

State of the art lighting for 500-year-old library



Occupying five buildings, the Bodleian Library is the main research library of the University of Oxford, and is one of the oldest libraries in Europe. With over 12 million items, it's the second-largest library in Britain after the British Library. The lighting had to respect the Grade-1 listed building, conceal the sources and deliver task lighting where necessary. Photography: © Dan Paton www.danpaton.net

A SOPHISTICATED lighting installation with a range of state-of-the-art technologies such as Bluetooth Mesh has been unveiled at the Bodleian Library in Oxford, parts of which date back to 1487.

The lighting had to respect the Grade-1 listed building, conceal the sources and deliver task lighting where necessary. Occupying five buildings, the Bodleian Library is the main research library of the University of Oxford and is one of the oldest libraries in Europe. With over 12 million items, it's the second-largest library in Britain after the British Library.

The atmospheric buildings – which have featured as the Hogwarts library in the Harry Potter films – include the 15th century Duke Humphrey's Library, which was built in 1487, with the Arts End added in 1612 and the Selden End in 1637.

Urban Jungle Energy & Engineering, in collaboration with Tyson Lighting were engaged by Rob Gregg of the University of Oxford to refurbish the existing lighting. The brief for the refurbishment was short, but to the point. The electrical contractor on the project was SMY Electrical.

The lighting was not to be the main feature of the space or to distract from the original architecture; its purpose was to compliment and conceal where practicable, whilst enhancing the function of the space

The project was 12 months in the making, with every small detail being considered, retested where needed to ensure that the library was always supposed to have been lit in the manner to which it now is.



The Arts End of the library features wall wash LED luminaires for the low-level bookcases and fibre optics for the high-level bookcases. Photography: © Dan Paton www.danpaton.net

The lighting strategy for the Arts End of the library was to replace the existing luminaires with the following lighting elements:

Low level bookcases – a continuous wall wash LED luminaire integrated into the current luminaire position. A retro-fit gear tray was installed, so that the existing outer body could be retained.



The existing fibre optic system was replaced with a new LED fibre optic alternative, which utilised the current head positions. A bespoke new lens was designed and manufactured, with a half-frosted optic to maximise output and uniformity across the bookcase. Photography: © Dan Paton www.danpaton.net

High level bookcases – The existing fibre optic system was replaced with a new LED fibre optic alternative, which utilised the current head positions. A bespoke new lens was designed and manufactured, with a half-frosted optic to maximise output and uniformity across the bookcase.

Linear cove lighting – a continuous LED cove luminaire provides a high-level perimeter wash lighting onto the ceiling. Its sole purpose was to grade the light off into the centre of the ceiling, revealing the beautiful art work.

Security Desk – New miniature replicas of the original bronze desk lamps were designed and hand crafted, to provide illumination onto the desk. The look and feel blended nicely into the Duke Humphrey's section of the space.

The functional lighting strategy for the Duke Humphrey's Library, was to replace the following existing lighting elements:

Bookcase task lighting—An Antique Bronze bookcase-mounted luminaire was designed and hand-crafted, complete with local bronze toggle switch, MPO optic and LED light source.

General illumination – The fluorescent up-lighting to the ceiling was replaced with an LED linear equivalent, which we were able to control and reduce its output to avoid overpowering the accent lighting.

Accent lighting – The sole purpose of the new dedicated accent lighting was to highlight the wall hung portraits, the beautiful artwork on the structural wooden beams and the window reveals. This created a greater depth of drama as you walk through the space.



The lighting was not to be the main feature of the space or to distract from the original architecture; its purpose was to compliment and conceal where practicable, whilst enhancing the function of the space. Photography: © Dan Paton www.danpaton.net

Duke Humphrey's Working Areas – An antique bronze bookcase wall wash luminaire was designed and hand-crafted, complete with integral PIR, MPO optic and LED light source. Its purpose was to lift the illumination levels in the working areas.

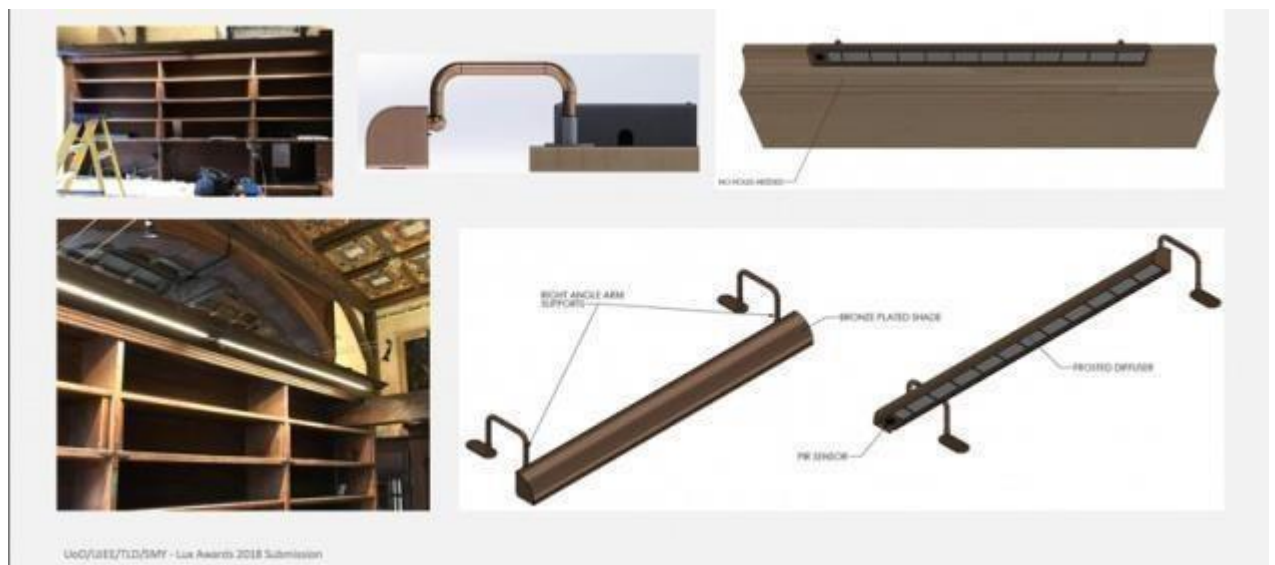
The functional lighting strategy for the Seldon Library, was to replace the following existing lighting;

Low level bookcases – As per the Art's End, a continuous wall wash LED luminaire integrated into the current luminaire position. A retro-fit gear tray was installed, so that the existing outer body could be retained.

High level bookcases – As per the Art's End, the existing fibre optic system was replaced with a new LED fibre optic alternative, which utilised the current head positions. A bespoke new lens was designed and manufactured, with a half-frosted optic to maximise output and uniformity across the bookcase.

Balustrade – A new asymmetric wall-wash was used within the existing perimeter recessed detail. The asymmetric beam ensured that only the balustrades were lit, without casting shadows onto the ceiling.

Desk Mounted Task lighting – The existing bronze task lights were removed from site, refurbished and retro-fitted with LED light source and MPO lens. A further three luminaires were designed and re-cast to replicate the originals; as well as miniature desk mounted task lights for the reading tables on the upper gallery.



An antique bronze bookcase wall wash luminaire was designed and hand-crafted, complete with integral PIR, MPO optic and LED light source. Its purpose was to lift the illumination levels in the working areas.

Fibre Optic System – The existing fibre optic supports did not function as originally intended. So, a new pivot and ball set was manufactured to hold the head in place. This allowed the light to physically enter the space rather than the ceiling void and allowed the physical hold of the optic head during commissioning.

The new fibre optic heads were subject to a vast amount of discussions with English Heritage, who requested minor tweaks throughout the design.

The impact of the new optic head and LED engine is clear to see, with the original metal halide engine on the right and the warmer and vibrant LED on the left.

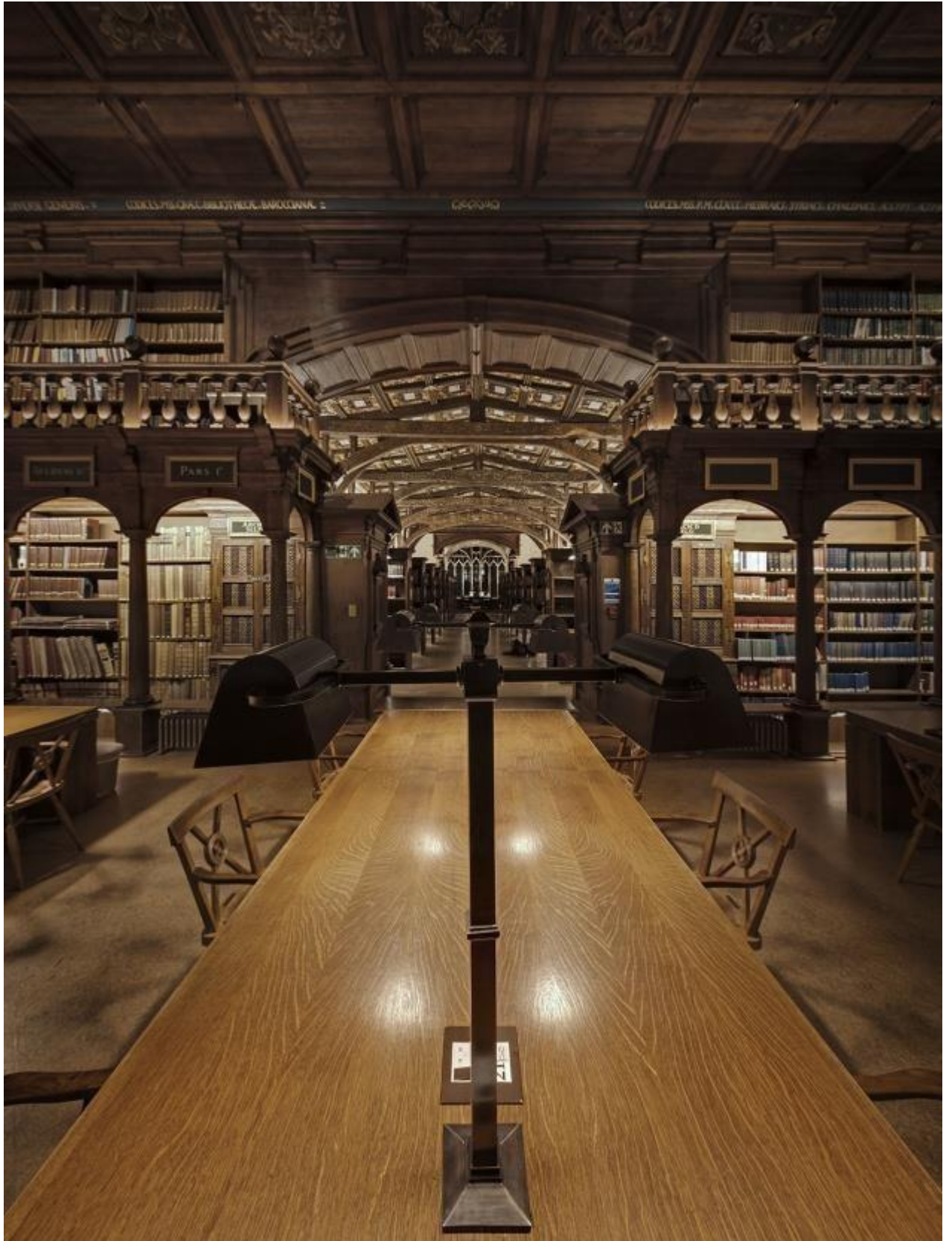
The primary purpose of the new lighting control system within the Bodleian Library was to provide the end user with maximum flexibility, without impacting the existing building finishes. With technology breakthroughs in the area of wireless communications, this is now possible to achieve.

The new system was designed around the Casambi platform, which uses Bluetooth Low Energy to create a mesh network throughout an area or building, which allows direct control by the end user via an app.

Each luminaire had an iBeacon installed, which provided direct communication with the devices, allowing a number of alternate scenes to be configured dependant on how the end-user wishes to use the space.



The library features a Bluetooth Mesh lighting control system from Casambi. It was designed to provide the end user with maximum flexibility, without impacting the existing building finishes. With technology breakthroughs in the area of wireless communications, this is now possible to achieve. Photography: © Dan Paton www.danpaton.net



The existing bronze task lights were removed from site, refurbished and retro-fitted with LED light source and MPO lens. A further three luminaires were designed and re-cast to replicate the originals; as well as miniature desk mounted task lights for the reading tables on the upper gallery. Photography: © Dan Paton www.danpaton.net