



Challenge

To provide an indoor and outdoor LED lighting solution for Ealing Hospital including LED luminaires, sensors and controls that substantially reduces energy cost while providing an appropriate and comfortable lighting environment.

Solution

The extensive hospital upgrade included installation of 38 variations of luminaires with different lumen outputs, optics, dimming/sensor controls, and integral emergency packages. The luminaires, sensors and lighting controls were installed in wards, waiting rooms, circulation areas, loading bays, cafeterias and reception areas. Fixtures in the imperial ceiling were replaced with bespoke recessed luminaires — a far less expensive approach than replacing the entire suspended ceiling.

Benefits and Results

Ealing Hospital officials determined that the LED lighting upgrade reduced energy use by approximately 50%. The complete upgrade was performed in 12 months. Return on investment is estimated to be reached in 5 years. All waste products were disposed of in line with WEEE legislation.



Comfort Meets Sustainability at UK's Ealing Hospital

An LED renovation of a hospital in the UK reduced lighting energy usage by approximately 50% while creating a lighting environment that is more conducive to healing.

Challenge

Due to their round-the-clock operation and high lumen output requirements, hospitals devote a great deal of their energy usage to lighting. According to the U.S. Department of Energy, lighting can account for 44% of a hospital's electricity bill – nearly double that of a commercial building's. In this light, it is no surprise that hospitals in many parts of the world are updating their lighting systems to LEDs to reduce their operating costs.

Last year, the London North West HealthCare NHS Trust, one of the UK's largest care trusts that serves over 850,000 patients and employs 8,000 people, spent 9% of its total budget on energy. In the interest of reducing lighting energy and maintenance costs to relegate those savings to other forms of health care services, the Trust secured government funding to upgrade its Ealing Hospital in Southall, Greater London, to LED lighting.

The Trust partnered with the Dextra Group (Dorset, UK) to provide luminaires, controls and sensors for the upgrade. One of the substantial challenges involved the presence of imperial ceiling grids throughout the hospital, a size that is currently not offered in standard European lighting products.

Rapid installation was also considered a necessity for the lighting upgrade.

“When we accepted the 2014 Lux Award for Manufacturer of the Year, the judges described our ability to deliver custom product rapidly and in large quantities as ‘remarkable.’” We have recently expanded our design and manufacturing facilities to provide the fastest delivery times.

— Rupert Martin, Group Chairman and Owner, Dextra Group plc



Solution

A selection of lighting fixtures, lighting controls and sensors were chosen from Dextra plc's Dextra Lighting, Dexeco and Dexsor divisions to meet the needs of the hospital upgrade. Dextra chose LEDs from Lumileds (San Jose, CA) because of their ability to provide very high efficacy LEDs with high flux, outstanding light quality and industry-leading reliability.

Dextra replaced the fixtures in the imperial ceiling with bespoke recessed luminaires — a far less expensive approach than replacing the entire suspended ceiling. The extensive hospital upgrade included installation of 38 variations of luminaires with different lumen outputs, optics, dimming/sensor controls, and integral emergency packages. All luminaires were specified at 4000K color temperature and 80 CRI, with the exception of the Opus 2, which is specified at 4000K and 70 CRI. All of the luminaires were designed for rapid installation and minimum interruption of work areas using cable flex and click ceiling rose design.

In the wards, corridors, stairwells and cafeterias, custom DEXLED recessed luminaires using LUXEON 3535L LEDs, with imperial dimensions of 1220 x 610 mm and 610 x 610 mm, were manufactured and installed. Due to the wide range of lumen outputs achieved with the luminaires, fewer overall fixtures were required than originally installed. The luminaire's low brightness louvers and opal polycarbonate diffusers provided a more comfortable light for patients and staff.



LUXEON M, LUXEON 3030 2D, LUXEON T, LUXEON 3535L LEDs

In the hospital wards and elevator lobbies, custom MODLED luminaires with LUXEON 3535L LEDs, also with imperial dimensions, were installed in lay-in, pull-up and surface mount configurations. The MODLED is compliant with BSEN 12464 glare limitations for visual comfort. Other luminaires used throughout the hospital included the Graduate Surface LED and Protec LED downlights, using Philips Fortimo DLM Flex modules with LUXEON 3030 2D LEDs.

In the hospital's loading bay and nursery, the IP65 rated Avalon Wall Pack was chosen specifically for its long life and durability in harsh and hard-to-access areas. These luminaires utilize the Lumileds LUXEON T LEDs—high flux, high efficacy emitters that provide over 200 lm at 100 lm/W each. These areas also use the Dexeco ProLED luminaires powered by LUXEON 3535L, which boast a luminaire efficacy of 91 lm/W at constant lumen output.

Durability is also demanded of the Opus 2 LED floodlight, which uses LUXEON M, Lumileds brightest, most uniform high efficacy emitter. The fixture provides constant lumen output, exceeds Energy Star lumen maintenance requirements, is IP65 rated and has a die-cast aluminum housing and toughened glass covers.

For outdoor areas, the Amenity Plus LED luminaires with LUXEON 3535L LEDs provide 1500 lm or 2000 lm with light output ratios of 80%, matching the performance of fluorescent sources at a fraction of the energy cost.

Benefits and Results

Ealing Hospital officials determined that the LED lighting upgrade reduced energy use by approximately 50%. The complete upgrade was performed in 12 months. Return on investment is estimated to be reached in 5 years. All waste products were disposed of in line with WEEE legislation.

The LED upgrade provided the hospital with the opportunity to balance quality with cost-effectiveness. Rigorous compliance to the UK's current legislation and energy efficiency and safety standards ensured that the new installation would operate in alignment with the Trust's performance goals and environmental policies.

“LED lifetimes of 50,000 hours or more is particularly attractive to a hospital that runs 24/7 and depends on reliable lighting. Lumileds is the most dependable supplier for this kind of installation. ”

— Natasha Ward, Dextra

About The Dextra Group

The origins of Dextra Group date back to the late 70's producing luminaires for niche markets where service and practical design were paramount. Over the ensuing years and particularly the last decade, the commercial lighting market has become increasingly more sophisticated due, in part, to upgraded building regulations but also client awareness of lighting quality. In order to take advantage of this trend the company now boasts an impressive range of products to suit all commercial and industrial requirements. In 2008, in response to the requirement of global specifiers, Dexeco specialising in energy efficient products, Dexsor, designing and producing sensors and Dexreco recycling in accordance with WEEE regulations were established, all of whom have become major contributors to Group turnover making it the largest privately owned and managed business in its market sector in the UK. In order to maintain the original principles of 'total service', Dextra Group boasts a modern production and distribution facility in Gillingham, Dorset, containing an array of state of the art production machinery comparable to any to be found in Europe. Dextra Group has been accredited to the following standards by BM Trada: ISO 9001:2008 (Quality Management Systems); ISO 14001:2004 (Environmental Management Systems); BS OHSAS 18001:2007 (Occupational Health and Safety Management Systems). For more information about The Dextra Group visit www.dextragroup.co.uk.

About Lumileds

Lumileds is the global leader in light engine technology. The company develops, manufactures and distributes groundbreaking LEDs and automotive lighting products that shatter the status quo and help customers gain and maintain a competitive edge. With a rich history of industry “firsts,” Lumileds is uniquely positioned to deliver lighting advancements well into the future by maintaining an unwavering focus on quality, innovation and reliability.

To learn more about our portfolio of light engines visit www.lumileds.com.

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