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FOOTPRINT

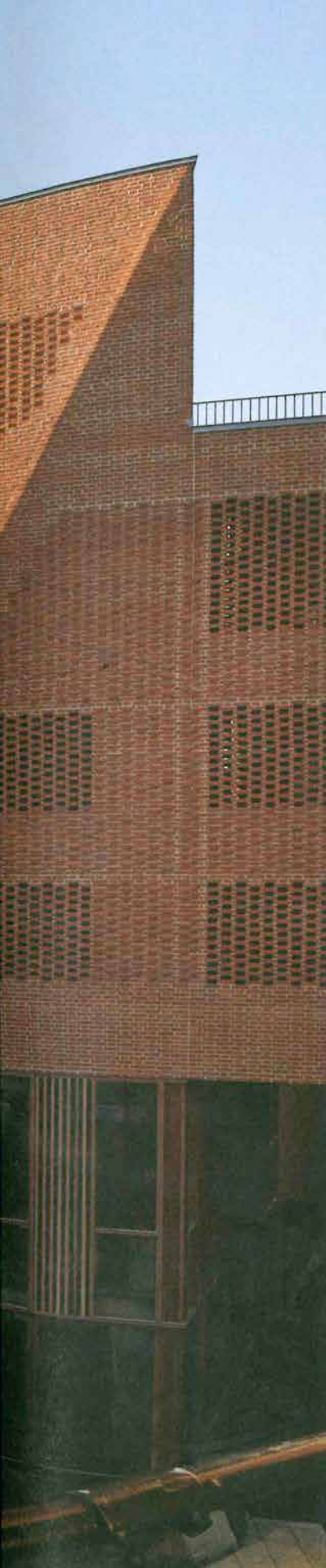
Rykwert on O'Donnell + Tuomey
Masdar's new HQ · Eco-starships
Revisiting Fosters' Langley Academy
BONUS Sheila O'Donnell's watercolours

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FOOTPRINT





Red brick university

At the LSE, O'Donnell + Tuomey has created imaginative, inviting and memorable architecture on an impossible site, writes *Joseph Rykwert*.
Photography by *Dennis Gilbert*

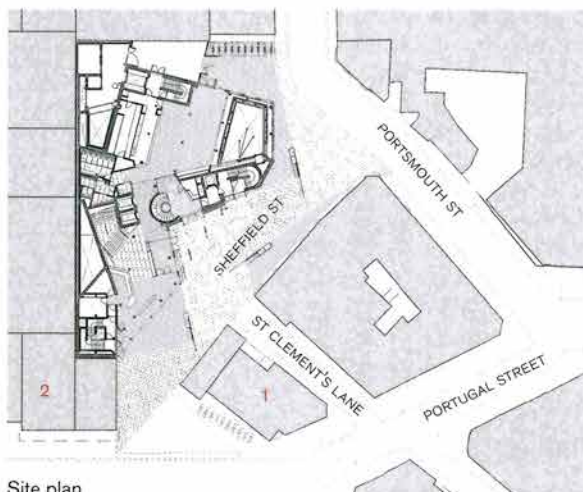
Though such a famous (even sometimes notorious) London institution, the London School of Economics had always been visually muted. As you enter it on Houghton Street off Aldwych, it just seems part of the anonymous business streetscape – in sharp contrast to the nearby Inns of Court, which are, after all, London's first university; the many recent additions – some substantial – have not attracted much attention.

Over the last two years this changed as a new, obliquely faceted red-brick building took shape – conspicuous from within the LSE 'campus', but really startling from Lincoln's Inn Fields. It is perhaps fitting that this should be the new students' centre, named after Saw Swee Hock, a generous Singaporean graduate benefactor. There had been a competition, to design 'the best student building in the UK' in 2009 which O'Donnell + Tuomey won against five prestigious contestants. The finished building delivers very much what the winning competition project had promised, and its achieving a BREEAM 'Outstanding' rating is a tribute to both the architect and to the commissioning LSE authorities.

Approaching the centre from Lincoln's Inn Fields, an observer is bound to be engaged by the dialectic between the abruptly bevelled forms

and the warm, even comfortable, surface of the building. The warmth is that of handmade bricks, laid in Flemish bond – a warmth which will surely modulate as the bricks darken with weathering. The oblique planes into which they are cut model the internal mechanics of the complex and fragmented accommodation which has been shoe-horned into an awkward site, but are also determined by the stringent daylight requirements of their neighbours. The brick surfaces are curiously scored by expansion joints here and there, but more notably marked by rectangular areas on the surface which read as darker in daytime, being in an alternate brick-and-void bond which creates a >>

1. LSE Parish Hall
2. LSE Peacock Theatre



Site plan

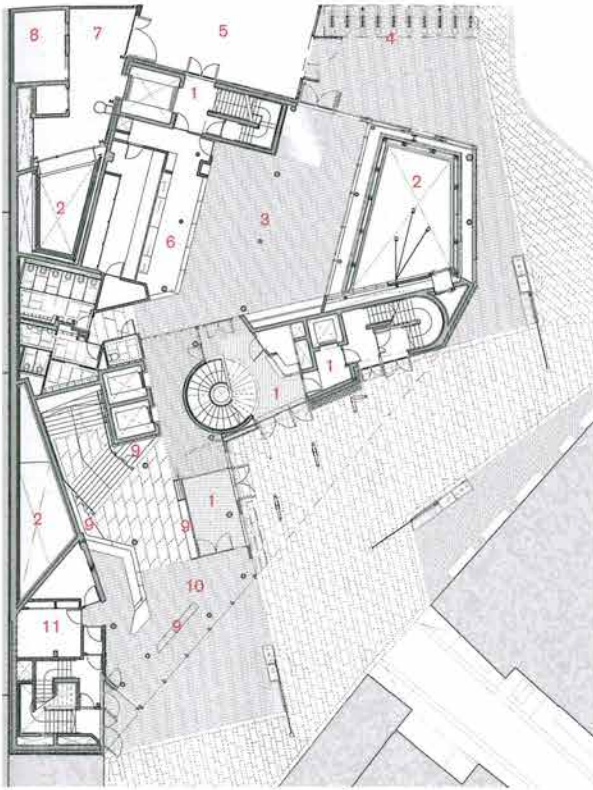
brise-soleil for some rooms to shelter south-facing windows from direct sunlight – and these register as a glowing shimmer after dark.

The trapezoid site is more or less defined by surrounding buildings on three sides, and by Sheffield Street on the fourth. Its main entrance is a porch, a triangle nicked out of the block of the building opposite where St Clement's Lane meets Sheffield Street – facing the supposed 'Old Curiosity Shop'. It is covered by a steeply sloping and wood-framed glass canopy that rises over three floors, while the paving of the porch extends into the landscaped area of the pedestrianised Sheffield Street. The canopy rests on an oblique steel tubular structure, painted rust-red – as is all the exposed steel, both structural and non-structural, throughout the building.

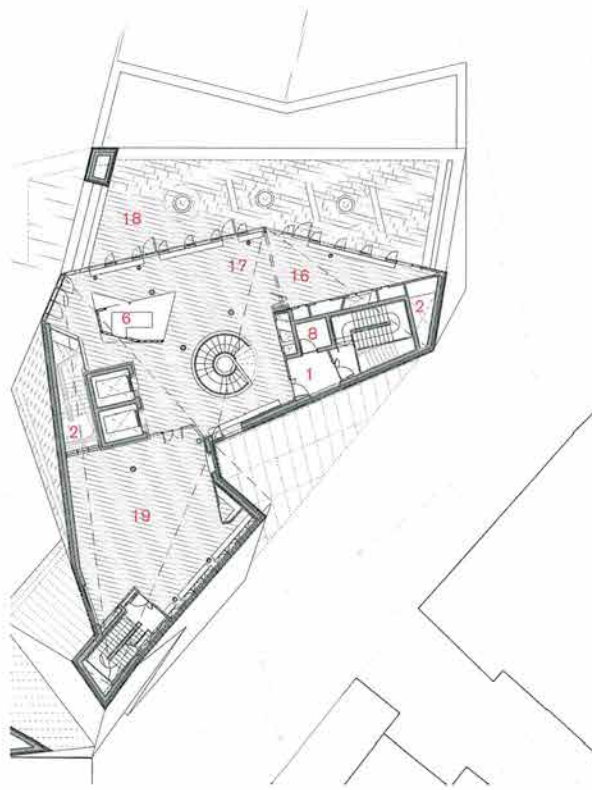
Two entrances open from the porch: the main one to a narrow entrance hall and the reception desk which leads directly to the wide and brightly lit staircase that winds round the lift shaft all the way up the building, offering you glimpses through the different levels as you go up; another nick in the block allows the stairwell to be glazed so as to give the visitor repeatedly changing views of the surrounding streets, as well as providing for constant daylight and cross-ventilation. The lift shaft is an important element in the configuration of the building: it is enclosed with vitreous enamel panels, which – though they form a carefully composed colour composition – also offer a near-indestructible solid ground for the (unavoidable in such a location) Blu-Tack and Sellotape advertising and is a constant, a stabiliser against the sinuosities of the stairway. >>

The stairwell is glazed to give the visitor repeatedly changing views

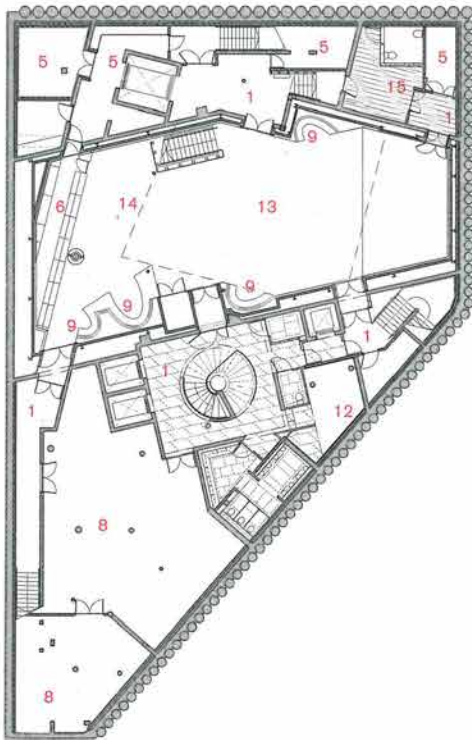




Ground floor plan



Sixth floor plan



Lower basement plan



First floor plan

1. Lobby/entrance
2. Void
3. Pub
4. Bicycle parking
5. Store
6. Servery
7. Service yard
8. Plant
9. Seat
10. Reception/entrance foyer
11. Post room
12. Cloakroom
13. Events room
14. Events mezzanine above
15. Green room
16. Student union office
17. Coffee/juice bar
18. Roof garden
19. Exercise studio
20. Café
21. Meeting space
22. Activity centre

Previous page

The canted facade of handmade bricks responds to sights of light to neighbouring buildings

Opposite A

generous stair winds up through the building, linking disparate activities on different floors



The secondary entrance leads to a ground-level 'pub' – also accessible from the reception area, and to a wide concrete circular staircase which goes down to an acoustically insulated 'events room' (called 'nightclub' on the plan). There is a raised stage at the far end, over which a kind of lantern, glazed but heavily insulated, rises to intrude into the space of the pub above so that both the clients of the pub and passers-by in Sheffield Street can look down on the proceedings. The insulation ensured that the light and flicker would create the attraction, while the noisy – and sometimes even rowdy – proceedings below would only be faintly heard. Anyway, the pub and the nightclub form an almost independent suite.

A kind of glazed lantern rises to intrude into the space of the pub above

Returning to the reception desk, you make your way past it and up the welcoming terrazzo-paved staircase which will take you to the relatively quiet and relaxed 'learning' café which – with its services – takes up the entire area of the centre; the steel columns which articulate it also carry wide brackets to hold strong upward lights. These columns also support wide acoustic baffles which absorb some of the inevitable clatter and act as reflectors for the lights. From that open café, you go up to the next floor which is divided between a smaller media centre (including a glazed and very visible radio studio) and the larger, but more private religious space: separate male and female Muslim prayer rooms; a large rectangular assembly – I am almost tempted to call it 'chapel' – with a glass end-wall (waiting to be stained) for everyone else, as well as a smaller, brick-enclosed semi-cylinder, a 'quiet' chamber for private meditation. Student union offices and the accommodation >>

Above Glazed facade onto triangular court brings daylight into the stair

Above, right Career services offices on the fifth floor

Above, far right A circular concrete stair provides an alternate route through the building

Following spread, left Coloured vitreous enamel panels wrap the lift core and are designed to take the abuse of student posters

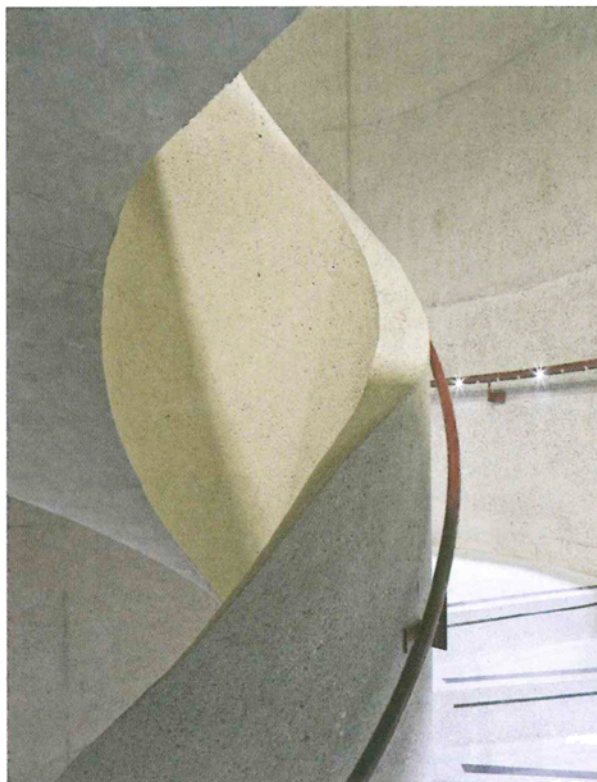
Following spread, right Hardwood flooring and timber windows add warmth to the interiors



THE ENVIRONMENTAL STORY

The best buildings result from a lively dialogue between an architect and an engaged and informed client. In the case of the new LSE student centre, and in particular its environmental agenda, this truism is most apt. An aspiration for BREEAM Outstanding, EPC A and DEC A ratings was written into the building's brief.

Hence it is no accident that O'Donnell + Tuomey has shoe-horned a passively designed, imaginatively daylit and largely naturally ventilated building into an extraordinarily tight, urban site on the northern extremity of the LSE's Aldwych campus. Such an approach is not new to O'Donnell + Tuomey's work. 'We have a long-standing interest in low-key buildings with minimal systems. Whatever the project, we like to make a building feel naturally ventilated,' says associate Willie Carey. The practice's Irish



Film Centre in Dublin centres around a naturally ventilated atrium, and An Gaeláras in Londonderry introduces a courtyard into a 15m x 50m shoebox site so that every space in the building – with the exception of the main performance area – is naturally ventilated.

At the Saw Swee Hock building, Carey insists that the design team was not chasing a BREEAM ‘Outstanding’ rating. Partly due to the constraints of rights to light to neighbouring buildings, the architect devised a plan with a pinched centre, dividing the accommodation into two halves, which simultaneously makes the 6,100m² building feel smaller and increases the amount of facade – and windows. ‘Whether you’re moving along the west or east elevation, you are always close to a facade,’ says Carey.

The capturing and manipulation of daylight is one of the building’s many strengths, and is evident throughout the student centre. This is the antithesis

of a design approach which relies on delivering an even 500 lux throughout. Rooms have radically different qualities of light – and moods – from banks of timber windows in the café, to filtered light through a perforated brick screen where solar gain or privacy is an issue. The architect went to extreme lengths to provide a rooflight via a quadruple-height connection to the street for the basement ‘nightclub’ venue. This is as much an orientating device as a source of daylight, and a welcome one.

The student centre’s windows are operated by the BMS system, which can be overridden manually by pushing a button. You can’t just open or close a window. This highlights the fact that the centre – despite its professed low-key design approach – is highly sophisticated to operate. And to its credit, the LSE appears to be embracing this challenge. On the rainy day I visited shortly after the building opened, flyers were posted throughout the building explaining different

aspects of its design and operation. Screens in niches display energy use to promote awareness among occupants, and perhaps even a degree of competitiveness between departments to reduce energy use. These measures may be a response to the BREEAM Outstanding requirement for dissemination of information about the building; regardless, they have been handled with a light touch.

This is a building whose form and expression result from an intelligent and uncompromising understanding of passive performance. With its welcoming entrance, and varied and thoughtfully crafted interior spaces, the building’s articulated brick exterior confounds expectations of what an environmentally performative building might look like. It is proof that fundamental principles of passive design – clever massing, daylight, views and windows that open and close – can be made to work even on a tight urban site. *Hattie Hartman*

For more on this project

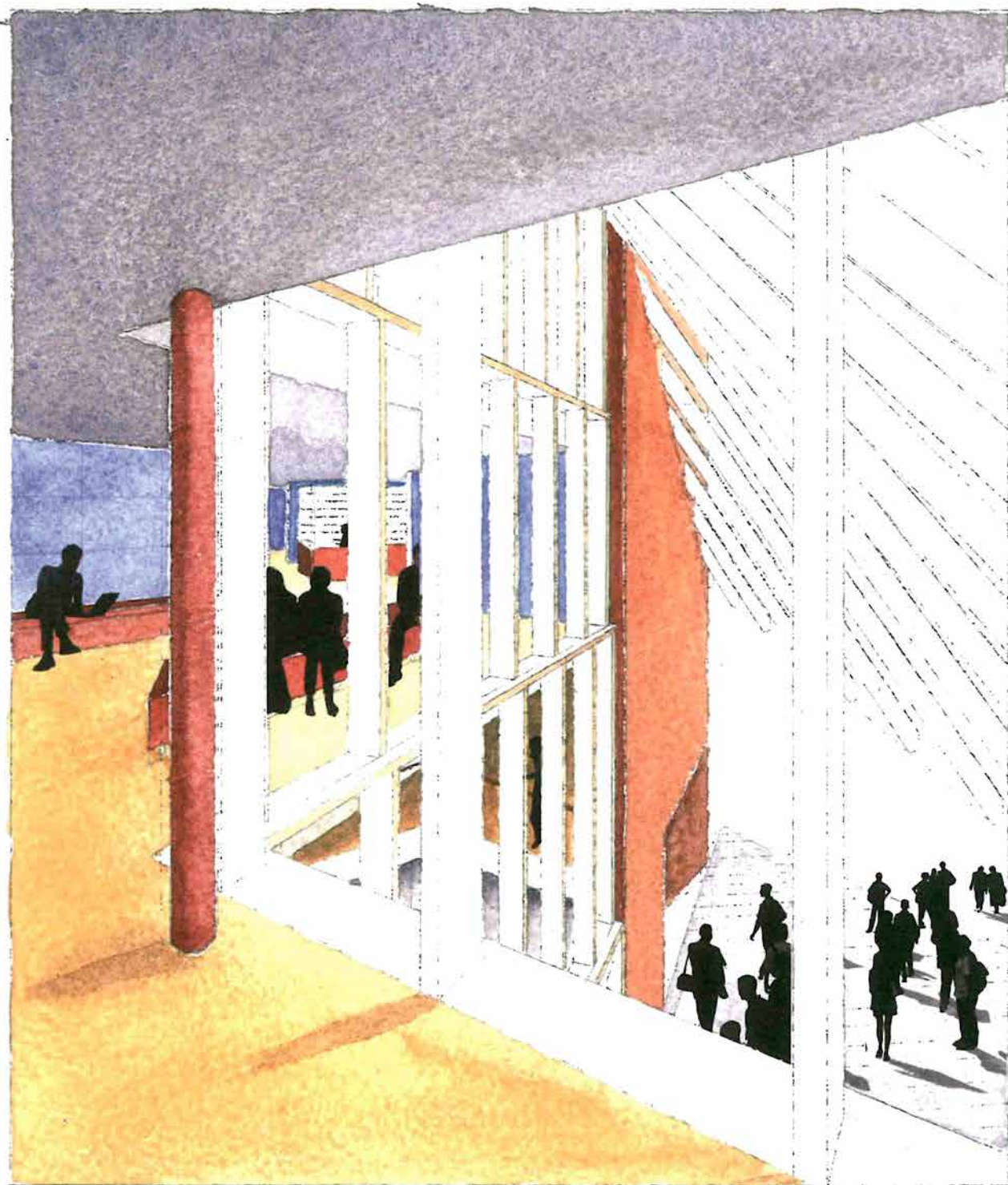
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agency occupy the next floor; above that is the structurally isolated gym space which separates the union offices from the careers services above it, and this gets yet another floor. The 'penthouse' is a smaller and more relaxed café with a wide (smokers'?) terrace overlooking much of the campus.

I already noted the terrazzo flooring of the stairway; terrazzo is picked up in some other public spaces, but much of the flooring is hardwood. The windows are hardwood as well and all are operable; the walls are plaster, or painted softwood; in places – as in the meditation room, brickwork is exposed. The structure is necessarily eclectic: part of the outer envelope is weight-bearing, but the tubular steel columns carry much of the burden; most floor slabs are concrete, while steel trusses carry over such larger spans as the nightclub in the basement and the gym. The great variety of volumes, functions and surfaces is in the end balanced by the powerful form of the envelope. Of course there are places where oblique and orthogonal come to clash (O'Donnell + Tuomey has played a risky game and won) but small setbacks are unavoidable.

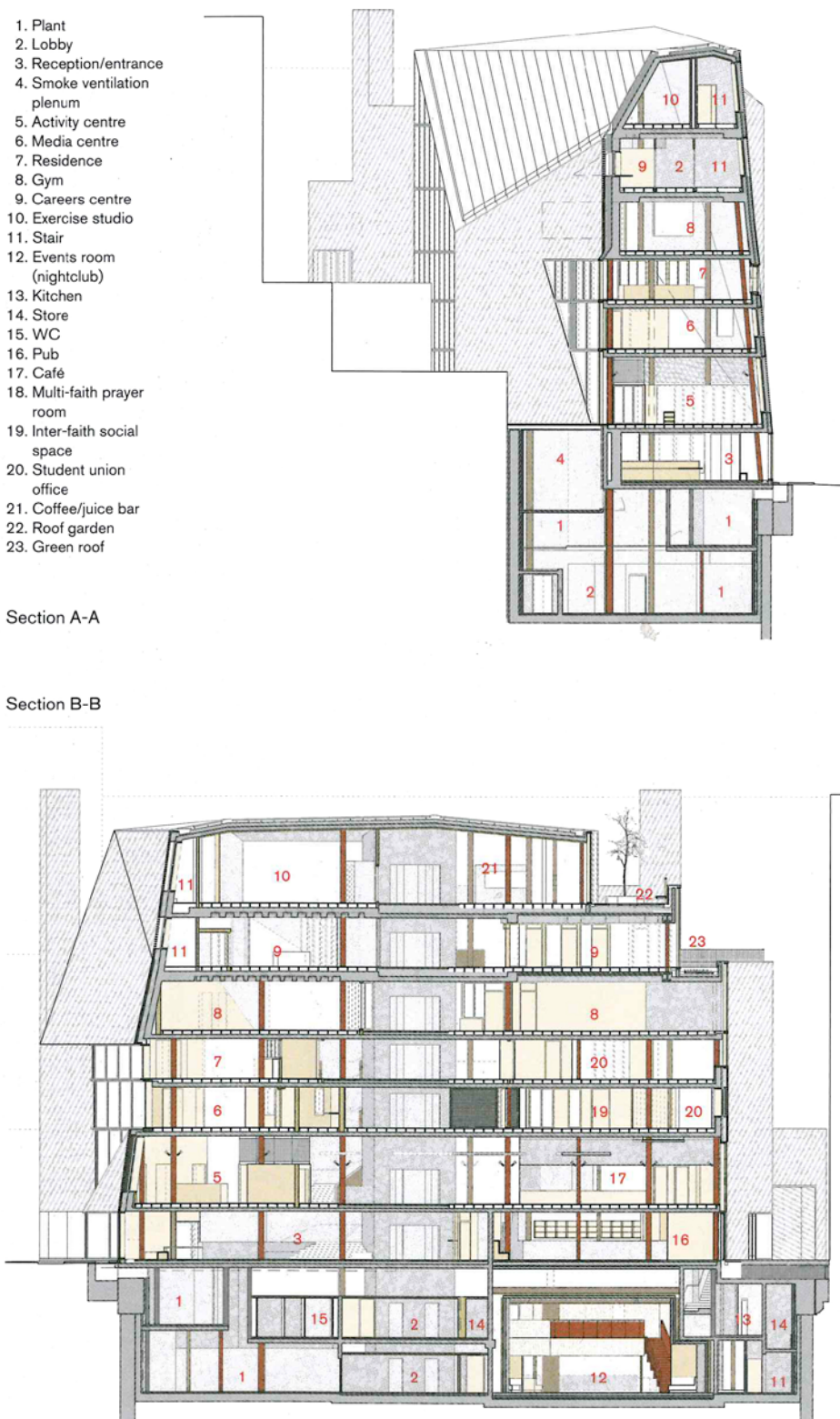
The day of my visit, soon after the opening, was a rather dull, grey one – yet the building was teeming and every space had found its users – as if there had not been any teething period. The sometimes abrupt geometries seemed actually inviting to its inhabitants, so that all that activity drew you in and you almost forgot the dull drizzling street.

The visual anonymity of the LSE is no more therefore since O'Donnell + Tuomey has added a brilliantly unexpected element to the nondescript campus. But more than that, they have given London one of the best – and most surprising – buildings of these years. I hope they will come back. ■
Joseph Rykwert is Paul Philippe Cret professor of architecture emeritus at the University of Pennsylvania and recipient of the 2014 RIBA Gold Medal

1. Plant
2. Lobby
3. Reception/entrance
4. Smoke ventilation plenum
5. Activity centre
6. Media centre
7. Residence
8. Gym
9. Careers centre
10. Exercise studio
11. Stair
12. Events room (nightclub)
13. Kitchen
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

Section A-A

Section B-B





Client's view

Julian S Robinson

LSE director of estates

Without a design competition, it's highly unlikely O'Donnell + Tuomey would have been selected. Although in my final 20, they were relatively unknown to me, but my colleague Ricky Burdett suggested I take another look at their work.

We held design workshops with each of the shortlisted practices. The depth and integrity of John and Sheila's rudimentary design shone through, so that by the time we left I doubted any of the others would surpass them. The LSE jury unanimously agreed.

As I walk around the building today, I know for certain we made the right decision. The building is beautiful inside and out – an architectural tour de force. The interplay of complex geometry, a carefully selected palette of materials, the constraints of this site and, I would contend, a brave client, has produced a remarkable building.

Project data

START ON SITE May 2011

COMPLETION December 2013

GROSS INTERNAL FLOOR AREA 6,101m²

CONSTRUCTION COST £24.1 million

CONSTRUCTION COST PER M² £3,952

CLIENT London School of Economics and Political Science, Estates Division

ARCHITECT O'Donnell + Tuomey Architects

STRUCTURAL ENGINEER Dewhurst Macfarlane and Partners / Horganlynn Consulting Engineers

SERVICES/ENVIRONMENTAL ENGINEER

ChapmanBDSP

SECURITY/FIRE/ACOUSTICS/TRANSPORT & LOGISTICS AND VENUE CONSULTANT Arup

ARCHAEOLOGY CONSULTANT Gifford

PROJECT MANAGER Turner & Townsend

QUANTITY SURVEYOR Northcroft

PLANNING CONSULTANT Turley Associates

MAIN CONTRACTOR Geoffrey Osborne Limited

SOFTWARE USED MicroStation

BRICKS Coleford Brick & Tile

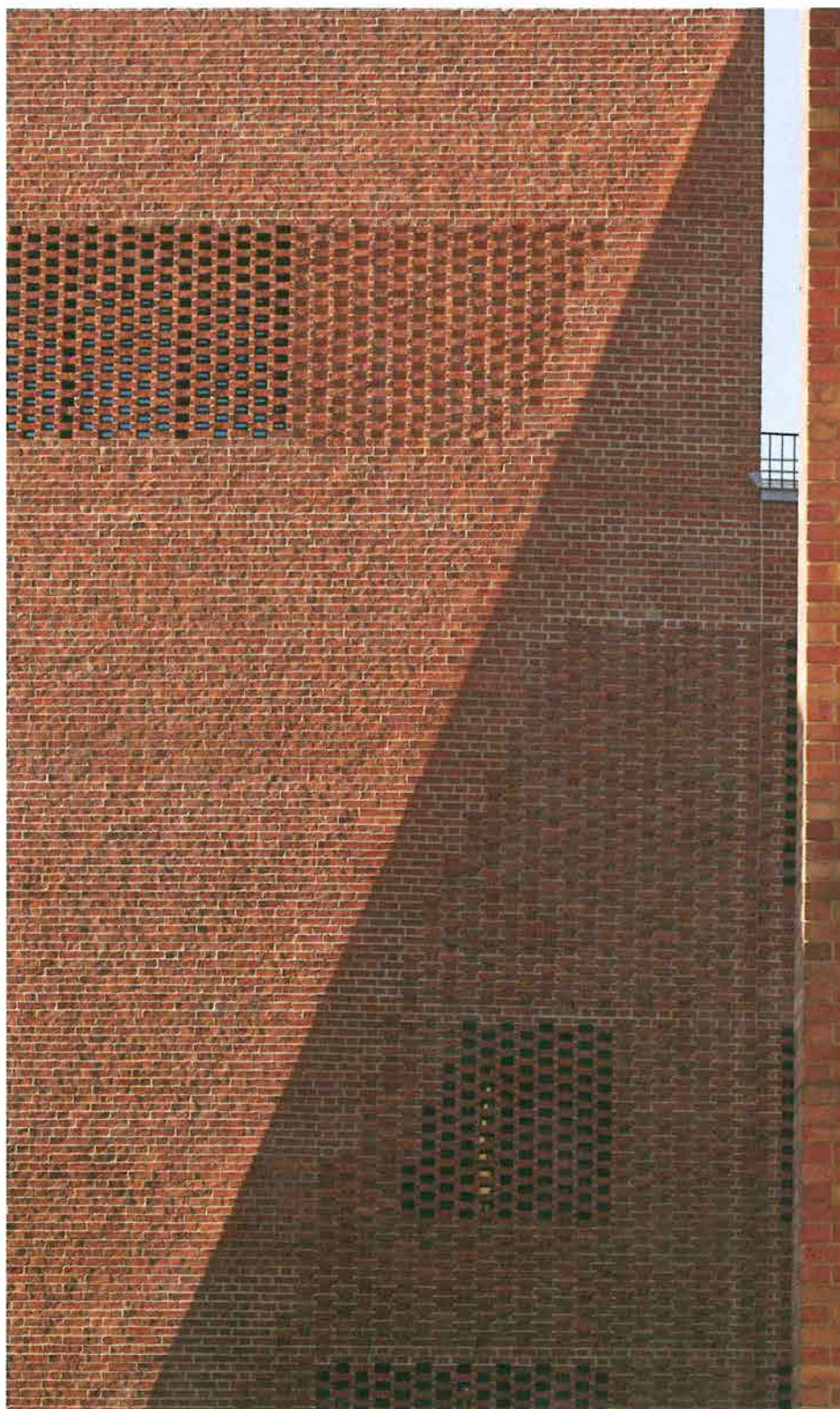
PREDICTED ANNUAL CO₂ EMISSIONS FOR HEATING AND COOLING (EXCLUDING CONTRIBUTIONS FROM ON-SITE RENEWABLES) 7.29kg/m²

PREDICTED ANNUAL CO₂ EMISSIONS FOR REGULATED ELECTRICAL USAGE (EXCLUDING CONTRIBUTIONS FROM ON-SITE RENEWABLES) 18.14kg/m²

PREDICTED ANNUAL CO₂ EMISSIONS REDUCTION FROM RENEWABLE SOURCES 8.63kg/m²

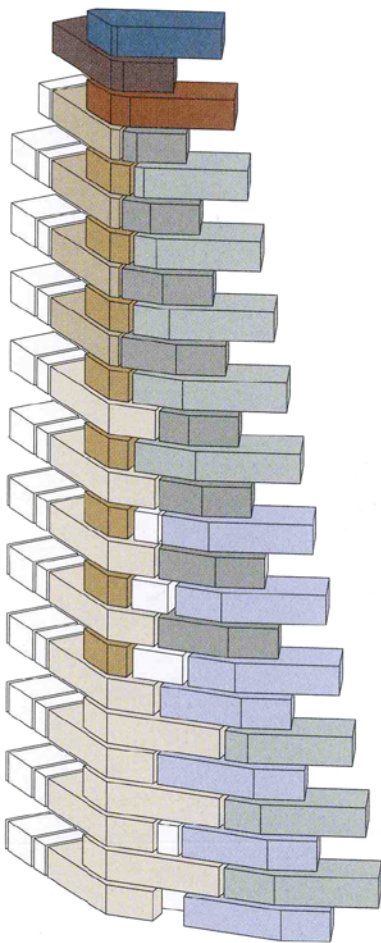
PREDICTED TOTAL ANNUAL CO₂ EMISSIONS/M²

TREATED FLOOR AREA 18.8kg/m²

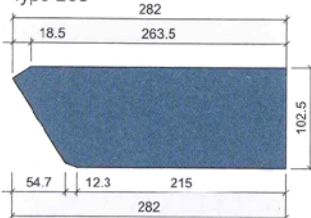


Working detail

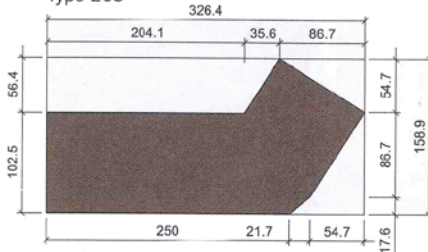
Elevation location



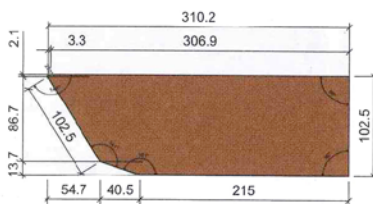
Type 268



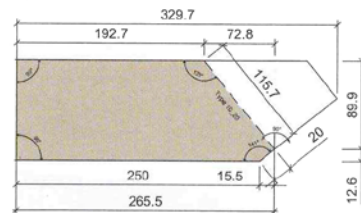
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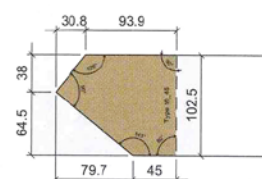
Type 266



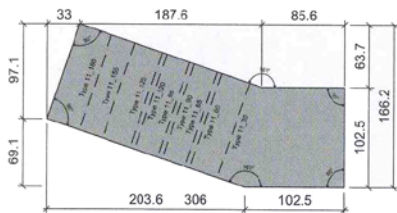
Type 10 (LHS)



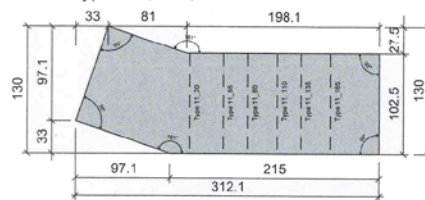
Type 10 (RHS)



Type 11 (LHS)



Type 11 (RHS)



Saw Swee Hock Student Centre, London School of Economics

O'Donnell + Tuomey

Special bricks

The bricks are manufactured by Coleford Brick & Tile in the Forest of Dean. Bricks are cast from a mould, with each special brick hand-thrown from its own wooden casing.

Of the some 173,000 bricks made for the building, 25 per cent are brick

'specials'. These 'specials' comprise 88 types – 33 of which 'special specials' occur in only a single instance, resolving the complex junctions of intersecting planes without resorting to the cutting of bricks.

Brick dimensions form the basis for the set out of every floor level and window sill and are tied to the interior stair riser dimensions.

Drawings were produced to control the carefully modulated setback of the sloping wall construction within the right of light envelope. The offset of each layer of brick is gauged in relation to structural stability and weathering

Previous spread

Glazed canopy over main entrance from Portugal Street
Opposite Panels of perforated brick provide daylight while limiting solar gain

performance, including in frost conditions. Each brick was scheduled and drawn as an individual building component. Axonometric drawings of each brick were produced along with assembly diagrams showing how they came together at complex junctions.

Meticulous setting out and production were critical to the achievement of the geometry of the building's volumes, the precision of its internal and external fold lines and the variations in texture and perforation achieved.

Willie Carey, associate,
O'Donnell + Tuomey