

# And there was light...

The re-lighting of St. Paul's Cathedral is a key part of the recent project to clean and restore the original fabric of this great building. Not only does the improved quality of light reveal the breathtaking beauty of Sir Christopher Wren's original design in anew and exciting manner, but also provides greater flexibility in meeting the general operational requirements of this busy place of worship.

Whilst much has been written about the theatrical approach to the use of daylight as part of the original design for the cathedral, little is known about Wren's attitude towards the use of artificial light. What is understood, however, is that artificial lighting has always played an important part in the life of the building this is revealed by the original surviving candelabra that can still be seen in the nave aisles.

Since the industrialisation of artificial light, St. Paul's Cathedral has always been in the vanguard of lighting technology being one of the first major public buildings not only to have a gas lighting system installed in the early 1830's but also an electric system as early as 1903. This original electric system was fully upgraded in the 1930's and again in 1962 to provide one of the most advanced installations of its time. Despite this heritage, throughout the latter half of the twentieth century, piecemeal changes and the introduction of increasing amounts of theatrical lighting to support services and events, led to a situation where the integrity of the original 1960's design was lost. It was therefore decided in 2002 to commission a new system of lighting as part of the cleaning project.

Developing a new lighting scheme for a building such as St. Paul's Cathedral presents an enormous challenge. As well as the need to meet a range of functional requirements for the ongoing support of daily and special services, musical events, state occasions, etc., the scheme also had to respond to a series of constraints. The most difficult was to limit both the visual impact of the light fixtures and any damage their associated wiring and bracketry might cause to the existing fabric. Combined with this the limited availability of power; the need to meet certain stipulations in respect of disabled access and above all the wish of the cathedral to embrace a 'greener' approach, meant an appropriate balance had to be found between often conflicting operational, aesthetic and environmental requirements.

The lighting concept was conceived as a series of layers that aimed to meet the varied day-to-day needs of the cathedral. These included general, architectural, liturgical and theatrical lighting as the main requirements. It was agreed that each of these layers would be able to be operated individually, and in combination to produce the necessary functional and aesthetic solutions.

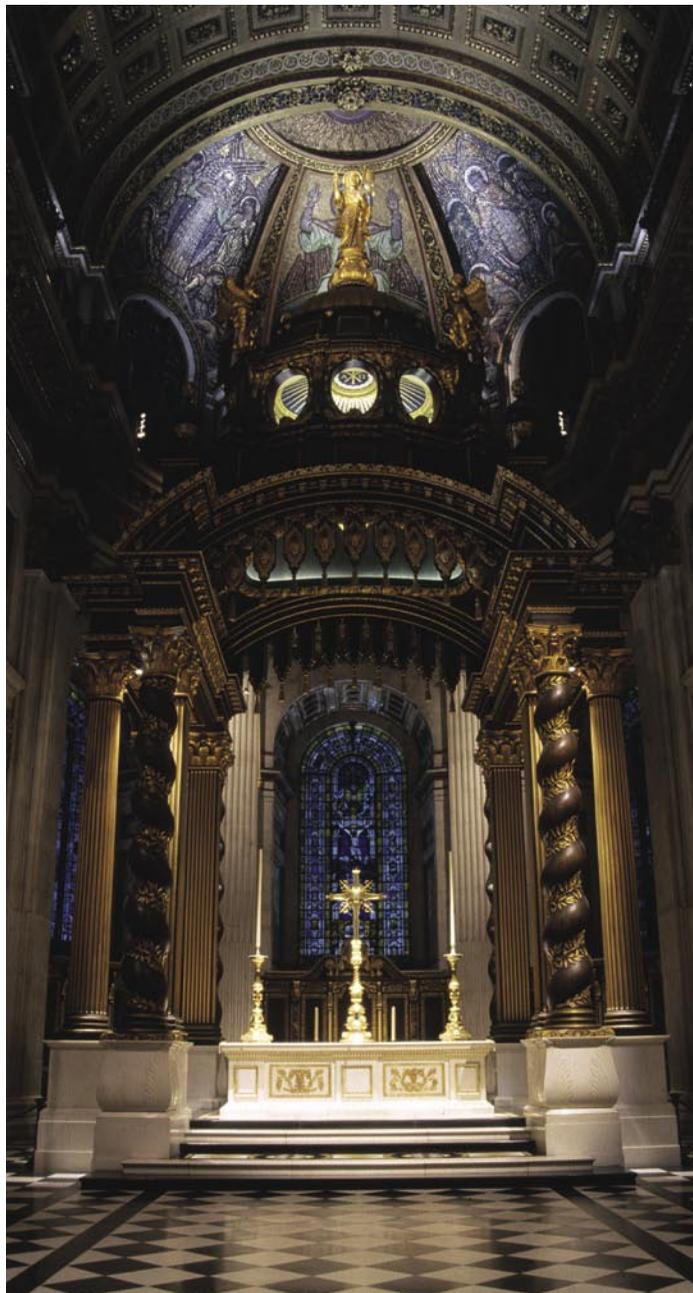


Photo: James Newton

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## ◆ LIGHT ◆ PERCEPTIONS ◆

Systems Integration – Project Management – Planning Supervision

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*Systems Integration Consultants for the Re-lighting of St Paul's Cathedral*

The general lighting in St. Paul's is provided by a mix of discrete low wattage spotlights located at Triforium level, and an arrangement of existing and new chandeliers. These two interventions were the most radical, in that the spotlighting brackets not only incorporated an integral theatre lighting bar but were also designed to be folded away out of sight as and when required. The chandeliers also represented an enormous change. Whilst there were a number of existing pieces as part of the original system it was proposed to add six new major chandeliers to the nave, four to the crossing two within the west entrance vestibules and a number in the chapels. Each has not only provided more lighting but also had a profound but positive impact on the space by returning the original sense of scale that would have been created by Wren's original design.

The architectural scheme was largely built on the backbone of the 1960's scheme with a new, and much more flexible solution for the dome and improved low energy installation for the vaulted ceilings and coffers.

The liturgical significance of different areas of the building was recognised through the separate general highlighting of key architectural set pieces such as the re-lighting of the Baldachinno, a new scheme for Holman Hunt's 'Light of the World' and a comprehensive re-working of the lighting for the various chapels including St. Dunstan's, St. Michael and St. George and the American Chapel.

Finally, the theatrical lighting systems were fully upgraded through the introduction of a new suite of state-of-the art equipment that not only reduces the visual impact of the fixtures but also saves considerable energy through the use of special four filament lamps. The scheme also defines new, dedicated positions for theatrical lighting to meet the wide range of requirements for the illumination of services, special events, concerts, etc.

Each of the layers of lighting is brought together through a special new control system. Not only does this allow a selection of lighting scenes, but also unifies the operational, aesthetic and theatrical systems through a single touch screen system. This in turn can also be operated by hand-held touch screens that can be linked by radio. The innovative use of

radio systems not only provides greater flexibility for the users, but also a reduced the amount of wiring required, thereby sparing the fabric of the building further.

There is no doubt that whilst the new lighting scheme for St. Paul's Cathedral represents a significant technological step forward, its most important facet is the manner in which it builds upon a long tradition of the use of artificial lighting within the building to not only provide an appropriate setting for worship but also to reveal the magnificence of Wren's 'essay in light' after dark. In that sense the scheme compliments the newly cleaned and restored fabric such that it supports the continuing work of the cathedral at the heart of civic, national and international life some 100 years on from the instruction of the first electric lighting scheme.

**Client:**

Dean and Chapter of St. Paul's' Cathedral

**Project Team:**

Surveyor to the Fabric - Martin Stancliffe  
 Clerk of the Works - Martin Fletcher  
 Chief Electrician - Christopher Whittington  
 Architects - Purcell Miller Tritton  
 Lighting Architects - Speirs and Major Associates  
 Systems Integrator - Light Perceptions  
 Quantity Surveyors - Bare Leaning and Bare  
 Main Contractors - St. Paul's Cathedral Work Department  
 Electrical Contractors - Mid-Essex Electrical

**Major Lighting Suppliers:**

Chandeliers and Stall Lights - Dernier & Hamlyn  
 Spotlighting - Mike Stoane Lighting  
 Cold Cathode - Oldham Lighting  
 Xenon festoon - Crescent Lighting  
 Control System - Lutron  
 Theatrical Lighting - ETC  
 Floodlighting - Commercial Lighting Systems

**Opposite page: The High Altar and Baldachinno is strongly lit to provide the main focal point within the Quire.**

**This page, from left: Original concept sketch of the lighting to the Crossing, a new chandelier is installed in the Nave, the new lighting to the Nave as seen from Triforium level.**

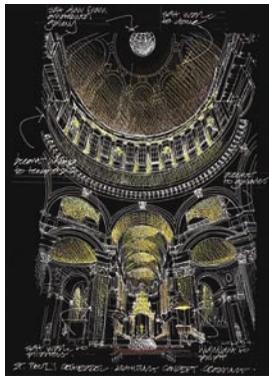


Illustration: Mark Major



Photo: Mandy Reynolds

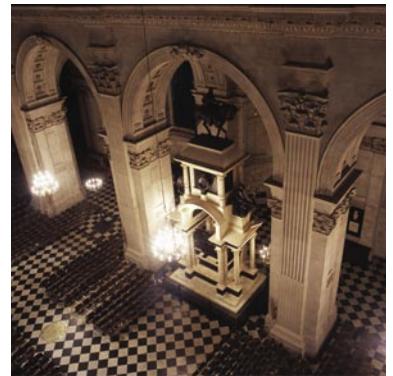


Photo: Mandy Reynolds

**Lighting Architects for the new lighting scheme at St. Paul's Cathedral**

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 Lighting Architects**

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