THE ECONOMICS OF LIGHTING

Officially opened on 24th October, the BREEAM Outstanding rated Saw Swee Hock Student Centre at the London School of Economics is a triumph in mobilising the limitations of a site into a startlingly original building which makes a massive contribution to its townscape. The lighting design, by ChapmanBDSP in conjunction with architects O’Donnell + Tuomey, was no less of a challenge.

Saw Swee Hock Student Centre is a special building. It absorbs the awkward and restricted site boundaries to provide internal spaces with a multiple of uses. The building excites, the spaces are as much of art as of use, the complex geometry, the use of colour and natural materials sit within a fair-faced concrete interior, and an intricate lattice of externally clad red brickwork.

As much craftsmanship as architecture, the sheer persistence of its architectural vision resounds throughout the building. The triangulated external façades of the building, extends through to the internal spaces, with each having a unique geometry and form.

Saw Swee Hock is a multifunctional building with a large music venue, pub, learning café, union offices, prayer centre, dance studio, careers library and gym. The project is located at the knuckle-point convergence of the network of narrow streets that characterise the London School of Economics (LSE) city centre campus. Architects O’Donnell + Tuomey created a public space at the threshold of the Student Union on axis with St Clement’s Lane, pulling pedestrian street life into and up the building.

The architectural intention for the design of the building was to create an active Student Union, the contemporary character of which was inviting, welcoming and even provoking to its users. Inside the building open stairways spiral around the central lift shaft that forms a skewing pivotpoint at the centre of gravity of the plan. These wide stairs with slow steps make a flowing continuous ribbon of movement from street to roof garden, a vertical building working as a single organism.

The use of daylight, natural ventilation and many other details led to the design being given a BREEAM Outstanding rating. When shortlisted for the RIBA Stirling Prize the judges were gushing in their praise of how natural light was designed to flow throughout the venue giving it a light and airy feel, something of an achievement for such a complex building: “The architects started by taking the geometry of tight angles as the definition of a solid into which they gouged cuts and cracks that give light and form.”

The lighting design for the striking building was carried out by ChapmanBDSP. The final implementation of which was carried out by the contractors, Osborne. The building seeks to be the best student centre in the UK, enhancing the student social experience and acting as a student hub at the centre of the LSE London campus.

“The lighting design for the project was challenging,” admits Farhad Rahim, Associate Lighting Designer at ChapmanBDSP. “Structural restrictions limited where luminaires could be located so each fitting had to be carefully coordinated with the structural make up of the ceiling slab joints and infrastructure, and raised floor support to provide supply and control lines, limiting the location of luminaires.”

A multitude of lighting arrangements had to be carried out as each location was also required to be considered within the overall architecture of each space. Luminaires providing function were also required to be part of the architecture, as visible components within the internal space.

“The shape, colour and location of each luminaire all play a part to maintain the integrity of the architecture,” comments Rahim. “The perseverance was worthwhile, I am so proud and privileged to have been
part of the team, the building is truly inspirational."
The lighting design was carried out in very close collaboration with the architects embracing the unique architecture and following form and function, integrating within the architectural fabric of the building. The majority of the internal finishes are of fair-faced concrete from walls to ceilings. Vertical surfaces of colour provide contrast and define the interior. The colours used are a unique palette, a classic trait of O'Donnell + Tuomey. The building encourages students to congregate, engage and be involved. The visibility of containment routes and wiring to luminaires are avoided with the use of the void space on the floors above to serve the luminaires located below. Conduits are recessed within the building fabric to serve wall mounted luminaires, the supporting vertical columns are utilised to mount luminaires with containment integrated within the columns allowing the intricate architecture, contours and purity of its geometrical form to take precedent. The design ensures that all control gear is integrated within the luminaires to be accessible from the floor served to ensure ease of maintenance without needing to access the floor above, thus minimising disruption. The illumination of the external façade is avoided, minimising light pollution and allowing the internal illumination of the building to act as a lantern with intricate lattice of brickwork on the external façade. The use of the internal spaces by its occupants allows the façade to become a living and active lighting form, providing a visual language of the building’s usage during the hours of darkness. The main ground floor entrance leads to the reception and main circulation staircase, providing vertical access though to other floors in the building. The lighting of the staircase incorporates linear luminaires recessed within a trough to provide general illumination as well as to complement the geometrical structure and form. The main staircase and central lift core play a pivotal role in the fluidity and access between floors, with each area adjacent to the lift core designed to allow students to informally congregate, further emphasising the building’s purpose to accommodate the requirement of its end users. Adjacent to the main lift lobby on the ground floor is a spiral staircase providing access to the lower floors that holds the
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The student bar and café features Bega uprights to provide indirect light distribution producing a space that is visually comfortable, with a sense of ambience. The triangulated design of which complements the support structure to depict the form of trees. Reflecting surface and acoustics damping. Both columns and luminaires are painted to complement the colour scheme, which contrasts with the fair-faced concrete finishes to add visual interest.

The first floor also accommodates the student activity centre, which also applies a similar lighting strategy to the café with the use of indirect light distribution with tree-like column structures with floating clouds. The illumination of the media centre on the second floor consists of semi-recessed canister type downlights, which are supplemented with column mounted uplights, bringing a lightness and expanding the volume of the space. The Multi-faith rooms on the same floor are illuminated via indirect light distribution with low levels of illumination to provide a sense of serenity and calm.

The third floor accommodates the Student Residences office and Student Union office, both of which are illuminated in a similar fashion to the media centre, continuing a consistency of visual language and lighting philosophy, utilising semi-recessed canister downlights to provide task oriented illumination levels, which are supplemented with uplighting via spotlight mounted on the vertical support columns.

**Japanese**

アイルランドの建築家O'Donnell & Tuomeyによるこの設計は、建築物の照明デザインはChapmanBDSPによって製作され、建築業者Geoffrey Osborneがそのデザインを最終的な施工に監督した。この建築物は学校の社会活動を円滑にし、学生生活を円滑な変化に促進するための最初のステージとなる。LSEのコンサートホールの中心に位置する。

照明デザインは建築物の複雑な形状をより、建築の特性やその形状と機能がこのコンセプトに沿って、建築に組み込まれた構造と融合するように作られている。

内部は昼から夜まで広々とした部屋の一部が打ち放しコンクリート仕上げで均質照明が用いられている。

**Chinese**

这座成功的建筑设计是爱尔兰建筑师O'Donnell & Tuomey的杰作。其特点是与ChapmanBDSP合作，最终由Geoffrey Osborne完成。这座建筑的设计目标是提升整个校园的建筑水平，加强学生活动中心，并为LSE伦敦校区的主体结构。灯光设计由建筑商搭配合作完成。采用充满活力的设计，并保证了全新形式和功能理念，极大程度上整合了建筑的整体结构。墙面和天花板的内部装饰大部分采用清水混凝土结构及完成。外立面采用照明装置，以让建筑内装饰照明营造一种与外部结构的内部效果。内部空间的使用为学生提供了丰富多彩的环境。在整体设计上使该建筑提供了一种独特的视觉语言。

**Français**

L'éclairage de l'exceptionnel bâtiment de l'architecte irlandais O'Donnell & Tuomey a été réalisé par l'entreprise Chapman BDSP, puis la mise en œuvre finale de la conception fut réalisée par l'entrepreneur Geoffrey Osborne. Le bâtiment aspire à devenir le meilleur centre pour étudiants au Royaume-Uni, en amplifiant l'expérience sociale étudiante et en servant de plaque tournante estudiantine au cœur du campus LSE de Londres. La conception de l'éclairage fut menée en étroite collaboration avec les architectes afin de contrôler cette architecture unique et valoriser un concept de forme et de fonction intégrant complètement le matériau de l'architecte du bâtiment. La plus grande partie intérieure est en béton, et ceci du sol au plafond. La façade extérieure est peu illuminée afin que l'éclairage intérieur du bâtiment opère comme une lanterne allumée avec sa raquette japonaise. L’utilisation de l’espace intérieur permet à la façade de prendre une forme lumineuse silencieuse et active, offrant un langage visuel de la fonction du bâtiment pendant les heures d’obscurité.
The fifth floor accommodates the Student Careers Centre. Due to the reduction of support columns, the uplighting components are addressed via horizontally mounted lighting poles onto which are mounted direction spotlights, providing both upward light and task oriented illumination. The central staircase terminates on the fifth floor and access to the sixth floor is provided via a circular staircase similar to that leading to the Student Coffee/Juice bar. The lighting changes here with the use of Innermost Circus pendants to provide a decorative element.

The lighting control for the building utilizes a central system, adopting a Dali protocol to enable future changes in the configuration of the lighting control and removing the requirement for alterations to the wiring infrastructure, minimising alterations to the building fabric or extensive manual labour to carry out future modifications.

The lighting operates on an automated detection system, with central override to allow main circulation spaces and other key areas to be constantly illuminated when required during core hours and revert to automated operation for outside core hours, allowing for a flexible control system.

The key elements for the lighting are to supplement the architecture and more importantly to provide illumination of spaces that are central to the user’s requirements and comfort. The greatest satisfaction is that users love the space that has been provided for them and have embraced the building that has been designed to the students’ and users’ requirements.

www.chapmanbsdp.com
www.odonnell-tuomey.ie
www.osborne.co.uk

Lighting is integrated within the slim circular handrail design of the spiral staircase complementing the architectural form and shape. The handrail lighting also functions as emergency lighting during power outage or failure.

**PROJECT DETAILS**

Saw Swee Hock Student Centre, LSE, London  
Client: London School of Economics  
Architect: O'Donnell + Tuomey  
Lighting Design: ChapmanBSDP  
Contractor (lighting spec Implementation): Osborne

**LIGHTING SPECIFIED**

Newlec 15 IP65 batten  
Riegens DFS batten  
Riegens DL-015 downlight  
Whitecraft Mirage recessed downlight  
Coooper Safety St. CC-5 luminaire  
Specials Lighting Design recessed 600 x 600 panel  
Specials Lighting Design pendant  
Targetti: Exterior Mirror Light-Line  
Thorn: Arrowline 15 batten  
Thorn: Concave 5 high bay  
Commercial Lighting Sovereign flexible LED strip  
Commercial Lighting Sovereign Tubular spotlight  
Innermost Circus pendant  
Hamele Tracklight  
BEKA BISP wall mounted floodlight