

Sightline

Journal of Theatre Technology and Design

Autumn 2021

Theatre projects:
Mercury Theatre, Colchester
Stockton Globe
Theatre Royal Drury Lane
Trafalgar Theatre

Peter Moro and Partners – Theatres and Beyond
Modern Theatres – reviewed





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Theatre Royal Drury Lane
Photo: Haworth Tompkins/Philip Vile

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Editorial

One of the most obvious indicators of the theatre industry coming back to life is the number of theatres re-opening after their capital projects. This is wonderful to see, but has presented *Sightline* with an unexpected challenge. I love covering capital projects, and I know that readers enjoy reading about them as well. However, for this edition, I was faced with an embarrassment of riches! We have ended up covering four major theatre projects, but I am very aware that there are others out there that we haven't been able to include, for which I apologise. Hopefully, we'll be able to include these in future issues.

One of the highlights of the last couple of months for me has been visiting theatres again, both as an audience member but also to understand more about their capital projects. I was delighted to go to the Mercury in Colchester at the start of July. Not only was this a theatre I used to work at, and have very fond memories of, but it was incredibly positive to see the theatre coming back to life in its first few days after re-opening. The renovation will enable it to fulfil its role as a community hub, and is a tribute to the hands-on involvement of its team, and the support of its local authority.

A contrasting scheme is the renovation of the Theatre Royal Drury Lane, led by architects Haworth Tompkins. I was lucky enough to tour around the theatre in late July, and even doing so on one of the hottest days of the year didn't detract from my admiration of this impressive scheme which manages to both take the theatre back to its Georgian roots, and make it a much more accessible and inclusive building.

Sadly, I was unable to visit the Stockton Globe, but David Wilmore, lead consultant on the project, has written about this major scheme, driven by a local authority who totally understand the role that a venue can play in the regeneration of its high street and local economy. This has been endorsed by a just released Arts Council report. The evidence in this report should encourage other local authorities to follow

the examples of Colchester Borough Council and Stockton on Tees Borough Council.

Our final theatre project is the Trafalgar Theatre, previously known as the Whitehall. Architect Tim Foster outlines the considerable research which went in to the restoration of this theatre to its 1930s glory. I remember visiting the theatre at one of the low points in its history, when it was known as The Theatre of War – I seem to remember a LOT of camouflage netting – and it's wonderful to see how it now looks.

It would have been a lovely coincidence if one of the theatres included had been designed by eminent theatre architect Peter Moro, but I sadly couldn't arrange this! Architectural Historian Alistair Fair outlines Peter Moro's achievements, which go far beyond theatre, as an introduction to his major book, due out in the autumn.

There do seem to be quite a lot of interesting theatre-related books around at the moment. David Staple's long-awaited *Modern Theatres* is now available, and we asked Theatre Consultant John Riddell to review it for *Sightline*. We also asked Richard York to review Michael Hall's fascinating piece on the changes to lighting technology between 1800 and 1900. There will be other book reviews in the next edition of *Sightline*.

We are aiming to get this edition of *Sightline* out in time for the ABTT/PLASA show, on 5-7 September. This will be the first major trade event to take place in real life for quite some time, and I am looking forward to being there, and hopefully catching up with people in real life. If you aren't able to be there, we will, of course be reporting on the highlights in the next edition – most notably the ABTT Awards.

Oh, and my theatre visit. I finally got to the National Theatre to see *Under Milk Wood* (my third attempt to see a show there) – in the reconfigured Olivier. It was wonderful!

Rebecca Morland
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The Stockton Globe or

“Theatre Stock in a Global Pandemic”

by David Wilmore



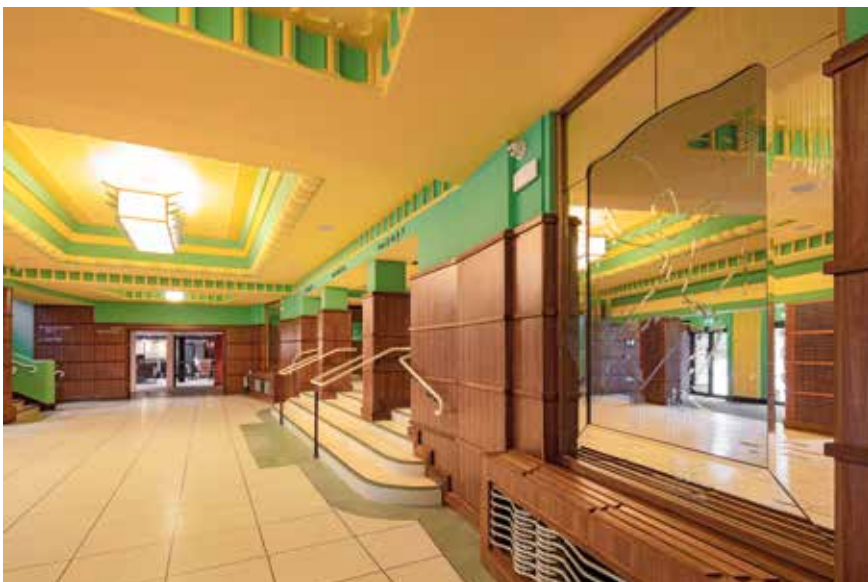
The Globe Theatre: a grade II listed building built in 1935 by two local butchers as a replacement to two earlier cinemas and incorporating their very own meat emporium whilst using the Shakespearean quotation, “The Play’s The Thing”. Frankly a more unlikely intimate drama house you could not imagine – seating almost 2,372 with a wide single balcony the Globe was from the outset a classic “super-theatre” designed during that much neglected period; the inter-war theatre building boom. Novocastrian architects Percy L. Browne and Alfred Harding created a classic piece of architectural “hedging” – it looked like a typical Art Deco cinema equipped with

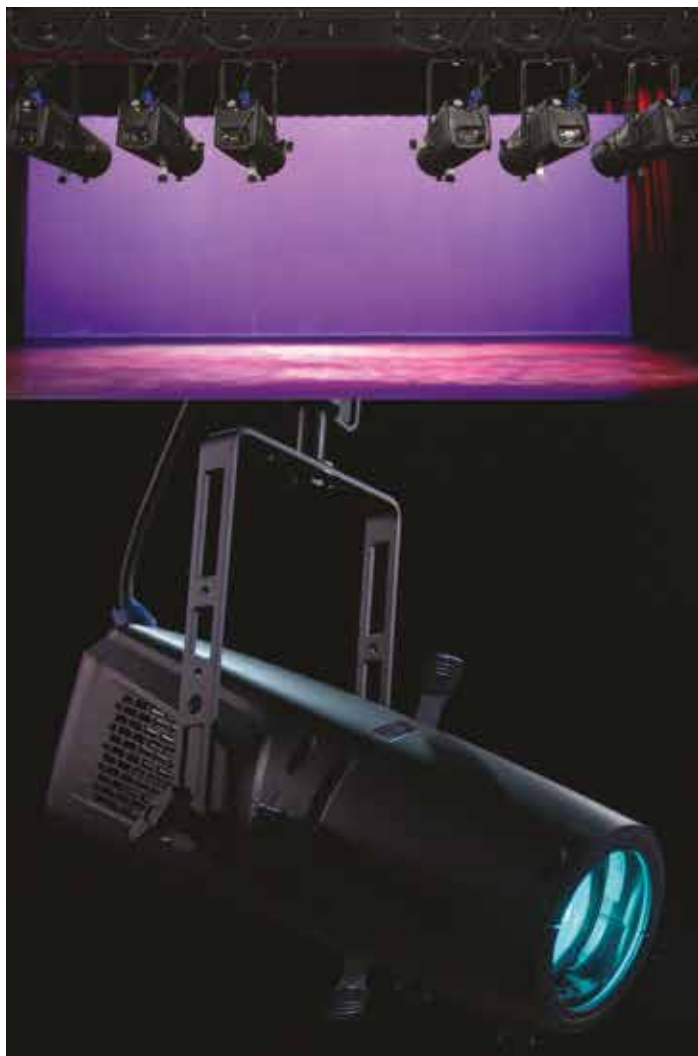
a huge projection room, and (just in case) a large stage house fully equipped with single purchase counterweights, dressing rooms and an orchestra pit.

During those heady inter-war years the Globe must have sat slightly uncomfortably within a High Street which was recognised as one of the most complete Georgian market towns in the country. It is likely that the planners even as early as 1935 insisted upon the stalls being excavated 8 metres below street level in order to reduce the massing of this huge building within such a sensitive setting.

Clearly “The Play *Wasn’t* The Thing” and the butchers sold out to ABC Cinemas in 1938, but the building continued as a split operation for many years with annual pantomimes, and visits from all the usual touring companies including Carl Rosa Opera, the Royal Ballet and D’Oyly Carte.

On the 22nd November 1963 Beatlemania arrived in Stockton and during the performance news broke of President Kennedy’s assassination. In 1977 the bingo fraternity came riding over the hill to take control of the building – our surviving theatre heritage would have been so much poorer without this numbers game! Unwittingly they have been (and in certain instances continue to be) temporary occupants, custodians and ultimate saviours of so many historic theatres. Eventually even bingo began to struggle in Stockton and the doors were finally closed in 1996. The building then changed hands





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on numerous occasions, but against all the odds planning application after planning application failed to gain consent and the building fell asleep ... and in consequence of its subterranean nature it became a flooded “aqua-drama” on the Theatres Trust “Theatres At Risk Register”.

Move forward to 2012 – and Stockton-on-Tees Borough Council were already in hindsight ahead of the game – redeveloping and restoring the town centre, whilst repurposing the High Street to halt the perceived decline – a decline which no one could have envisaged would accelerate so quickly for so many different reasons. It is fair to say that the grade II listed Globe was in the last chance saloon – forgotten about and boarded up. Yet it simply would not lie down in front of the bulldozers! The Council took out an option to purchase the theatre and move forward

with a National Lottery Heritage Fund bid which was eventually awarded through the Heritage Enterprise Scheme. With COVID-19 “top-ups” the project received £5.2M out of a total construction cost of £28M. Sceptics may gasp at the cost, but let’s be absolutely clear about this: theatre restoration has now moved into a completely new era. It is no longer just about the restoration of a historic theatre for performance, it is about the regeneration of our High Streets. When the decision was made to move forward with the project I always remember commenting to the Chief Executive of Stockton-on-Tees Borough Council about what a brave move they had made. His reply was typically straight to the point, “How else can we attract 3,000 people into Stockton on a wet Tuesday evening in November?” The figures that support this statement are unequivocal:

The gross value added (GVA) after 5 years of operation is estimated at £38.3 million and £80.5million after ten years. 256 jobs created with 90 from direct operation and the supply chain and 166 from attendee spend.

Work started on planning the project in 2011 and in April 2012 the project was handed over to Stockton-on-Tees Borough Council who entered into an operating agreement with Ambassador Theatre Group (ATG) who will programme and manage the venue which is scheduled to open in September 2021.

So what do you get for all the blood sweat and tears of almost a decade’s work?

A theatre capable of seating 1,661 and with standing rather than seats in the stalls the capacity rises to something approaching 3,000. The design specification has been developed for a mixed programme of entertainment which will focus on live music, comedy and theatre use. There is always a tightrope to walk when careful consideration has to be given to both the historic nature of a grade II listed building and the needs of a commercial operator and a twenty-first century audience. In a footprint originally intended for 2,372 using the standards of 1935 we found ourselves needing to accommodate toilets and bars for 3,000 in far more demanding times. Good fortune smiled upon the project because the property adjacent to one side of the theatre was also in the same ownership but also grade II listed! By combining the two properties (Art Deco meets 18th century!) it was possible to provide all the necessary additional facilities whilst at the same time providing a café bar fully equipped with a small stage within the adjacent building now known as “The Link”. This provides not



only useful overspill and direct connectivity into the main venue but also doubles as a 200-capacity venue in its own right as well as a daytime facility which helps to invigorate the High Street during the day.

Bingo, as it so often has done, covered up a lot of the original features within the building, but the development of a full Conservation Plan at an early design stage allowed us to understand the architect's original intentions and we were further gifted by the survival of the original architectural drawings and the discovery of a copy of the original opening brochure. Elements that had been lost, such as the two wonderful Commedia D'Elle Arte mirrors depicting Harlequin and Columbine in the main foyer were faithfully reinstated. Yet this could not be a slavish restoration – it had to be responsive to the needs of the future and interventions such as the levelling of the stage which was like Weetabix after years in an underwater habitat. This change was driven by the need to modify the sightlines from the stalls to accommodate standing, as well as to store all the removable seats under the stage. After much consideration we installed a Serapid elevator which also triples as a transfer lift for the removable seating, an orchestra pit lift, and a forestage extension. Similarly a get-in more than 8 metres above the stage needed to be carefully considered and again a Serapid lift was the preferred solution.

The journey of the restoration has been a long and winding road – constantly challenging, enormously complex added to which the little matter of COVID-19 compliant construction and everything that comes with it. Whilst many people reading this article will be interested in the theatre and its architecture, the real story here is the one of vision and determination that has been driven by Stockton-on-Tees Borough Council. A budget of £28 million is of course an enormous undertaking, but when you see the Globe within the context of what else is happening in Stockton it becomes a critical piece in a much bigger piece of strategic thinking. This vision includes: the construction (with a retained financial stake) in a Hampton by Hilton hotel adjacent to the Globe, the purchase of two enormous shopping centres; one scheduled for demolition and future redevelopment as an urban riverside park with office space and community facilities along a reinvigorated River Tees waterfront. Whilst the other will be consolidated for core retail centre ... and oh yes I forgot to mention an already completed £25million streetscape initiative complete with fountains, automaton and event street lighting for the Stockton International

River Festival (SIRF). This is how to re-invent the High Street, it requires vision, bravery, long-term commitment and investment ... and the message for our industry, local authorities and government? Theatres are here to stay ... they are the heart of our communities and the soul of our High Streets.

CREDITS

Client:	Stockton Borough Council
Lead Consultant for SBC:	Theatresearch Ltd., David Wilmore
Main Contractor:	Willmott Dixon Construction Ltd.
Architects to RIBA Stage 2:	Sansome Hall Architects Ltd.
Architects: RIBA Stage 2 to Practical completion:	Space Architects Ltd.
M&E Consultants:	MaxFordham LLP, (Manchester Office)
Structural Engineers:	BGP Teesside
Quantity Surveying and Project Management:	Driver PLC
Fire Consultants:	Design Fire Consultants
Technical Equipment Consultant to Stage 2:	Chris Baldwin
Stage Engineering:	Centre-Stage
Technical Equipment & Infrastructures:	Stage Electrics

STAGE ENGINEERING by Centre-Stage

Orchestra Pit Lift

Serapid Linklift drive transmission.
 Floor area = 26.87m²
 Dynamic load 2kN/m² (5.48 tonnes)
 Static load 7.5kN/m² (20.55 tonnes)
 Travel 2.835m (from basement to stage)

Powered House Curtain Hoist

Zero Fleet Angled hoist unit
 300kg safe working load
 Maximum speed 1.2m/s

Scenery Get In Lift

Serapid Linklift drive transmission.
 Floor area = 18.15m²
 Dynamic load 2.5kN/m² (4.625 tonnes)
 Static load 10kN/m² (18.5 tonnes)
 Travel 4.5m (from stage to scene dock)
 Interlocked barrier system

Proscenium Safety Curtain (counterbalanced) System

Safety curtain panel size 16m width x 9.05m high.
 Safety curtain weight 7.5 tonnes.
 Hydraulic arrestor motorised hoist (FireFly Hoist) rated at 500kg SWL.

Single Purchased Counterweight System

26 sets, 4-line suspensions, 450kg UDL on the bar.
 Truss bar length 15.74m
 Travel 16.5m

Adjustable Tormentors & Side Masking Panels

Side stage adjustable tormentors 7.9m high x 2m wide
 Travel on and off stage 1 metre.
 Side masking panels 7.86m high x 1.26m wide

Auditorium Lighting/Audio Trusses & Chain Hoist System

10 number 500kg SWL rated motorised chain hoists
 2 demountable trusses suspended via chain hoists for lighting/audio
 5 number ESpool cable management units

Circle Lighting Ladders

2 number circle lighting ladders complete with fall arrester and hauling line system.
 Ladder 5m high x 0.6m wide.



All photos © Sally Ann Norman

TECHNICAL EQUIPMENT by Stage Electrics

Production Lighting (Main House)

Stage Electrics Custom SLBs (Stage Lighting Boxes) – 246 Circuits
 ETC Sensor Power Distribution System – 288 ways
 High End Road Hog Lighting Console – 1 no
 Custom IWBs (Internally Wired Bars)
 Custom Curved Stainless Steel Balcony Bar
 sACN and DMX Network with Swisson Distribution

Production Lighting (The Link)

ETC ColourSource Power Distribution System
 ETC ColorSource Console 1 no
 Custom IWBs (Internally Wired Bars) 2 no

Houselights & Worklights

ETC Paradigm Control System – with touchscreen control full control of houselights/worklights with ability to record and recall scenes
 ETC Arc Lamp Houselights – 206 Fixtures / 104 Drivers – Custom RAL Fixtures
 ETC Blues System – 24 Zones – 88 Fixtures
 TDE LED Tape – Feature Lighting – 200m

Production Audio

D&B Audiotechnik Loudspeaker System – Average 105db across the auditorium – 3 Left 3 Right, 2 Centre , 7 Front Fill, 8 Subs, 18 Delays
 D&B Audiotechnik Fills & Monitors - M4 and V7P
 D&B Audiotechnik R1 Control – Via touchscreen from console location
 Yamaha CL5 Audio Console
 Dante Networking Building Wide – Primary & Secondary Dante

Production Communications

Stage Electrics Custom AVBs (Audio/Visual Boxes)
 Symetrix Audio Systems for Calls & Show Relay Systems with Symnet User Interface
 RCF Ceiling Speakers Building Wide – 86no
 Stage Electrics Custom SM Stage Managers Desk with Stage Electrics Cue Light System
 Panasonic PTZ Camera System
 Altair Wireless & Wired Intercom Systems
 Blackmagic Video Distribution

Infrastructure

9km of Data Cable
 8km of Loudspeaker Cable
 2.4km of Fibre
 3km of HD Video
 2.1km of Analogue Audio cable

Other

Specialist Lighting Control in main Bar & VIP Bar
 Interpretation Lighting + Control

Modern Theatres 1950-2020



David Staples
Drawings by David Hamer
Routledge
ISBN 9781138484382
Price: £59.99 (currently discounted
£47.99 via ABTT website)

Modern Theatres 1950-2020 is an impressive volume examining some of the theatres, concert halls and opera houses built or redeveloped since the post-war period. The hardback edition makes an attractive coffee table book of colour photographs, diagrams and drawings, bringing together relevant historical information about the funding, design and construction of the buildings, their place in their ever-changing geographical, political and social context, and summarising the production, technical and audience facilities, offering an authoritative, critical assessment. The book is a collaborative effort of more than 40 contributors from across the world, each with a specialism suited to the venue and topic they discuss, with considerable support from leading international journals and institutions involved in the design and construction of theatres, including the Association of British Theatre Technicians (ABTT) and *Sightline*.

The book is edited by theatre consultant David Staples, with original drawings by theatre designer David Hamer. At this point I should declare an interest, having worked with David Staples at Theatre Projects for ten years until his retirement in 2018, and still work there with the other David, however, the list of contributors is so extensive that it would be difficult to find a reviewer unconnected to any of them! Theatre architects are joined by acousticians, theatre consultants, engineers, producers and arts policy-makers. Staples approached 'leading thinkers and experts in their fields' and 'architects, theatre people,

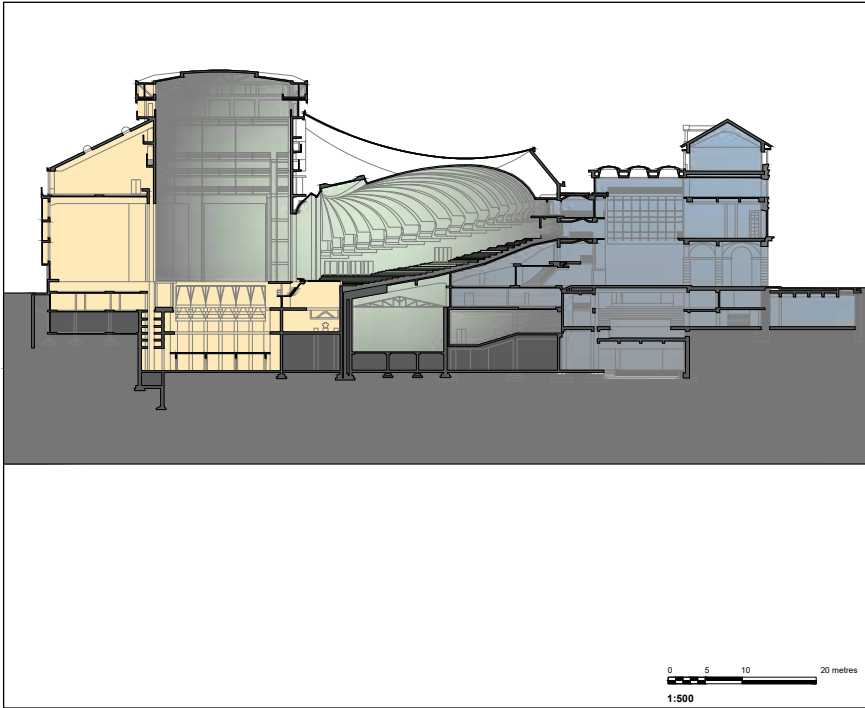
consultants, etc.' Practitioners do not have a strong voice; the foreword is by the late opera director Sir Graham Vick, but the 'theatre people' are otherwise represented by technicians, SMs- and PMs-turned consultant and is biased towards larger houses and regional and national arts organisations. Notable by his absence is Iain Mackintosh whose latest work is due out later this year.

The book is set out in three sections: part one Aspects of Modern Theatres; part two Thirty Significant Theatres 1950-2010; and part three Snapshots of Twenty Recent Theatres 2009-2020.

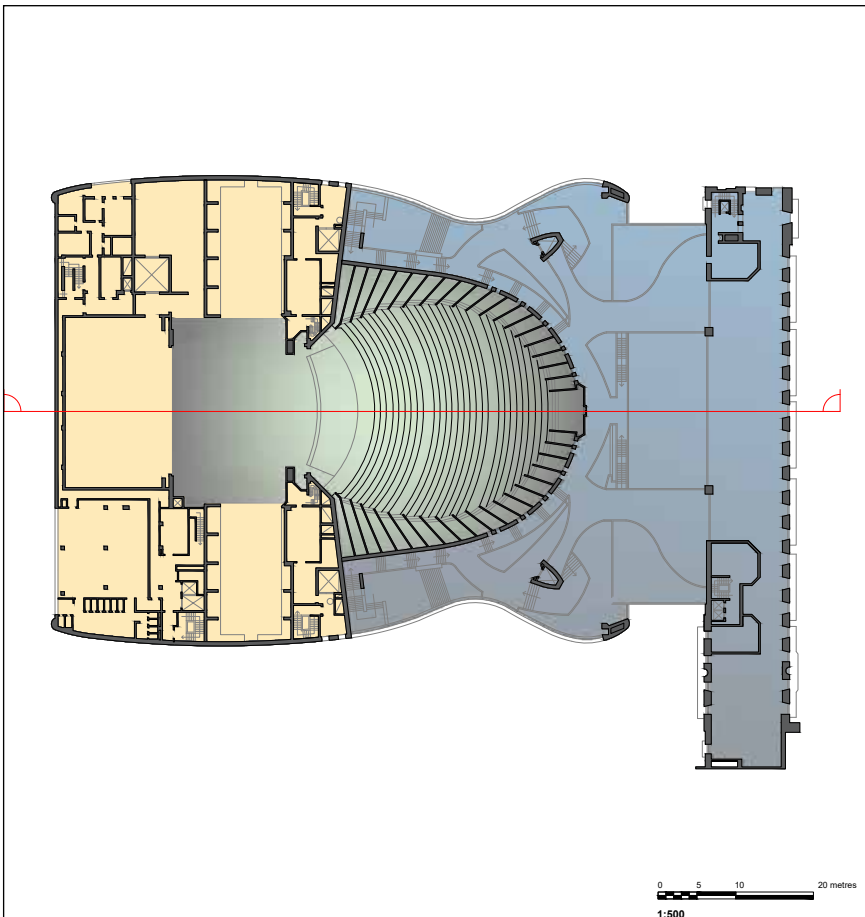
Part one is a series of essays – part-history lesson, part-assessment of current trends, and part-future speculation – which contextualise the work in parts two and three. It opens with an account by David Wilmore of architect Edwin O. Sachs, whose *Modern Opera Houses and Theatres* from the late-1890s introduced the *parallèle*, 'which presents architectural drawings in a consistent manner and at a constant scale', a technique used extensively in works on theatre buildings from Leacroft and Southern to this book where Hamer's drawings are at 1:200. A scale bar is included with each, but only in metric despite the considerable presence of US contributors.

US Theatre consultant Josh Dachs and British architectural historian Alistair Fair, whose own book on theatre architect Peter Moro is due to be released soon, give insightful essays exploring the developments in theatre architecture during the period – professionalisation of theatre, the emergence of theatre consultancy and organising of technical and production disciplines into bodies including the ABTT. Staples himself offers an essay on the concept of 'Global or World cities' and the contribution of the architecture of cultural infrastructure to their development. While he focuses on the largest cities, Staples acknowledges how venues have promoted regeneration and placemaking in other cities. Theatre consultant Robert Shook and Slovenian architect Boštjan Vuga discuss one of the most significant developments of the twenty-first century, the importance of theatre foyers to the sustainability of the venue and providing social value. In what he terms 'publicness', Vuga identifies how architecture can engage the building with the public realm encouraging passers-by to cross its threshold. Shook contrasts the exclusive nature of public spaces in historic theatres, which typically remain closed when a show is not on, with the expansive and welcoming all-day foyers of modern venues, referencing the work of Ray

Review by John
 Riddell



Teatro Regio



Oldenburg on Third Place – neither work, nor home, but an informal public gathering place. As with *Dachs* and *Fair*, the loose pairing of Shook and Vuga gives the book a balance of voices from the UK, North America, Europe and the rest of the world, highlighting the differences and similarities, with the same patterns and stories emerging.

Essays by Christopher Blair, Nicholas Payne and Tim Foster give a brief history of concert hall, opera house and playhouse design respectively. Technical disciplines are covered in masterly detail by Mark White on lighting and Chris Full on sound, with Mark Ager contributing an excellent essay on stage engineering. Ager credits the transistor with transforming shows by providing the processing needed to accurately control the movement of scenery, performers and equipment, while the arrangement of mechanical systems has changed very little. Raj Patel looks to the future of theatre technology, but not before reminding the reader that the job of the tech kit is to support the storytelling; directors and designers provoke improvements by pushing the kit to the extremes of capability. Patel muses on the contribution that virtual and augmented reality might make to performances – especially immersive theatre – questioning how the shared experience of theatre-going can be retained.

Part two, *Thirty Significant Theatres 1950-2010*, forms the bulk of the book. Staples gives compelling reasons for the apparently arbitrary choice of period of study. By starting in 1950 and ending in 2010, the book captures the post-WWII increase in theatre construction, the revolution in technology and the emergence of new specialisms in building design and theatre production. Staples points out a symmetry with 35mm Kodachrome film – introduced in 1950, discontinued in 2010 – the medium by which most of the beautiful images in the book were captured.

Staples' choice of that qualifier 'significant' is well-argued, with criteria used including, greatness, innovation, influence on subsequent buildings, role in the performing arts world. No venue performs well in all areas, which makes for some interesting choices; Sydney Opera House, for example, is architecturally great, but with problematic performances spaces. Staples gave the contributors free-rein to respond to their chosen theatres, so if you are looking for a book that methodically ranks the venues according to their score, this is not it.

All essays are part-history, part-critical

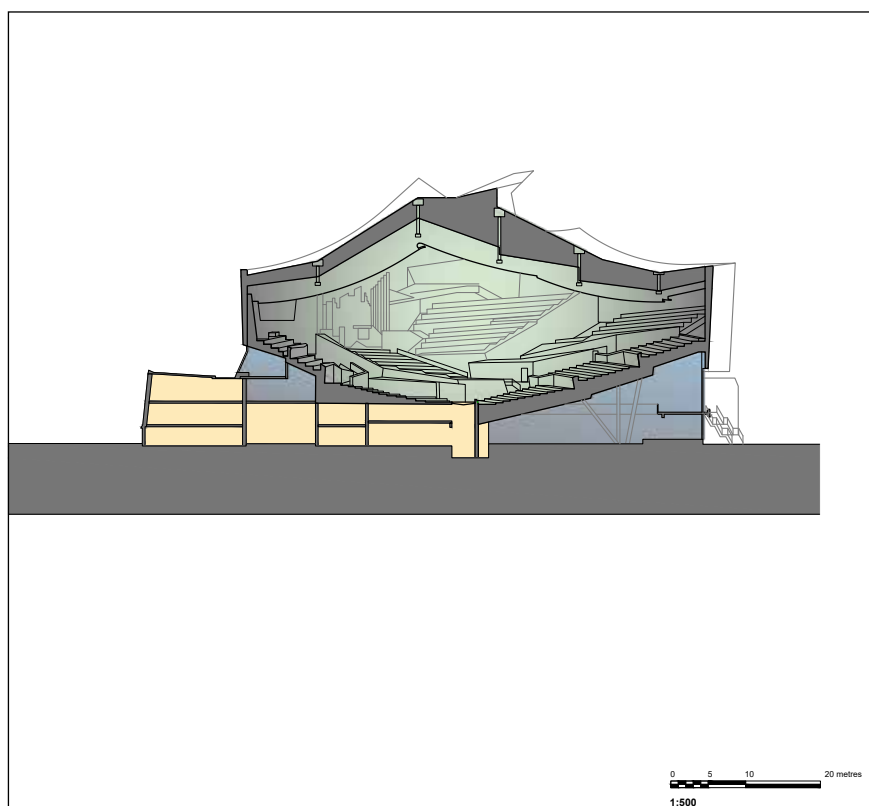
assessment, bringing to the reader's attention venues with which they might not be familiar and giving technical detail about the design. Each provides a critical assessment of performance spaces, functional layout, equipment, acoustics and foyers, and considers the procurement of the design, the challenges faced, subsequent changes made in construction, and, for the older venues, the major redevelopments made in subsequent decades. Familiar trends emerge in remodelling – improvements to acoustics and sightlines, replacement of technical equipment, and upgrades to front of house.

While the writers cite the opinion of other authors, none are afraid to take a personal, qualitative position on the building, the voice of each essay-writer emerging clearly, their interests communicated with passion and authority and ensuring a relevance to today. Andy Hayles passionately assesses the Royal Exchange Theatre, Manchester, but ponders how it might address the history of exploitation in its historic surroundings. There are many such nuggets; Paddy Dillon describing London's NT as one of the city's 'greatest architectural masterpieces' but gives a considered critique of the limitations of the Olivier and Lyttelton.

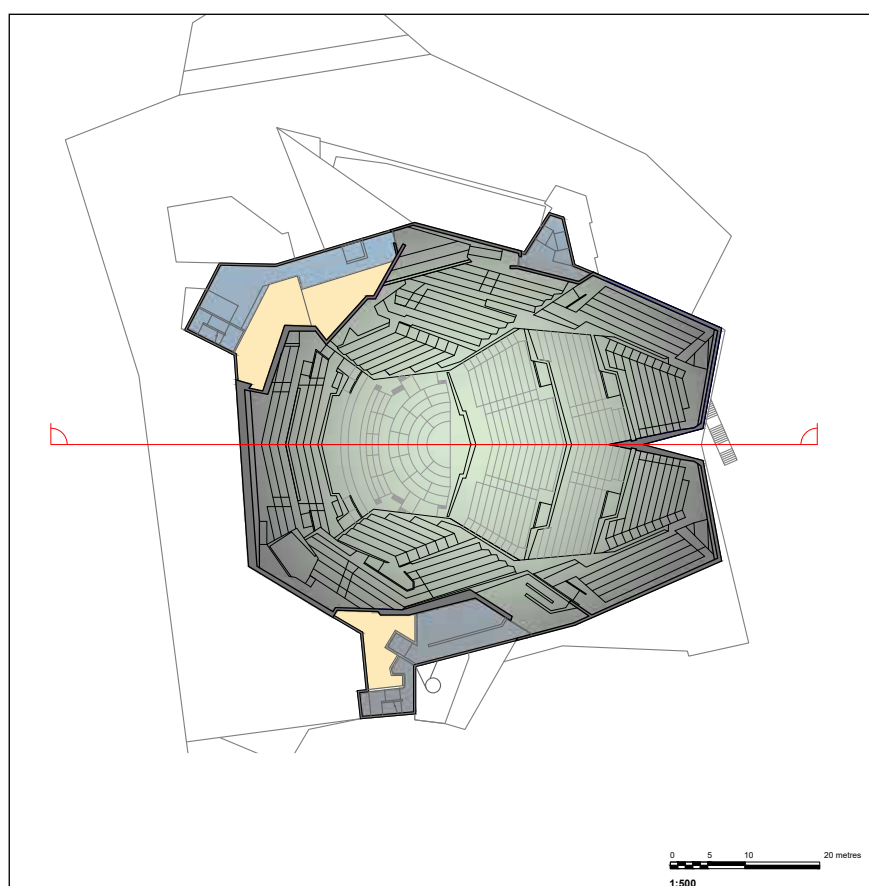
Most of the short snapshots in part three are written by Staples or Karin Winkelsesser, editor of *Buehnentechnische Rundschau* (BTR), the German periodical for stage technology, architecture and scenography. Given how new these venues are – Everyman, Bridge and The Shed in NYC, amongst others – this is more factual record than expressed expert opinion, so it would be interesting to read an update in another decade.

Staples draws the threads into a cohesive whole. His concluding chapter examines the emerging themes but is cautious about speculating too much on the future. The book was researched and written before COVID-19 devastated the performing arts, but in a poignant postscript, 'The Ghost Light', referring to the typically US practice of leaving a single bulb burning onstage when the theatre is dark, Staples backs the passionate and inventive spirit of theatre people to adapt as needed. I'm sure he's right, they always do.

This book deserves a place on the shelves of anyone interested in theatre space and architecture, especially those considering building or redeveloping a venue, and would make an effective companion volume to the ABTT's *Theatre Buildings – A Design Guide*, the latest edition of which will appear next year.



Berlin Philharmonie



All images courtesy of David Hamer

Mercury Rising –

Colchester Mercury Theatre transformed

Rebecca Morland

I worked at the Colchester Mercury a very long time ago, and then went on to work at Salisbury Playhouse. Both theatres were designed by Norman Downie in the 1970s – the Mercury in 1972 and the Playhouse in 1976 – and the architect pretty much used the same design for both theatres – allegedly flipping the design over so that the Studio theatre is on different sides in each theatre.

Both theatres are designed around a hexagonal stage and flytower above, and originally had their public areas following two of the lines of the central hexagon, only interrupted on the ground floor by a space for cars to drive underneath, which resulted in a not entirely useful ground floor triangular meeting room at the building's point.

Both were also built as producing theatres, but on constrained town centre sites meaning that space for production facilities, offices and dressing rooms (all of which wrap round the stage), were cramped and became increasingly unfit for purpose.

Salisbury has had two major renovations since the 1970s. And now Colchester's long-awaited scheme has been completed – managing in one fell swoop to transform its building, and vastly enhance what it can offer to its staff, its audiences and its wider community. I was delighted to visit just after it had re-opened and catch up with members of the team responsible.

Audiences and visitors will immediately notice

that the public areas of the theatre have been transformed. The ground floor foyer is now one enormous café bar which runs the whole length of the building's "point", with a large central island bar/sales point. The intention is that it is open all day, every day, and becomes a welcoming hub. The box office is now relocated to a spacious side area. Upstairs, what was the theatre's original bar is now a secondary space which can be used as an overflow bar or for private events. The overall feel of the public spaces is light and airy, with the existing floor to ceiling glass windows extended throughout and wooden floors throughout the ground floor. Upstairs, there are bright colourful shapes painted on the walls, and throughout the theatre there are a plentiful number of plants, reflecting the green spaces outside.

These green spaces are also being upgraded with the addition of large planters delineating the café bar's outside area. Additional paving and street furniture is planned to improve the links between the nearby multi-storey carpark and the Mercury, whilst the green area between the town's Roman Wall and the theatre provides a leafy and more casual outside area.

Other front of house improvements major on accessibility – the theatre now has lifts on each side taking audiences up to the auditorium entrances, as well as accessible toilets at different levels, and hearing loops in public areas. Video screens of different sizes are everywhere – as well as being used to provide information about forthcoming shows, they will





also be used on performance days to provide information about running times etc.

In addition, the theatre now has a large and well-appointed creative learning space, which is easily accessible from FOH – and which can therefore be used by the community for a wide range of activities whenever the theatre is open – and many more toilets.

The back of house transformation is less noticeable to the casual visitor, but even more

significant, not the least because it brings all the theatre's activities under one roof. There was a separate building at the back of the theatre (an unconverted residential house) which provided some additional production space, and this has now been demolished, allowing for a larger building footprint, whilst additional space has been gained at first floor level as well. The well-appointed workshop remains, but has now been joined by a wardrobe space,





and a new dock door improving access to the stage. The highlight is a large light double-height rehearsal room, which is big enough for a main house mark-up, and a generous provision of dressing rooms. There is also a separate generously sized dance studio with sprung floor, ballet barre and mirror wall (the theatre is the base of two regional dance networks). Also notable is a large open plan office, which will not only house nearly all the Mercury's staff but will provide hot-desking for local creatives. Operationally, open plan

offices can prove challenging, but these have been well-thought out in terms of layout, and there are also two nearby meeting rooms for more private discussions (named, delightfully, after Steve Mannix, Executive Director and Nik Frampton, Projects and Facilities Manager – in recognition of their major roles in the Capital project). Access is equally important back of house, which is now step-free throughout – as well as a lift and accessible toilets/shower room, there is additional provision in dressing rooms, including a moveable hoist.



The main house auditorium has not been significantly changed – it was very much a space that worked. However, it has been technically upgraded and re-seated, and, cleverly, this has achieved an additional 30 seats without sacrificing the excellent leg-room that has always been a feature of the auditorium. The main house is complemented by a small studio theatre, which had been previously renovated (in 2015).

Sustainability has been a key theme of the project, with both Colchester Borough Council and the Mercury having a strong commitment to this, and as a result, it was not value-engineered out at any point during the design and construction process. The building's extensive glass is now double-glazed, there is an effective BMS system in place, and with new most of the building's lighting converted to LED, and used efficiently via a timer system. Electricity is entirely sourced from renewable supply, and the existing solar panels on the roof have been extended, to such an extent that the theatre is generating green energy back into the grid at certain times of day. Those principles were also carried through to the construction process, with the contractor and all materials coming from within Essex – the only exceptions being specialist theatre equipment. The result is a building which has received a Very Good BREEAM certificate, and is the most environmentally-friendly building in Colchester town centre. The Mercury aims to continue its commitment to sustainability throughout its operational plans, it already has a Sustainability Action Group comprised of staff from across the organisation – it has already committed to sourcing all its fresh produce from local suppliers, and is monitoring food waste and composting on site.

The land and building is owned by Colchester Borough Council, with a covenant for cultural

use. As a result, Colchester Borough Council were the client on the project, and used their arms length management organisation, Colchester Borough Homes, to deliver the project, providing financial and project management and contracting the design team and contractors. Their commitment goes back to 2016, when the Mercury involved them in the feasibility study for the project, which included an economic impact study, demonstrating how much the theatre could contribute to the local economy. However, it was very clear that the Mercury were very much seen as partners in the project, having full input into its design and delivery. Both partners worked together on funding, delivering between them support from Essex County Council, South East Local Enterprise Partnership and European Regional Development Fund, as well as Arts Council England and various trusts and foundations. Both Steve Mannix and Operations Director, Carol Rayner, remained on site throughout the project and were clearly very hands-on throughout. The resulting scheme is a tribute both to their involvement, but also the collaborative approach of the Council.

It was very moving visiting the Mercury only a few days after it re-opened, and watching the theatre starting to come back to life. Socially distanced rehearsals and costume fittings were underway for its first production, while the workshop was both building that show and its Christmas production. Visitors were enjoying the new café, whilst a small school group were being shown around. These were early days, as the theatre and its community builds back after Covid. But they give hints of exactly what a key role the theatre will play in its

Community in future, and how this beautifully renovated building will support their work.

Many thanks to: Steve Mannix, Deborah Sawyerr and Carol Rayner for their time

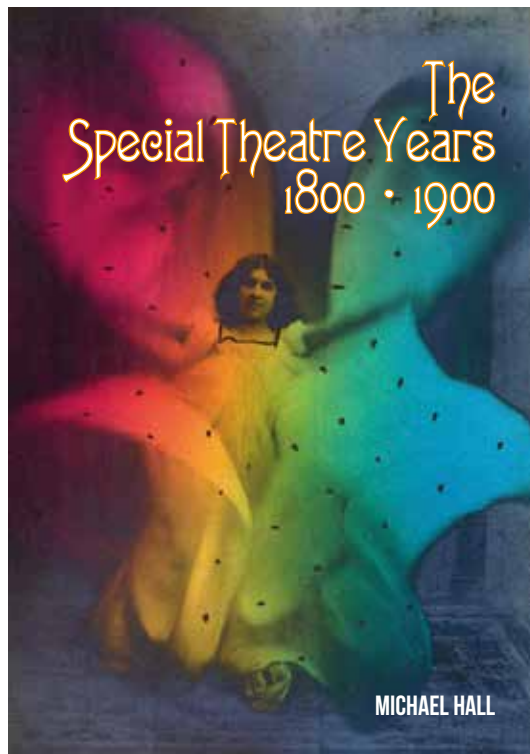
Project team

Partner	Colchester Borough Council
Architect	Colchester Borough Homes/Purcell
Building Contractor	Phelan
Project Management	Colchester Borough Homes
Theatre Consultant	Charcoalblue
Quantity Surveyor	IKS Consulting/Colchester Borough Homes
Mechanical & Electrical Consultant	NPS/Colchester Borough Homes
Civil & Structural Engineer	MLM
Fire Engineering	FDS Consulting UK
Technical/Production Installation	Glantrre Engineering

All photos: Simply C Photography

The Special Theatre Years 1800-1900

Review by Richard York



By Michael Hall

***The Special Theatre Years 1800-1900* is available at £9, delivery free in the UK from Roscolab Ltd, Kangley Bridge Road, London, SE 26 5AQ**

Woodland scene c1880. A flax cloth with animal glue size and calcium carbonate primer and distemper. Note the strong blue bias to compensate for the straw colour of the gas lighting

Michael Hall is a lighting engineer by profession and a familiar figure in the entertainment industry. Since 1976 he has run the UK arm of Rosco, an international company which, for more than a hundred years, has been developing and selling equipment and consumables for lighting performances. An enthusiast for the history of his subject, he has written a slightly larger than pocket-sized overview of changes to lighting technology during the long 19th Century and, in doing so, covers a great many issues. His style ranges from the percussive – sequences of short paragraphs dense with information on developments – to pithy essays on their impact. This is a most informative book and one likely to enthuse the otherwise uninformed reader to look for more information.

My first response on considering the subject was to say “OK, naked flames to electricity” but I hadn’t realised how little I knew about the travel of that transition. A set of helpful timelines illustrates the major shifts from candle/oil to electricity via gas, limelight and carbon arc. The book also focuses on the concurrency of these innovations over long periods of time – candles were still lighting Drury Lane in 1820 when the plaited wick was introduced (thus dispensing with pauses in the performance while the candles were trimmed), notwithstanding that gas was beginning to be firmly established as a much more controllable (and less smelly) light source. Limelight, carbon arc and gas all ran together for much of the century, overlapping



with the beginnings of electric light in the last decade.

The book, a paperback and well printed on quality paper, is lavishly illustrated, with a mixture of heritage drawings, prints and modern images, reproduced very sharply – particularly the illustrations of colour media, a subject very close to Rosco's, and therefore the author's, heart since the company was in the vanguard of developing these in the post WW1 era.

Among the many diversions from the central theme are brief essays which explore the impact of various light sources on scenery, costumes and artists' makeup. Each light source has its own characteristics, among them brightness, the capability of the intensity to be controlled, the natural colour of the light and the ease with which that can be changed. The author explores these issues, and many others, with particular emphasis on their impact on those involved in solving the implications and using the results.

Other diversions that are explored include the development of equipment for creating effects. Reliable, and increasingly powerful and controllable light sources also enabled the development of magic lanterns to project images and the potential of the moving image.

One area which might have borne more coverage is that of the people who made their living in developing, manufacturing, servicing and controlling the sources of illumination for entertainment. It was likely that people spent an entire working life supplying and maintaining, for example, the 300 candles which were required to light Drury Lane only to be made redundant and be replaced by plumbers, who, having developed their trade with water, turned to managing gas for domestic and industrial use and then for the rather finer business of controllable lighting for theatres. There is a passage which describes a gas control desk which is precisely analogous to a modern lighting control, but without the screens and printout.

Peter Mumford, award-winning lighting designer particularly of dance and opera, provides a foreword which makes a number of contributory points including the extent to which the evolution of lighting technology has driven the modern role of lighting designer. While the need for lighting design was present from the time that gas provided dimmable lighting, it probably didn't get into its stride until the 1930s, with the USA leading the way – so it is well outside the scope of this book. Perhaps that could be a subject of another volume from the author?



Ellen Terry's costume by Lawrence Alma-Tadema reinforcing the point that limelight forced much more attention to detail.

The Trafalgar Theatre

Tim Foster

History

The Whitehall Theatre, now renamed the Trafalgar Theatre, is listed at Grade II and was opened in 1930 to designs by the well-known theatre architect E.A. Stone, who was one of the most successful designers of cinemas and cine-theatres in the inter-War years. He also designed three dedicated West End theatres, the Piccadilly in 1929, the Prince Edward (with Bertie Crewe) in 1930 and the Whitehall, in the same year.

Like most architects of entertainment buildings, Stone worked closely with top quality interior designers, but unlike the theatre architects of the late Victorian and Edwardian era, the division of labour in his buildings was quite clear-cut. The little Whitehall playhouse and the Prince Edward Theatre, for example, with original interiors by Marc-Henri Levy and Gaston Laverdet had practically nothing in common stylistically with his exactly contemporary 'atmospheric' cinemas, like the immense Astorias in Brixton and Finsbury Park, whose interiors were by Somerford and Barr.

The uncluttered geometry of the Whitehall's external architectural treatment was admired as strikingly clean-lined and modern by architectural critics of the time. The interior was modern, too, but in a quite different way. It was described (probably by Stone himself) as having a unique system of decoration and colour, 'modern without being at all *outré* or too advanced'... 'It is the "Boulevard"

theatre of one's dreams'. It was, indeed a little Art Deco jewel in near-black and silver with metallic tints on symbolic reliefs and coloured geometric patterns in panels. It would have been perfectly at home in Paris, presenting light comedies, intimate revue or *café concert* artistes.

The moderne treatment went through the whole building, including foyers, bars and retiring rooms, but over the years this interior suffered from being under-valued. One particularly serious item of damage occurred with the loss of its magnificent house curtain made entirely of glass beads and illuminated from concealed lighting in the proscenium frame. The effect must have been spectacular. In 1978, the process of erosion culminated in the complete 'painting out' of the auditorium decorations.

In the war years the Whitehall housed Phyllis Dixey's revues, then from 1950 it enjoyed considerable success for nearly twenty years as the home of 'the Whitehall farces', but thereafter it failed to find a satisfactory role and, by the late 1970s, it was earning the reputation of being a 'difficult' theatre. In 1978, its unauthorised use by Paul Raymond as a so-called 'Theatre of War' (a tourist-trap museum) led to an enforcement action by Westminster City Council and, although the enforcement battle was won, the Whitehall never fully recovered its position as a desirable venue. Practically all producers before 2004 saw it as their last reluctant choice for a West End opening. The Whitehall's unattractiveness related partly to its location, separated from the main body of Theatreland by the expanse of Trafalgar Square, set at the end of a great parade of monumental government offices, with no near theatrical neighbours, but it was also related to the physical nature of the theatre and to changing theatrical tastes and needs.

In 2004 the theatre, now owned by the Ambassador Theatre Group, was renamed Trafalgar Studios and altered to create two performance spaces. Our practice, working with architect John Muir, was responsible for this low-cost conversion, which was conceived as a response to the need for a more open stage style theatre in the West End, capable of acting as a transfer house for productions from single space theatres in the subsidised sector, which did not prosper in conventional proscenium houses. The building re-opened on 3 June 2004 with the Royal Shakespeare Company's production of *Othello*, transferred from the Swan Theatre.



Studio 1, with 380 seats, was formed by extending the existing circle forward to a new raised open stage, which extended forward of the proscenium, and Studio 2, with 100 seats, was formed in the rear stalls area under the circle. The listed building consent given at the time required these alterations to be reversible and most of the works were constructed in lightweight materials, which could be removed relatively easily. The original circle front, which was removed, was saved and stored in the building and the decorative panels in the auditorium were covered with drapes and not over-painted.

The Present

In 2020 The Trafalgar Entertainment Group, who now owned the building, decided that due to changing market conditions in the West End the 380 seat studio was no longer viable and it was time to restore the theatre to its original single auditorium form. Fortunately the reversible design approach adopted in 2004 meant this could be achieved without major structural alterations. The Steeldeck platforms used to extend the circle tier and raise the stage were removed, the dry lined walls which formed the smaller studio under the circle were taken down and the original circle fronts were taken out of their storage crate under the stage for reinstatement. An opportunity was presented to undertake a more thorough and authentic restoration of the decorative scheme than that carried out in the 1980s.

Auditorium

Any restoration of this kind must start with research to understand the original design intent. Although we had original drawings of the building these provided little information on the detail of the decorative scheme. However, we were extremely fortunate to discover a wonderful collection of black and white photos held in the RIBA library. These revealed many of the missing details, particularly the abstract floral fabric on the seats and the geometric carpet, both of which have been recreated from this photographic evidence. Although contemporary descriptions described the original black and silver colour scheme we also commissioned a paint analysis to confirm original colours. Of particular interest was the discovery that the decorative abstract panels on the side walls and in the boxes had been repainted in more vibrant colours and we were able to return these to a more monochrome palette. The original gloss black walls with silver highlights have been restored and the decorative mouldings of theatrical masks, musical instruments and flowers, which occur



on the box fronts and proscenium have been highlighted in silver and gold. This largely monochrome colour scheme is lifted by the vibrant green and yellow of the seat fabric.

Lighting

The original lighting scheme in the theatre mainly comprised bulbs in concealed plaster coving and lighting channels. It was among the first theatres in Britain to champion 'an architecture of light', pioneered in German theatres and cinemas during the 1920s but not found in British cinema architecture until the mid-1930s. This mostly indirect light from concealed troughs in the ceiling and around the proscenium, so typical of the Art Deco period, has been retained, although now powered by LED sources, but there was a need for further direct light to supplement lighting levels over the seats. With no chandeliers and limited flat ceiling surfaces to work with, this has been achieved by the introduction of a ring of downlighters set into the octagonal lighting trough in the ceiling. Missing original art deco fittings such as the crystalline stalls ceiling lights have been recreated and the whole house lighting system is now controlled via a full Paradigm smart control system.

Technical Installations

New lighting positions comprise of lighting bars on the circle front, side lighting booms and trusses on hoists at ceiling level with additional lighting and sound bars to rear stalls and circle level, which are all designed to be removable when not in use.

The new circle balcony design allows the discrete laying of any new show cabling with

Courtesy of Foster Wilson
Size



fully demountable rear panels hiding all new sound and lighting facilities panels. To the rear the theatre boxes now also provide additional technical operating positions. Motorised hanging points downstage have been added to allow for quicker fit-ups and easier operation. Front of house and back of house call systems and video relay systems have been added throughout.

Ventilation

Amazingly the ventilation system was largely original, although some cooling had been added. The original ductwork, which is all buried within the fabric of the building, has

mostly been replaced and upgraded with a new air handling plant and chiller relocated from its original room above the auditorium to roof level.

Front of House

The theatre is incredibly compact in its planning, with streets at front and back and party walls both sides. The auditorium and stage occupy almost the full depth of the site with foyers tucked under the rake of the circle and below ground at stalls level, extending under the pavement. Dressing rooms and offices are located above the auditorium. Not an inch is wasted and there is nowhere to go in terms of increasing public space, which for a 620 seat theatre is quite limited. Additional space has been found at both entrance level and stalls level by removing lobbies enclosing the stair and rationalizing layouts. The entrance foyer, where little original fabric remained, has been completely refitted with a new bar facing the street and a new box office to one side. The plate glass doors to the street and the highly visible bar within make this an accessible and welcoming entrance, akin to a smart hotel lobby. The stalls bar has been refreshed with a lighter touch.

Back of House

The basement sub-stage which has been prone to water ingress in the past has been fully tanked and refurbished housing the workshop, storage wardrobe and laundry spaces



Externally

General repairs, including new roofing and window refurbishment, have been undertaken and a new canopy with lighting and new signage provided. Future works will include stone cleaning and restoration of the façade.

Toilets

The most debated topic when remodelling most West End theatres is how to improve the toilet provision, which is usually the single biggest cause for complaint by audiences, particularly women. In this case the toilet provision has been increased by about 50% by rationalising layouts and removing staff areas across the back of the circle to create additional space. The quantities now meet the recommendations of the ABTT Technical Standards, although we know this is still not enough.

Conclusion

It has been a pleasure to help to bring this little Art Deco gem of a theatre back to life and it is now in a better state than it has been since the 1950s. We hope it continues to entertain audiences for many years to come.



Tim Foster is a consultant at Foster Wilson Size and is chair of the ABTT Theatre Planning Committee. The author acknowledges the use of historic information taken from heritage statements researched and written by John Earl and Mark Price.

*All photos (except pg 22)
© Tom Lee*



Credits	
Client:	Trafalgar Entertainment Ltd
Architects:	Foster Wilson Size Jonathan Size, Lead designer Tim Foster, Consultant Hannah Stadie, Project designer
Quantity surveyors:	Aecom
Structure:	Conisbee
Services:	ccbe
Theatre consultant:	Theatreplan
Acoustics:	Gillieron Scott Acoustic Design
Lighting consultant:	18 degrees
Heritage consultant:	Mark Price
Fire engineering:	The Fire Surgery
Principal designer:	Turner & Townsend
Paint analysis:	Crick-Smith
Main contractor:	G F Holding Ltd

Theatre Royal Drury Lane

Rebecca Morland

The Theatre Royal Drury Lane is one of the UK's most historically significant theatres. There has been a theatre on its Covent Garden site since 1663, and it has Grade I status.

Even more than most theatres, it is not one unified whole – it consists of layers of history, imposed on it by theatre owners throughout the years in response to their particular requirements and the standards of their age. Previous theatres on the site were either demolished or burnt down (most notably in 1809 when playwright Richard Brinsley Sheridan was the proprietor). The current theatre was designed by Benjamin Dean Wyatt, and opened in 1812, and then had additional remodelling both internally and externally in the 1820s and 30s. There was then a major renovation focussing on the auditorium in 1922, by J Emblin Walker, with J Edward Jones and Robert Cromie.

The theatre is one of the jewels in the crown of LW Theatres and will be re-opening later this summer after a £60 million renovation, led by architects Haworth Tompkins. I was lucky enough to be shown around the theatre just before it re-opened, whilst its first production, *Frozen*, was being teched.

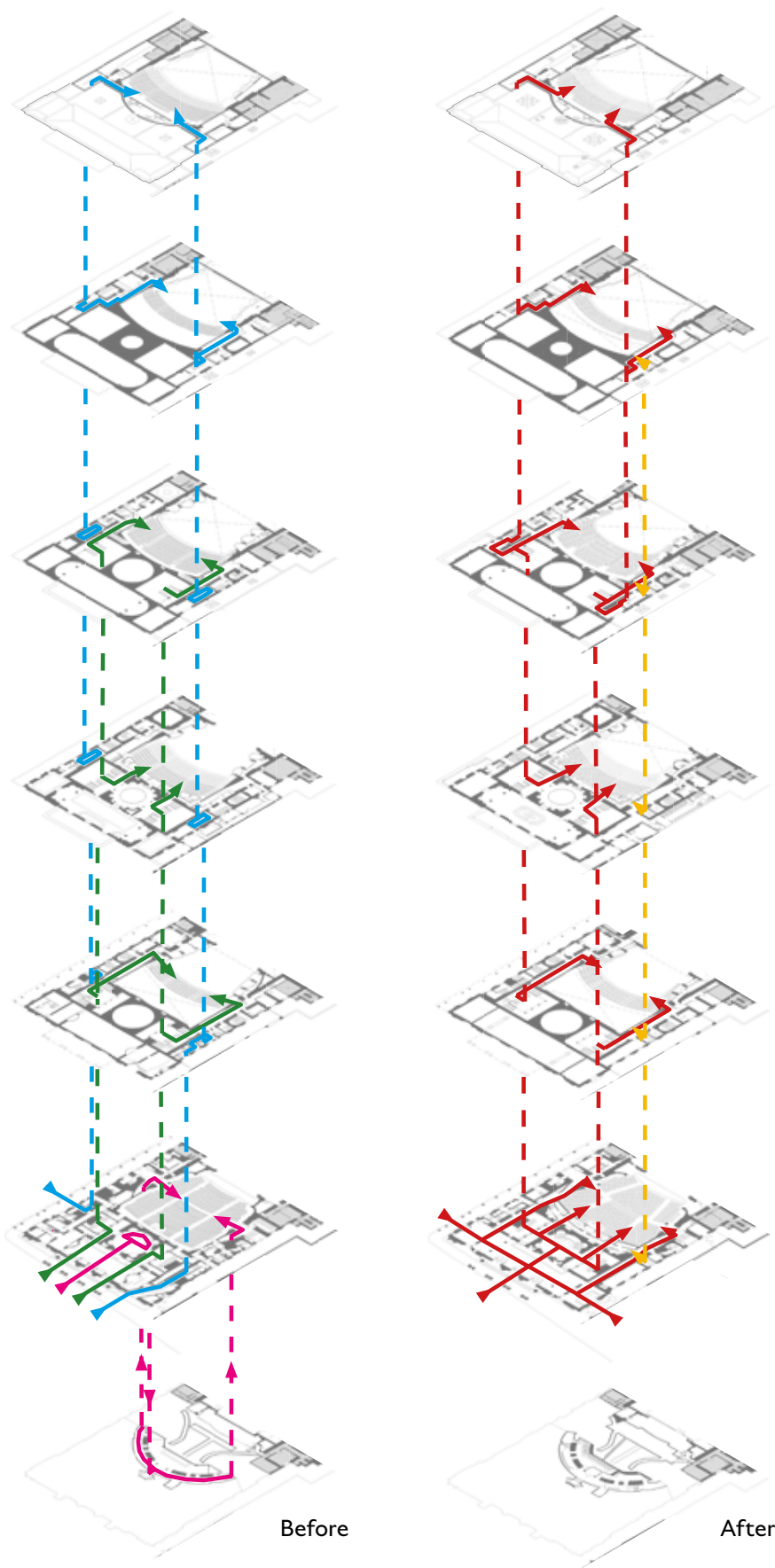
At the heart of the scheme was the seemingly contradictory ambitions of respecting and restoring its heritage, whilst also bringing it into the 21st century, and therefore ensuring its viability. Not only was it struggling to deal with technical demands of the large productions that visited it, but – like many West End theatres – the front of house experience was in no way welcoming or inclusive.

However, one of the advantages that Drury Lane has over many of its counterparts, is that it actually has quite a lot of space within its building footprint, and one of the most inspirational parts of the project has been the way that these spaces have been released, opening up the theatre to audiences and visitors. Paradoxically, this has been achieved in the public areas by revealing and restoring the Georgian foyers and staircases created by Wyatt. By opening up the original foyer entrances on three sides and removing later accretions, the front of house has been restored to its former glory. This becomes clear when you first enter the foyer, which is now a wide clear space, with the ticketing relocated to a vestibule on one side, (balanced by a small cocktail bar on the other). Prior to the

Photo by Andy Paradise.



Haworth Tompkins



Auditorium Access

- Key - Before:
- Stairs to Ground
 - Stairs to 1st, 2nd, 3rd
 - Stairs to 4th & 5th
- Key - After:
- Stairs to all floors
 - Lift to all floors



restoration, there were different entrances for different auditorium areas, now the entire audience will enter through this one magnificent entrance hall, with a clear route beyond to the various parts of the auditorium, all accessed via the main staircase. There are now several bars, which again, are not demarcated according to wherever the audience sits.

The intention is that the public areas of the building will be open and welcoming throughout the day with, for example, the Grand Saloon, providing a venue for afternoon teas. As part of this a lovely terrace has been created beyond the Grand Saloon – a space which was freed up when the main advertising boards were moved. The Grand Saloon and central staircase were renovated during the earlier 2013 renovation, but they now fit seamlessly into the overall Georgian ambience created

by Haworth Tompkins and interior designers, Alexander Waterworth Interiors. The public areas have also been extended beyond the original theatre, through the transformation of the alleyway which ran to the south of the theatre into the Garden coffee and cocktail bar.

There are also more secluded rooms, including another terrace with a knock-out view of the Covent Garden piazza, and quite clearly these will be of tremendous use for smaller, private functions. Not many theatres have an owner with an extensive private art collection, and some of this has now been relocated to the theatre which adds to the overall impact. Additional artworks have also been commissioned by Andrew Lloyd Webber, including grisaille murals for the foyers.

It is worth emphasising at this point that accessibility has been significantly improved throughout all public areas, with level access from Catherine Street and a large passenger lift running to Stalls, Royal Circle and Grand Circle levels. This has resulted in 20 wheelchair spaces in those 3 different auditorium areas, together with access to a Royal Circle Box, with potential for more spaces to be provided through seat removal if required.

Toilets have been relocated in the basement and also at Royal Circle level, and the number of ladies toilets has been significantly increased – to 57 in total, with the Royal Circle level ones (which I inspected) providing exceptional standards of space and luxury. There are also 5 accessible toilets throughout the building.

At the heart of any theatre is the auditorium and here the changes are more subtle but equally significant. Drury Lane in its previous iteration had an auditorium which didn't quite "work" in that the relationship between the audience and the stage wasn't quite right. Much work was done by Haworth Tompkins and theatre consultants Charcoalblue to review this, including the use of VR to model different solutions. The VR technology was particularly helpful when it came to fine-tuning sightlines, and was also used by Disney, when they came to design the set for *Frozen*.

The changes have the overall impact of reducing capacity by 220 to just under 2000 (1979). One of the most noticeable changes is a consolidation of the number of boxes which has resulted in the Royal and Grand Circles brought closer to the stage. In addition the rake in the Dress Circle was steepened improving sightlines. What is probably not noticeable is that the line of the Royal Circle has been raised. Consultant David Wilmore's research

has determined that this is in line with what it would have been like before the line was pushed back by Emblin Walker in the 1922 renovation.

One of the challenges was ensuring that theatre seating maximised the space available, provided the best sightlines possible and resulted in improved legroom especially in the Grand Circle (where it had previously been very compromised). This required bespoke seating, with 174 slightly different types of seats produced, with Haworth Tompkins Charcoalblue working closely with Andrew Simpson of Kirwin & Simpson. It also involved building additional risers on top of the existing concrete risers in the Grand Circle and Gallery.

The technical infrastructure has been significantly upgraded, with the intention of ensuring that as much future proofing as

possible was built into the infrastructure. AV and lighting infrastructure now runs in boxes/pipes through the stalls floors and is hidden in wall.

It would now be possible to reconfigure the auditorium, for example, with a rake from the front of the Royal Circle to the stage, as sections of the front of the circle can now be removed. In addition there are now lids on the circle front, hiding cable runs – which will alleviate the amount of surface cabling that is usually found connecting FOH lighting bars.

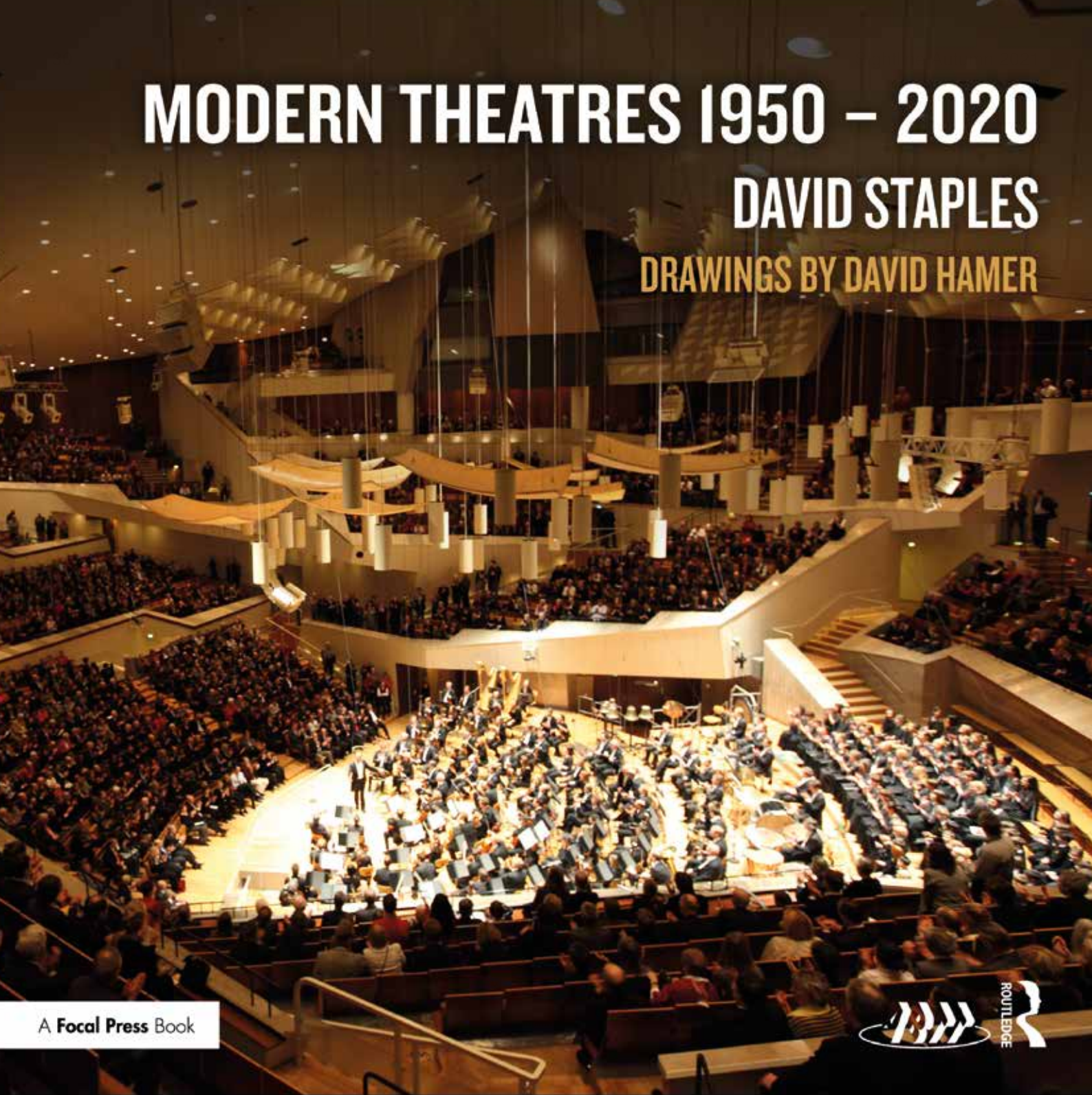
Other technical upgrading includes a new steel grid, a new flying system, and vastly improved floor loading. The stage floor, which was previously raked, is now flat, providing additional flexibility for incoming productions. And improved technical capacity all over, with a dimmer system capable of 1344 dimmer ways, for example.



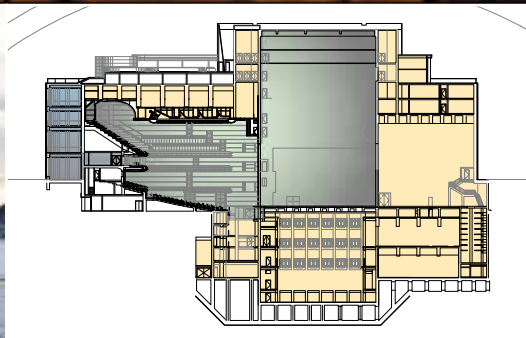
MODERN THEATRES 1950 – 2020

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One of the challenges facing companies visiting Drury Lane had been the historic stage machinery which took up much of the substage. This has all now been removed to a safe space and will be stored. As a result, the fully demountable substage can be used in a much more flexible way, and companies will be able to bring in the stage machinery required for different productions.

It will be fascinating to see how audiences and daytime visitors respond to Drury Lane. As well as relishing the much higher standards of comfort and accessibility, I very much hope that they take the time to appreciate the details of this well-thought through and sympathetic restoration.

Many thanks to Dan Watkins, Project Director for LW Theatres; Haworth Tompkins and Charcoalblue for their assistance in writing this piece



all photos (excl pg26): Haworth Tompkins/Philip Vile

Project Team	
Client	LW Theatres
Architect	Haworth Tompkins
HT Design Team	Beatie Blakemore, Oliver Cassidy, Andreia Guilherme, Patrick Haymann, Toby Johnson, Emily Keyte, Adrian Lau, Imogen Long, Will Mesher, Katharine Nolan, Lucy Picardo, Steve Tompkins, Michele Venturini and Roger Watts
Construction Manager	GTCM
Structural Engineers	Conisbee
Services Engineers	Skelly & Couch LLP
Theatre & Acoustic Consultants	Charcoalblue
Lighting Consultant	BDP
Quantity Surveyor	Gardiner & Theobald
Project Manager	Avison Young
CDM adviser	PFB Construction Management Services
Fire Engineer	Trenton Fire
Access Consultant	David Bonnett Associates
Approved Inspector	Approved Inspector Services
Interior Designers	Alexander Waterworth Interiors

Theatre Doors

Debbie Clark



Pivot door, Everyman Theatre, Liverpool

Looking through a glossary of Technical Theatre Terms recently, there was little information on “Get In”, acoustic or fire rated doors, all vital to the design, function and safety of a Theatre.

In theatres the important “Get in” doors are often large, power operated sliding doors, providing unhindered access and excellent sound insulation. Where headroom is restricted large horizontal sliding doors are used and if there is no side room vertical sliding

doors are an option; in multi-leaf formats as necessary. If access to these doors is very infrequent oversized double leaf swing doors or bi-folding doors can be used. All of these large “get in” door types are available with acoustic ratings up to Rw56dB (higher with combination doors) and can be fire rated up to 2hrs fire integrity and insulation to BS:476 Part 22, EN1634-1 or UL10C.

Sliding doors are perfect for use as Get In doors, with an opening speed of up to 0.3metres/sec; quick and easy to open they can make a world of difference to the time and effort required for load in/out. Available in custom/bespoke sizes up to 20m wide x 20m high, horizontally or vertically sliding, these doors are large and heavy so must be power operated. Safety features include a low voltage controller and a fail-safe electrical design, constant contact push buttons for opening and closing and electronic safety edge fitted to the leading edge of door panel; this guarantees instant door stoppage on contact.

Some larger theatres and performing art spaces have workshops on site: Wales Millennium Centre is a good example: designed by architect Jonathan Adams, ARUP was the acoustical/theatre consultant. With a corridor between the workshop and stage areas so require acoustic and fire ratings, rated doors preventing any noise from backstage workshops, and protecting both the audience and back of house in the event of a fire. Sliding doors are power operated so they can be set to close on signal from the building fire alarm system. Combining fire and acoustic ratings avoids the use of noisy roller shutter doors and having one door instead of two reduces the maintenance costs.

No longer confined to loading bays or backstage, acoustic sliding doors are being used front of house too. Often separating a lobby area from the auditorium, these doors sometimes have cladding or special finishes. National Sawdust, an artist-led, non-profit music venue in Brooklyn NY, designed by BUREAU V, with ARUP Acoustics, uses a vertical sliding acoustic door to separate the Lobby/Bar area from the performance space featuring a black 3D printed cladding to match the walls. The door is set to open slowly, to reveal both the sounds and sights of a musical performance which begins as the door opens very slowly to an unsuspecting audience.

Pedestrian sized acoustic steel hinged doors up to Rw57dB are used for sound insulation and for controlling noise or vibration. They can also be fire rated with up to 4 hours fire integrity



Fire rated acoustic sliding door, National Sawdust, NY

(tested to EN1634-1 and certified to BS476 Part 22). These doors come as a doorset, complete with frame, door leaf and hardware. Swinging through 90 degrees, the doors are suitable for interior or exterior use with interior and exterior thresholds available. The Double Leaf door is designed without a central post, allowing easy access. Traditionally used back of house in the Green rooms and dressing rooms, in some countries these acoustic fire rated doors also require ballistic ratings.

Pivot doors are fire rated and are frequently used front of house, sometimes you will need to look very carefully to see them. Designed by Haworth Tompkins architects with Charcoal Blue as theatre consultant and Gillieron Scott Acoustic Design, Everyman Theatre in Liverpool has "hidden" fire rated pivot doors in the corridors and stairways. Sitting flush with the wall and painted or clad with the same material as the wall, they blend in perfectly. Large Fire rated Pivoting doors can be life-saving; giving up to 60 minutes fire integrity and insulation to EN1634-1.

Specially engineered with top pivot and floor sprung units they are designed for ease of installation and can be set to a permanently open position. Often located in corridors and

stairways, they allow free flow of people but will self-close on signal from the building fire alarm system.

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For more information on Theatre Doors contact Clark Door UK Limited on +44 (0) 1228 522 321 or at mail@clarkdoor.com



*Liverpool Everyman Pivot door in hold open position in corridor (far left)
Wales Millenium Single Horizontal Sliding Rw56dB
1 hr Fire Door (left)*

Peter Moro and Partners:

Theatres and Beyond

Alistair Fair

In late 1969, the plans for what was to become the Sherman Theatre, Cardiff, were presented to the Association of British Theatre Technicians' Theatre Planning Committee. The committee routinely reviewed schemes seeking Arts Council 'Housing the Arts' funding, in effect serving as a judge of their technical viability. Meetings were often fuelled by a bottle of wine or two and were sometimes intense: the Sherman's artistic director, Geoffrey Axworthy, later recalled the 'breathtaking session of "instant criticism".' Nonetheless, the experience was apparently useful, with Axworthy citing in particular the contributions made by the committee's chairman, the architect Peter Moro: 'I thought Moro and the chap with the beard were good value', he wrote.

Between the late 1950s and the mid 1980s, Peter Moro and his colleagues in architectural practice were among the leading specialists in theatre design in Britain. Their specialism rested on firm foundations. In 1948, Moro was head-hunted by the London County Council's deputy architect, Leslie Martin, to take a key role in the detailed design of the Royal Festival Hall on London's south bank, the first non-

essential, non-austerity public building to be completed in post-war Britain. Its prominence – and its extremely positive reception – led to much further work, not least as austerity eased and theatre-building projects loomed into view. Peter Moro and Partners made major contributions to the boom in subsidised theatre construction which transformed the landscape of British theatre between the late 1950s and the 1980s, including the well-received Nottingham Playhouse (1963), the Gulbenkian Centre at Hull University (1969), extensions to Bristol Old Vic (1973), the Riverside Theatre, Coleraine (1975), Plymouth Theatre Royal (1982), and the Taliesin Arts Centre, Swansea (1984). There were also a number of unbuilt theatres, including a project for the Ballet Rambert (1972-75) and a large arts centre in Brentford (1975-78). In addition, Moro contributed in important ways to the wider culture of theatre design through journalism, competition judging (e.g. the Leeds Playhouse, 1983), as well as his involvement with the ABTT, of which he was a founder member. Yet while Moro's practice is best-known for its theatres, it also successfully tackled a wide range of other building types, as I discuss in my new book, *Peter Moro and Partners*. Beginning

Nottingham Playhouse.
Photo by David Baird





in the 1930s and ending in the 1980s, the book sheds new light on this important body of work.

Peter Moro came to Britain in 1936. Born in 1911, he had begun his architectural education in Germany but was forced to leave his course when Nazi officials discovered that his grandmother had converted to Catholicism from Judaism – something which Moro himself had only recently discovered. He completed his studies in Switzerland before moving to London, hoping for a job with the ex-Bauhaus director, Walter Gropius. The job did not materialise, but Moro was able instead to secure work with Tecton, the avant-garde architectural practice led by Berthold Lubetkin. Contributing to projects including the Highpoint II flats in north London, Moro developed an understanding of the peculiarities of British building practice (not least the use of feet and inches). He also imbibed Lubetkin's belief that architecture could never be a matter of function alone; art mattered too. In Tecton's work, this search for an 'artistic' modernism prompted experiments with contrasting materials, patterns and textures. It also led to the use of human-like 'caryatid' columns that support the canopy at Highpoint II, the apparently arbitrary

historicism of which enraged more dogmatic modernists, much to Lubetkin's amusement.

Moro left Tecton during 1938 to work with the architect Richard Llewelyn Davies on the design of a well-appointed country villa, Harbour Meadow at Birdham, Sussex. Like Tecton's work, it combined a rigorous approach to plan and function with an interest in light, shadow, and materials. The elevations are cut into and pulled apart, reading as a series of layers. The interior develops the style of Tecton; details such as timber-clad columns would later reappear in the Festival Hall. The house was well-received and would no doubt have led to others in a similar vein, had the Second World War not intervened. Instead, Moro was briefly interned as an 'enemy alien' before taking up a teaching post at Regent Street Polytechnic. He had a significant influence there, with some of those whom he taught, such as Trevor Dannatt, later joining him to work on the Festival Hall before having distinguished careers of their own. Alongside his teaching, Moro collaborated during the 1940s with designers such as Robin Day on exhibitions for the likes of the Ministry of Information. With minimal materials and

Queens Road/Pomeroy Street estate, Peckham, London. Photo: Elaine Harwood

Living room at Harbour Meadow, Birdham, Sussex



budgets, he learned to create 'atmosphere' by means of light and space, tempting exhibition visitors through the displays and adding to the meaning of the items on show. Moro later noted that this work formed a good preparation for his subsequent theatres, where light, materials, and space were similarly involved in the establishment of a 'festive' ambience, and budgets were sometimes similarly limited.

Peter Moro's own house in Blackheath, London (1957). Photo by Alistair Fair.

After the completion in 1951 of the Festival Hall, Moro returned to independent practice, building up a small team of trusted colleagues. Alongside the theatre commissions which



were a constant feature of the office until its closure on Moro's retirement in the mid 1980s, there were also several schools, while council housing provided a further notable stream of work. In 1970s Southwark, for example, there were several sophisticated housing schemes in which 'high-density, low-rise' layouts were explored: they feature a mixture of house types in arrangements which eschewed tall buildings for dense, street-like environments. These schemes have hitherto attracted little attention, with historians preferring to focus on the more heroic (and better funded) schemes built by the London Borough of Camden during this period. There were also some important commercial jobs, such as a sophisticated building containing showrooms for the Hille furniture company on Albemarle Street in London's west end, while in the late 1950s the design of Moro's own house in Blackheath attracted attention for its innovative open-plan layout and refined detailing.

Moro's work was rooted in practicalities; he loved a design challenge. Layouts typically drew on a close analysis of function, while budgets were often tight; the economic problems of the 1970s did not help. Nonetheless, art was important, too. Elevations were carefully composed in terms of their openings, their colours and textures, and their rhythms. Masses and volumes are brought together; surfaces are cut into or pulled outwards in often sculptural ways. The buildings are experienced as immersive sequences of connected spaces of different size and character, with atmosphere being achieved through the handling of space and materials rather than the application of ornament.

Moro was not prone to theorising about his work. He distinguished between those architects who were provocative radicals and those, like himself, who got on with the job in hand: 'the latter plod on and make their contribution in a more or less spectacular way, with a firm grip on reality.' But, as the body of work I discuss in *Peter Moro and Partners* confirms, 'a firm grip on reality' need not mean mundane. Moro and his colleagues were responsible not simply for some of the most significant arts buildings of the post-war decades – several of which are now 'listed' – but also a wider range of projects which deserve to be better known.

To buy a copy of Peter Moro and Partners, visit bit.ly/C20PeterMoro and use code LUP30 for a 30% discount

Young Associates

Welcome to the fourteenth edition of the *Sightline* Young Members Page! In this edition, we introduce new Young Associate Representative Joshua Burnside, discuss where you can find job listings, look at how you can apply to become a Young Associate Representative and share the new ABTT Virtual Ideas Platform. Be sure to keep an eye on the ABTT website and social media (@TheABTT on Facebook, Twitter and Instagram), as well as on your emails for monthly members' newsletters, for details of opportunities and resources. If you are a young associate or early career member and have a story, opinion or experience you wish to share – we want to hear from you! Submit content to sightline@abtt.org.uk (FAO: Matthew Freeman).

Introducing ABTT Young Associate Representative Joshua Burnside

"I have always wanted to work in the creative industries from a very young age. For a long time I was undecided about which sector I wanted to work in and whether I wanted to be on stage or working behind the scenes. I discovered that I wanted to work in theatre recently when I did an apprenticeship in technical theatre. I approach my new role as a Young Associate Representative for the ABTT with enthusiasm and dedication. I am looking forward to helping other young people who are considering a career in the industry and I am passionate about passing on my experience to anyone who would find it helpful". Josh has been working with ABTT Young Associate Representative Jessica Nicholls to help run the ABTT Apprenticeship Network. You can read more about Josh on the ABTT website (www.abtt.org.uk/people/young-associate-representative-joshua-burnside). If you have an idea about what the ABTT should be doing or would like to have a chat with Josh, then he can be contacted via office@abtt.org.uk (FAO: Joshua Burnside).

Industry Jobs on the ABTT Website

Did you know that the ABTT runs a jobs board? It can be found at www.abtt.org.uk/industry-jobs. As the sector reopens there are a lot of organisations recruiting for a wide variety of roles. Employers send these jobs through to be advertised on the ABTT website. If you're looking for a new role then this is a great place to check, be sure to check back regularly as it gets updated as new jobs are submitted. If you are looking for an apprenticeship then these also get listed here. Affiliated organisations and industry supporters of the ABTT can advertise roles for free.

Become an ABTT Young Associate Representative

The ABTT is always keen to hear from those wishing to get more involved with the activities of the association. One of the ways young people can do this is to become a Young Associate Representative. In this role you are invited to a variety of different meetings where you will represent the interests of young technical practitioners. It is up to you how you get involved. There are a wide range of projects and a lot of these can be worked on around other commitments. Why is it important that the ABTT has this role? The young membership of the ABTT is the future of technical theatre in the United Kingdom, as such, it is crucially important that the views and opinions of this demographic are acknowledged. The young membership will also eventually govern the ABTT in years to come and so the more young members, the stronger a foundation for the ABTT to continue its vital work in the future. Any young or early career associate can apply to become a Young Associate Representative. You will need to submit a current CV with the names of two referees and a 250-word personal statement explaining why you would like to be a Young Associate Representative. If you would like more information then take a look at www.abtt.org.uk/get-involved/become-a-young-representative. If you would like to speak to someone about making an application then email office@abtt.org.uk and a chat with a current Young Associate Representative can be arranged. Alternatively, if you are attending the PLASA Show with the ABTT Theatre Show at Olympia London in September then feel free to drop by the ABTT stand and the team will be very happy to answer any queries you have about making an application.

The ABTT Virtual Ideas Platform

The ABTT have announced the Virtual Ideas Platform in collaboration with Guildhall School of Music and Drama. It is open to anyone and everyone with an idea. It has been devised to recognise and help realise new ways of making theatre work. It aims to connect your great ideas with practitioners, developers, designers and manufacturers who are keen to work with you to realise the potential of your idea and collaborate with you to take it on a journey to a wider audience! The top-rated ideas submitted will receive membership awards, industry networking opportunities and recognition with the top-rated idea in the pilot year receiving seed-funding for early stage development. You can find out more at abtt.vip and you can enter an idea here abtt.vip/contact-us.

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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 right-hand 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 to

Section B9 Conservation of Energy; to Section F1 Electrical Installations and some to Section F2 Lighting including Emergency Lighting have already been published in this column. Below are further revisions to Section F2 Lighting including Emergency Lighting. There were a number of other revisions in this reprint including more to sections 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.

REVISIONS & AMENDMENTS 1 JULY 2020: Section F2 (*parts thereof*)

Section	Part	Reference	Change
F2	Lighting including Emergency Lighting	COMMENTARY	Delete "Nevertheless reducing energy use, by making use of daylight, efficient types of electric lighting and effective controls throughout the premises, should remain a major objective of the lighting strategy for any place of entertainment. All lighting installations should be designed to use as little energy as is practicable with as few different lamps as possible. Where appropriate, installations should be flexible and adaptable to suit the different uses of the space. Long life lamps are recommended."
F2	Lighting including Emergency Lighting	COMMENTARY	Change "...CIBSE Lighting Guides including LG 12 Emergency Lighting." to "...CIBSE SLL Lighting Guides including SLL Lighting Guide 12: Emergency Lighting."
F2	Lighting including Emergency Lighting	COMMENTARY	Delete "Future legislation relating to lamp types is likely to mean that installations which use tungsten, tungsten halogen, larger diameter fluorescent tubes and high pressure mercury lamps will have to be updated in the next five years. In some cases LED and compact fluorescent lamps with integral high frequency ballasts will be able to replace obsolete lamps. However when designing new systems or refurbishing installations care should be taken to avoid any of the above listed types of light. It is very likely that further restrictions on energy consumption and lamp type will be imposed (which would include limiting the use of magnetic ballasts and fluorescent tubes containing mercury). The designer should aim for a system which is flexible and easily adapted, and should target the highest possible energy efficiency in order to best future proof the installation. However, the light quality produced by energy efficient light sources may not be suitable for places of entertainment. Consideration must be also given to the likely hours of use of individual lighting circuits such as auditorium decorative lighting when calculating cost savings. Additional guidance may be found in Guidance on current and forthcoming legislation within the lighting sector." and replace with "Legislation continues to set minimum requirements for luminaire efficacy and will continue to do so in the future. All lighting installations should be designed to make use of daylight where possible and appropriate and to target the highest possible energy efficiency. The designer should aim for a system which is flexible, has effective controls, is easily adapted and is maintainable to allow the adoption of new technologies and building use in the future. However, the light quality produced by energy efficient light sources may not be suitable for places of entertainment. Consideration must be also given to the likely hours of use of individual lighting circuits such as auditorium decorative lighting when calculating cost savings"
F2	Lighting in entertainment areas	COMMENTARY	Change "...namely emergency lighting, house lighting, performance..." to "...namely emergency lighting (escape and safety lighting), house lighting, performance..."
F2	Lighting in entertainment areas	COMMENTARY	Change "...blue lighting in off-stage areas. This enables performers and others..." to "...blue lighting in off-stage areas to enable performers and others..."

F2	Lighting in entertainment areas	COMMENTARY	Change "Although energy consumption and lamp life are important, selecting the best source for each application also means meeting the requirements of colour temperature of the lamp, its light distribution, its colour rendering (quality) properties and the requirements for dimming." to "Although energy consumption and lamp life are important, selecting the best luminaire and driver for each application also means meeting the requirements of colour temperature of the lamp, its light distribution, its colour rendering (quality) properties, acoustic noise and the requirements for dimming."																																																
F2	Lighting in entertainment areas	COMMENTARY	Delete "Table 15 compares the colour rendering index, colour temperature and potential for dimming for different white light sources."																																																
F2	Lighting in entertainment areas	COMMENTARY	<p>Delete the whole of Table 15.</p> <p>Table 15. Colour rendering index, colour temperature and potential for dimming for different white light sources</p> <table> <tr> <th>Lamp type</th><th>CRI (Index) (1)</th><th>Colour Temp (K)</th><th>Potential for dimming (% light output)</th></tr> <tr> <td>Incandescent – GLS</td><td>100</td><td>2700-3050</td><td><0.1%-100%</td></tr> <tr> <td>Incandescent – halogen</td><td>100</td><td>2700-3100 4100</td><td><0.1%-100%</td></tr> <tr> <td>Fluorescent – phosphor</td><td>54-75</td><td>3000-8000</td><td>~10%-100%</td></tr> <tr> <td>Fluorescent – tri-phosphor</td><td>85-94</td><td>2700-6500</td><td>~0.1%-100% (2)</td></tr> <tr> <td>LEDs – multi-chip</td><td>70-91</td><td>3000-6800</td><td>~1%-100% (2)</td></tr> <tr> <td>LEDs – phosphor</td><td>70-93</td><td>2600-8000</td><td><1%-100% (3)</td></tr> <tr> <td>Cold cathode – phosphor</td><td>81-95</td><td>2800-5000</td><td>~1%-100%</td></tr> <tr> <td>Discharge – metal halide</td><td>81-96</td><td>3000-6800</td><td>~50%-100%</td></tr> <tr> <td>Discharge – sodium</td><td>20-25, 65</td><td>1900-2200</td><td>n/a</td></tr> <tr> <td>Discharge – mercury vapour</td><td>45-51</td><td>3300-4100</td><td>n/a</td></tr> <tr> <td>Induction lamps</td><td>80</td><td>2700-4000</td><td>n/a</td></tr> </table> <p>(1) Likely to be replaced by Colour Quality Scale (CQS) which more accurately agrees with human observations. (2) Some manufacturers give erroneous figures as to the low-level of dimming achievable by their systems. Dimming of energy-efficient lighting should be witness tested before being specified or installed. (3) LED based systems often have significant smoothness of dimming issues making some unsuitable for Places of Entertainment. Information believed correct at May 2015.</p>	Lamp type	CRI (Index) (1)	Colour Temp (K)	Potential for dimming (% light output)	Incandescent – GLS	100	2700-3050	<0.1%-100%	Incandescent – halogen	100	2700-3100 4100	<0.1%-100%	Fluorescent – phosphor	54-75	3000-8000	~10%-100%	Fluorescent – tri-phosphor	85-94	2700-6500	~0.1%-100% (2)	LEDs – multi-chip	70-91	3000-6800	~1%-100% (2)	LEDs – phosphor	70-93	2600-8000	<1%-100% (3)	Cold cathode – phosphor	81-95	2800-5000	~1%-100%	Discharge – metal halide	81-96	3000-6800	~50%-100%	Discharge – sodium	20-25, 65	1900-2200	n/a	Discharge – mercury vapour	45-51	3300-4100	n/a	Induction lamps	80	2700-4000	n/a
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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. 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

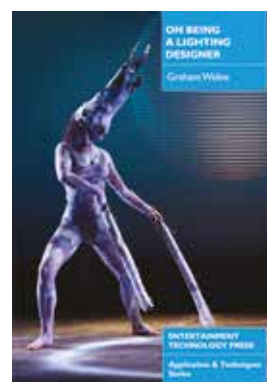
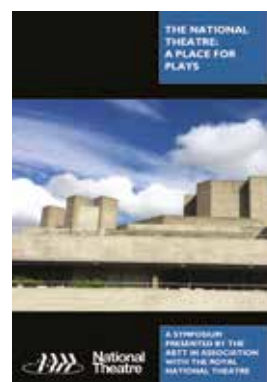
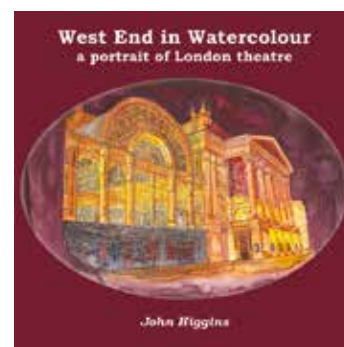
Paule Constable and Richard Pilbrow hosted a one-day Symposium on 30th October 2016 to celebrate the 40th Anniversary of the opening by Her Majesty the Queen of the National Theatre designed by Sir Denys Lasdun. The National Theatre: A Place for Plays, presented by the Association of British Theatre 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.

Available now, along with all of ETP's titles at: www.etbooks.co.uk



TECHNICAL STANDARDS FOR PLACES OF ENTERTAINMENT

Revised in July 2020

Available now from www.etbooks.co.uk

2015

TECHNICAL STANDARDS
FOR
PLACES OF
ENTERTAINMENT

The Association of British Theatre Technicians
The Chartered Institute of Environmental Health
The District Surveyors Association
The Institute of Licensing

Members News

MEMBERSHIP RENEWALS FOR 2021

Thank you to all who have already completed their membership renewal for 2021. For those who still have to do so, please be aware that Subscriptions for this year are overdue. Membership runs from the 1st January - 31st December. Existing minimum subscriptions remain unchanged for 2021.

We understand the uncertainties facing so many in our industry, so we have made renewing membership with the ABTT as easy and cost-effective as possible. You are now able to pay for membership via monthly instalments over 10 months or 4 consecutive months.

The ABTT continues to work in setting and upholding standards in technical excellence, safety and compliance for live performance and in assisting technicians, releasing various COVID-19 Guidance, resources and information for its members.

Through membership your ability to develop and maintain a professional network is enhanced by the programme of ABTT online events. The ABTT is committed to producing new and innovative online seminars and webinars. During 2022 access to the library of these events will become a membership benefit and there are currently more than 50 hours of online content available!

ISG MEMBERSHIP

The ABTT is extremely grateful to the Industry Supporters who have continued in their contribution throughout 2021. It is never too late to join this "go to" list of theatre and live performance expert suppliers, service providers and supporters. If any Industry Supporter would like to discuss supporting an industry event with or for the ABTT, please do contact us.

FULL MEMBERSHIP

We continue to welcome applications from Associate members seeking admission as Full MEMBERS of the ABTT. To be admitted as a full MEMBER of the Association costs nothing and acknowledges that you have gained relevant experience and demonstrate a manifest commitment to the technical subjects of the art of theatre. All you need do is submit a CV and contact details for two referees: please consider applying for admission as a full MEMBER TODAY!

TRAINING: SUCCESSES

Congratulations to all those who have gained ABTT Training Awards and CPD Certificates:

Bronze Award for Theatre Technicians, April 2021: Halima Arteh, Charlie Abba, Ellie Bickle, Ellie Black, Nathan Browne, Zeph Deakin, Louise Fryman, Rhys Gardiner, Gabrielle Harrison, Oliver Gibson, Matt Lever, Mel Paget, and Christopher Sainton-Clark.

Silver Award for Stage Technicians, July 2021: Amanda Fleming, Charlotte Leslie, Merlyn Salter and Theodor Spiridon.

Silver Award for Theatre Electricians, July 2021: Kyle Arrowsmith, Alex Bevan, Ian O'Donoghue and Rhys Parker.

CPD: Electrical Fundamentals and CPD: In-Service Inspection for Lifting Gear, July 2021: Charlie Bailey, David Beaumont, Emma Braiden, Louise Hickman, Vanessa Lucas, Phil McCracken, Remi Weaver and Adam Witts.

CPD: Stage Craft Skills for Theatre, July 2021: Joshua Callaway, Philip Geller and Nicholas Wharton.

TRAINING: BOOKING NOW

Online Course: AutoCAD Online Training for Theatre Technicians If you are on the technical drawing side of set or theatre design, this course is for you – it is specifically tailored to the needs of users in a theatrical environment. It consists of six parts and is structured so you can create simple drawings after Part 1. The course provides you with a foundation of skills, allowing you to use the program straight away and build your knowledge.

ABTT Bronze Award Courses

A five-day course. Each day is an individual module and may be taken as a stand-alone Continuing Professional Development course. The full five modules lead to the award of the ABTT Bronze Award Certificate. Visit the website or contact the office for more information

13 – 17 September 2021: Warwick Arts Centre

20 – 24 September 2021: Mountview, London

ABTT ELECTIONS 2021

At the time of the next AGM there will be three vacancies on the ABTT Council through the resignation of Darren Joyce and the retirement by rotation of Louise Birchall and David Evans who will have completed their current three-year term of office.

David Evans has served two consecutive terms and is not eligible to stand this year. Louise Birchall is eligible to stand for a further three-year term and was

nominated. Three further nominations were received: Oliver Brown, Ben Stephen and Martin Stewart. An election was held and the ballot closed on 27th August. Results are announced at the AGM.

ANNUAL GENERAL MEETING

The ABTT AGM will be held at the ABTT Theatre Show on Sunday 5th September 2021. Please RSVP to the ABTT Office if you intend to attend.

UPCOMING EVENTS:

ABTT Theatre Show & PLASA Show: 5th-7th November

The ABTT Theatre Show and PLASA Show will be co-locating in the Grand Hall at Olympia, and the ABTT Theatre Show Hub will have its own dedicated area on the expanded show floor. We will also be pleased to host the AAPTLE Lounge and welcome many of the specialist representative organisations to the 'real life' conversation.

ABTT Industry Supporters' Group Restart Party: IET, London: 14th September 2021

A Restart Party will be held on the Roof Terrace and in the Riverside Room from 6:15pm until 9:00pm. Admission is by personal invitation, please contact the ABTT Office to request a place.

Theatres Trust Conference 2021: 4 November 2021

We are proud supporters Making Theatre Sustainable at the Lyric Theatre, Hammersmith. See the entry in the calendar at www.abtt.org.uk for link to the ABTT Membership discount code.

Theatre Craft 2021: 22 November 2021

The UK's largest free theatre careers event is returning and will take place in-person and online, via the Whova app. More information please see here: <https://www.theatrecraft.org/>

ABTT CHRISTMAS PARTY 2021: 3 December 2021

The ABTT Christmas Party, held through the generous hospitality of LW Theatres, will be at the refurbished Gillian Lynne Theatre. Affiliates, Associates, Members, Supporters, Fellows and friends are invited to join the festivities from 12.30pm until 4:30pm. RSVP by Friday 26 November to the ABTT office.

ABTT THEATRE SHOW 2022: Wednesday 22- Thursday 23 June 2022

The ABTT Theatre Show 2022 will return to Alexandra Palace in 2022. See you there!



Safety Matters

Association of British Theatre Technicians
55 Farringdon Road, London EC1M 3JB

Tel: 020 7242 9200
Email: office@abtt.org.uk **Autumn 2021**

CHEMICALS AND THEIR DISPOSAL

The business/property owner is generally responsible for all pipes, gutters and drains in and around their building. This includes drains leading up to the boundary at the property's edge. If you have a blockage, flooding or structural defect there, it's up to your organisation to put it right.

With Chemicals (COSHH) used in the theatre, some can be dangerous to our health, or to property or the environment. These elements can include: paints, adhesives, cleaning materials. COSHH considerations are the procedures needed for accidents and emergencies, and the training of staff and supervisors. First aid, fire and spillage procedures will be in place already, so it is a question of tailoring these responses using information provided by the supplier. Training is key to forming the basis of understanding and appreciation of chemical hazards. Training also acts as a control measure, helping staff to identify, for example, any skin problems early on.

As theatres and construction workshops use a lot of paint for scenery, it is clear that we need to think about its environmental impact. It therefore falls on us as consumers to educate ourselves on the options available and try where possible to choose more eco-friendly options.

The environmental effects of paint can vary depending on the type of paint used and mitigation measures. There are several harmful substances found in paint which are damaging to both the environment and human health. The most well-known of these are VOCs, or Volatile Organic Compounds, which are commonly found in solvent-based paints. VOCs are known to contribute to air pollution, both during the paint's production and then when it is being applied to a surface. Traditional painting materials and processes can have harmful effects on the environment, including those from the use of (now little-used) lead and other additives. Measures can be taken to reduce its environmental effects, including accurately estimating paint quantities so waste is minimised, and use of environmentally preferred paints, coating, painting accessories, and techniques.

Emulsion paints are all water based and carry a low VOCs rating. However, acrylic paints, which contain less hydrocarbon solvents, are much safer than oil-based paints. So, what is acrylic paint? Essentially, it is a plastic-based paint, it is not only used in the arts, but also used for houses and buildings (although in this use it is often called latex paint). In acrylic paint, the binder is an acrylic polymer emulsion. In other words, the pigment is suspended in a water-based, liquid version of acrylic plastic. The use of a plastic binder allows it to be water resistant when dry whilst being water soluble when wet. Acrylic paint in its most basic form doesn't require anything for its use and clean-up but water.

Water discharge activity covers entry into inland freshwaters, coastal waters or territorial waters of any poisonous, noxious or polluting matter, waste matter, trade effluent or sewage effluent.

Your local water company is responsible for public sewers carrying sewage and stormwater from your property's boundary to the local wastewater treatment works. Your local

council can exercise the relevant powers that apply under the Environmental Damage Regulations 2015, or Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009, as appropriate. It is an offence to cause or knowingly permit a water discharge activity unless authorised by an environmental permit (EP).

In Staffordshire, a company had to pay £33,000 for polluting a brook with clay material after exceeding its discharge consent limit. Similarly, there was a food manufacturer in Worcestershire who was fined £12,000 for making illegal discharges into Severn Trent Water's sewer network. This business was ordered to pay costs of over £30,000. In just one six-month period, the same authority brought successful prosecutions against seven different firms in the Midlands.

The Environment Agency has its own rules about corporate pollution. You can learn more about how these incidents can lead to prosecutions here. Source –<https://www.lanesfordrains.co.uk/commercial/help-advice/business-responsibility>

"Paint wash water (arising from a professional painter or business) is a PRESCRIBED INDUSTRIAL WASTE and is required by the EPA to be disposed of properly"

LADDER FALL

Southend High School for Boys Academy Trust has been sentenced after a worker fell from a ladder.

Chelmsford Magistrates Court heard how the injured person was using an unsecured ladder at the school to dismantle a canopy roof when the ladder slipped, causing the worker to fall and sustain fractures to his face, a fractured femur and other injuries.

An investigation by Health and Safety Executive (HSE) found that the school did not have a risk assessment or safe system for dismantling the canopy roof which resulted in the work being conducted unsafely. No assessment was made as to the fragility of the roof before accessing it, suitable equipment was not provided, the injured person was not trained and the work was not supervised. The investigation also found that other work at height at the school was also carried out without specific planning, supervision and was not carried out safely.

The school pleaded guilty to breaching Section 2(1) of the Health and Safety at Work, etc Act 1974 and was fined £24,000 and ordered to pay costs of £5,446. Speaking after the hearing, the HSE inspector commented "Falls from height remain one of the most common causes of work-related fatalities in this country and the risks associated with working at height are well known. Those in control of work have a responsibility to devise safe methods of working and to provide the necessary information, instruction and training to their workers in the safe system of working.

If a suitable safe system of work had been in place prior to the incident, the serious injuries sustained by the employee could have been prevented."

Your correspondent suggests that the identification of personal protective equipment plays a significant part of reducing risks to both your theatre company and the

individuals. By investing in high quality PPE rather than the cheapest option, which is not always the best.

Following advances in design, helmets offering full protection and conformity are now available, enabling quick selection of retention system function via a switch on the chinstrap.

Confusion over the status of EN 812 bump caps brings added complexity. This close-fitting baseball style cap is intended for protection against bumps and scrapes from static objects, tested with an impact energy of 12J. Unlike helmets designed to reduce the impact of falling or projected objects, bump caps are designed to protect the wearer where there is a risk of colliding with stationary hazards, such as barn doors or M&E containment. Remember that bump caps 'protect the wearer against themselves'.

The ABTT offer schools and community groups a short course on access equipment essentials, inspection of equipment and safe use for stage use.

COVID-19 AND MENTAL HEALTH

The entertainment and hospitality sector has been particularly badly affected by the Covid-19 pandemic, with many establishments closed completely for many months with prolonged uncertainty over reopening.

As lockdown measures ease across the UK, there is a need to consider what impact the new ways of working will have on technical staff (and actors) mental health. To protect staff from stress it is necessary to undertake or update risk assessments and act on them. Managers should act now to undertake such an assessment and put the necessary control measures in place.

Guidance on addressing these issues is provided by the HSE in its Management Standards approach to tackling work-related stress. The Management Standards cover six core areas that, if not controlled, can contribute to poor mental health. They are:

Demands – this includes issues such as workload, work patterns and the work environment

Control – how much say the person has in the way they do their work

Support – this includes the encouragement, sponsorship and resources provided by the

organisation, line management and colleagues

Relationships – this includes promoting positive working to avoid conflict and dealing with

unacceptable behaviour

Role – whether people understand their role within the organisation and whether the organisation ensures that they do not have conflicting roles

Change – how organisational change (large or small) is managed and communicated in the organisation.

It is important that we consider mental health and wellbeing as a priority all year round, after all, one in four people experience a mental health problem of some kind every year in England while, every week, one in six of us report experiencing a common mental health problem such as anxiety or depression. Covid-19 has also caused issues for many more people. Some people are worried about going into work, concerned about whether they are at risk of contracting the virus. Others who are working remotely may well be suffering from feelings such as isolation.

A positive step can include a mental health first aider role within workplaces, eg employees trained to recognise the signs and symptoms of mental health problems and initiate responses. A recent IOSH – funded research focuses on prevention rather than cure.

When people are supported and well, staff confidence will

increase, happiness and productivity can rise, and people can be more resilient to change and adversity. That's not to say people are expected to be infallible but that by having effective well-being support, employees can better cope with significant and unusual situations such as COVID-19.

The health and safety exam board, NEBOSH, has identified and explore six interconnected branches which contribute to the overall well-being of people:

INTERCONNECTION and relationships with those around us. This includes colleagues at work, family, friends and those we interact with in our local community.

EXERCISES – Getting active! This could be anything from a light walk to running, cycling, dancing or playing games that get you moving. Regular exercise benefits our physical and mental health in many ways, including lower levels of anxiety and cardiovascular health.

MINDFULNESS – This is about being aware of the here and now; this branch of well-being involves taking the time to notice our surroundings and be present in the moment. In our busy lives we often rush about, our minds full of numerous thoughts, feelings and worries what we need to do next, what's happening tomorrow ...), and we don't stop to take notice of the present. Taking notice and being aware of the present moment has been shown to enhance our well-being.

NUTRITION – Healthy eating is well known to be beneficial to our physical health, however it is now recognised that a healthy diet can also be beneficial to our mental health and well-being. Eating a wide variety of foods in healthy proportions is often referred to as a 'balanced diet'.

KINDNESS – This branch of well-being is all about helping, sharing, being friendly and considerate and giving to other people such as a colleague, family member, friend or even a complete stranger. Kindness, however, is also about taking the time to be kind to yourself. In addition to helping others, being kind can help our own well-being by positively influencing each of the following aspects of our life such as mood, self-esteem, happiness, identity and optimism.

LEARNING – Research has shown that learning can help us maintain and improve our levels of well-being. This includes gaining new skills, expanding our knowledge, taking on new responsibilities or experiencing something new. Learning new things often involves us being around other people which in turn increases our level of interaction and can lead to forming new social groups. When we learn, we are concentrating on the task in hand which helps us to be 'in the present moment' (mindfulness).

Working with Wellbeing, visit: nebosh.org.uk/workingwithwellbeing

New From ETP

THE SOUND OF THEATRE



From the Ancient Greeks to the Digital Age

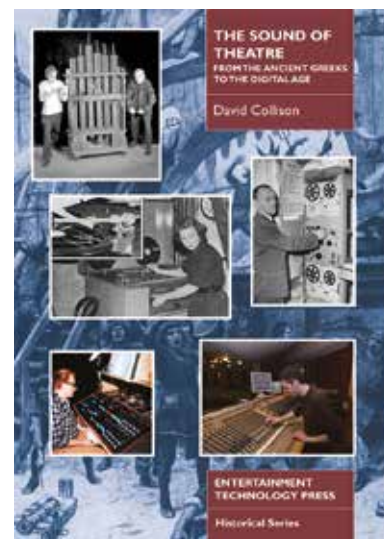
by **David Collison**

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 and www.amazon.co.uk



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WITH THE ROYAL NATIONAL THEATRE

THE NATIONAL THEATRE: A PLACE FOR PLAYS

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ORDINARILY: £11.95

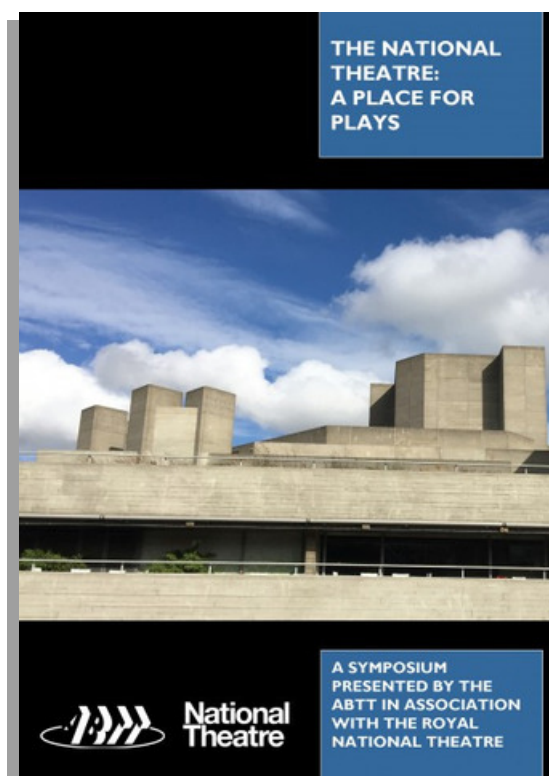
ABTT MEMBERSHIP PRICE: £8.95

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?

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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



www.abtt.org.uk

Large Affiliate



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
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
Cheshire College (South & West)	Ellesmere Port
Chichester College	Chichester
Chichester Festival Theatre	Chichester
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 School	London
Kings Lynn Corn Exchange	Kings Lynn
Korea Testing Laboratory	Seoul, South Korea
Lakeside Arts Centre	Nottingham
Lakeside Theatre	Colchester
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
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	Scotland
Perth Concert Hall & Perth Theatre	Scotland
Petersfield Town Council	Petersfield
Pontio	Bangor
Queen Mary University of London	London
Queen's Theatre	Barnstable
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
Sage Gateshead	Gateshead
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
Stephen Joseph Theatre	Scarborough
St Mary's University	Twickenham
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
Theatre Peckham	London
The Backstage Centre	Purfleet
The BRIT School for Performing Arts & Technology	Croydon

The Cockpit	London
The Corn Hall	Diss
The Courtyard	Hereford
The Electric Theatre	Guildford
The Elgiva Theatre	Chesham
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 MAC	Belfast
The Market Place Theatre and Arts Centre	Armagh, N Ireland
The Marlowe	Canterbury
The Northern School of Art	Hartlepool
The Nutshell	Winchester
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 Peckham	London
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 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

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