



CAMBRIA BUSINESS SCHOOL

£3.5M BUSINESS SCHOOL
UNVEILED WITH FUTURE-PROOF
LED SYSTEM

Dextra
LIGHTING

ABOUT THE CLIENT

Over the last two years, award-winning college, Coleg Cambria, has opened £40m in new buildings across North East Wales. The new facilities are regarded as “unmatched” in the region, offering state-of-the-art facilities to the next generation of aspiring students.

Coleg Cambria’s expansion has had a significant impact on the local economy, pouring £400m into the region. The substantial investment in high-quality educational facilities is also creating long-lasting value for the future of North East Wales through training a strong and qualified workforce and boosting the local construction and electrical sector.

On account of their sizeable and successful portfolio in the education sector, Dextra Lighting were chosen by the college to work alongside Wynne construction, Architect Design Group Chester and interior furnisher Penketh Group, as lighting suppliers for two of the latest redevelopment projects. Cambria Business School in Northop, was first on the list, with a wide range of handpicked LED luminaires, tried-and-tested in modern establishments across the UK, installed throughout the premises.

Dextra Group’s in-house design and logistics teams are extremely aware of the demands of the educational sector and have worked tirelessly to establish a reputation for reliability, unrivalled delivery times, staying within budget and offering high-quality solutions and service at a competitive price.

The £3.5m new-build facility is expected to serve over 1500 students and boasts the latest teaching and research equipment, high-quality furniture and modern architectural design, whilst achieving BREEAM excellence for sustainability by using technology such as photovoltaic systems and sensor-controlled LED lighting.

The building was to be a statement of intent for the college; defining their commitment to securing the success of its students and ambition of competing not only on a national scale but on a global level. Striving for excellence requires attention to detail and every aspect of this project was set to the highest standards. Aesthetics, functionality and sustainability were carefully balanced throughout the design process to ensure the building reached the exemplary level envisioned by the college.



THE BRIEF

The 16,000 sq ft new business school has two floors of modern, interactive facilities to cater for professional development, degree level courses and employer training. Dextra Lighting were required to design, manufacture and deliver lighting solutions for the stylish atrium where students and staff can socialise, relax and study; amenities; breakout and circulation areas; storage and plant rooms; eleven lecture rooms, five meeting rooms and staff offices.

The new lighting needed to integrate with the building's architecture adapting to the interior design and decor, its abundance of natural light, and providing appropriate task illumination for its digital facilities and interactive spaces.

The lighting was to abide to Lighting Guide LG7 CIBSE guidelines for educational establishments and offer the best L2 calculation to achieve the highest BREEAM score for efficiency. Savings were to be made with the initial capital cost through simplified installation and high-quality yet affordable products, as well as in the long-term through ongoing energy and maintenance savings.

By using Dextra's LED products which are included in the ETL (Energy Technology List), Coleg Cambria will be eligible to the government's ECA (Enhanced Capital Allowance) scheme offering a 100% tax levy for the first year of purchase. All luminaires selected for the design are manufactured with the latest LM80-tested Lumileds LEDs offering 90% lumen maintenance for the first 60,000 hours of operation, allowing the college to keep its utility bills low as well as perform highly in the national Carbon Reduction Commitment league table for further financial benefits.

Energy-efficient and low-maintenance emergency lighting was specified across the entire premises in accordance with BS 5266:2011 regulations.



THE PRODUCTS

Atrium / Corridors – Runway Surface/Suspended & Protec LED

Beyond the electronic doors of the front entrance, the atrium is where students, staff and visitors are welcomed and received. Therefore, this space was an opportunity to make a great first impression and had to be bright and inviting.

The hall covers a large part of the ground floor and consists of a reception and lobby area with social seating featuring, Penketh Group coffee tables, statement lounge sofas and benches. The area is flooded with natural daylight coming from a wall made entirely of glass as well as from many other windows and doors; conforming to BREEAM "Hea 1 Visual Comfort" best practice criteria for daylighting.

The atrium's ceiling is at the highest point of the building, so the aim here was to install low-maintenance LED lighting powerful enough to provide uniform, glare-free light coverage at the recommended 200 lux for the whole area.

The solution was the Runway Surface/Suspended LED, which was suspended 2.4 metres from the ceiling. For an architectural and practical design approach, the Runway LED's slimline anodised aluminium housing offers an elegant minimalist form, backed by the premium performance and light quality offered by the latest Lumileds LED source and highly efficient optics. .

By incorporating the latest mid-output 3535 Lumileds LEDs, the luminaire offers high levels of energy-efficiency with minimal maintenance, which will keep cost and disruption low, which are considerable in impractical high ceiling areas, whilst ensuring that light levels can be met without compromising on visual comfort. Combining these quality LED sources with high-transmission opal diffusers, the luminaire offers a high light output ratio at an efficiency of up to 118lm/w.

The ultra versatile Runway LED can be customised with output packages ranging from 871lm to 4244lm across two body sizes, a choice of a BSEN 12464 compliant microprism insert or opal diffuser and black or white finishes. From a range of colour temperatures, a 4000k "cool-white" LED source was supplied for a visually comfortable and refreshing atmosphere.

In the main corridor, Runway luminaries were wall-mounted above the classroom and office doors, illuminating the walkway and the seating areas achieving a 200lux average for visual comfort and clarity.

The Runway LED is compatible with all mainstream analogue and digital dimming types (White Tuneable also available) which can

be used with a wide choice of integral and standalone sensors to maximise energy savings and flexibility in control.

The luminaire's practical gear trays with quick-release clips for ease of installation into the trunking system generated further savings by simplifying the fitting process.

The Protec LED downlighter was selected for the surrounding seating areas with lower ceilings. The highly-customisable luminaire offers a wide range of options including a number of lumen outputs, interchangeable reflectors (specular and semi-specular), colour attachments and custom bezels, giving increased flexibility to create the ideal scheme for different applications. A microprism, semi-specular diffuser is also available to provide BSEN 12464 glare compliance versions, with a diffused, low-glare light ideal for areas where monitors are in use.

In addition to its versatility and attractive modern design, the luminaire owes its popularity to its premium performance, combining high-efficiency anodised aluminium reflectors and the latest Lumileds LEDs and Philips or Tridonic drivers to offer LORs in excess of 90% whilst consuming up to 70% less energy and minimising maintenance compared to fluorescent or HID equivalents for shorter payback periods and reduced carbon emissions.

In the common areas, the desired light level of 300lux was obtained using a 2000lm output. To adapt to the decor and colour scheme the luminaires were supplied with attractive drop glass rings and grey bezels. Specular reflectors provided a narrow and more focussed distribution directed at the seating and acting as accent lighting in other areas.

For the bathrooms, the luminaire was supplied with an IP44 polycarbonate cover, which was silicone sealed to offer full IP65 protection against light impact and water, dust and dirt ingress. A lower 1100lm output with specular reflector was used to provide the 150 lux recommended for WC facilities

The Protec LED is designed to offer versatility and improved ROI from the point of installation. Its four-point, self-clamping bracket, minimises fitting times and is suitable for a range of ceiling types and surfaces in thicknesses ranging between 3mm and 30mm.

The luminaire offers compatibility with DALI, Touch Dim dimming functions to work alongside the standalone sensors and a range of remote or manual switch controls.



THE PRODUCTS

Classrooms / Meeting rooms / Staff Offices – Graduate LED Recessed

The Graduate LED Recessed has been the luminaire of choice for institutions that are committed to their carbon reduction targets and staying within budget but are equally concerned about creating the best learning environment for their students.

Energy-efficiency meets high performance with the luminaire's aluminium gull-wing reflectors and prismatic opal extruded diffuser, making the most of its High-Efficiency 3535 Lumileds LED source. Available in a wide range of output packages, sizes and installation formats, the luminaire can be tailored to suit the application. A practical 25 litre-per-second air-handling option is also available with this product, allowing for installations to integrate lighting and ventilation systems with minimal modifications to the ceiling.

For staff offices, meetings rooms and classrooms with suspended ceiling grid systems, a 600 x 600mm, lay-in (pull-up also available) 2861lm version of the Graduate Recessed LED was installed offering BSEN 12464 compliant glare control for maximum visual comfort to support the use of computers and other VDUs. This output offers a triple compliance package; adhering to the 3000 candela glare limit, comfortably exceeding the 82lm/w required by L2 standards and satisfying ETL criteria for ECA eligibility.

The Graduate LED Recessed offers compatibility to most mainstream dimming options and a variety of sensor controls. For the purposes of this project, luminaires were provided with DALI dimmable drivers to be connected to passive infrared sensors installed at a later date which were to be controlled via a centralised system. Once fully installed, the luminaires will offer daylight regulation and presence detection to maximise energy savings.

Breakout Areas – Pro-Light Mini

The Pro-Light MINI range has been developed to offer a comprehensive selection of high-quality LED spotlights for a variety of applications. This unique family of luminaires is purpose-built for all types of displays, reception and decorative areas with four body types (Fixed, Gimbal, Wallwash and Scoop) specular or semi-specular aluminium faceted reflectors in 20°, 40° and 60° beam angles which can be removed and replaced for future changes using a practical twist lock system.

Available in lumen outputs between 1206lm up to 3304lm, with colour temperatures of 3000k or 4000k in as high as CRI-80, the Pro-Light MINI offers a comprehensive range of lighting effects and dimming controls. All Pro-Light MINI luminaires are manufactured in the highest quality die-cast aluminium, offering durability and elegant style.

In the breakout areas, the spotlights were supplied in 1616lm versions to achieve the 300 Lux required. A semi-specular reflector with a 60° beam angle provided optimal directional distribution, offering both clarity and comfort for staff and students alike. A round, Fixed version was chosen in white, to match the decor.

To minimise installation times, the Pro-Light MINI features simple retractive spring clips to easily secure the fittings into ceilings 0.5mm to 22mm thick. Finally, custom bezels (white, black or silver/grey) can be supplied to match the interior's colour scheme whilst optional polo rings are available for retro-fit applications with existing cut-outs.



THE PRODUCTS

Circulation areas (Stairwells, Landings, Lifts) – Discalo LED

Discalo LED bulkhead was both wall and ceiling-mounted across the building's circulation areas, including the main stairwell in the atrium and the back stairs. The luminaires combine energy-efficiency, functionality and low-maintenance benefits with the added decorative touch of its characteristic halo effect, which can be customised in either blue or white. The attractive rear diffuser can be removed with a twist-lock motion which allows for easy access for installation and maintenance.

A highly-efficient opal diffuser and the latest Lumileds LED allow the luminaire to operate at an impressive 97Llm/w and to adhere to the 150 lux and UGR (Unified Glare Rating) 25 for circulation areas.

The luminaire is available in a number of control options Switch, DALI, HFR 1-10v Analogue and Digital (DSI) dimming and integral sensors. Once installed the luminaires, will be integrated in a network of PIR sensors offering presence detection and bright out off to compensate if there was enough natural light spill.

Plant Room – Hydra LED

The durable and highly-efficient Hydra LED is specifically designed for a wide range of demanding environments such as industrial, storage and exterior applications. Its IP65-rated glass reinforced polyester housing, sturdy polycarbonate diffuser and steel gear tray offer increased protection to light impact, dirt, dust and water ingress essential for the centre's utility areas and showers. The luminaire is designed to withstand temperatures ranging between -25° and +25° making it ideal for the plant room.

Manufactured with the latest Lumileds LED source, the luminaire was an ideal replacement for the previous fluorescent battens as it requires minimal maintenance once installed. Combined with highly efficient optic, the LED chip board offers significant energy savings, allowing the luminaire to offer an LOR of over 90% at an efficiency of approximately 140Llm/w. Stainless steel tamper-resistant screws and diffuser clips allow for tool access for maintenance in compliance with statutory regulations.

The Hydra LED offers flexibility from installation right through to commissioning. With output packages ranging from 2046lIm to 18,630lIm across three body sizes, in either single or twin configurations installations, the luminaire can be adapted for specific lighting requirements in different locations and maximise energy-efficiency with each installation. Using these options, 1500mm, single bodied, 3318lIm version provided the optimal 150lux mechanical and electrical plant rooms.

The Hydra is suitable for suspension, mounting to trunking and surface mounting and is supplied complete with a number of easy-install features and kits. This range is compatible with most mainstream dimming functions including DALI, Switch, HFR 1-10v Analogue and Digital DSI dimming.

Emergency

The LED3 standalone emergency module was surface-mounted in strategic locations across the ensure the installation was compliant with BS 5266 part 1 emergency lighting requirements. The LED3 now provides a self-test function which signals any fault and prompts repairs or by means of an LED indicator, saving the college the time, cost and disruption of laborious manual maintenance routines. By singling out luminaires in need of attention, the LED3 self-test function allows for co-ordinated and efficient maintenance of the lounge's emergency lighting ensuring regulations are always met with minimal effort.

Other standalone emergency lighting units included were the low-energy 2.5 Watt AME LED Bulkhead, offering three hour non-maintained emergency lighting and the IP65-rated HighSpot LED; offering 500 lumen output for high level applications such as the atrium or where very wide spacings between luminaires are required.

The efficient and low-maintenance 4w LED self-contained surface HBE Hanging Blade and EXI LED, provided clear emergency exit signage where required. The luminaire is manufactured in high-quality aluminium with screen-printed legends on flame retardant acrylic panels.

THE RESULTS

Among its many ecological efforts, Coleg Gwen is also known for going the extra mile with its waste management. With a thorough tendering process and consolidation of its waste contracts, it now holds an impressive recycle rate of 86.6%, far exceeding the Welsh Government's requirement of 70% by 2025. To fulfil this ongoing commitment to the environment, the college made full use of Dexreco Ltd – Dextra Group plc's AATF registered luminaire recycling subsidiary who quickly and conveniently collected and recycled obsolete light fixtures from the premises in accordance to WEEE regulations.

Dexreco is a vital node in Dextra Group's sustainable network of operations. In 2014 alone, it recycled a total of 189,989 light fittings and the number is rising, regularly adopting measures such as using the "back load" of Dextra's vehicles returning from deliveries, to minimise pollution on our roads. Dexreco has proved a valuable resource in making waste management as efficient and hassle-free as possible for clients across the UK, whilst reducing the overall carbon footprint in the final step of the supply chain.

Since the completion of the project, Dextra Group has stayed in close contact with Mr Maddox from Coleg Gwent's Electrical Engineer Estates & Facilities Department, to ensure the new systems are smoothly running and for any extra support. Due to the success of this partnership, Mr Maddox asked Dextra's team to join him in a follow-up 'Invest to Save' renovation project scheduled for later this year.

Having an energy fund from the Carbon Trust Advanced Metering Monitoring and Targeting (AMM&T) equipment, the college will be able to track resulting energy savings generated by the new lighting accurately and in real time. The estimated energy savings for the upgrade are comfortably between 60 and 70% compared to the previous system, which will allow the college to repay the interest free loan within 5 years from the date of completion and look forward to continued financial benefits in the long-term.

