

The Grade I listed Theatre Royal Drury Lane has been standing in London's West End, in some form, since 1663. One of the oldest theatres still in use in the city, the site has been rebuilt three times across its history, most recently in 1812 by Benjamin Dean Wyatt, although his auditorium was lost in 1922 in that refurbishment.

Now owned by renowned composer Andrew Lloyd Webber, the theatre has been through a full restoration over the last few years, reopening to the public in July 2021.

As part of the extensive work, BDP revitalised both the exterior and interior lighting, bringing a new light to the space while carefully honouring the original 19th century lighting features.

"Our approach was to consider how we could create contemporary lighting effects that clearly drew inspiration from the past," said Jono Redden, Senior Lighting Designer at BDP.

"On day one, what was apparent was that the client was looking to provide a modern experience within a traditional theatre. The lighting needed to reveal the architecture, provide drama and atmosphere without distracting from the historical relevance of the building."

With this in mind, BDP developed a concept that shone a spotlight on the heritage lighting elements, which was then highlighted and accentuated with subtle, modern additions. Colin Ball, Lighting Director at BDP, added: "The concept fuses a combination of stage technologies and the latest low energy LED lamps with the 18th century process of glass cutting and low-level integrated candelabra to create a warm ambience in keeping with the historic interiors and Wyatt's original drawings.

"Theatre Royal Drury Lane has always been at the forefront of lighting technology, whether whale oil, gas or electricity – and this scheme is no exception. We merged lighting methods of the 19th and 21st centuries; dimming technologies used previously on stage and in the auditoria have been adopted throughout the whole building to maximise flexibility and balance the same level of sensitivity and ambience across all areas of the visitor experience."

Throughout the design process, BDP worked very closely with architect Haworth Tompkins, undergoing extensive research, even including determining how each paint finish looks in daylight and under artificial light. Drawings, financial records and publications from the long history of the theatre were studied to determine the focus of the lighting in each space, whether low level standard, wall sconce or chandelier.

Ball continued: "Each individual space looks to the original design of 1812 to determine the focus of the lighting. Using this as our starting point, we employed a series of hidden fixtures to reduce contrast, wash ceilings, spotlight artworks or integrated details to fixed furniture, steps, or handrails. This collection of hidden details suggests that the light emanates from the historic light fixtures.

"Sections by Benjamin Wyatt unearthed from the national archives revealed his desire for low level candle lanterns integrated within the handrails. Although technically very difficult to achieve with modern systems, cable was threaded through original stone and handrails to remain faithful to this intent."

Another key example of modern technologies used to honour the historical significance of the project came with the recreation of some of Wyatt's original lighting fixtures; a lantern from one of his surviving stately homes was laser scanned and a virtual model was created and adapted to the theatre proportions, with 3D printed new moulds produced to cast the iron posts using traditional methods appropriate to 1812. One of the last remaining blacksmiths in the country then created the lanterns using the same original technique dating from the theatre's inception.

"The new torchieres were painstakingly detailed and fixed directly onto the original balustrades with minimal alterations," Ball explained. "A carefully calculated internal void allowed all cabling to route internally without affecting the thickness or structural integrity of the main body."

Meanwhile all diffusers in the chandeliers and sconces were handblown and cut, according to



19th century techniques, including ironmongery and cut glass.

From an architectural perspective, a central part of the project's vision was to reveal and restore Wyatt's foyers and staircase – “arguably the most impressive Georgian sequence of public interior spaces in existence”, according to Ball – and to “democratise the previously segregated circulation into the auditorium”.

“For the first time in almost a century, the auditorium can be entered directly from street level without needing to go via the basement level,” Ball continued. “A new lift, along with fully accessible circulation at each level, has ensured that every audience member can now experience the grandeur of the architecture, and by opening up the original foyer entrances on three sides and removing later accretions, the front of house foyer has been restored to its former glory.”

The close working relationship between BDP and Haworth Tompkins extended to the specification process as well, as Redden explained: “Each new lighting type specified started with a conversation on the space, before BDP used our knowledge to find a suitable product.

“We then did thorough sample reviews with the architects, looking at aesthetics, fixing details, light quality, and custom finishes. Almost every fitting on the schedule has in some way been changed from standard. Haworth Tompkins were open to us leading the specification and as the project progressed and trust developed, we were able to influence each other's packages to ensure the best results.”

Despite revamping the lighting throughout, one of the key tenets of BDP's scheme was for light levels to be kept as low as possible throughout the day and evening; the optics and finishes of the corridors and spaces were designed with vertical illumination to ensure that the eye could comfortably adjust from daylight, into the 50lx interior of the auditorium. Each corridor leading to the auditorium is lit with a flexible gallery system of accenting paintings, so that while transitioning through these spaces, the eye imperceptibly adjusts to darker light levels. Each change of level or collection of vertical details are illuminated locally to create a space that appears ‘warm’, rather than ‘dark’.

To further add to the ‘warm’ aesthetic, while paying homage to the classic Georgian finishes, BDP used modern technology to give the revamped lanterns a traditional feel, with a theatrical control system creating a “simulated flicker” to be broadcast through the standard lamps, matching the original 1812 lighting scheme as closely as possible.

Redden added: “Flicker speed intensity and times of activation were carefully reviewed to ensure the “candlelight” never became a gimmick and always felt effective.”

While BDP and Haworth Tompkins worked tirelessly to ensure that the heritage elements of this Grade I listed venue were preserved and showcased, Redden explained that it was not without its difficulties. “A huge amount of research was done between the lighting designers, architects and

client heritage expert, Simon Thurley,” he said.

“There were constant issues of getting cables to new fittings, where and how to fix original fabric and how to build in flexibility. From a heritage perspective, a big challenge was ensuring what we were proposing provided the right experience for this type of building. The lighting had to add to the drama and atmosphere but never overwhelm or detract from the building's original form. Safety and inclusion were also challenging and where light levels were kept to a minimum, we had to focus light onto multiple surfaces to increase the perception of brightness and provide contrast to changes of elevation.”

The biggest challenge for BDP though, came with the integration of modern lighting within the historic interiors. In the 1920s auditorium, just as the architecture changed the geometry of the seating and the balconies, the lighting had to deliver expected contemporary standards without a change of appearance.

“We had to take each ‘Empire’ fitting and local ceiling moulding to redistribute and increase the density to provide a uniformity to a modern standard,” Ball explained. “This required a series of fittings to be duplicated with all original fittings improved to the same finish quality. Existing fittings were tested and input into calculation models to demonstrate in advance the lighting improvement. Where the visual duplication was known to fall below requirements to read programmes, a series of discrete hidden ceiling details were included to ensure that every seat had a good light level, but also angle of light, to read a programme.”

Elsewhere, the Grand Saloon repurposes large chandeliers found in storage and re-shaped, moulded and recast in Georgian proportions, while wall lanterns were created from pencil sketches found within the archives. The crystal pendants in the foyer were scaled up to two metres in diameter and fitted with both diffuser and chrome spotlights, remaining true to their original appearance but with hidden projection. Meanwhile, a series of private rooms are mostly lit from perimeter paintings and localised furniture, enabling the crystal pendants to stay dimmed to 10%, while hidden spotlights in the chandeliers provide table accenting.

Redden added: “As a lighting designer, doing too much or too little was always a concern as interiors changed and we moved further away from some of the original concepts.

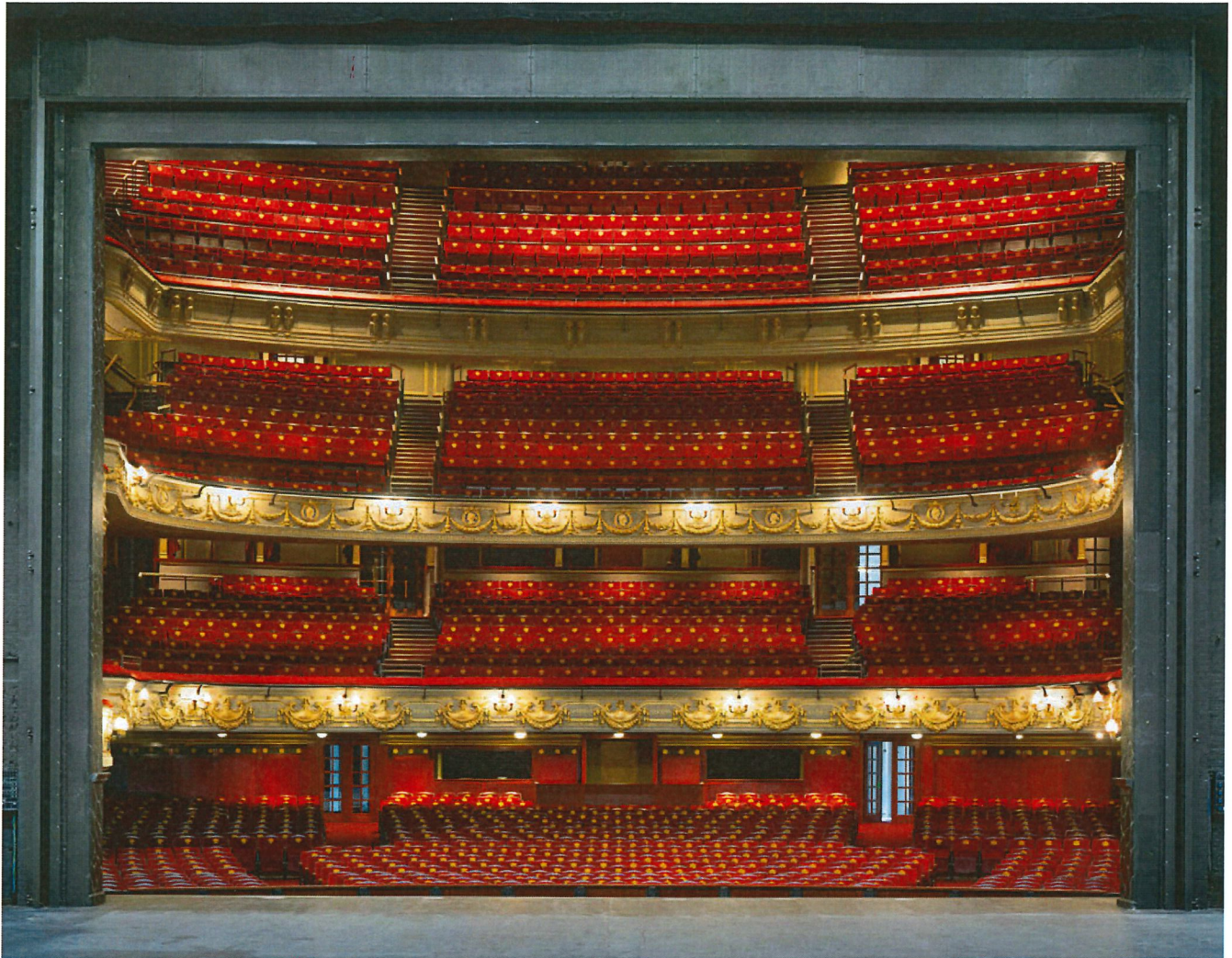
“The light output needed to be soft and diffuse without becoming too ambiguous. All the new lighting needed to complement the traditional fitting both in terms of form and in light output.

“For instance, the hidden Erco spotlights in the roof void lighting the artwork on the walls provides a broad, soft wash of light rather than focused frame lighting, as that would be too much at odds with the textured light given from the torchiere crystal diffusers.

“The concealed spotlights above the cornice in the Grand Saloon create a soft, dappled uplight to create the impression of uplight from the chandeliers. With the exception of the building

Throughout the renovated Theatre Royal Drury Lane, BDP kept architectural lighting interventions to a minimum, with discrete additions complementing the revitalised heritage aspects, such as the chandeliers, wall sconces and lanterns.





exterior crown, linear fittings used opal diffusers to avoid typical architectural graze lighting that would have been inappropriate in this type of interior. "Where possible, we used discrete architectural lighting to supplement the heritage lighting. However, the "traditional" lighting was essentially designed and built from the ground up to ensure the correct period aesthetics whilst being purposeful lighting elements." Despite the various challenges that the design team faced, Redden can now look back on the finished scheme with a lot of pride, especially having seen how it benefits the theatre as a whole. "Keeping the project going through two years of Covid shutdown required vast amounts of courage and determination from everyone involved, we are very happy with the results and to have contributed our part.

"The feedback from the client and public has been very positive," he said. "We were invited to a soft opening and dress rehearsal performance of the new show, and it was fantastic to experience first-hand exactly how the lighting both supports and complements the venue.

"It should be taken as a compliment, but sometimes the success of the lighting also means the level of work done is not easily recognised. People are often surprised to discover the torchieres didn't exist prior to the refurb, or that the chandeliers have taken years of development. A lot of the lighting goes unnoticed, as it should. "One of my favourite aspects is the picture lighting. By turning each space into a gallery, we've created a much more unique approach to providing a low level of general lighting that makes sure each room feels welcoming as you move around the building. The architecture, interior design and lighting have an equal balance and the level of coordination is evident between each discipline."

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Client: Andrew Lloyd Webber
Lighting Design: BDP, UK
Architect: Haworth Tompkins, UK
Lighting Suppliers: Architainment, Dernier & Hamlyn, Ecosense, Erco, Factorylux, Flos, KKDC, LED Linear, LightGraphix, Orluna, Sugg Lighting, TM Lighting, Wilkinson
Photography: Philip Vile, Tom Niven