied by musicians or audience – it is the only way to achieve some of the sound quality I heard in the empty foyer of Younger Hall but in a performance space.

The reverberation chamber helps to balance the recital room’s inherent clarity (made stronger by the use of flat walls), introducing the reverberant qualities of a larger concert

hall or even a church. In this recital room the acoustic of the reverberation chamber is controlled by extending or retracting an acoustical curtain within it, rather than with the reverberation chamber doors we have used in concert halls.

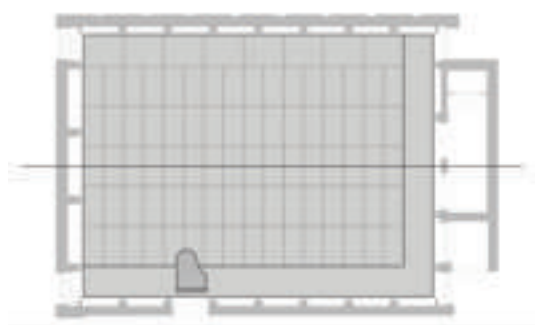
To dampen the room itself, acoustic roller banners can extend to cover most of the walls of the recital room. These reduce the loudness of the reverberation for orchestra rehearsals or piano performances, but have only a small effect on the reverberation time.

The recital room is also a rehearsal room – for choruses, for the St Andrews Chamber Orchestra (40-piece Music Centre ensemble) and St Andrews Symphony Orchestra (60-70-piece student orchestra) and for smaller ensembles. The staging requirements for such a wide range of events would normally be met with retractable seating and manual rostra to form the tiers for the orchestra. But the number of technicians needed to manually alter the room setting would be expensive in time and cost; and the storage area needed for the manual rostra would simply not have fitted on our site. Thanks to funding from the McPherson Trust, all 88 of the 2m x 1m rostra are mechanised and allow the room to be changed between settings for audiences to settings for rehearsal at the touch of a button.

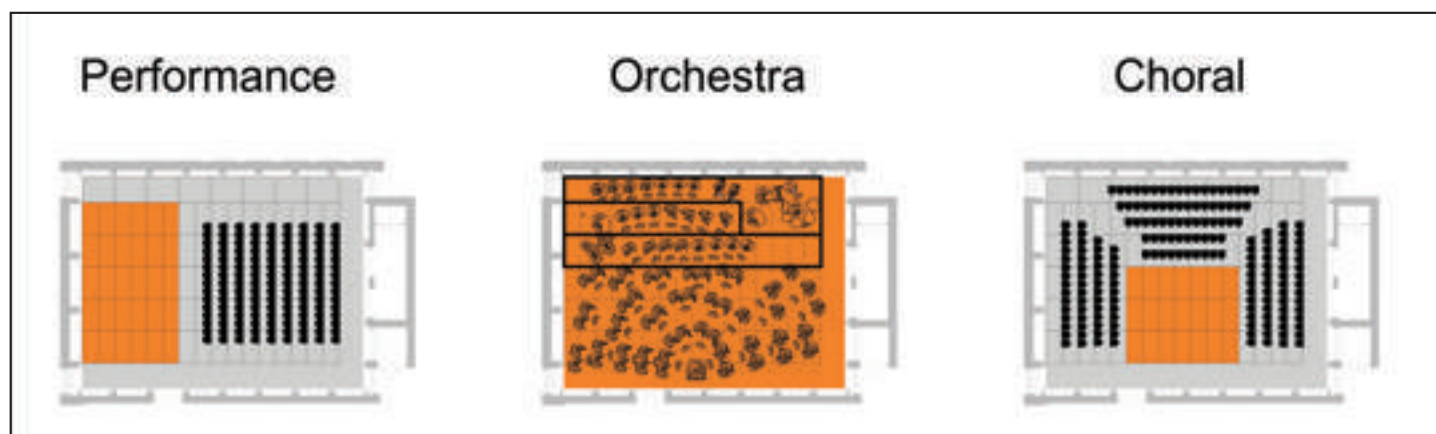
The rostra have a travel of 1650 and are set in a machine pit so that the floor can be lowered as well as raised.

The audience settings typically have 150mm high steps and none of the level changes is greater than 600mm, so no railings are needed. There is a special setting that is particularly apposite for this magazine: it is a setting that achieves iso-visual sightlines through changing the row-to-row stepping each row. The complex stepping of the rake is programmed into the control system and recalled with a single button-press.

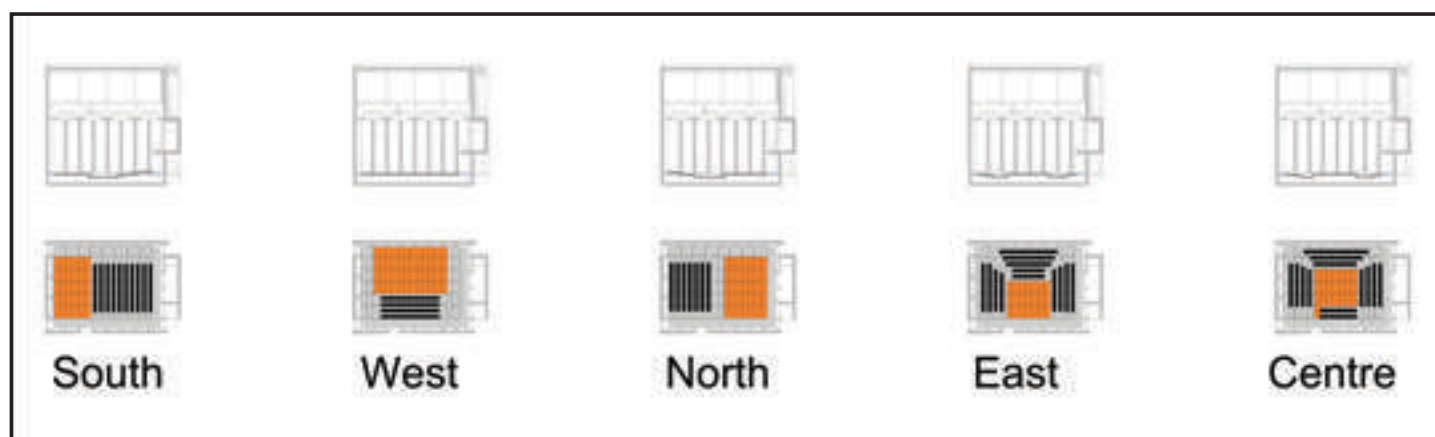
*Plan showing the 88 motorised rostra*



*Rehearsal and performance settings*







This setting achieves optimisation of the sightlines with the last row of seats set at platform level, providing unusually good sightlines with the architectural advantage of all the seating being at or recessed below flat floor level.

A special chair, suitable for both musicians and audiences was developed through a series of prototypes especially for this project.

During the design process I attended as many small-scale music events as I could, and some of the most interesting events took place in the upper room above a public house. The intimacy of such a setting is hard to beat. But inevitably in such venues the audience had to choose between suffocation or opening the windows to traffic noise. In the new recital room we are looking for the intimacy of in-the-round performances but in thermal comfort and in a very quiet room. We have designed the background noise to be close to the threshold of hearing – absolute silence.

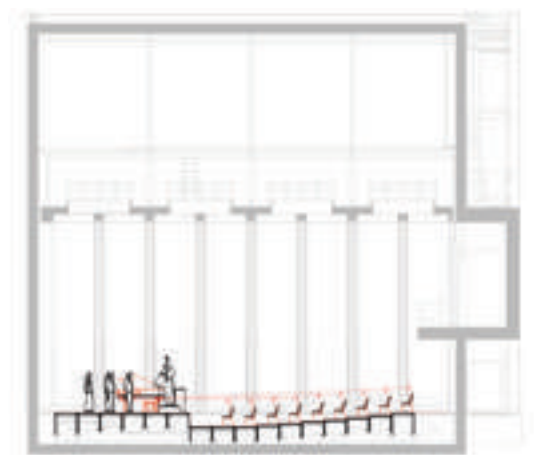
The ventilation system does not have any grille noise, because there are no grilles; it does not have any damper noise because there are no balancing dampers. The fan vibration is isolated by locating the AHU on the adjacent building. The fan noise is attenuated by internally lined ducts. These are all approaches that we followed in Symphony Hall, Birmingham. Here, though, the system works by supplying air from the underfloor pit, with air percolating through the 6mm gaps between motorised rostra.

Ductwork within the ceiling would have damaged the acoustical function of the reverberation chamber – so there is none: the air is extracted at high level via a large sound-attenuating plenum outside the reverberation chamber.

*Some of the principal settings with audience*

*The Concerto Chair, TMA, Italy*

*Section, showing the end-stage setting with iso-visual, incremental sightline stepping*



*Long section and cross section showing the principle of the low-noise ventilation system*



The ventilation system is not only silent, this approach has made the ventilation system invisible, and because of laminar air flow from low level, this is one of the most Covid-safe ventilation systems anywhere in the world.

On 12th August 2020 we heard the first music in the recital room: Lucy Russell, Honorary Professor of Strings at the University, played violin for a video recording session. From the first moment she stepped in the room she found the acoustic warm and inviting and could not wait to demonstrate the responsiveness of the acoustic, "This room encourages the musician to be imaginative and will put St Andrews on the world map" she said.

The McPherson Recital Room in the Laidlaw Music Centre provides a world-class setting for recitals and easy transformation for rehearsals by choruses and orchestras.

*Nicolas Edwards is a lead auditorium designer for IDIBRI, and provided acoustics, AVI, Stage Engineering and Venue consultancy for the project.*

*Architect: Jason Flanagan, Flanagan Lawrence Architects*

*Photos by Oli Walker*





# Young Associates

Welcome to the eleventh edition of the *Sightline* Young Members Page! By the time this edition is published, England will have hopefully just come out of a second national lockdown. After what has been a difficult year for our industry, the Young Associate Representatives and all at the ABTT would like to wish you and your families well for the Christmas period and we look forward to moving forwards with you, as part of the ABTT family, into 2021. In this edition, we have an interview with ABTT Safety Committee Chairman Michael Anderson and a review of a meeting of the UK Theatre & Live Events Apprenticeship Network. If you are a Young or Student Associate and have a story, opinion or experience you wish to share with likeminded others – we want to hear from you! Submit content to [sightline@abtt.org.uk](mailto:sightline@abtt.org.uk) (FAO: Matthew Freeman).

## UK Theatre & Live Events Apprenticeship Network by Matthew Freeman

I recently went to the third meeting of the UK Theatre & Live Events Apprenticeship Network, held via Zoom call. In the session, hosted by Anette Ollerearnshaw, the attendees heard from Anette, James Cooper, Sandra Gittens, Laura Pearl and Jane Sloan who gave some insights into their careers and discussed questions posed by Anette concerning the title 'finding your direction'. They discussed skill-sets and specialisms, how to kick-start your career and shared advice they had garnered from their careers to date. Personally, I enjoyed hearing from a panel with such wide-ranging experience in the industry – both in terms of the points they are at in their careers and specialisms. After hearing from the panellists, we went into breakout rooms in small groups and had the opportunity to pose some further questions to them – this was also a good opportunity to meet other participants. In summary, I felt very welcome in the group and would like to thank all of those involved in running the session – particularly Anette Ollerearnshaw and Elysia Moore. I would encourage any apprentices not currently engaged with this scheme to get involved by contacting the ABTT at [office@abtt.org.uk](mailto:office@abtt.org.uk).

## Interview with Michael Anderson

Continuing our series of interviews with industry professionals, in this edition we speak to ABTT Safety Committee Chairman Michael Anderson.

*What is your current position within the industry?* "I am a fire and safety professional working in the entertainment industry, director of my own consultancy (Anderson Bradshaw

Limited) we have been out there for over five years and my son Ross also works for me."

*How did you first become involved in the industry?* "I started as a Safety Manager for Facilities at Earls Court and Olympia in 2002 after working in the construction industry for the previous (lots) of years. Within six months I was in charge of the fire and safety team across three venues and thrust firmly into events, exhibitions, conferencing, TV and everything else!"

*What has been a highlight of your career so far?* "I'm not sure really, there have been a few good moments and a few great ones, the 2012 Olympics Volleyball was held at Earls Court and we took over all of the safety roles as ISG had issues with their systems, becoming Chair and Facilitator to the SAGE group (Safety Advisors Group in Entertainment) for 18 years has been fun (2002-2020), and becoming Chair to the ABTT Safety Committee has been very good (still not sure how they put up with me?)."

*What advice would you give to young people interested in your specialism?* "Fire and safety matters should form a part of any technician or managers toolkit of knowledge, having access to a full-time specialist can be useful but it is a fun challenge and not just the vernacular across various elements of entertainment. Understanding the desired outcome is essential to ensure you can support your client in achieving their objective and most importantly being able to say 'no' on occasion. I must say there are many safety courses out there (I recommend the NCRQ Diploma) but importantly you need to develop your skills through experience as the diversity of knowledge that is required is surprisingly broad – from A-Z e.g. Asbestos to Zoonoses (as is COVID)."

*Why do you think it is important for young industry professionals to be ABTT members?* "I think the simple essential is that membership gives greater access to a wider community and importantly the support that membership provides outside of the Tech Standards, the selection of updated Codes of Practice and guidance, information sheets and FAQ's available to members is very useful along with the reports and information provided to, by and for members by the various committees of volunteers dedicated to the continuous improvement of the ABTT through this work."



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# Technical Standards

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Winter 2020

## UPDATES, AMENDMENTS AND CORRECTIONS

The current edition of *Technical Standards for Places of Entertainment* was published in 2015 and has the year 2015 printed on the top righthand corner of the cover. However, there have been six reprints with revisions to this edition published on 29 April 2016; 1 February 2017; 1 April 2017; 1 September 2018; 1 April 2019 and 1 July 2020. Key revisions captured in the sixth reprint dated 1 July 2020 for

Section B9 Conservation of Energy and some in Section F1 Electrical Installations have already been published in this column. Below are further revisions in Section F1. There were a number of other revisions in this reprint including more to Sections F1 Electrical Installations, F2 Lighting including Emergency Lighting and M12 Electrical installation and permanent electrical equipment.

New copies of *Technical Standards* may be purchased from the ABTT website or Office and anyone with ABTT membership receives the best discount.

## REVISIONS & AMENDMENTS 1 JULY 2020 INCLUDING SECTION F1 ELECTRICAL INSTALLATIONS

Section	Part	Reference	Change
F1	Electrical Installation	COMMENTARY	<b>Change</b> "It is often not possible for the responsible authority to inspect such equipment whilst the inspection by the venue may be cursory because of time constraints. It is essential, therefore, that the permanent installation is designed to permit as much flexibility as possible whilst providing adequate electrical protection." <b>to</b> "Legal duties exist to ensure the safety of those in the workplace as well as those who might be affected by the performance. It is important that the electrical system is designed to include suitable protection from hazards given the diverse nature of visiting users."
F1	Electrical Installation	COMMENTARY	<b>Change</b> "Means for the safe and easy connection of temporary electrical distribution and control equipment may be necessary, particularly in larger premises." <b>to</b> "The installation should be designed on the assumption that equipment may become damaged and/or unsafe in use. All sockets on stage up to 32A should be protected by RCDs. The provision of transformers providing electrical separation may be useful for equipment introduced by touring crews or bands. Means for the safe and easy connection of temporary electrical distribution and control equipment may be necessary, particularly in larger premises. Care should be taken to ensure that the protection put in place does not hinder competent users of the venue."
F1	Electrical Installation	COMMENTARY	<b>Delete</b> "Flexible cables should be limited to 2m for transportable equipment such as tumble dryers and freezers."
F1	Electrical Installation	COMMENTARY	<b>Change</b> "Mobile equipment such as vacuum cleaners will usually need much longer flexible cables although the provision of sufficient sockets in all areas should help avoid the need for trailing extension drums." <b>to</b> "Mobile equipment such as vacuum cleaners will usually need much longer flexible cables. The provision of sufficient sockets in all areas should avoid the need for trailing extension drums or extension cables over 25m."
F1	Electrical Installation	COMMENTARY	<b>Change</b> "All flexible cables should have sufficient conductor size and mechanical strength for their intended duty." <b>to</b> "All flexible cables should have sufficient conductor size and mechanical strength for their intended duty in line with the <i>IET Code of Practice for In-service Inspection and Testing of Electrical Equipment</i> ."
F1	Electrical Installation	COMMENTARY	<b>Insert paragraph spacing before and change</b> "It is generally good practice to use at least 2.5mm <sup>2</sup> cross-sectional area (csa) flexible cables in the stage area as the load and distance are likely to vary from production to production." <b>to</b> "It is recommended to use at least 2.5mm <sup>2</sup> cross-sectional area (csa) flexible cables for 10-16Amp circuits in the stage area as the load and distance are likely to vary from production to production."
F1	Electrical Installation	COMMENTARY	<b>Change</b> "...all extension leads over say 5m..." <b>to</b> "...all extension leads over 5m..."
F1	Electrical Installation	COMMENTARY	<b>Change</b> "Extension leads on drums should only be used by suitably skilled or instructed persons." <b>to</b> "Extension leads on drums are best avoided or only to be used by competent persons. All flexible cables should be at least H05RN-F standard."
F1	Electrical Installation	COMMENTARY	<b>Insert new paragraph</b> "The electrical installation should be designed to anticipate the likelihood of mechanical damage in the production areas to the degree of AG2 ( <i>BS EN IEC 60721-3-3, classes 3M4/3M5/3M6 / BS7671 2018 Appendix 5</i> )." <b>before and change</b> "Enhanced protection, both mechanical and electrical, should be provided so as to ensure that as far as reasonably practicable faulty equipment does not cause harm to people or to the premises" <b>to</b> "This means that enhanced protection, both mechanical and electrical, should be provided so as to ensure that as far as reasonably possible damaged equipment does not cause harm to people or to the premises."

Section	Part	Reference	Change
F1	Electrical Installation	COMMENTARY	<b>Delete</b> "In premises equipped with a stage the probability of the movement of heavy items of equipment or scenery quickly and in low lighting conditions warrants particular attention to the location, mechanical protection and fixing of the electrical installation within stage areas." <b>and insert</b> "Protective bonding within the installation should be designed with particular reference to <i>BS 7671 Section 444</i> which is concerned with ensuring that the electrical safety earthing arrangements and functional earthing requirements (e.g. as may be required for data or analogue tielines) are coordinated to ensure effective and interference free operation of technical equipment. Useful guidance can also be obtained from <i>BS EN 50310: Application of equipotential bonding and earthing in buildings with information technology equipment</i> ."
F1	Electrical Installation	COMMENTARY	<b>Delete</b> "Stages inevitably use large amounts of electrical equipment. There is also likely to be a good deal of exposed metalwork – grids, lighting bars, access (cat) ladders and so forth. Given the likely heavy usage of the premises all structural metallic parts need to be adequately earthed. It is therefore particularly important that the earthing recommendations of BS 7671 are observed. BS 7430 provides advice. Where technical functional ("clean") earths are provided the need for safety earthing should not be overlooked." <b>and insert</b> "Some existing buildings include unipoint (star earth) clean earth distribution. This provides a single defined path from all equipment to a central star point. Care should be taken when extending systems to ensure that separation is maintained to avoid system degradation through inadvertent introduction of earth loops."
F1	Electrical Installation	COMMENTARY	<b>Delete</b> "The provision of residual current devices (RCDs) to all sockets supplying mains voltage may add significantly to the safety of the electrical installation. They will also significantly increase the cost. It is reasonable therefore to limit RCD protection to areas of significant risk. Note, however, that where dimmers are installed RCD protection must be installed at the dimmer, not at final sockets as RCDs may not operate correctly. RCD protection may be provided as an integral part of each socket (other than for sockets supplied from dimmers). This is costly but ensures that a fault on the equipment connected to one socket will not affect the rest of the electrical installation: it also makes fault tracing simple. However a compromise has to be adopted if costs are to be controlled. It may be appropriate to provide protection to each ring main via a single RCD/RCBO controlling all the sockets on the ring main. It would not be sensible to provide a single RCD to a main intake, as a single fault would switch off the entire installation. The resulting sudden loss of light and power could be far more dangerous than the consequence of the earth fault especially if a dangerous activity such as a stage fight were happening. It would also be very difficult, if not almost impossible, to trace the fault." <b>and insert</b> "Technical systems such as audio, lighting and similar use a variety of data protocols, some of which can be sensitive to noise voltages on earthing arrangements. The use of traditional technical supplies or 'clean earths' has been supplanted by the principle of providing a low-impedance meshed earthing network throughout an installation. In principle this means that all equipment should be bonded to earth as many times as possible with no separation between 'clean earth' and the general earth. On new construction projects or refurbishments it is recommended that a specialist electrical contractor or consultant is engaged at an early stage to ensure that structural elements are considered in this respect. See F1.50 below."
F1	Electrical Installation	COMMENTARY	<b>Insert this paragraph 1 of 3 before "Power Quality"</b> "Dimmers or other power processing equipment should have RCD protection installed on the supply side (not on the output) to ensure correct operation. It is important to ensure effective selectivity between RCDs. For example, socket-outlets fitted with integral RCDs are preferred for general stage use to ensure that a fault disconnects the local socket, not the main supply. (See <i>BS 7671:2018 Section 536.4.1.4</i> on selectivity)."
F1	Electrical Installation	COMMENTARY	<b>Insert this paragraph 2 of 3 before "Power Quality"</b> "Arc-fault detection devices (AFDDs) that provide sensitive protection from minor electrical faults that may start fires are recommended in buildings where a risk assessment has identified a high fire risk. The risk can be mitigated by providing additional protection. Examples of situations warranting AFDDs might include: - Circuits supplying locations where pyrotechnics are stored; - Old heritage buildings with an enhanced fire risk; - Premises with sleeping accommodation; - Circuits feeding stage practicals or similar where constant movement or vibration may result in poor connections or damaged cables."
F1	Electrical Installation	COMMENTARY	<b>Insert this paragraph 3 of 3 before "Power Quality"</b> "New installations will require Surge Protection Devices (SPDs) to be installed in the distribution system to protect against switching surges in the public supply. Consideration should be given to retrofitting such devices where installations are modified or refurbished to protect sensitive equipment from damage."

## MAKING CONTRIBUTIONS TO TECHNICAL STANDARDS

If you wish to contact the Standing Committee about any matter to do with *Technical Standards*, you may email [standards@abtt.org.uk](mailto:standards@abtt.org.uk). You may wish to suggest an amendment, clarification, new reference or explanation. The Standing Committee would be interested to consider any recommendation. Please do get in touch.

Previous editions of this *Technical Standards* column may be found on the ABTT website.





## Latest Titles

**West End in Watercolour by John Higgins – A Portrait of London Theatre**  
260pp £28.95 ISBN: 9781904031925

Today London is widely regarded as the theatrical epicentre of the English-speaking world, its 'West End' closely rivalled by New York's Broadway, and provides a rich array of theatres, opera houses, concert halls and cinemas which, alongside the delights of restaurants, cafes, pubs, bars, nightclubs and shops, create a glitteringly exciting playground for the would-be theatregoer.

While John Higgins considers the West End and its fashionable rise from earlier beginnings, he also looks closely at the concurrent vigorous entertainment scene around the East End and neighbouring working-class suburbs, and their subsequent metamorphosis into the prolific operation that has today become the trendy Off-West-End London Fringe.

And so as the typical famous grand 'Up West' houses are paraded in their glittering surroundings of glamour and razzamatazz, their fascinating 'Off-West' counterparts have their own exciting tales to tell ... and John says one thing is for sure: they have all been delicious to paint!

**The National Theatre: A Place for Plays by ABTT** 130pp £11.95 ISBN: 9781904031932

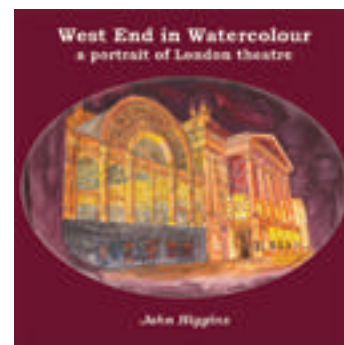
Paule Constable and Richard Pilbrow hosted a one-day Symposium on 30th October 2016 to celebrate the 40th Anniversary of the opening by Her Majesty the Queen of the National Theatre designed by Sir Denys Lasdun. The National Theatre: A Place for Plays, presented by the Association of British Theatre Technicians in association with the National Theatre, was about Theatre and Architecture: a discussion, a confrontation, a misunderstanding or a collaboration?

This book contains a transcription of the discourse, debate and dissent that took place on the day.

**On Being a Lighting Designer by Graham Walne** 116pp £12.75 ISBN: 9781904031949

Graham Walne's latest book chronicles the processes which a lighting designer goes through to deliver a design. The book covers engagement, relationships, discipline, skill, knowledge and deliverables, and includes anecdotes from the author's own considerable experience as a lighting designer across three continents.

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# Members News

## MEMBERSHIP RENEWAL FOR 2020:

With the New Year around the corner, it is time to renew your Subscription. We understand the difficulties that many have endured and the uncertainties facing our industry. For those who are able, we hope we have made renewing your membership as easy and cost-effective as possible.

It is now possible to pay via 10 monthly instalments as well as with a single annual payment. There is no difference in the access to your benefits. By renewing your membership, you will be assisting us in achieving our charitable aims and in continuing to support you during this trying time. Your ABTT membership also qualifies for Gift Aid increasing the value by 25%. We thank all who have made a Gift Aid declaration: if eligible, please do consider doing so.

Existing minimum subscriptions remain unchanged for 2021. *Members & Associates: £80; Early Career (26-30): £50; Young (under 25): £25; Retired: £35; Affiliated Organisations: £250 and Large Affiliated Organisations £500.* Overseas renewals should add £7.50 for postage. If you would like to maintain your membership but would like to discuss payment options or if you have any other questions, please do contact the office.

The ABTT is committed to producing new and innovative online seminars and webinars and there are currently more than 50 hours of online content available for ABTT members!

## ISG MEMBERS:

The ABTT is extremely grateful to the Industry Supporters who have supported them throughout 2020. A full list of these benefactors is to be found on our website and on the first three pages of this edition of *Sightline*. If for any reason your company is not listed yet please do contact the ABTT office. New members may now join for 2021. It is never too late to join this "go to" list of theatre and live performance expert suppliers, service providers and supporters.

## TRAINING SUCCESS:

Congratulations to everyone who has recently completed their Bronze and Silver Award training:

**Bronze Award at Mountview, London:** Maria Fernanda Guevara, Michael

Hoelters, Thomas Holmes, Charlotte Leslie, James Ross and Theodor Spiridon.  
**Bronze Award at Derby Theatre, Derby:** Alex Bevan, Misha Mah, Finn Ractliffe, Aaron Storey, Lesley Talbot and Benjamin Woodward.

**Silver Electrics at The Everyman, Cheltenham:** Adam Hewitt, Ursa Horjak, Pippa Kay, Patrick Kerr, Jamie Long, Merlyn Salter, Martin Stewart and Matthew Vile.

We are also very pleased to announce that the ABTT Bronze Award has been successfully integrated into the BA Theatre Production Degree at The Guildford School of Acting. If you want to join GSA in successfully integrating an ABTT course into your degree programme, bridging the gap between industry & education – contact [office@abtt.org.uk](mailto:office@abtt.org.uk)

ABTT Training with suitable health and safety requirements in place is available when government regulations allow. We have run a number of courses in the Autumn and plan to release dates for 2021 courses shortly. If you would like to request any in-venue training or you have a venue and would like to offer to host an ABTT Courses please do get in touch on [office@abtt.org.uk](mailto:office@abtt.org.uk)

## NEW MEMBERS:

ABTT Associates Richard Beale, Ryan Beattie, Philip Buckley, Andy Downie, Charles Haines, Chris Hay, Andrew Josephs, John Mann, Ashley Pickles, Paul Seed, Liz Sillet, Ben Sumner, Nick Wells, Stuart West and Iain Young have been admitted as Full MEMBERS of the ABTT by the Council of Trustee-Directors. Congratulations to them all.

It is heartening that the number of Full MEMBERS and therefore the Electoral College is larger than at any time in the last ten years. Anyone with Associate membership may apply for admission by submitting a CV and the contact details of two referees.

The purpose is to demonstrate relevant experience and a manifest commitment to the technical aspects of the art of theatre. Two years' professional practice and enthusiastic references are usually the minimum requirement. To be a MEMBER costs no more than for an Associate, so we encourage all eligible Associates to send a CV or career resumé and the contact details for two referees to the ABTT Office.

## CURRENT ABTT TRUSTEE DIRECTORS:

The current Trustee Directors commenced a new year of office on 4th November being the date of the first Council meeting following the AGM. They are Louise Burchill; Mig Burgess; Alexander Cann, David Evans; Andy Franks; Peter Maccoby; Caroline Rouse; Nikki Scott; Emma Wilson and Anton Woodward. We extend a special welcome to Alexander and Anton who were elected this year, Alexander for the first time and Anton for a fresh term having previously served. We should also like to thank Darren Joyce for his service and contribution as a Trustee Director on the occasion of Council accepting his resignation due to increasing demands elsewhere.

## NEW FELLOWS:

The Council may appoint as a Fellow of the Association any person considered to have rendered signal service to the technical aspects of the art of theatre. At its meeting on the 4th of November, the Council was very pleased to confirm fellowships for Michael Anderson, Phill Brown, Mark Dakin and Prema Mehta.

## NEW COLLEGE LICENCE FOR TECHNICAL STANDARDS AVAILABLE

The ABTT have released a new College Licence for Technical Standards to provide universities and colleges with online access to Technical Standards for Places of Entertainment for up to 20 students for a period of 12 months.

Further Licenses for blocks of 20 students may be purchased as required. Check the ABTT Online shop or email [office@abtt.org.uk](mailto:office@abtt.org.uk) for more information.

## IN THE LOOP:

Big news items will always be included within *Sightline* or the ABTT Newsletter BUT for the latest news, follow us on social media, Twitter, Instagram, Facebook and LinkedIn now: @theabtt

We use these platforms to let you know about upcoming events, seminars, job opportunities, relevant resources, organisations and courses that may be of interest to you. Make sure you keep yourself up to date and informed by following us online.





# Safety Matters

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Email: [office@abtt.org.uk](mailto:office@abtt.org.uk)

Winter 2020

## WHAT IS THE DIFFERENCE BETWEEN A KITEMARK, A CE MARK AND UKCA?

### Commentary

The Kitemark is a UK product and service quality trademark which is currently owned and operated by the British Standards Institution (BSI). The Kitemark is often used to identify products where safety is paramount, such as crash helmets, smoke alarms... and the symbol can be found on electrical, electronic and a number of theatre related products. Theatre technicians sit on British Standards Committees advising specifically on theatre flying, fire safety and electrical harmonics.



Spot the BS within the Kite Mark.

Meanwhile the letters CE appear on many products traded in the extended Single Market in the European Economic Area (EEA). CE marking is a part of the EU's harmonisation legislation. They signify that products sold in Europe have been assessed to meet 'high safety, health, and environmental protection' requirements. When you buy a new TV, phone, or teddy bear,



The CE mark is carefully designed to deter forgery.

a manufacturer declares that the product meets all the legal CE marking requirements and can be sold throughout the EEA.

There are two main benefits that CE marking brings to businesses and consumers: The knowledge that these products can be traded without restrictions, and that consumers can enjoy the same level of health, safety, and environmental protection.

Britain exits the European Union for good on December 31st 2020.

The **UKCA** (UK Conformity Assessed) marking is a new UK product that will be used for goods being placed on the market in Great Britain.

From January 1, 2021, the UKCA logo will be applied across the board. But in order to allow businesses time to adjust to the new requirements, the CE marking will remain until January 1, 2022. Most products currently subject to the CE mark will need to have the UKCA mark if they are to be imported into Great Britain (England, Wales and Scotland).

Will this mean a new testing regime? Or in order to sell into the UK, European manufacturers will simply swap a CE labels to a UKCA?

Not as easy as that. In order to keep us all safe, the British government has introduced a new set of rules, such as:



UKCA requires third-party conformity assessment, carried out by a UK conformity assessment body;

The UK Declaration of Conformity must be drawn up lawfully bearing

a UKCA marking. This recognises new use and size requirements;

UK designated standards, rather than standards cited in the Official Journal of the European Union!

And after all that, to sell within the EU manufacturers will need to continue to label goods with the CE mark. The UKCA mark will not be recognised for products being placed on the EU market!

## OTHER EU CONSIDERATIONS WHICH MIGHT CATCH YOU OUT:

**Passports:** You may need to renew your British passport earlier if you're travelling after from 1 January 2021. On the day you travel, you'll need your passport to:

- have at least 6 months left;
- be less than 10 years old (even if it has 6 months or more left);
- If you do not renew your passport, you may not be able to travel to most EU countries.

**Driving:** You may need extra documents from 1 January 2021. You might need an international driving permit (IDP) to drive in some countries and if you're taking your own vehicle, you might also need a 'green card' or valid proof of insurance and a GB sticker. Just like old times. Remember those queues!

**Healthcare:** Check you are covered: your European Health Insurance Card (EHIC) will only be valid up to 31 December 2020. You should always get appropriate travel insurance with healthcare cover before you go abroad.

For some countries **free mobile roaming** may end. From 1 January 2021, the guarantee of free mobile phone roaming throughout the EU, will end. Check with your phone operator to find out about any roaming charges you might get from 1 January 2021.

Think of how many confusing rules the UK Government has proposed over Covid-19?

I'm in the market for 'UKAC' ear protectors.

Oh, and don't forget to wear your mask!

## SAFETY AWARENESS

If you are fortunate enough to have a Christmas or New Year production planned remember a theatre can be a dangerous workplace. Electricity can kill, so too can falling lanterns and scenery. Proper safety measures must be adhered to at all times. There is always a chance of trips and slips. So, keep your eye open and ensure you are wearing the correct safety gear (Personnel Protection Equipment) for your work.

- If you are firing Pyrotechnics, guard your eyebrows and don't forget to unplug the pyro-pot from the firing system before loading it up! A good fire blanket on stand-by is also a must.
- During lock-down your headset will have been idle and bacterial things can materialise! For the sack of your well-being they should be given a good wipe with an anti-bacterial.
- Before we start the fit-up, it is important to prepare our body for manual work. Dancers warm up before performing. Footballers, athletes, etc all warm up – if you are to move

heavy sets and props around, YOU must also warm up.

- A warm up helps your body prepare itself for exercise both mentally and physically and reduces the chance of injury. Use this time to help prepare your mind for the exercise that will follow. The aim is to increase circulation around the body, in a gradual manner, not to put any pressure onto the body. During the warm up any injury or illness you have can often be recognised, and further injury prevented.




## TYING KNOTS

It is extraordinary how few theatre technicians practice the art of **tying knots** or how to look after the rope. Appreciate a good rope – they have their character and if looked after will last you a long time. A rope will not look after you if left lying on the ground gathering dust.

A good flyman will teach you how to 'whip' a flying line or tension up a pulling rope on the flying cradles when it becomes slack. It will take weeks of practice to master good rope techniques.

What is important to understand that you and actors have to stand underneath the flying mechanisms so there can be no error in our calculation. In the past theatre crews were often made up of out of work sailors as they were the only people who could be trusted to use rope safely, but it was not a good idea to whistle near them...?

**A couple of easy knots to practice:**

<p><b>Bowline</b></p> <ul style="list-style-type: none"> <li>• Breaking strength reduced by: 55-60%</li> <li>• Easy to release after loading</li> <li>• Used for tying off to objects</li> <li>• Can work loose when slack</li> <li>• NEVER to be used for lifting people.</li> </ul>	
<p><b>Clove hitch</b></p> <ul style="list-style-type: none"> <li>• Breaking strength reduced by:</li> <li>• 60 – 65%</li> <li>• Easy to release after loading</li> <li>• Used for tying off to objects</li> </ul>	
<ul style="list-style-type: none"> <li>• Should be finished off with a backup hitch</li> <li>• For critical applications 2 backup should be used as shown</li> </ul>	

## WORKING AT HEIGHT 2005

(Reg 2.1) 'Work at height' covers all work activities where there is a possibility that a fall involving a distance liable to cause injury could occur.

An area prone to incident: step ladders / aluminium ladders. They have the advantage of being light in weight. However, their disadvantages are that they do not withstand sudden shock, or overloading, and can fail without warning; aluminium is a conductor – so such ladders should be used with caution where there is the potential for contact with live electrical cables or flash over (arcing).

Check your ladder is manufactured to BS EN 131. and inspected and recorded to the ABTT ladder inspection sheet.

Your safety file must feature a risk assessment for any work at height and should be proportionate to the risks involved, some of the factors you will need to consider include:

- the job to be performed;
- most suitable equipment for the task after a risk assessment;

- duration of the task;
- numbers of people required to undertake the task;
- frequency with which the task needs to be performed;
- conditions on site, for example the ground conditions need to be stable and secure enough to support the work equipment;
- risks that arise from pre and post use of the equipment for example in installing and dismantling scaffolding;
- the total exposure of all the workers involved to risk, and the degree of that risk;
- competence of the workers and the level of supervision required;
- rescue procedures if something goes wrong.

Good Luck

## BS546 5A AND 15A SOCKETS AND PLUGS – CAN THEY STILL BE USED?

This question was raised at a recent ABTT Safety Committee. The committee does not recommend the continuing use of BS 546 connectors from a Safety Risk Assessment viewpoint. The BS 546 connectors were a domestic connector and never really made for professional/industrial use. We know of many instances of plug tops coming off, electric shock due to fingers being in contact with the pins when withdrawn from a live socket (hence the Regulations of 1994), overheating causing fires, PAT failures primarily due to the earth wire coming out first, only one screw for each terminal and a completely inadequate method of flexible cable retention and especially an inability to accommodate anything other than 1.5mm<sup>2</sup> flex.

The ABTT recommends in *Technical Standards for Places of Entertainment* that every flexible extension lead shall have at least 2.5mm<sup>2</sup> csa cores.

It would be difficult to justify/defend the continued use of unshuttered/unsleeved BS 546 connectors if you were to be prosecuted under the *Electricity at Work Regulations 1989*.

Simple answer, change to 16 Amp connectors complying with BS 60309.



New From ETP

# THE SOUND OF THEATRE



From the Ancient Greeks to the Digital Age

by **David Collison**

402pp £24.95 ISBN: 9781904031956

David Collison traces the history of theatre sound from Ancient Greece to the 20th century. Medieval sound effects are described, along with sound in Shakespeare's plays, and mechanical effects in the 18th and 19th centuries, including wind machines, thunder runs and battle effects. The sound for the famous 1925 play "The Ghost Train" is also explained.

A chronology of key inventions follows developments from cylinder and disc recording, tape machines and cassette recorders, through to audio systems in the digital age. Sound design for Broadway and West End musicals is extensively covered with anecdotes and personal recollections from many of the pioneers, including the author's 30 years as a leading sound designer.

Available from [www.etbooks.co.uk](http://www.etbooks.co.uk) and [www.amazon.co.uk](http://www.amazon.co.uk)



A SYMPOSIUM PRESENTED BY THE ABTT IN ASSOCIATION  
WITH THE ROYAL NATIONAL THEATRE

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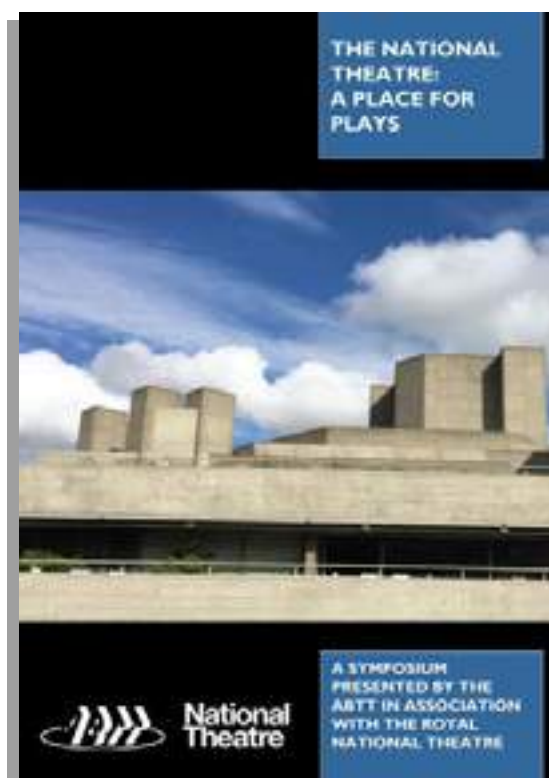
ABTT MEMBERSHIP PRICE: £8.95

[www.abtt.org.uk](http://www.abtt.org.uk)

### About the Book:

Paule Constable and Richard Pilbrow hosted a one-day Symposium on 30th October 2016 to celebrate the 40th Anniversary of the opening by Her Majesty the Queen of the National Theatre designed by Sir Denys Lasdun. The National Theatre: A Place for Plays, presented by the Association of British Theatre Technicians in association with the National Theatre, was about Theatre and Architecture: a discussion, a confrontation, a misunderstanding or a collaboration?

This book contains a transcription of the discourse, debate and dissent that took place on the day.





## COLLECTIVE STRENGTH

### Organisations Affiliated to the ABTT

#### Are you listed?

Any non-profit organisation is qualified to be affiliated to the Association of British Theatre Technicians. Please contact the Office to enquire about benefits and affiliation:  
020 7242 9200 or [office@abtt.org.uk](mailto:office@abtt.org.uk)



**AFFILIATE  
2020**

[www.abtt.org.uk](http://www.abtt.org.uk)

**Large Affiliate**



**AFFILIATE  
2020**

ORGANISATION	LOCATION
Abbey Theatre Trust Ltd	St Albans
Aberystwyth Arts Centre	Aberystwyth
Alhambra Theatre	Bradford
Alleyns School	London
Arts Educational Schools	London
Arts University Bournemouth	Poole
Attenborough Arts Centre	Leicester
Barbican Centre	London
Barn Theatre Trust Ltd	Welwyn Garden City
Bath Spa University	Bath
Battersea Arts Centre	London
Bedales Olivier Theatre	Petersfield
Belgrade Theatre	Coventry
Bibliothèque Nationale de France	France
Birmingham Hippodrome	Birmingham
Birmingham Repertory Theatre	Birmingham
Birmingham Royal Ballet	Birmingham
Blackpool Grand Theatre	Blackpool
Blackwood Miners Institute	Blackwood
Bloomsbury Theatre and Studio	London
Bristol Old Vic Theatre	Bristol
Bristol Old Vic Theatre School	Bristol
Broadway Cinema and Theatre	Letchworth Garden City
Bryanston School	Blandford
Buxton Opera House	Buxton
Byre Theatre	St Andrews
Cambridge Arts Theatre	Cambridge
Cambridge Junction	Cambridge
CAST	Doncaster
Central and Brook Theatres	Chatham
Central Saint Martins UAL	London
Century Theatre	Markfield
Chapter	Cardiff
Chichester College	Chichester
Chichester Festival Theatre	Chichester
Chroma-Q Theatre	Leeds
Citizens Theatre	Glasgow
City College Norwich	Norwich
Civic Centre Craigavon	Craigavon, N Ireland
Civic Theatre Chelmsford	Chelmsford
Clwyd Theatr Cymru	N Wales
Concordia Theatre	Hinckley
Connaught Theatre	Worthing
Contact Theatre	Manchester
Cork Opera House	Cork, Ireland

Corn Exchange Newbury	Newbury
Cornwall College - St Austell	St Austell
Coventry City of Culture Trust	Coventry
Cranleigh School	Cranleigh
Curve Theatre	Leicester
Darlington Hippodrome	Darlington
De Montfort Hall	Leicester
Derby Theatre	Derby
East 15 Acting School	Loughton
Eden Court Theatre	Inverness
English National Ballet	London
Entertainment Technology New Zealand (ETNZ)	Wellington, New Zealand
Epsom Playhouse	Epsom
Equity	London
Everyman Theatre - Cheltenham	Cheltenham
Fife College	Kircaldy, Scotland
Giggleswick School	Settle
Glyndebourne Productions Limited	Lewes
Goldsmiths, University of London	London
Grand Opera House	Belfast, N Ireland
Greenwood Theatre	London
Grove Theatre	Dunstable
Guildford School of Acting	Guildford
Guildhall School of Music & Drama	London
Harlow Playhouse	Essex
Harrogate Convention Centre	Harrogate
Harrogate Theatre	Harrogate
Huddersfield University	Huddersfield
Hull College	Hull
Hull New Theatre	Hull
Hull Truck Theatre	Hull
Island Arts Centre	Lisburn
Kenneth More Theatre	Ilford
Kiln Theatre	Kilburn
Kings College London	London
Kings Lynn Corn Exchange	Kings Lynn
Korea Testing Laboratory	Seoul, South Korea
Lakeside Arts Centre	Nottingham
LAMDA	London
Leeds Playhouse	Leeds
Leisure and Cultural Service Dept	Tsim Sha Tsui, Hong Kong
Lighthouse Theatre	Kettering
Lighthouse, Poole's Centre for the Arts	Poole
Lincoln Performing Arts Centre	Lincoln
Little Angel Theatre Company	London
Live Theatre	Newcastle Upon Tyne
Liverpool Everyman & Playhouse	Liverpool
Liverpool Institute for Performing Arts	Liverpool
Loughborough Town Hall	Loughborough
LSO Production Ltd	London
Lyric Theatre	Belfast
Lyric Theatre Hammersmith	London
Malvern St James	Great Malvern
Malvern Theatres Trust Ltd	Malvern
Manchester Grammar School	Manchester
Manchester Metropolitan University	Crewe
Marina Theatre	Lowestoft
Market Harborough Drama Society	Market Harborough
Melton Theatre at Brooksby Melton College	Melton Mowbray
Mercury Theatre	Colchester
Millfield Arts Centre	London
Mountview Academy of Theatre Arts	London
National Dance Company Wales	Cardiff
National Theatre of Scotland	Glasgow
National Theatre Wales	Cardiff

New Victoria Theatre	Newcastle Under Lyme
New Wolsey Theatre	Ipswich
North East Scotland College	Aberdeen
Northbrook Metropolitan College	Worthing
Northern Ballet Ltd	Leeds
Northern Stage	Newcastle Upon Tyne
Northumberland Theatre Company	Amble, Northumberland
Northumbria University	Newcastle Upon Tyne
Nottingham Playhouse	Nottingham
Nottingham Trent University	Nottingham
Nuffield Theatre	Southampton
Octagon Theatre - Bolton	Bolton
Old Vic Theatre Company	London
Oldham Coliseum Theatre	Oldham
Oldham College	Oldham
Opera North	Leeds
Palace Theatre Mansfield	Mansfield
Palace Theatre Watford	Watford
Perth College UHI	Perth
Petersfield Town Council	Petersfield
Plymouth Theatre Royal	Plymouth
Pontio	Bangor
Queen Mary University of London	London
Queen's Theatre Hornchurch	Hornchurch
Queensland University of Technology	Kelvin Gore, Australia
RADA	London
Redbridge Drama Centre	London
Regents College	London
Riverside Studios	London
Roedean School	Brighton
Roehampton University	London
Rose Bruford College	Sidcup
Rotherham College	Rotherham
Royal Albert Hall	London
Royal & Derngate Theatres	Northampton
Royal Birmingham Conservatoire	Birmingham
Royal Conservatoire of Scotland	Glasgow
Royal Holloway University of London	Egham
Royal Lyceum Theatre	Edinburgh
Royal National Theatre	London
Royal Northern College of Music	Manchester
Royal Opera House	London
Royal Shakespeare Company	Stratford Upon Avon
Rugby Theatre	Rugby
RWCMD	Cardiff
Saffron Hall Trust	Saffron Walden, UK
Salisbury Playhouse	Salisbury
Scottish Opera	Glasgow
Sharjah Performing Arts Academy	Sharjah
Sheffield Theatres	Sheffield
Sheringham Little Theatre	Sheringham
Sherman Theatre	Cardiff
Southport Dramatic Club	Southport
Snape Maltings	Saxmundham
Soho Theatre	London
Stafford Gatehouse Theatre	Stafford
Stockton Riverside College	Stockton-On-Tees
The Abbey Theatre	Dublin, Ireland
The Albany	London
The Albany Theatre	Coventry
The Almeida Theatre	London
The Anvil Arts	Basingstoke
The Backstage Centre	Purfleet

The BRIT School for Performing Arts & Technology	Croydon
The Broadway Theatre	Barking
The Courtyard	Hereford
The Electric Theatre	Guildford
The English Stage Co Ltd	London
The Exchange	Sturminster Newton
The Forum	Barrow-in-Furness
The Green A Team	Petersfield
The Hexagon	Reading
The Kings School	Worcester
The Kings Theatre	Southsea
The Leys School	Cambridge
The Lowry	Salford
The Market Place Theatre and Arts Centre	Armagh, N Ireland
The Northern School of Art	Hartlepool
The Performance Centre	Penryn
The Perse School	Cambridge
The Point Theatre	Eastleigh
The Riverfront	Newport
The Roundhouse	London
The Royal Central School of Speech & Drama	London
The Royal Exchange Theatre	Manchester
The Ryan Theatre	Harrow
The South Bank Centre	London
The Stahl Theatre	Peterborough
The Town Hall	Hamilton
The Winter Gardens	Margate
The Yard Theatre Limited	London
Theatr Genedlaethol Cymru	Carmarthen
Theatr Hafren	Newtown
Theatre by the Lake	Keswick
Theatre Royal and Royal Concert Hall	Nottingham
Theatre Royal Bath	Bath
Theatre Royal Dumfries	Dumfries
Theatre Royal Norwich	Norwich
Theatre Royal Stratford East	London
Theatre Royal Wakefield	Wakefield
Theatre Severn	Shrewsbury
Trinity Laban Conservatoire of Music and Dance	London
Trinity Theatre	Tunbridge Wells
Unicorn Theatre/Caryl Jenner Productions Ltd	London
University of Central Lancashire	Preston
University of Derby	Derby
University of East Anglia	Norwich
University of Hertfordshire	Hatfield
University of Hull	Hull
University of Wales, Trinity St David	Carmarthen
Venue Cymru	Llandudno
Vivacity Key Theatre	Peterborough
Wales Millennium Centre	Cardiff
Warwick Arts Centre	Coventry
Wellington College	Crowthorne
Welsh National Opera	Cardiff
West Kowloon Cultural District Authority	Kowloon, Hong Kong
Whitchurch Civic Centre	Whitchurch
Wokingham Theatre	Wokingham
Woolwich Works	London
Wycombe Arts Management	High Wycombe
York St John University	York
York Theatre Royal	York
Young Vic Theatre	London
Zuni Icosahedron	Happy Valley, Hong Kong



# TECHNICAL STANDARDS FOR PLACES OF ENTERTAINMENT

**NEW FOR 2020**

## COLLEGE LICENCE

**Give 20 students online access to  
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- *Receive a unique serial number for the use of up to 20 students*
- *Each user registers for an access link on a dedicated website*
- *First registration activates 12 months' validity for the licence*
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**Price: £180 Plus VAT**  
**Available from the ABTT Online Shop**  
**[www.abtt.org.uk](http://www.abtt.org.uk)**

*The Health and Safety Executive acknowledges that these  
Technical Standards have been developed by an entertainment industry  
Standing Committee to help make improvements in building, maintaining,  
managing and operating places of entertainment.*

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