



# Re-union

*O'Donnell + Tuomey's LSE student union building revisited*

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SIR ARTHUR HALL



# Saw Swee Hock five years on

O'Donnell + Tuomey's Stirling-nominated LSE students' union building is proving popular and well used, but it has fallen short of its sustainability targets



Words Hattie Hartman  
Vox pops Fran Williams  
Photography Ben Blossom

When it opened its doors in 2014, O'Donnell + Tuomey's Saw Swee Hock student union was the London School of Economics' first new building in over 40 years. Shortlisted that year for the RIBA Stirling Prize, the LSE's student union stands out as a distinctive red brick insertion into the university's somewhat anonymous Aldwych campus.

Shoehorned into a tight triangular site at the south-west corner of Lincoln's Inn Fields, the Saw Swee Hock was tasked with providing a welcoming front door and daytime home for the university's 8,900 students. It was the first of a trio of new buildings to be delivered as part of the LSE's ambitious commissioning programme. Roger Stirk Harbour + Partners' Centre Buildings Redevelopment is due to complete in May, followed by the Marshall Building by Grafton Architects in 2021.

Five years on, the AJ revisited the Saw Swee Hock to find out how students and staff thought the building was faring. Subsequent to the building's opening, Sheffield Street has been pedestrianised to a design by O'Donnell + Tuomey, creating a welcoming forecourt to the building. On the chilly January day we visit, a 'rowathon' with several rowing machines is going strong just outside the main entrance.

Key to this building's success is a design that incorporates plenty of areas for students to socialise, study and just hang out. Inside its canted brick envelope, the student union gathers diverse activities that were previously spread across the campus. It contains two cafés, a faith centre, a gym, offices for student societies, a media centre, and accommodation and careers offices. These are complemented by a pub and basement events venue accessed by a secondary entrance. 'It's a self-contained building,' says one student. 'I really don't need to leave for anything.'

The LSE estates department set high environmental aspirations for the centre, which achieved BREEAM Outstanding at design stage and in use. Passive environmental design informs the complex massing of the six-storey building and allows good daylight penetration, while perforated brick screens limit solar gain. With the exception of the large basement venue, which accommodates over 800 people (standing) for concerts and other events, the building is naturally ventilated, with openable windows operated primarily by the building management system (BMS) but with manual override. Also incorporated into the building is a combined heat and power plant and grey-water recycling – both of which had significant commissioning issues – and a photovoltaic array which operated well from the outset.

If this highly bespoke building sounds complicated, indeed it is, in terms of the variety of volumes inside, its varied programme with differing service requirements and in its systems. At the same time,

During the AJ's lunchtime visit, the building is chock-a-block with students. Beanbags supplement the built-in benches, with every seat occupied

its robust materials – handmade bricks, concrete, steel, terrazzo and hardwood floors – are weathering well, as are the timber windows and doors. During the AJ's lunchtime visit, the building is chock-a-block with students. Beanbags supplement the built-in benches, with every seat occupied by someone eating lunch; others perch in groups or sit solo on the floor.

Vertical movement is a central feature of the building and a generous stair wraps around the double lift shaft, affording delightful glimpses of neighbouring buildings and into the many activity areas as one moves through the spaces. The design intent is to encourage students to use the stairs rather than the lifts, though this appears to have been overly optimistic. Students queuing for the lifts complain of long wait times, and the fourth-floor gym staff find themselves reminding students about the health benefits of using the stairs.

A colourful array of vitreous enamel panels, designed by O'Donnell + Tuomey, encloses the lift shaft and doubles as a noticeboard, providing an attractive surface that is resistant to the constant stream of Sellotape and Blu Tack which adorns it. Despite the occasional notice taped to a window, this works very well.

LSE Estates Division commissioned an extensive post-occupancy survey in 2014, 168 pages of detailed feedback from users. Subsequent interventions included upgrading the lifts, additional signage in reception to clearly indicate activities floor by



Abi, LSE student

'It's a cool building, it stands out. I use the building once a week, mainly for Christian Union meetings at the faith centre, which many people use – unusual for a university. The lifts are so slow – probably the most inefficient thing about the building but it's an issue across the university; LSE is known to have slow lifts! The building doesn't match the look of the rest of the university. It stands out and I feel it doesn't match the character of the rest of campus – it makes me feel like I don't have a sense of belonging there. I like the variety of function rooms and use the careers centre as well as the faith centre. I once tried to use the only microwave in the building outside the faith centre and it took 45 minutes to queue!'







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floor, and adjustment of gym hours and equipment to address complaints about noise. In that early survey, 94 per cent of respondents rated the building positively and 96 per cent used more than one space, highlighting the synergy resulting from the co-location of activities. Most popular were the pub, the roof terrace and the first-floor café.

Another popular draw is the Student Union's Faith Centre which represented a new approach for the university. Chaplain James Walters notes that 'it wasn't clear whether there would be buy-in, but today it is used by hundreds of students weekly. It was designed as a shared multi-faith space, but the designers had no previous examples so it was hard to get everything right. The space was too open plan and too noisy, particularly during prayers.' The centre was subsequently subdivided and a reception desk added.

All this activity has affected the building's energy use. Back in 2009, the design brief set a target of a display energy certificate (DEC) A rating (see page 52). However, its current DEC – issued last month – is only a C. Emma Lovegrove, principal project manager in the LSE Estates Division's capital development team, describes the student union 'as a victim of its own success'.

It's true that the DEC is a blunt measurement tool and the C rating results from a mix of factors which are difficult to isolate: the student union's intensive use (though one would think that lots of students and laptops inside should reduce heating



**Will, LSE student and admin assistant for the Rag office**

'I am both a student and staff member and use the building every day. I really like it. It's the most interesting building on campus and I feel facilities-wise, it's good. I like the architecture. It can get cold though – in some spaces more than others, particularly because of the automated window system which hasn't worked very well. The two lifts are a bit of an issue too (I use them on a daily basis). There's a long waiting time when the building is full; people are getting off at every floor. The rooms in the building are a weird shape but after saying that, I still think the outside is really cool and interesting.'

demand); the fact that predictive energy modelling a decade ago was based on Part L compliance for a notional building without taking into account actual numbers of occupants; improperly calibrated energy meters at the outset; as well as significant teething problems with the building management system. The wireless contacts on the window actuators were faulty and, until they were replaced, this meant windows in certain areas were opening when they should not have. Accurate data from the CHP plant was finally incorporated into the DEC just this year. As a result the DEC rating has slightly deteriorated (from 64 to 68 though still within the C band), reflecting the gas demand for the CHP, but it does not reflect the concomitant energy savings – another example of the DEC's bluntness as a measure.

These are all familiar commissioning problems that corroborate building physicist Bill Bordass's oft-repeated mantra: 'complexity is the enemy of performance.' They highlight both the importance of post-occupancy monitoring and its challenges. Yet, even if such problems could not have been anticipated, it is almost five years since the building opened and one wonders whether some of them couldn't have been addressed more promptly.

Nonetheless, proactive aftercare by the LSE's 160-person-strong estates team has reduced the carbon footprint of the student union by about 15 per cent since the building opened. These savings are difficult to evaluate due to the many factors outlined above, and not helped by the university having no figures on actual occupancy compared with what was in the building brief. One recent measure included refitting the existing light fixtures with LED lamps through the Greater London Authority's RE:FIT 2 programme, a framework that works with contractors who identify energy-saving measures with guaranteed performance.

Asked what might have been done differently with hindsight, LSE director of estates Julian Robinson notes a few specifics: 'We wouldn't position a dynamic weights area above office accommodation, we would have revolving doors at the front entrance (with constant footfall it gets very cold for the staff) and a simpler controls system.'

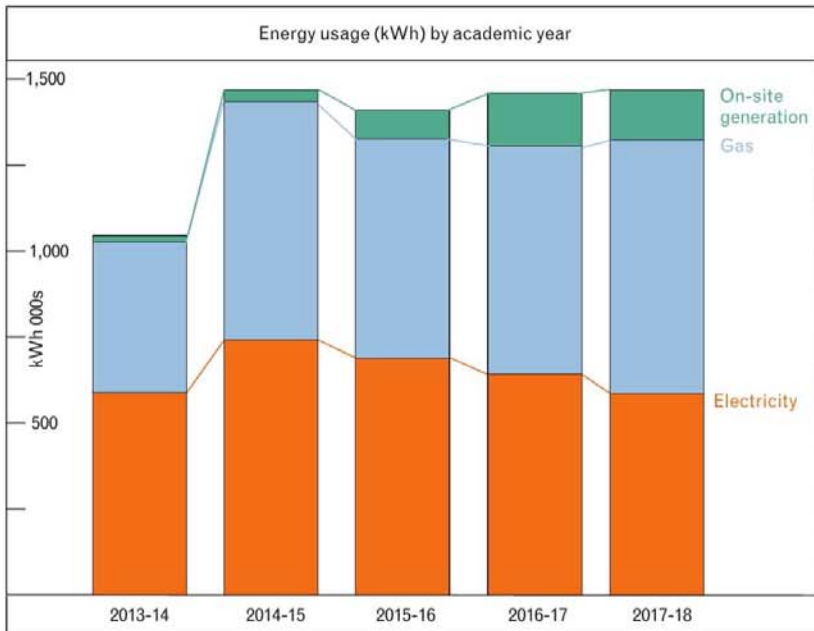
He notes that all lights adjacent to windows should have both PIR (passive infrared) movement and daylight sensors, and also advises 'do not value-engineer the lift spec!'

More important than these specifics are the learnings taken forward into the LSE's upcoming commissions. The scope of services for the consultant team has been adapted to increase quality control both during design and site installation, according to Robinson.

Recognising the number of things that can go wrong, the estates division has also commissioned engineer Max Fordham to develop a bespoke soft landings programme as part of the employers' requirement for RSHP's Centre Buildings Redevelopment. This sets out a structured two-year process of aftercare with regular contact between client, contractor and design team after the

**Proactive aftercare by the LSE's Estates Division has reduced the building's carbon footprint by about 15 per cent since the building opened**





SOURCE: LSE STATES DIVISION

building is handed over, including an on-site presence so that problems can be addressed immediately. 'You can't just rely on goodwill,' says Lovegrove. 'Soft landings is about everything we should be doing anyway but with more structure.' In an unusual arrangement, consultant ChapmanBDSP is responsible for services design, while Max Fordham is the client's sustainability guardian.

Asked about the DEC issue, Max Fordham senior partner Tamsin Tweddell says: 'More clients are starting to ask for a DEC A because it's sexy and no one wants to ask for a B, but there's no point in asking for something that's unachievable.' She goes on to explain that today, more accurate predictive energy modelling at the outset can provide a baseline to measure actual performance. Yet the human factor of how a building will be used is still hard to predict. Rather than second guessing a building's future occupancy and operation, best practice modelling should evaluate different scenarios similar to economic modelling, so that going forward they can be compared with how the building is actually used in practice.

Looking at it in the round, it is clear that the Saw Swee Hock's sheer popularity has informed the planning of the two new buildings, which will both provide further places for students to eat, play – and study. The buzz of activity throughout O'Donnell + Tuomey's student union suggests that this convivial multilayered building responds well to student needs.

Yet despite its success as a social hub and as a superb piece of architecture, the fact remains that the Saw Swee Hock missed its own energy efficiency target. While it might now be seen as over-ambitious, stretching targets are important because they push design teams to perform. As modelling and measurement tools become more sophisticated, predicted and actual energy performance should start to fall into line. There is clearly still a long way to go in this area.



**Tracy Meller,  
partner, RSHP**

'The LSE Saw Swee Hock student centre was opened during the early stages of our project for LSE's Centre Buildings Redevelopment project, and informed the key strategic moves that shaped our proposal. We had observed that the LSE campus did not have a natural heart, but was a series of disparate buildings scattered across the Lincoln's Inn and Aldwych areas. We identified that the new student centre would be a key attractor in the campus, and would be a focus for pedestrian movement, much as the library already was. Having observed the way students moved across the campus, we identified two natural desire lines – one of which was to the Saw Swee Hock building – and created a public square at their junction, to create a new focus at the heart of the campus. This new space, which our building addresses, aims to create a sense of place for the school and is physically and visually connected to the library, student centre and proposed redevelopment of the Paul Marshall building adjacent to it (now underway by Grafton Architects).'

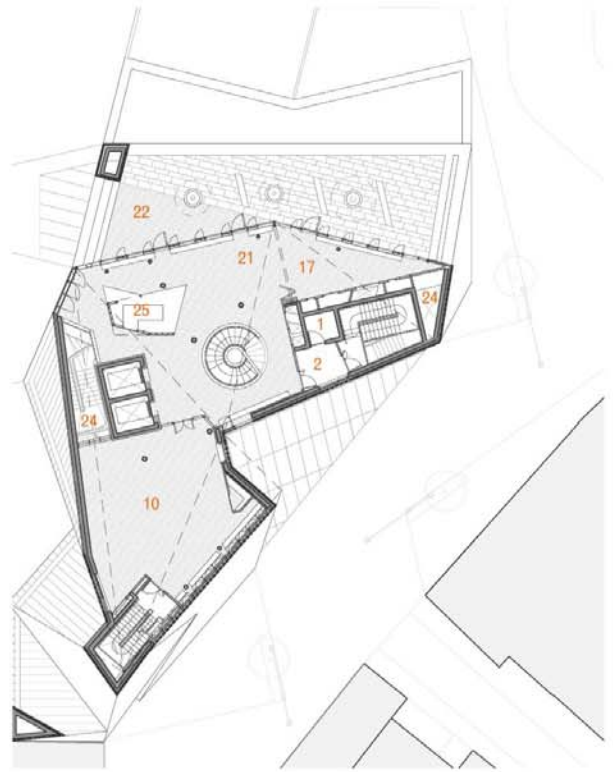




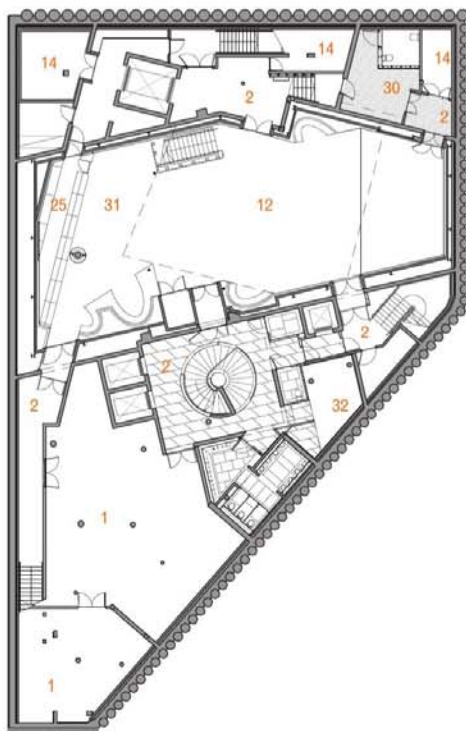




Ground floor plan



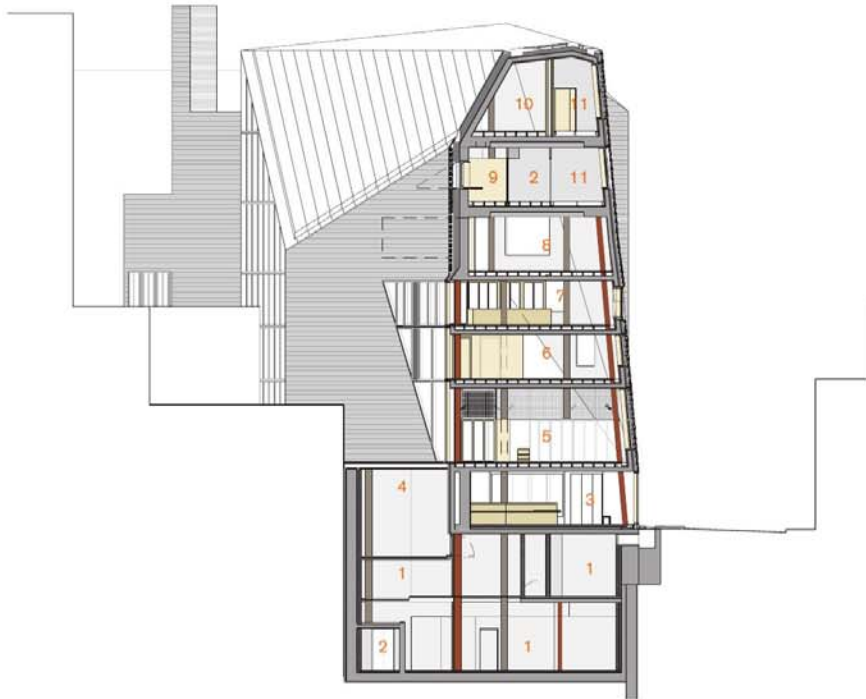
Sixth floor plan



Lower basement plan



First floor plan



1. Plant
2. Lobby
3. Reception/entrance
4. Smoke ventilation plenum
5. Rag office
6. Media centre
7. Housing office
8. Gym
9. Careers centre
10. Exercise studio
11. Stair
12. Events room (nightclub)
13. Tea point
14. Store
15. WC
16. Pub
17. Café
18. Multi-faith prayer room
19. Inter-faith social space
20. Student union office
21. Coffee/juice bar
22. Roof garden
23. Green roof
24. Void
25. Servery
26. Service yard
27. Bin store
28. Bicycle parking
29. Post room
30. Green room
31. Events mezzanine
32. Cloakroom
33. Meeting space

Section A-A



Section B-B



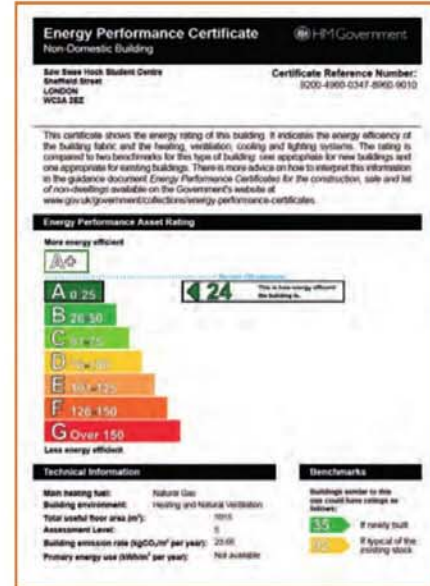




Above Sixth-floor exercise studio

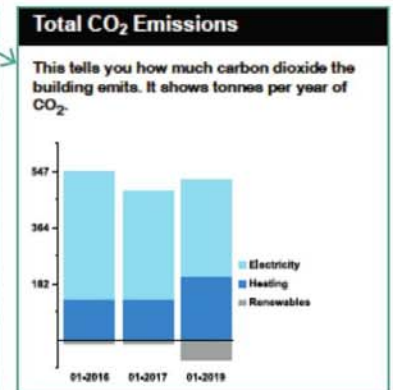
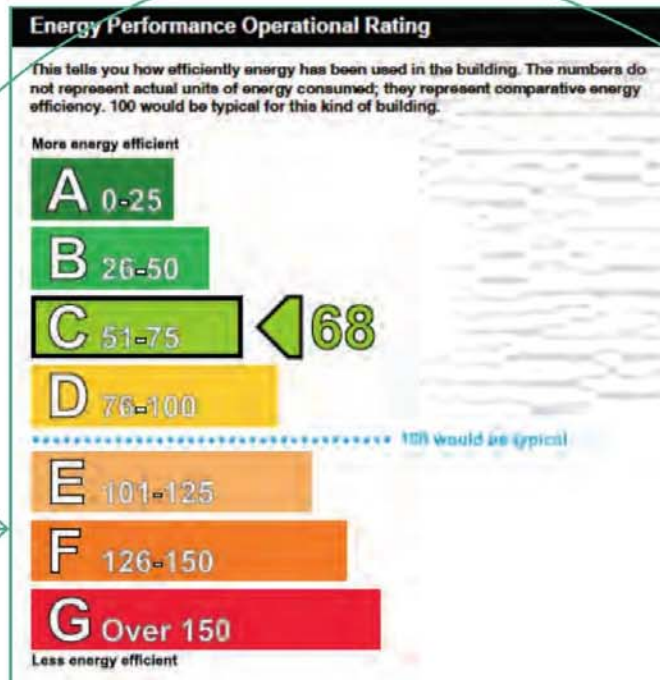
## What is an EPC?

An energy performance certificate (EPC) is a predicted energy rating, modelled during design and taking into account heating, ventilation, cooling, lighting, and hot water but not occupant electric loads. It is required when a building is constructed, sold or rented out. Similar to appliance ratings, buildings are rated A (best) to G (worst). The Saw Swee Hock's EPC is an 'A'.



## What is a DEC?

Required for all public buildings of over 250m<sup>2</sup>, a display energy certificate (DEC) shows a building's actual recorded energy use and carbon emissions. Buildings are rated A (best) to G (worst) based on CIBSE benchmarks by building type. DEC's for buildings over 1,000m<sup>2</sup> are valid for one year and must be prominently located near a building's entrance. The Saw Swee Hock's DEC is a 'C'.





**Zulum, Student Union  
General Secretary**

'The building is very distinct, recognisable, and an asset in the centre of London. As a union we are blessed to be able to say where we are based, and it gives us an advantage over other university unions. All our student union survey feedback says the same: as brand recognition, the building is our icon. Having been in my role for seven months so far and spent four years at the university for undergraduate study, I have used and experienced all the spaces at different points of my educational career.

As an undergraduate, I was quite into dance and attended classes in the basement and in the exercise room on the sixth floor. I have spent plenty of social time in the café and breakout spaces, and as an employee of the university, have used the offices. As someone of faith, I have used the faith centre to pray and meditate, and I have used the gym throughout my time at LSE. In terms of the faith centre, we are blessed to have something like this. LSE is made up of 72 per cent international students and many are of different faiths. It is the most diverse university in the UK so it is refreshing to have a provision such as this – it is the university going that extra step.'

## Q&A

Sheila O'Donnell,  
founding director,  
O'Donnell + Tuomey

**The practice has described the quality of 'strangely familiar' that you'd like your buildings to impart – 'original in their concept, contemporary in their expression, but belonging to the deeper background of their place'. How do you feel, five years on, that the Saw Swee Hock building has bedded down in its context?**

I always like walking around the corner of Portsmouth Street and coming upon it, just sitting there being itself, happy among its varied neighbours. Often there are students on laptops sitting on the benches under our street lights, or people chatting and sheltering from the rain under the canopy. One night they were swing-dancing in the first floor café, swirling around in front of the windows.

Continuing the architecture beyond the enclosing walls under the glazed canopy forecourt and over to the buildings opposite was an important part of its integration with the context and the campus. We fought for the pedestrianisation of Sheffield Street, and for the retention of the brick parish hall building to make a place, not an object building. After it was finished LSE thought of demolishing the Parish Hall so you could see our building more clearly in the round. But we designed it to be seen in glimpses down lanes; in fact it was designed in perspective: views framed by existing buildings.

Its form looks radical in drawings and some photos, but in reality it's quite calm; part of the complex urban character of that corner of London, where the medieval street pattern meets Kingsway and Lincoln's Inn Fields. The angles of the walls and planes connect easily to each other and to the context-framing views on the campus.

**How do you see your work on the building having influenced the practice's subsequent work – in particular your building for Central European University (CEU) in Budapest, for which you have been nominated as Women in Architecture's Architect of the Year?**

There are ongoing conversations in our work; we are always interested in the relationship between existing and new buildings, between ground and building, public and private, place, character and use.

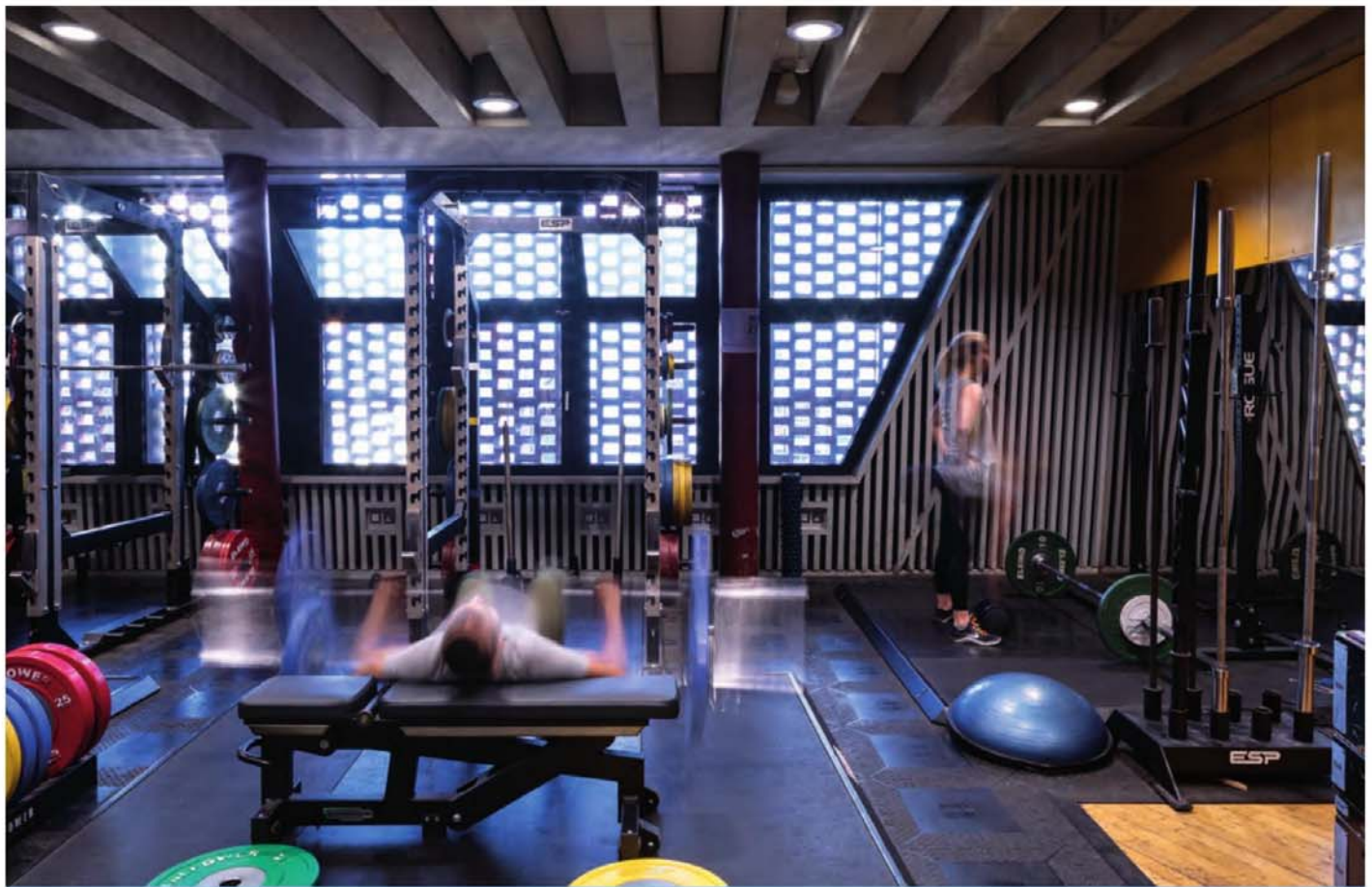
All of these were in our minds when designing LSE and CEU. There are certainly similarities in the briefs and aspirations of the two institutions: both wanted buildings that actively engaged with the city beyond. But the urban character of Pest is very different from the streets around LSE. The context at LSE was very intense, full of presence.

**As a practice how do you approach the issue of reducing the embodied carbon footprint of the materials used in your buildings?**

Our approach is to minimise the environmental impact of building materials we specify. Using the methodology of Life Cycle Assessment, we balance consideration of the embodied carbon footprint of the material together with its performance, appearance, durability, buildability, maintenance and availability.

We often reuse materials instead of specifying new, for example reclaimed brick at CEU. Other factors include limiting the use of carbon-intensive materials (choosing lower carbon alternatives), maximising structural efficiency, using fewer materials and generally minimising waste through design.

**Below** Saw Swee  
Hock's gym





## Q&A

Willie Carey,  
director,  
O'Donnell + Tuomey

**Our understanding from the revisit is that the building is completely open access. There is no swiping in for members of the LSE community so anyone can walk in. Is this how the building was envisioned from the outset?**

Our competition-winning design proposed a meandering vertical route through the building – an extension of the network of streets that defined the LSE campus. It was important that this route remained without obstacle – no doors to push through or corridors to confine. The spirit of this proposal was embraced by the university and in particular the students' union, which advocated for an open building without barriers to movement – including turnstiles. We were supported by Westminster Council in public-realm proposals for the pedestrianisation of Sheffield Street, which allowed us, through the language and materials used, to further blur the distinctions between street and building.

**Was security a consideration in the design?**

With our security consultant, Arup London, we were careful to follow the principles of Secured by Design, carrying out a number of audits during the design process. Our focus was on creating an open shared environment where building users could have a sense of ownership over the spaces. We concentrated on creating internal spaces with high-quality lighting design. Interconnected spaces and views provide high levels of natural surveillance throughout. This strategy extended to the design of the building envelope and the public realm on Sheffield Street.

**The estates team told us that they are looking to create more 'informal hanging-out space' which works so well in this building – places on campus where students can study, socialise, eat and relax. (They have two new buildings completing in the next couple of years.) Did you deliberately design for this and if so, how?**

While it is essential that an architect delivers the client's explicit building brief, it is equally as important that the implicit brief is understood and articulated, which we did through an intense consultation period

with the building users and university team. We worked hard to understand what the character of a hybrid building like this could be – a club? office? gym? church? train station? We suggested that the building could feel like a lived-in warehouse, a creative student-led building, suggesting a robust palette of materials which was non-corporate and informal. We believe that this helped create a sense of familiarity and ownership for the users.

**The main stair is central to the building's design. What kind of discussions were there about stairs versus lifts during design?**

While the stairs operate as a simple organising device for the building, they are complex in their form, providing a diverse set of experiences as you rise through the building. Not everyone will take the stairs, however, and it was important that the lifts were considered as an element in themselves. LSE commissioned us to design an art installation called *Uplift*. Through an exuberant, geometric pattern a conversation is created between the stair and lift shaft as they engage and detach from each other; they are interdependent. The colourful enamelled steel installation becomes a notice board for the university – a physical and symbolic connector.

**Is there anything in the way the Saw Swee Hock building has functioned that has surprised you?**

We are delighted to see – and could not have anticipated – the extent to which public spaces have been adopted by the student community. It is thrilling to see Sheffield Street in full fair mode.

**The primary concerns that surfaced in the revisit related to teething issues with the building management system, the combined heat and power and the grey-water recycling. What are your observations about using complex systems to control what is meant to be a straightforward naturally ventilated building?**

Our efforts were concentrated on creating a responsive building which wore its environmental credentials lightly. We worked closely with services and environmental engineer ChapmanBDSP to design a building that was sensitive to the internal and external conditions while allowing a degree of user control over their environment. While the requirements are complex, the approach focused on traditional construction methodologies supported by low-tech building systems to modulate what is essentially a naturally ventilated building – a challenge in London's urban centre!

**One other issue mentioned by students was that the natural lighting of the main café space is too dim at times to work by.**

A lighting strategy can be hugely influential in defining the atmosphere of internal spaces. We were keen that high-level uniform lighting conditions would not 'flatten' or homogenise the internal spaces. The learning café functions as café, meeting place, lecture space, dance hall and more. A fixed perimeter high table provides a window seat looking to Lincoln's Inns Fields for reading. Providing natural daylighting conditions which support multiple activities in tight urban sites is a challenge. We focused on views out for orientation and providing a variety of lighting conditions internally – from the basement venue which steals glimpses of the street life above, to the light and airy rooftop café. For us this variety is important.

Below Breakout space  
outside the Faith Centre

