

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 cafe, 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 skewering 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."

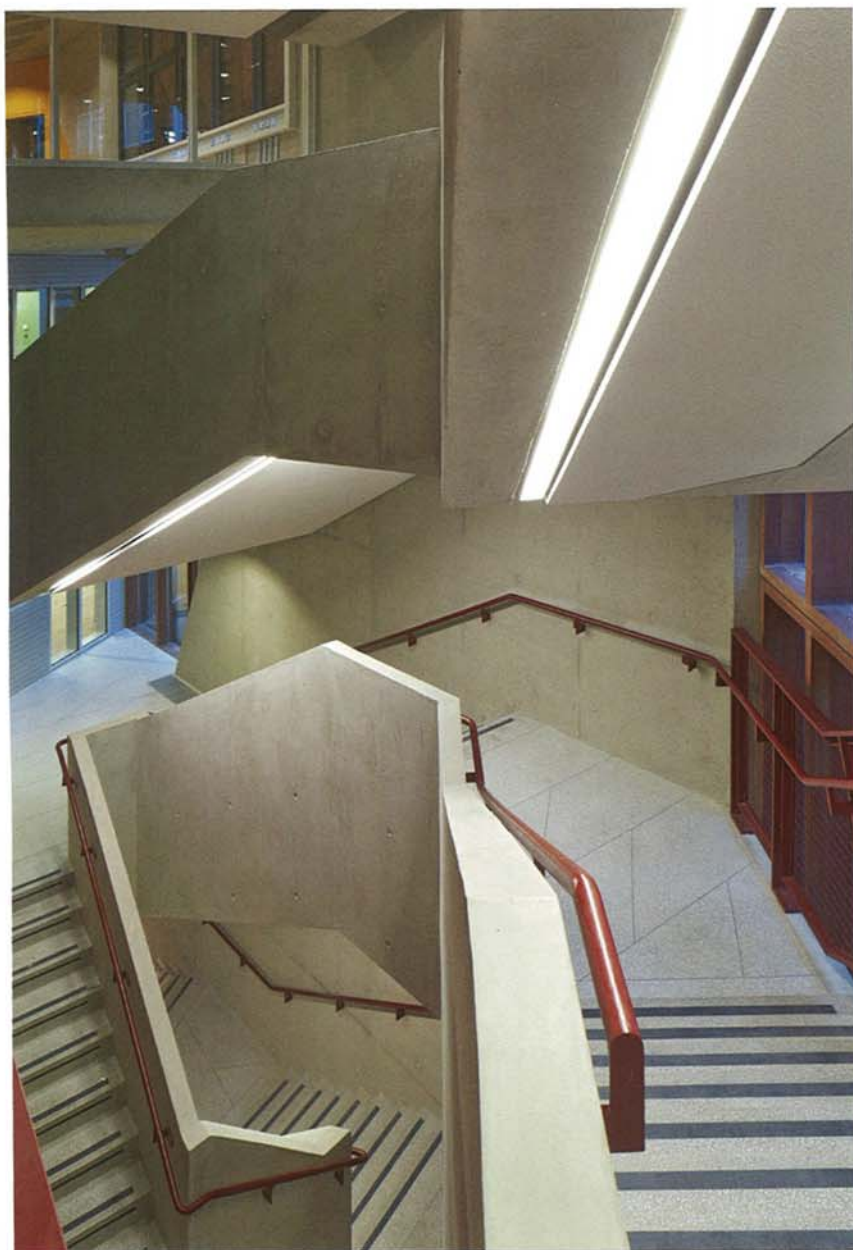
The lighting design for the striking building was carried out by ChapmanBDSP. The final implementation of which was carried out by the contractors, Osborne. The building seeks to be the best student centre in the UK, enhancing the student social experience and acting as a student hub at the centre of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

The Saw Swee Hock Student Centre, within the LSE London campus, is located amidst medieval London streets and period properties. It stands out with its unique architecture, yet melds with its surroundings. 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 an intricate lattice of brickwork on the external façade.



Top The lower basement level houses a world class events space, which is utilised for performances, musical events and practice. The base lighting scheme provides general illumination of the space via industrial type pendants with lighting rigs and professional level controls to entertain all the various requirements demanded from the space.

Left The lighting of the staircase had always been intended to integrate within the structure. Recessed linear luminaires are housed in a precast trough to complement the geometrical structure and to be part of its form.

Above The majority of circulation spaces and general areas of use are illuminated via semi-recessed canister type downlights, maintaining a simple aesthetic to supplement the architecture.

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 empathising 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



The student bar and café features Bega uplights 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.

main event space and nightclub. Lighting is integrated within the slim handrail design, again complementing the architectural form and shape. The handrail lighting also functions as emergency lighting during power outage or failure.

The first floor includes the student café, for which the general illumination of the space is provided via bespoke lighting columns with branches to depict the form of trees, utilising uplighting to provide indirect lighting for a comfortable and shadow free illumination of the space below. The upward light is reflected via large oval shaped clouds above to act as both a

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 spotlights mounted onto the vertical support columns.

JAPANESE

アイルランドの建築家O'Donnell & Tuomeyによるこの人目を引く建物の照明デザインはChapmanBDSPによって製作され、建築業者Geoffery Osborneがそのデザインを最終的に施工した。この建物は学生の社会活動を円滑にし、学生生活の中心となることを意図してイギリス随一の学生センターとなるべくLSEのロンドンキャンパスの中心に作られた。照明デザインは建築家との密接な共同作業により、建物の特徴やその形状と機能のコンセプトに沿い、建築に織り込まれた構造と融合するように作り出されている。内部は壁から天井までほとんどの部分が打ち放しコンクリート仕上げ、内部照明が間のプロ

ック壁と共にランタンのように見えるよう、建物外壁ファサードの照明は、あえて設置しなかった。内部スペースを利用すると、ファサードが生き生きと燃え盛る燈火のように見え、周囲が暗い時間帯には、建物の使用法を視覚的に説明する。

CHINESE

这座显眼的建筑由爱尔兰设计事务所O'Donnell & Tuomey 担纲建造，其灯光设计由ChapmanBDSP完成，最终设计由承包商Geoffery Osborne实施。该建筑设计的目标是打造全英国最好的学生中心，加强学生的社会经验，并成为LSE伦敦区中心的学学生枢纽。灯光设计由建筑师们紧密合作完成，采用

了独特的结构，并遵循了全新的形式和功能理念，极大地协调整合了建筑的整体结构。墙面到天花板的内部装饰大部分采用清水混凝土完成，外立面未采用照明装置，以让建筑内部照明营造一种国际跨地域结构的灯笼效果。内部空间的使用为外立面营造了一种鲜活生动的照明形式，为黑暗环境下使用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 fut imaginé par l'entreprise Chapman BDSP, puis la mise en œuvre finale de la conception fut réalisée par l'entrepreneur Geoffery

Osborne. Le bâtiment aspire à devenir le meilleur centre pour étudiants au Royaume-Uni, en améliorant 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 contenir cette architecture unique et suivre un concept de forme et de fonction intégrant complètement le matériau de l'architecte du bâtiment.

La plupart des finitions intérieures sont en béton de parement, 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 maçonnerie ajourée. L'utilisation de l'espace intérieur permet à la façade de prendre une forme lumineuse vivante et active, offrant un langage visuel de la fonction du bâtiment pendant les heures d'obscurité.



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.

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 orientated 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 utilises 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.chapmanbdsp.com

www.odonnell-tuomey.ie

www.osborne.co.uk

PROJECT DETAILS

Saw Swee Hock Student Centre, LSE, London

Client: London School of Economics

Architect: O'Donnell + Tuomey

Lighting Design: ChapmanBDSP

Contractor (lighting spec implementation): Osborne

LIGHTING SPECIFIED

Newlec T5 IP65 batten
Riegens Certus batten
Riegens D1-D15 downlight
Whitcroft Mirage recessed downlight
acdc recessed downlight
Cooper Safety SL CG-S luminaire
Specials Lighting Design recessed 600 x 600 panel
Specials Lighting Design pendant
Targetti Exterior Mercure Light-Line
Thorn Arrowslim T5 batten
Thorn Concavia S high bay
Commercial Lighting Sovereign flexible LED strip
Commercial Lighting Sovereign Tubular spotlight
Innermost Circus pendant
Illuma Tracklight
BEGA 8409 wall mounted floodlight

DEUTSCH

Das Beleuchtungsdesign für das auffällige Gebäude des irischen Architekten O'Donnell & Tuomey wurde von ChapmanBDSP realisiert, wobei die endgültige Implementierung des realisierten Designs von den Unternehmern Geoffrey Osborne stammt. Das Gebäude erhebt den Anspruch, das beste Studentenzentrum in GB zu sein, um die soziale Erfahrung der Studenten zu verbessern und als Studenten-Drehkreise im Zentrum des Campus der LSE in London zu fungieren. Das Beleuchtungsdesign wurde in sehr enger Zusammenarbeit mit den Architekten durchgeführt, um die einzigartige Architektur einzubeziehen und befolgt ein Form- und Funktionskonzept mit starker Integration des Architekturgewebes des Gebäudes. Der Großteil der internen Endverarbeitungen ist aus Sichtbeton für Wände und Decken. Die Beleuchtung der

Außenfassade wurde vermieden, damit die Innenbeleuchtung des Gebäudes als Laterne für das Mauerwerk fungieren kann. Dank der Verwendung des Innenbereichs kann die Fassade eine lebendige und aktive Beleuchtungsform annehmen, die während der Dunkelheit eine visuelle Sprache in Bezug auf die Verwendung des Gebäudes liefert.

ITALIANO

Il progetto di illuminazione per il suggestivo edificio, fatto dall'architetto irlandese O'Donnell & Tuomey, era stato portato avanti da ChapmanBDSP e, in seguito, la realizzazione finale del progetto è proseguita grazie al lavoro dei contatti Geoffrey Osborne. L'edificio si propone di essere il miglior centro studenti del Regno Unito, costruito per migliorare la vita sociale degli studenti e agire come un portale studentesco al centro del campus LSE di Londra.

Il progetto di illuminazione era stato effettuato in stretta coordinazione con gli architetti per abbracciare l'architettura unica nel suo genere e seguire un concetto che unisse la forma alla funzionalità, integrandosi maggiormente con la struttura architettonica dell'edificio. La maggior parte delle finiture interne, dalle pareti ai soffitti, sono di calcestruzzo. La facciata esterna non è illuminata per consentire all'illuminazione interna dell'edificio di agire come una lanterna con la muratura esterna. L'uso dello spazio interno permette alla facciata di avere una forma di illuminazione vitale e attiva ed un linguaggio visivo nell'utilizzo dell'edificio nelle ore notturne.

ESPAÑOL

El diseño de iluminación para el llamativo edificio de los arquitectos Irlandeses, O'Donnell & Tuomey, fue llevado a cabo por ChapmanBDSP. La implementación final

del diseño estuvo a cargo de los contratistas Geoffrey Osborne. El edificio busca ser el mejor centro de estudiantes del Reino Unido, para resaltar la experiencia social del estudiante y actuar como núcleo en el centro del campus de la LSE de Londres. El diseño de iluminación fue llevado a cabo con una coordinación muy cercana con los arquitectos, para acoger la arquitectura única. El mismo sigue un concepto de forma y función con mucha integración dentro de la estructura arquitectónica del edificio. La mayor parte de las terminaciones del interior son de concreto aparente desde las paredes hasta los cielorrasos. Se evitó la iluminación de la fachada exterior para permitir que la iluminación del interior del edificio actuara como una linterna con el enladrillado. El uso de un espacio interior le permite a la fachada convertirse en una forma de iluminación viva y activa, proporcionando un lenguaje visual del uso del edificio durante las horas de oscuridad.