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1.0 URBAN ANALYSIS

2.1 URBAN ANALYSIS

LOCAL CONTEXT

The site for the New Academic Building lies along Kingsway half-way between High Holborn and Aldwych, bridging the urban environment of Kingsway and the open space of Lincoln’s Inn Fields. The site lies to the north of the LSE campus and is situated on the main pedestrian paths from the campus to Holborn tube station. There are significant transport hubs at both Aldwych (over 20 bus routes) and High Holborn (Holborn tube + more than 25 bus routes) LSE’s buildings scatter on a winding street pattern to the south, with Portsmouth Street, the main pedestrian route through the campus, emerging to face the site’s (easterly) corner beside Lincoln’s Inn Fields.

In this way the site has a dual role to play: to engage with the immediate urban context and act as a critical nodal point for the campus itself. The connections between the site, the existing LSE campus, Lincoln’s Inn Fields, Kingsway are therefore critical to a successful design response for the New Academic Building.

LINCOLN’S INN FIELDS

Lincoln’s Inn Fields is London’s largest square (at 12 acres) and was designed by Inigo Jones in the 17th century. The square is now a protected area and is home to a number of Heritage buildings of considerable architectural interest including, amongst others, Sir John Soanes residence - now a museum - to the north.

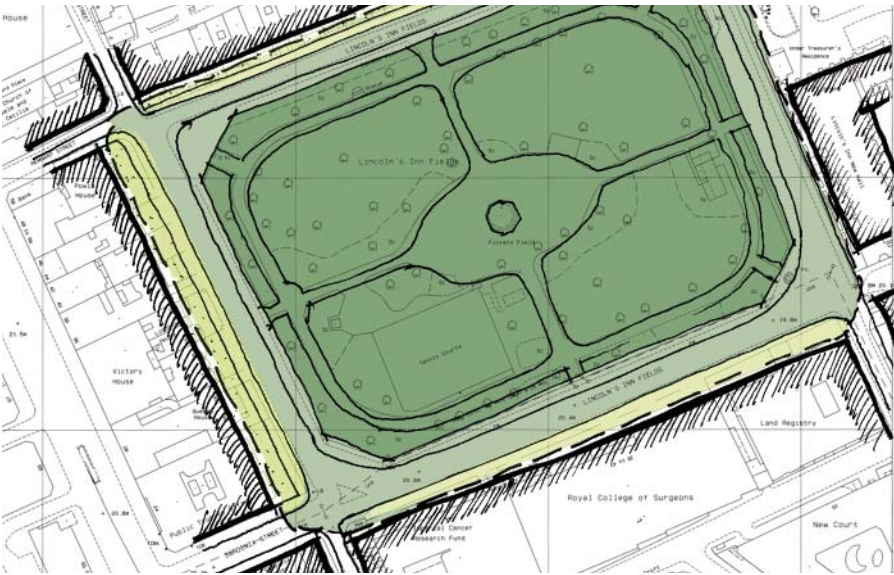
Lincoln Inn Field’s is designated as Open Space in the UDP, with a special designation as a Park of Garden of Special Historic Interest, London Square and a Site of Nature Conservation Importance (Local).

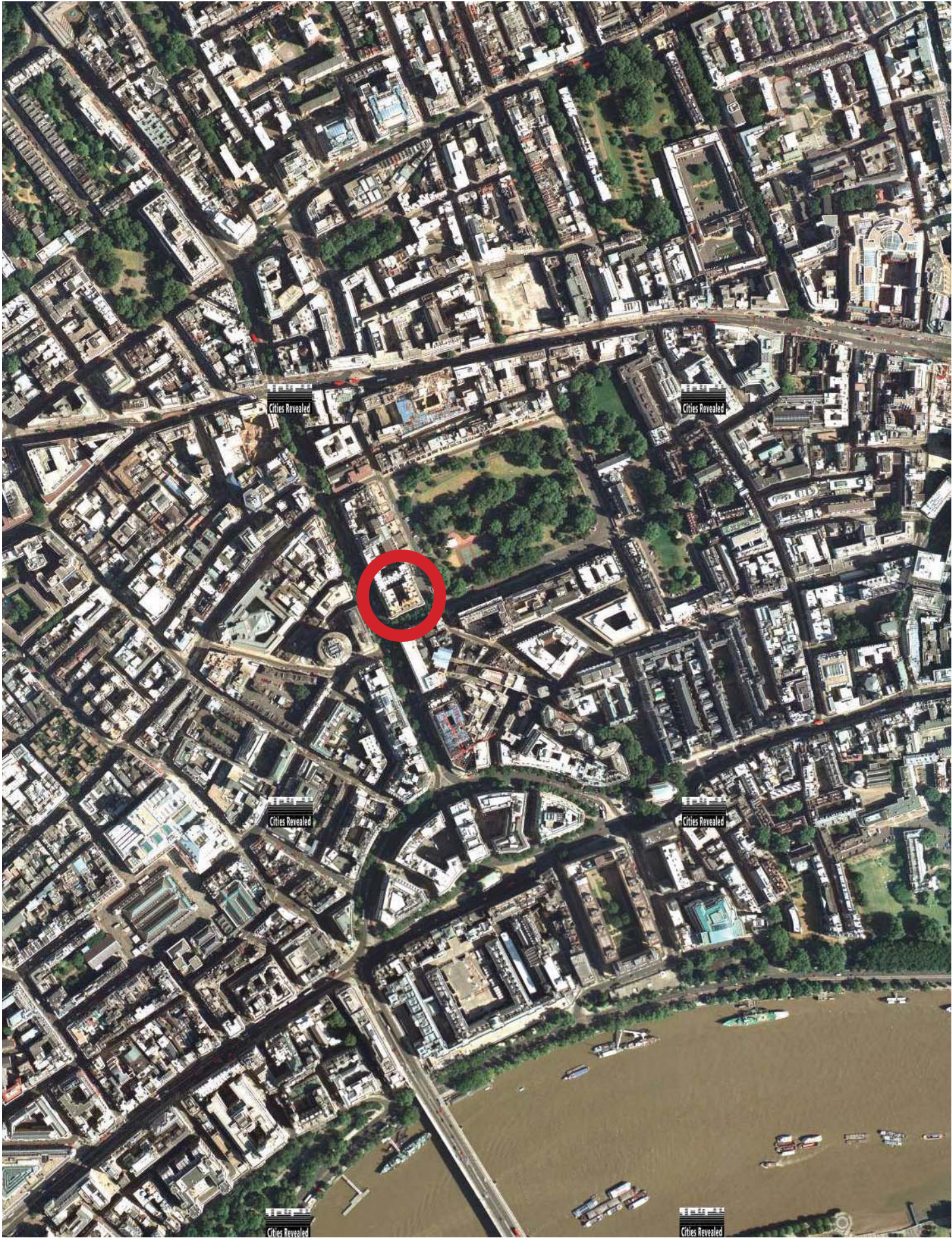
The historic setting of Lincoln Inn Fields, a rare green space in the heart of a densely urbanised area, is fundamental to any design response to the site. In its original plan, LIF was designed with setbacks to its north, west and south edges with open space, also associated with the Inns of Court, lying to the east. These setback zones exist today and are most notable on the west side of the square.

NEW ACADEMIC BUILDING AND IMMEDIATE URBAN CONTEXT

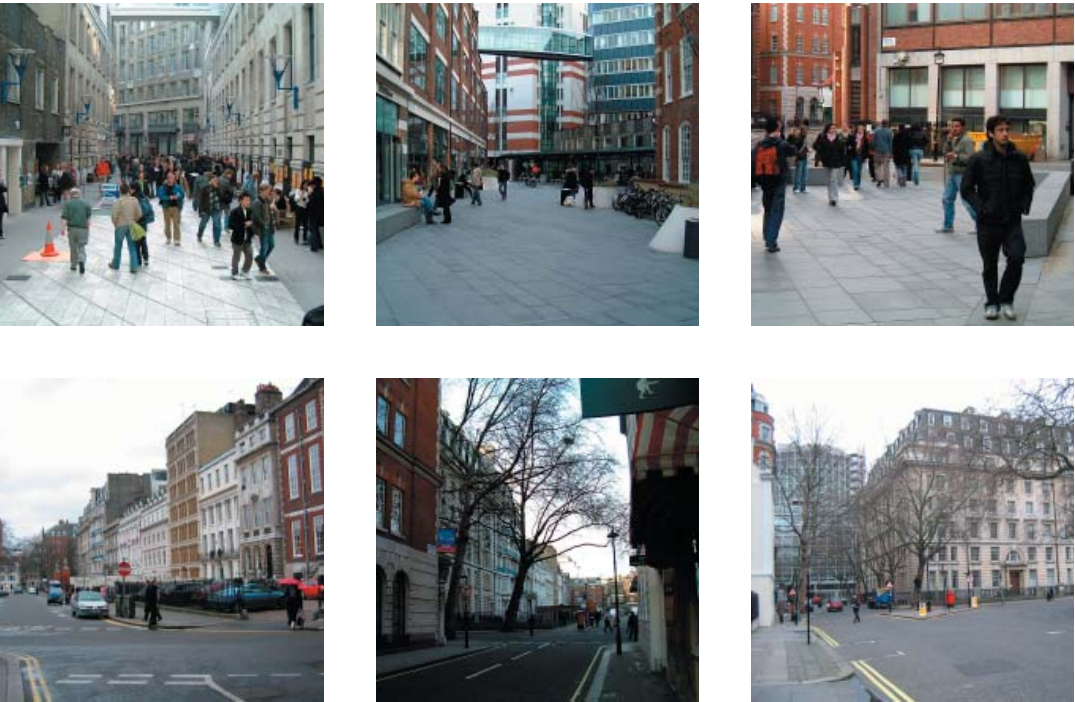
These setbacks generate a corridor of space between the face of the buildings around the perimeter of the square and the fields themselves. Within this corridor, built form presents a low profile in the guise of walls, fences, stairs and entries. At the 24 Kingsway site there is a 33m x 14m forecourt, largely empty and bounded by a wrought iron fence. It is important to acknowledge that this forecourt lies within two scales of space; one being the greater of volume of the Lincoln’s Inn Fields and the other being the corridor of space created by the setback along the west side of fields.

At the same time this forecourt forms part of the Sardinia Street environment and lies at its junction with Portsmouth Street, which represents the primary conduit to the LSE campus to the south. Visual connection down Portsmouth Street is critical in order to support the integration of the campus with the New Academic Building.





1.0 URBAN ANALYSIS



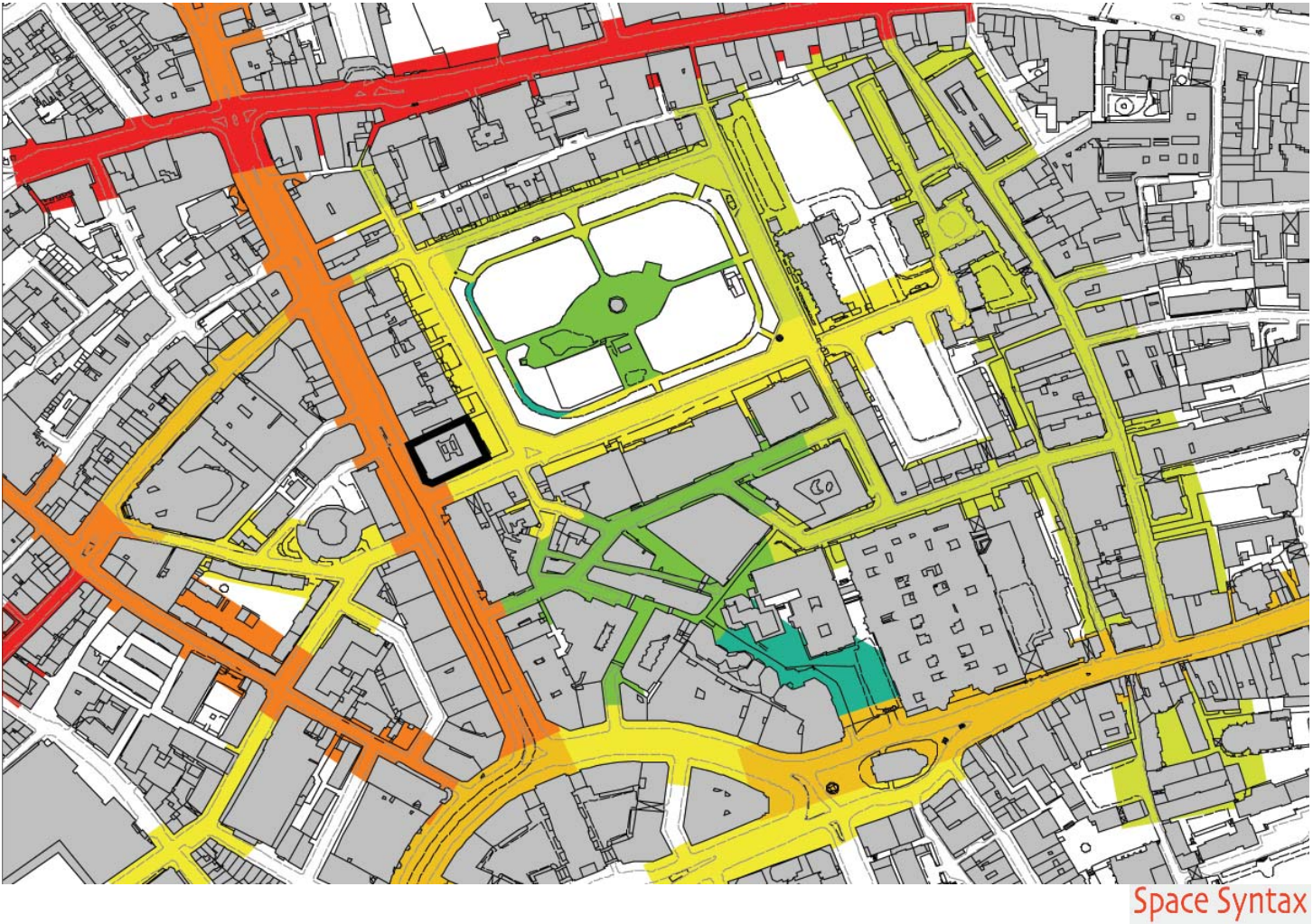
1. SPATIAL ACCESSIBILITY MODEL

The analysis shows that the internal spaces of the LSE Campus are not among the most accessible spaces within the larger urban context. However, the campus as a whole is very well-connected to the most accessible streets of the larger area, such as Kingsway and Holborn. The analysis highlights the south and west sides of Lincoln's Inn Fields as important local integrators, suggesting a distinct quality of the south-eastern corner of the space. This location can be used for creating improved connections between the campus as a whole and the larger urban context.

accessibility, through orange, yellow, green, light blue and dark blue lines for low spatial integration. This analysis is solely based on spatial characteristics and is independent from other factors.

EXPLANATORY NOTES

The computer model calculates levels of spatial accessibility within the pedestrian network of the city. The resulting accessibility values for each space are automatically converted by computer into a coloured graphical representation. Red lines represent high spatial

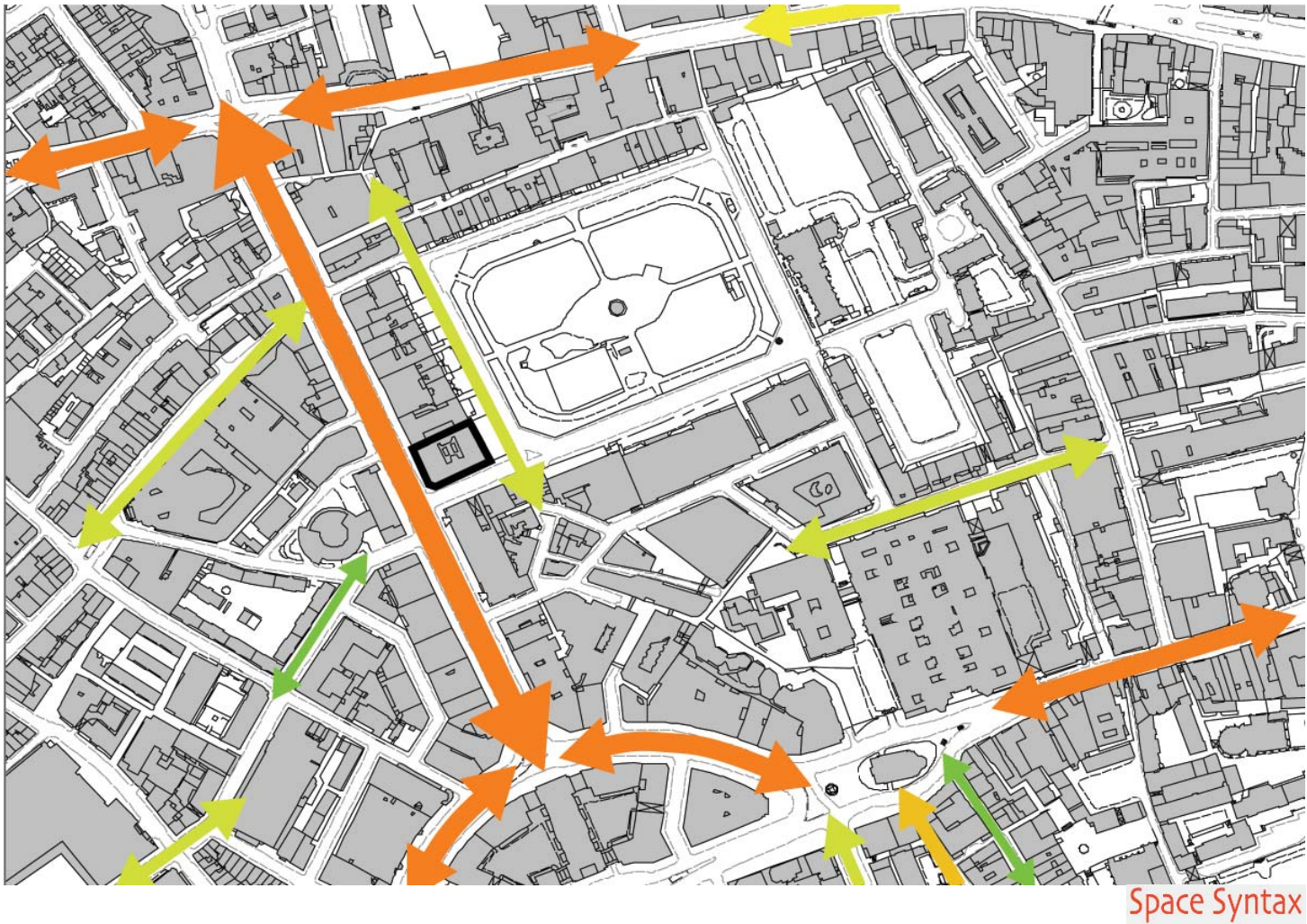


2. PEDESTRIAN MOVEMENT PATTERNS

The pedestrian movement survey shows that the main pedestrian movement routes run along the main roads in the area, such as Kingsway, Holborn, Aldwich and Fleet Street. The site for the new building is located adjacent to and facing the main line of movement on Kingsway to the west, and a secondary local pedestrian route in Lincoln's Inn Field to the east. The site offers the opportunity to benefit from addressing both the larger London context and the local community, including the LSE population.

EXPLANATORY NOTES

Pedestrian movement flows are represented by arrows that are coloured according to the number of pedestrians per hour who pass in either direction. Red indicates gates with the highest movement rates; orange, yellow, green light blue through to dark blue indicate gates with progressively lower rates.

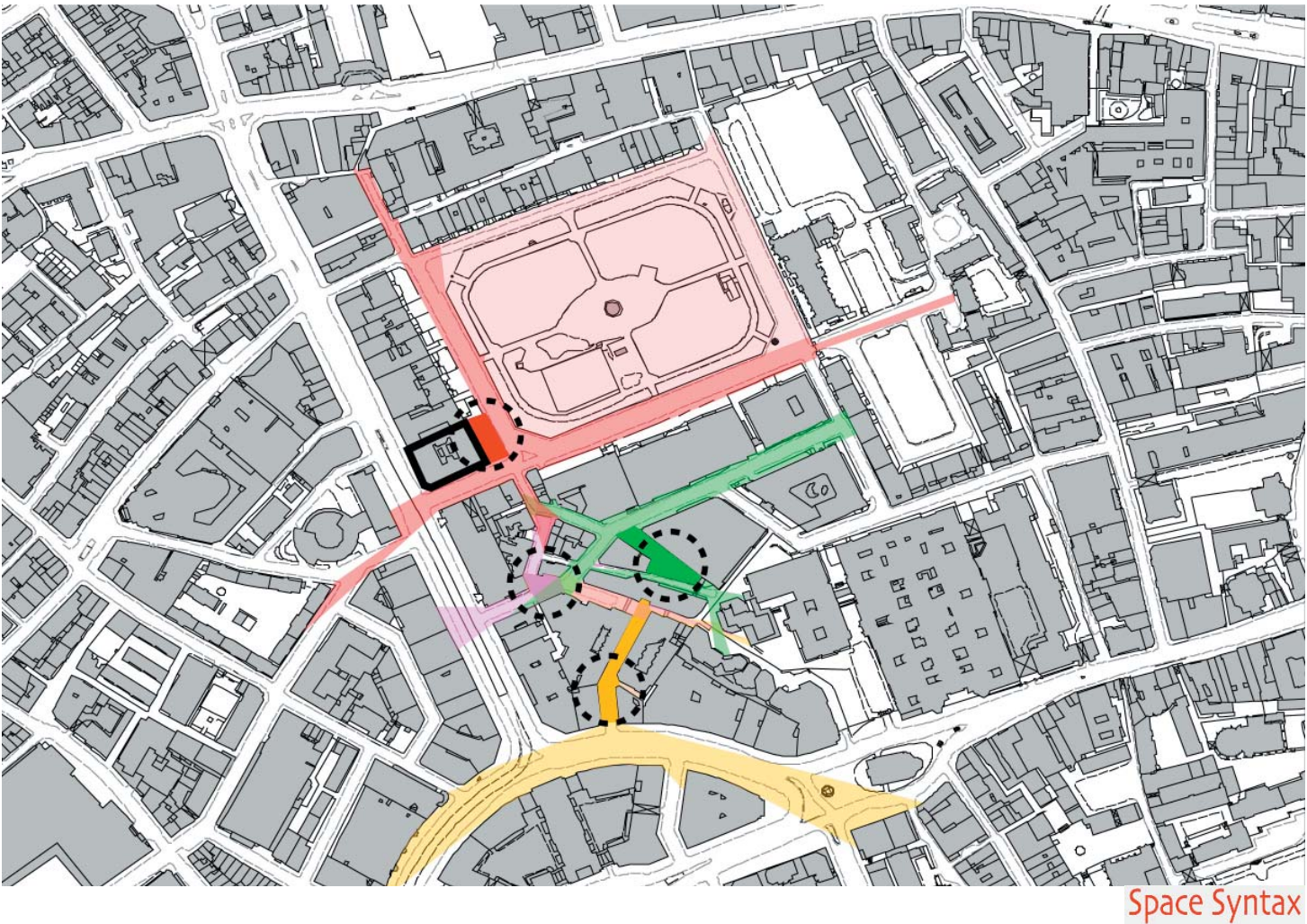


3. OVERLAPPING VISUAL FIELDS

The analysis shows that the present campus lacks a significant visibility connection both internally and with external spaces. There is also a very limited area visible from each of these identified spaces. The proposed public space for the new academic building, which has a strong visual link with its surroundings and with Lincoln's Inn Gardens, provides an opportunity to create an architectural intervention which will actively enhance intercommunication within LSE, and between LSE and the local community. This offers the means for clearly expressing LSE's branding to the wider public.

EXPLANATORY NOTES

This image shows visual fields from the main intersections (represented by different colours). The circles highlight strategic locations determined by overlapping visual fields.



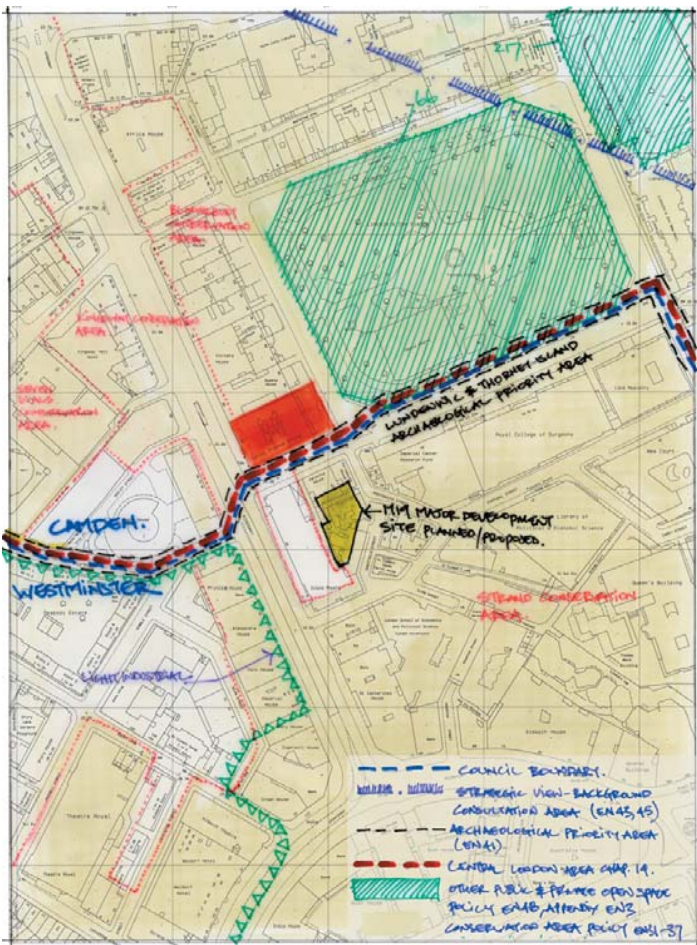
2.0 SITE ANALYSIS

4. MICRO-SCALE VISIBILITY AND MOVEMENT ANALYSIS

The analysis highlights the importance of the eastern entrance and forecourt of the proposed building in terms of micro-scale movement and visibility. The analysis also shows that the proposed glass boxes facilitate the desire lines of visibility and movement. The forecourt functions as a distinct filter space whilst forming part of the public domain. The analysis also shows that the forecourt has to be seen as part of a larger public space in the south-west corner of Lincoln's Inn Fields. An optional new access to Lincoln's Inn Fields would enhance the spatial potentials of this location and would support cross movement. The green space will also serve as an intermediary public space between the LSE Campus and the local area.

EXPLANATORY NOTES

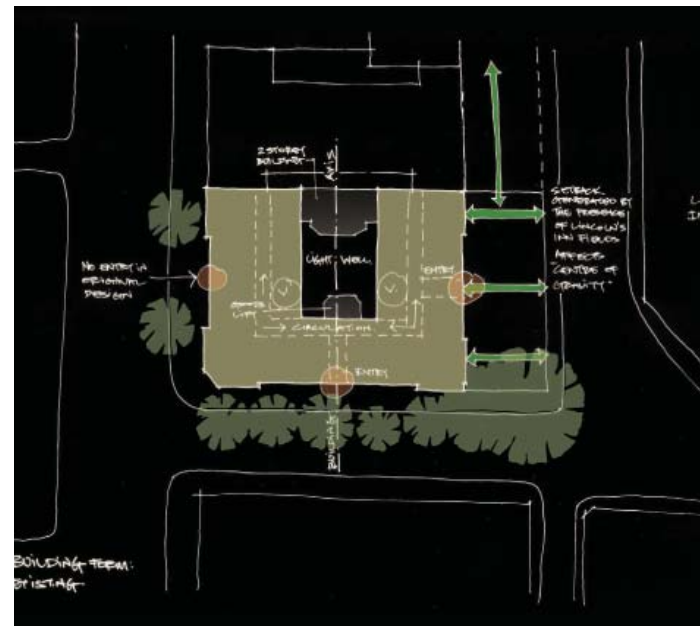
The orange lines represent the desire lines of movement from the proposed entrances of the building. The red circles show the proposed entrances to the building and the green circle and green line represent a possible new entrance and access to Lincoln's Inn Fields.



PLANNING CONTEXT SKETCH

2.2 EXISTING BUILDING AT 24 KINGSWAY

The existing 8-storey building at 24 Kingsway was constructed between 1912-15. It is U-shape in plan with entries onto Lincoln's Inn Fields and Sardinia Street and a central lightwell. There is also a lower ground level extending beneath the forecourt and sub-basement level contained within the footprint of the building. It is a steel-framed structure with filler joist floor construction. Masonry facades are built around the steel frame with street elevations clad with rusticated stonework and the internal elevations of the lightwell in glazed brickwork. Fenestration comprises multi-panelled sash windows. The top two floors are constructed with a slate mansard roof incorporating flat-roofed dormer windows. A number of self-supporting, but otherwise non-structural, chimney-breasts rise through the building to chimneystacks on the roof. A two-storey building is inserted at the foot of the lightwell along its north edge.



The circulation of the existing building corresponds to the narrow U-shape of the building's form and its two entries to Sardinia Street and LIF, folding around the deep internal lightwell.

The building lies within the Bloomsbury conservation area, with the Kingsway elevation lying within the Kingsway conservation area. A Rights of Light envelope applies to the site and has been acknowledged in this scheme.

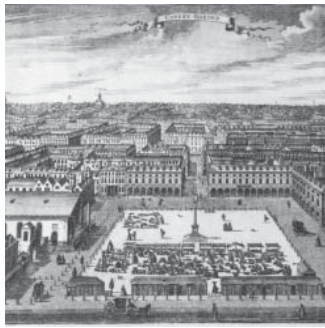
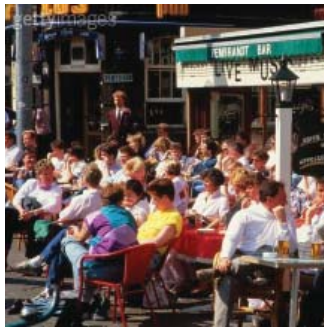
3.0 DESIGN DRIVERS

3.1 IDENTITY/PUBLIC REALM

The NAB presents an opportunity to create a new flagship building for the LSE, which acts as an interface between the LSE campus and the local urban context. The forecourt plays a critical role in the activation of the local area, encouraging the mix of the public and the LSE population. The forecourt is perceived as a distinct space within the public realm. It has the potential to act as a magnet, drawing people to the New Academic Building thereby reinforcing the connection with the rest of the campus and promoting the identity of the building as a new flagship for LSE.



LSE NEW ACADEMIC BUILDING



3.2 HERITAGE/HISTORICAL BACKGROUND

Whilst not a listed building, this is a site of conservation significance. This presents an interesting dilemma when considering how to reconcile the closed nature of the existing building with the LSE's desire to communicate their presence. The design of the NAB must satisfy both issues.

3.3 CIRCULATION AND SPACE

The analysis of local pedestrian circulation reveals significant streams of traffic along Kingsway and LIF. This generates a diagram where primary entries are positioned to these elevations, with a secondary entry to Sardinia Street. This would respond to existing cross traffic and would enliven the Sardinia Street environment. Placing the primary entries in this way, creates the opportunity for an internal street to link the two contrasting urban environments of Kingsway and LIF with the heart of the building. This central space is the junction between the horizontal circulation and vertical circulation making it a key point of orientation and visual connection throughout the building. The building's core should provide a space for social interaction, allowing public and private to diffuse and interplay.

3.4 LANDSCAPE

Landscape

The proximity of the New Academic Building to the Lincoln's Inn Fields, generates opportunities for connections with the external environment and associations with the fields themselves to be formed. The influence of the Lincoln's Inn Fields upon the existing building is clearly apparent. Without the Fields, the forecourt would not exist and without this and the wider urban scale of the Lincoln's Inn Fields square, the U-shaped existing building would quite likely have had only an entry from Sardinia Street. Instead, the Lincoln's Inn Fields elevation has an identical entry to that of Sardinia Street.

The metaphor of formal landscape has been carried through the design of the internal spaces of the building and influenced the form and the relationship between various spaces. In a more literal sense the idea of bringing landscape into the building and of breathing in the air of Lincoln's Inn Fields is a subtle element of the design.

3.5 FLEXIBILITY

Flexibility

It is imperative for the design response to provide a high level of flexibility for the LSE. The proposed uses of the building are yet to be defined, but in any case, the New Academic Building should be able to accommodate a wide scope of changing needs. Departments should be able to move in and move out and education methodology will inevitably go through profound changes over the years. The freeing up of the existing fabric is fundamental to achieving this outcome.

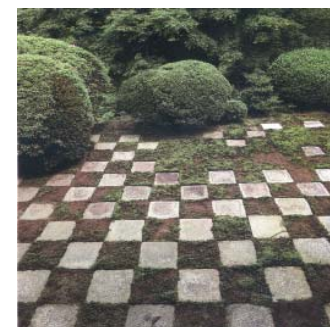
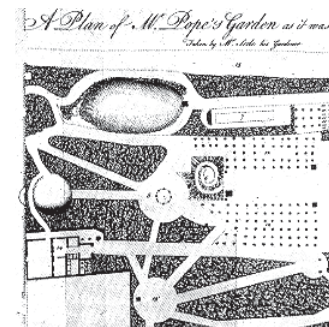
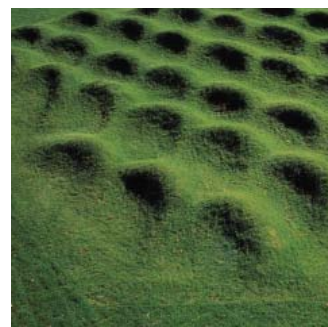
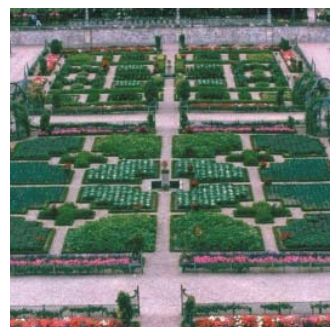
There are three key ways to consider such flexibility:

- Adaptability – space which is capable of multiple configurations for various uses, eg. operable walls, column-free space
- Multifunctional – space which is fixed but which may cater for many different uses, eg modular
- Growth - Providing a robustness in the design which can accommodate for new uses and demands

3.6 EFFICIENCY

Efficiency

Structural rationalism, cost effective planning, and the efficient arrangement of spaces and circulation underpin all design thinking for the New Academic Building. It is through the efficiencies within the design that possibilities are unlocked and enabled.



3.6 SUSTAINABILITY

Sustainable design is integral with all aspects of our design thinking. We have worked with Battle McCarthy environmental engineers and drawn on our own considerable experience to bring the conversion of 24 Kingsway into a sustainable New Academic Building. Sustainable thinking is inseparable from the conceptual ideas of landscape and other design drivers such as efficiency and flexibility.

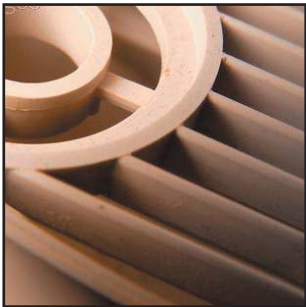
Full enjoyment of any space can only be realised by comfortable environmental conditions. The environment in a space designed for work should not be a distraction from the tasks at hand. It is therefore intended to create natural environmental conditions by natural means wherever possible.

Comfortable conditions are created by proper handling of the various elements that contribute to a feeling of comfort. These, and their treatment in this project, are described below.



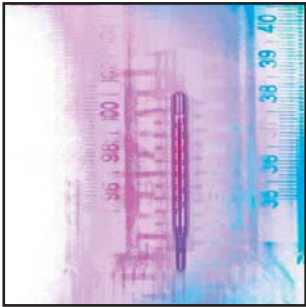
Light

Diffused daylight has excellent properties as general lighting for working conditions and relaxation. Additionally, when properly controlled, the quality of the light assists in creating feelings of comfort and well-being where possible. Daylight will be brought into the internal spaces by strategic design of glazed openings. The benefits of this will be augmented with the design for the artificial lighting design incorporating daylight and occupancy sensors.



Air

A generous supply of fresh air is essential to create light, airy spaces. Natural forces of buoyancy and prevailing wind movement will be the prime movers for ventilating air where possible. Certain spaces will have occupancy densities and/or tasks which may create conditions where additional ventilation is required by mechanical means. Where this is necessary, heat recovery will be incorporated to reduce energy consumption.



Temperature

All areas will benefit from central heating in cool conditions either by underfloor heating or, if mechanically ventilated, by warm air incorporated into high-level integrated chilled beams. The thermal mass of the building will flatten temperature peaks and store warmth and coolth.



Acoustics

Some of the internal activities are sensitive to both the acoustic performance of the internal space and influence from the surrounding environment. Care should be exercised to ensure the best acoustic conditions are available for all areas. It will be necessary to create a balance between background noise of the surrounding traffic, privacy and distraction. Large mass concrete floors provide a high degree of acoustic separation between floors.

Acoustic design of external envelope, including glazing will ensure various spaces achieve appropriate sound reduction, especially teaching spaces.



Building Material

Where possible the following strategies will be adopted:

- Salvage & recycle existing building materials
- Avoid ozone-depleting materials
- Utilise materials that have low-embodied energy
- Purchase locally produced building materials
- Minimise waste during construction



Personal Control

Where possible, greater use will be made of the occupant as the controller of their own environment to avoid an 'institutional' feel to the building. All four of the previous elements may be manually controlled to greater and lesser extents in the various zones of the building. However, care will also be exercised in ensuring the building management has adequate overall control.



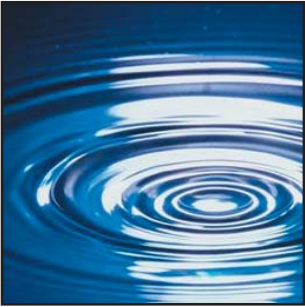
Adaptability

One of the prime assets of a well designed space is the lack of limitations to its use. The services and structure have been designed so the potential of each space to be adapted for use is not compromised. Particular attention has been paid to the medium term flexibility of partitions and possibility for long term future adaptation.



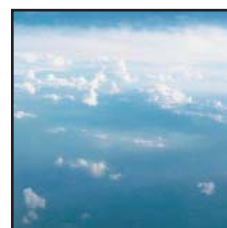
Costs

The building will incorporate many systems that make use of the free energies available such as daylight, sun and air. The control systems and the building equipment will operate together to provide an integrated and efficient whole. Good quality materials and system types will be specified to be durable and long-lasting. Control systems that are as simple as possible in use with diagnostic properties to assist in repair and maintenance actions. Good access around plant and distribution will be provided for ease of work.



Water Recycling & Re-Use

Collect rainwater at roof level and then recycle water through WC's or for landscape irrigation. Rainwater could be used as source of indirect evaporative cooling in summer. Low-water sanitary fittings specified to reduce water consumption (spray taps and dual-flush cisterns). Provision of a rainwater collection tank will help to reduce peak flows to main sewer.



Ozone Depletion



Biodiversity Loss



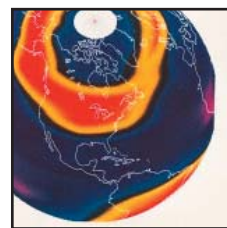
Fuel Depletion



Water Depletion



Acid Rain



Climate Change



Waste Generation



Employment



Maintenance



Best Value



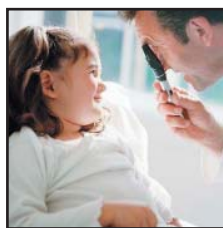
Community



Security



Public Transport



Health & Wellness



Access



Amenity



Energy Harvesting



Water Conservation



Low-Impact Materials



Energy Efficiency



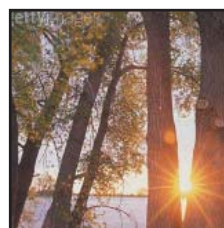
Minimal Life-Costs



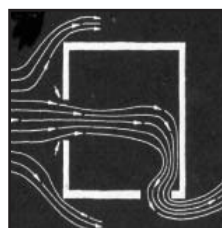
Structural Efficiency



Waste Management



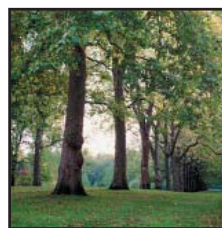
Ecological Value



Passive Ventilation



Exploit Daylight



Distinctiveness



Secured by Design

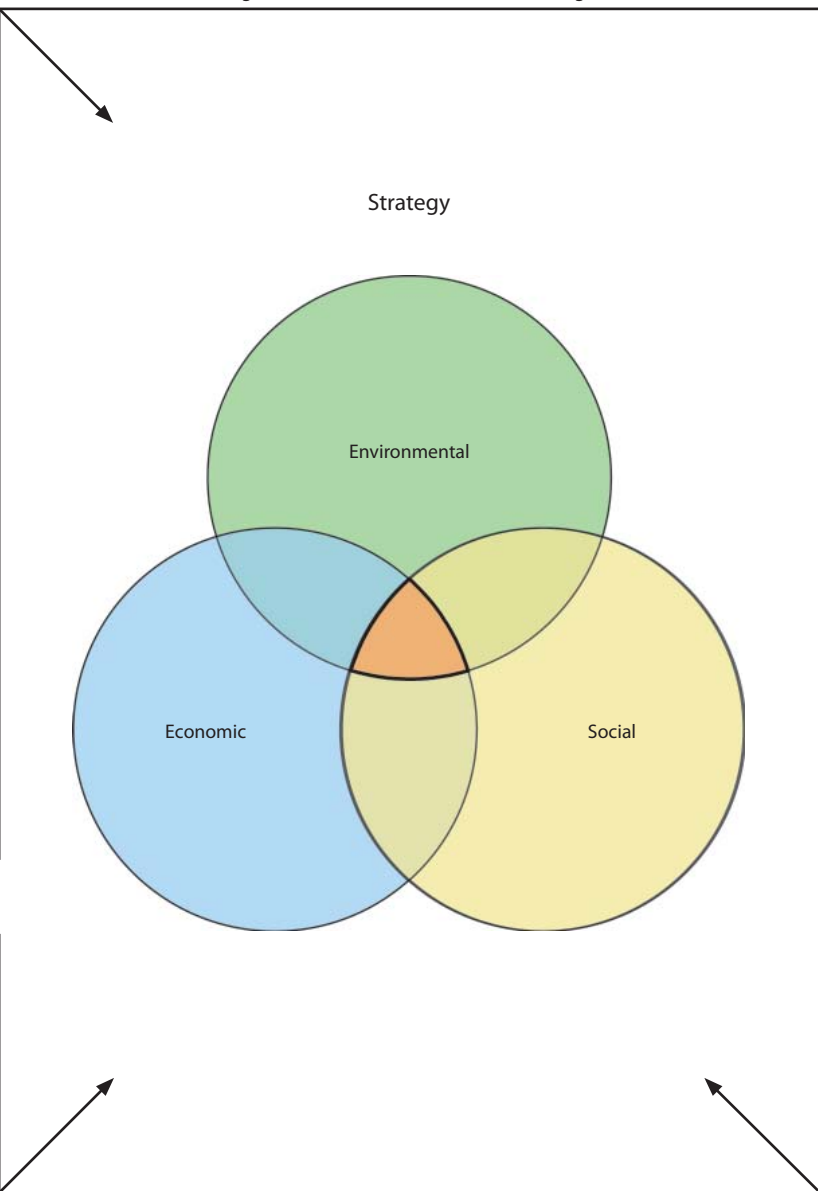
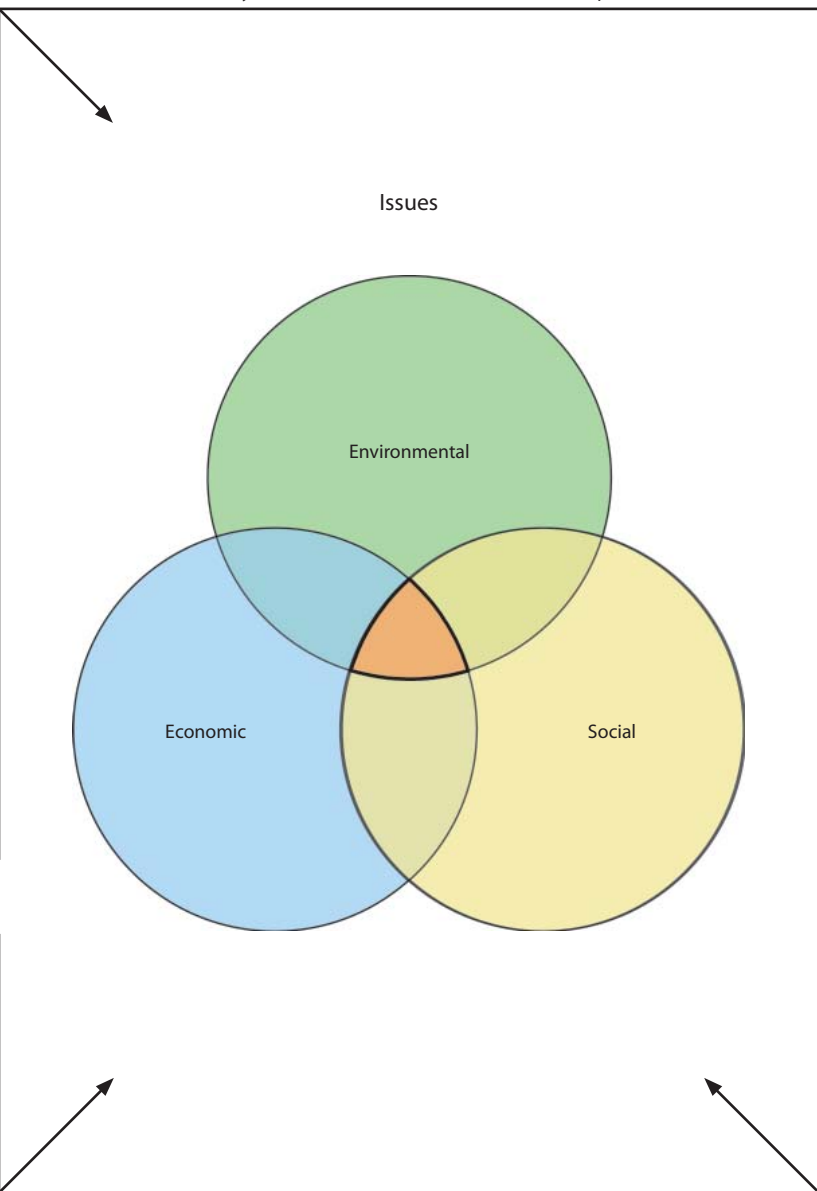


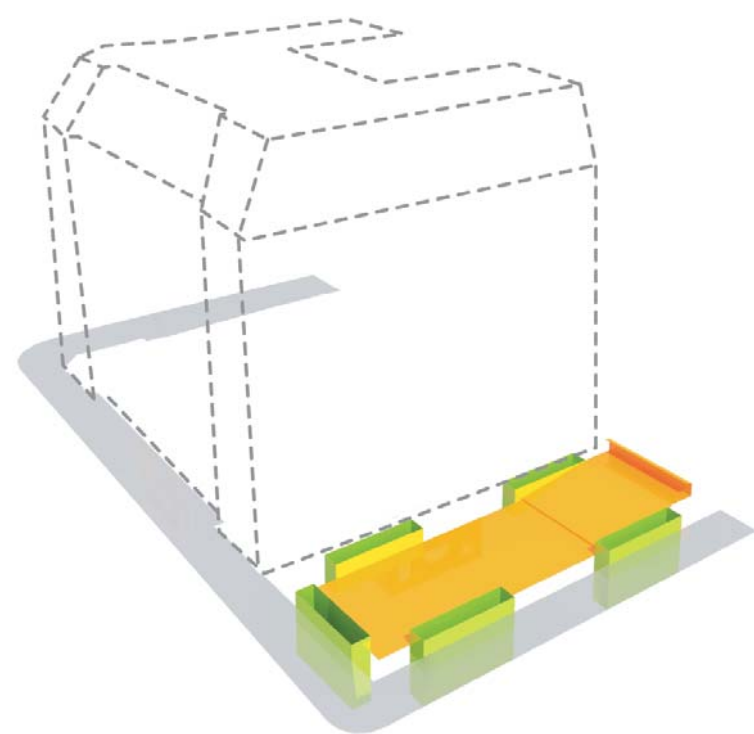
Involvement



Inclusive Design

Design for Comfort





4.1 FORECOURT AND RETAIL

The forecourt presents an opportunity for the New Academic Building to engage with the public, and to enable the LSE to signify their presence on this new site within the Lincoln's Inn Fields environment. Due to its location relative to Portsmouth Street and the North – south pedestrian movement between the LSE campus and High Holborn, the forecourt is pivotal in connecting the New Academic Building with the rest of the LSE campus to the immediate south of the site.

The forecourt is a landscape response as much as an architectural one. The relatively low profile of the manipulations of the ground plane and insertion of the glass boxes is a direct response to the open space generated by the setback of the buildings around Lincoln's Inn Fields. These elements are entirely within the scale of the walls, stairs, and entry elements that occur within this corridor of space between the face of the buildings and Lincoln's Inn Fields.

The north half of the forecourt is cranked upwards to form a bank of tiered seating – a reference to the raking lecture theatre inserted below. This creates an amphitheatre-like space that physically expresses the LSE's presence to the public realm. It is also a backdrop to the southern half of the forecourt court, which remains level

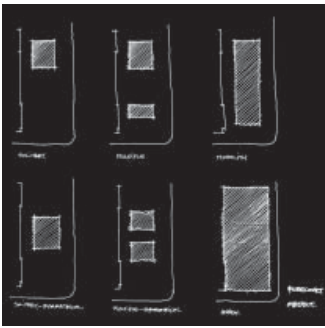
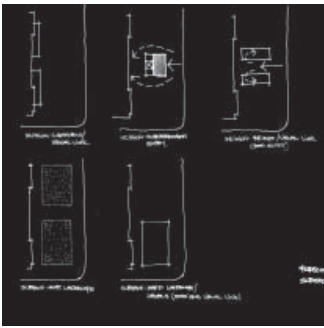
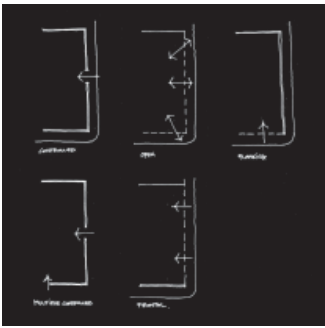
due to flat, rather than raking, floor of the classroom below. This area contains tables and chairs as part of the cafe inserted into the adjacent corner of the building, accessible directly from the street and linked to the forecourt. This activates the space, creating a place where public and LSE populations can intermingle, generating a magnet to draw people to the New Academic Building.

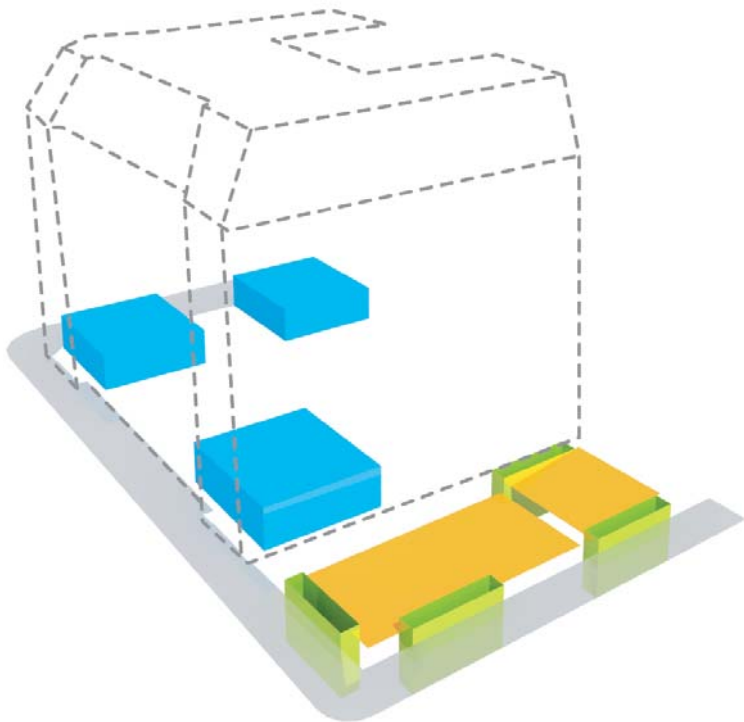
The forecourt is framed with a line of glass boxes that filter it from the surrounding public space, defining the forecourt as a distinct space that still resides within the public realm. The glass boxes perform a crucial role in maintaining the visual connectivity between the exterior, public world and the interior realm of the university. The glass boxes are placed to enable the flow of people across the forecourt along a number of desire lines, with a particular focus on connections to the LSE campus via Portsmouth Street.

Incisions are made into the forecourt surface to allow visual connection into the teaching and social spaces at lower ground level. In this way, the academic nature of the building is directly communicated to the passing public. The glass boxes are inserted into these incisions, bringing daylight and fresh air from Lincoln's Inn Fields into these spaces below to maintain a connection with the

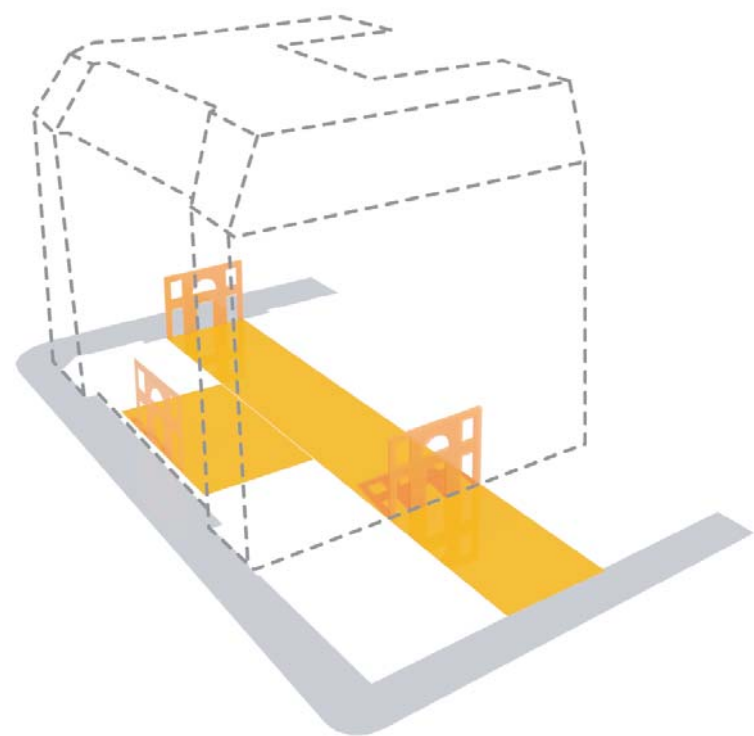
outside world. The glass boxes extend downwards to the floor of the lower ground level and are planted at low level. Air for the major spaces at lower ground and ground level is breathed in from Lincoln's Inn Fields and is drawn past this planting and then into building.

Retail functions are planned to the Kingsway elevation to the North West, and South West, corners of the building. Apart from bringing profit streams into the development, these serve to provide other means for the New Academic building to interface with the public, and will activate the building during various times of the day. It is believed that Camden would consider retail at ground level along Kingsway as a positive move.





4.0 SCHEME/DESIGN

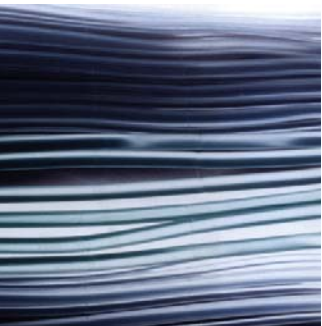


4.2 ENTRY

The primary entry to the building is through the Lincoln's Inn Fields side of the building via the forecourt. The sense of entry is reinforced by the forecourt and is symmetrically framed by the glass boxes, which balance the asymmetry of the forecourt surface.

The existing entry is enlarged to accommodate the needs and scale of the New Academic Building, but in a way which is respectful of the existing building fabric. The windows to either side of the existing entry are converted to form two additional doorways and windows are punched out to create a double height sheltered vestibule behind the existing wall. A double-height glazed curtain forms the backdrop to this space with frameless sliding glass doors leading to the central atrium. By night, the light from the vestibule will glow through the punched-out holes signifying the New Academic Building's presence.

This entry is mirrored in the Kingsway elevation, with a secondary entry to Sardinia Street so that the design responds to the patterns of pedestrian movement around the building. The Sardinia street entry is intended to function as a goods entry with loading from the street, however goods could alternatively be brought from Sardinia Street via the forecourt entry.

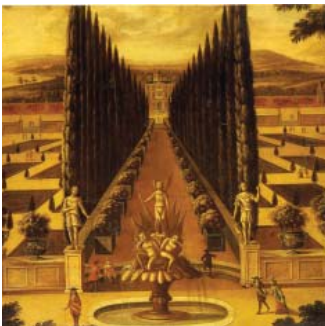


A critical decision was to lower the ground floor to create a shallower transition between the street level and the internal street. The current difference in level of up to 1.2m is effectively halved, bringing the transition down to a small enough scale to enable free flowing entrance to the building.

4.3 THE STREET

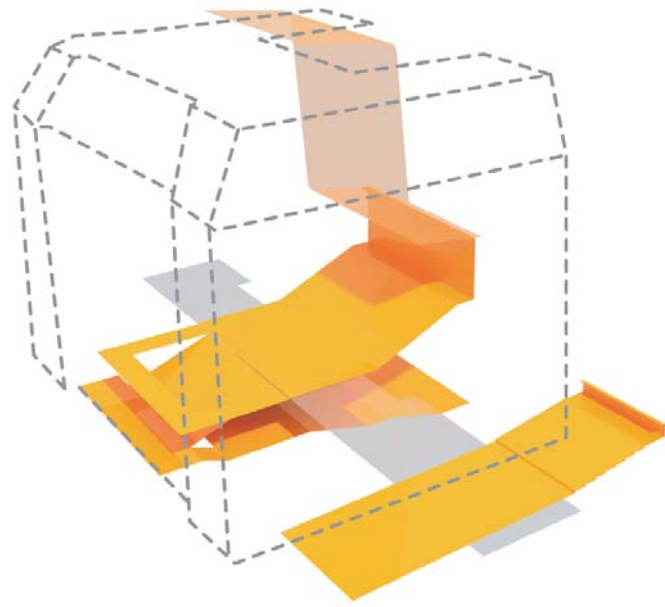
A double-height pedestrian street links the two main entrances, providing a route through to Lincoln's Inn Fields as well as an area in which students and public can mix. This is a critical step to invite the city into the campus whilst clearly defining an academic space and working together with the design of the forecourt.

The internal street on the ground floor provides sweeping access into the major spaces to the lower ground floor and opens onto an atrium at the heart of the building. This central space is the key point of orientation and visual connection throughout the building and is where the reception / information point for the building is located. Level 1 floor plate is carved back to form a gallery over internal street and to create an appropriate scale to the space.





4.0 SCHEME/DESIGN



4.4 OVERALL CONFIGURATION OF BUILDING

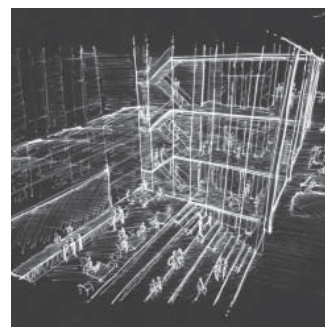
The design is conceived in terms of a progression of active and passive spaces laid out in a linear sequence across the building. Spaces flow dynamically through active zones of the atrium and forecourt: where visual connections are formed, vertical and horizontal circulation intersect, and public and social spaces are concentrated. These are areas in which you can understand the life of the building and can actively participate.

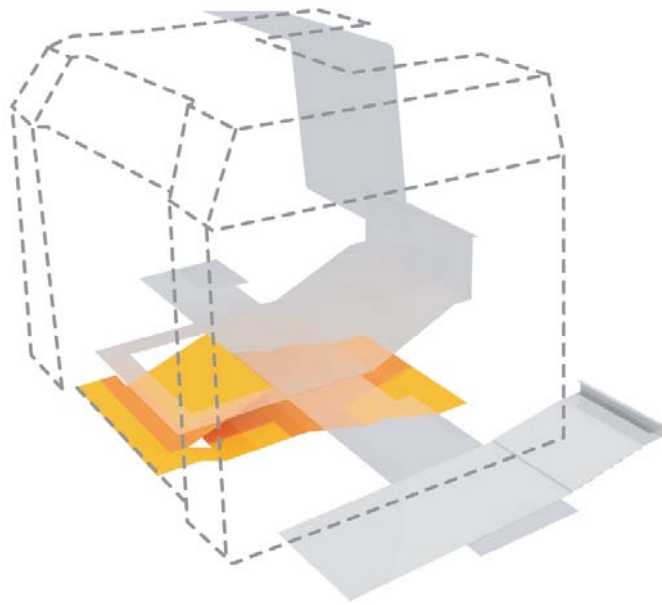
In the central band of the design, movement flows between the 400-seat lecture theatre in the lower ground level, folding back on itself along an expansive flight of stairs and connecting across the street and up the terraced atrium. The 'band' then visually and figuratively links through the height of the light well by the folding plane of its glazed roof and facade. The two cores frame this space as bookends with highly visible vertical and horizontal circulation focussed around the light well creating a dynamic sense of life and movement.

The zones of the building to either side of this central band are typically quieter, and less public. Private and privileged spaces tend to be clustered in these zones. The gesture of the internal street is repeated up the building and is generally laid across this sequence

of private and public spaces, tying them together and generating space for informal exchanges and meetings. This concept continues throughout the building and informs the design of the roof pavilion.

The building is arranged with teaching and larger social spaces oriented toward the lower levels of the building and departmental space toward the upper levels. However, this strategy is adaptable. The structural solution of the scheme with its flexible floor plates allows the building to be reconfigured to suit LSE's requirements.





LOWER GROUND FLOOR

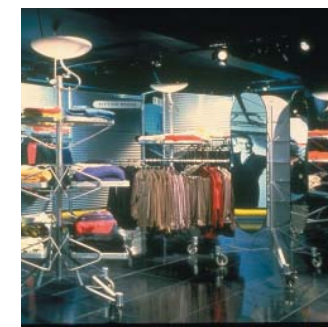
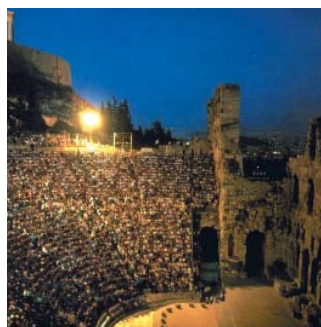
Access to the lower ground level is via the major stair linking to the internal street at ground level. The stair links into a generous milling space of a scale to accommodate the large populations that will be associated with the lecture spaces on this level. The majority of people will use this stair but the lower ground level is also accessible by lift and the two accommodation stairs in the core.

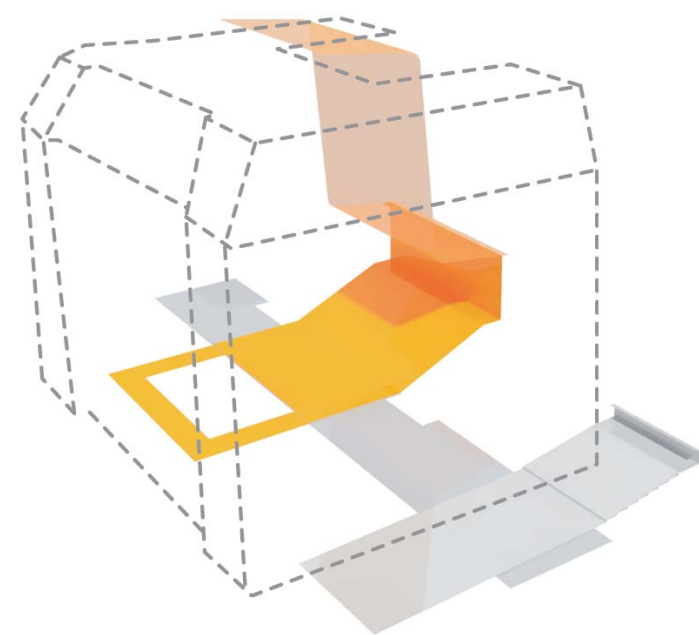
With 850 seats of lecture space across 4 lecture theatres, this level can host more than 1,000 people at any one time and is designed to manage the flow of a large volume of people effortlessly. It is also designed to facilitate high profile functions (attended variously by LSE's own population of academics, students, administrative staff, alumni, sponsors and associates, but also by members of the public, government and private sectors).

An expansive 400-seat lecture theatre is made possible through the structural solution of this scheme. The theatre can be split into two via the use of a retractable seating row, a landing and an acoustic operable wall, as well as the introduction of a half level between lower ground and sub-basement, accessible by stairs and lift. The upper and the lower areas of all lecture theatres have disabled access.

Around the perimeter of the milling space there is a repeated motif of daylight filtering downwards and visual linkage to the outside street environment. Daylight washes through the glazed boxes that frame the lecture theatre and classroom beneath the forecourt. The low-level planting inside these 'boxes' transplants slices of nature into the teaching and milling spaces.

The multiple visual connections enliven the lower ground floor. At any one time there are sightlines through the glass boxes to the people passing by on the street and to the forecourt café and amphitheatre. These spaces can easily be blacked-out when required.





ATRIUM

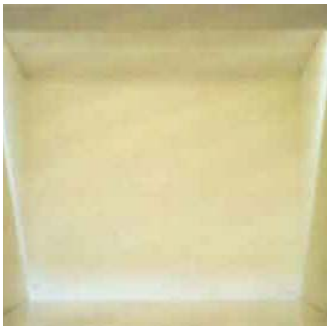
The central atrium is the nucleus of the building. It is a light-filled, triple-height space with a terraced amphitheatre leading up to a café, its form generated by the presence of the lecture theatre below and echoing the form of the forecourt. This is an internal piazza with the terraced levels defining a more intimate scale of space, encouraging informal gatherings and overspill from the café. The surface of the space is effectively raised more than five metres above the current base of the light well to create a lighter space.

The café is anchored by the folding plane of the wall behind with a supergraphic backdrop, perhaps making a stylised reference to the soft landscape of Lincoln's Inn Fields, but capable of being changed to suit the activity occurring in the atrium.

On-grade access is provided to the top of the amphitheatre via a connection with level one, enabling access for all, and the free flow of people around the atrium space and between levels.

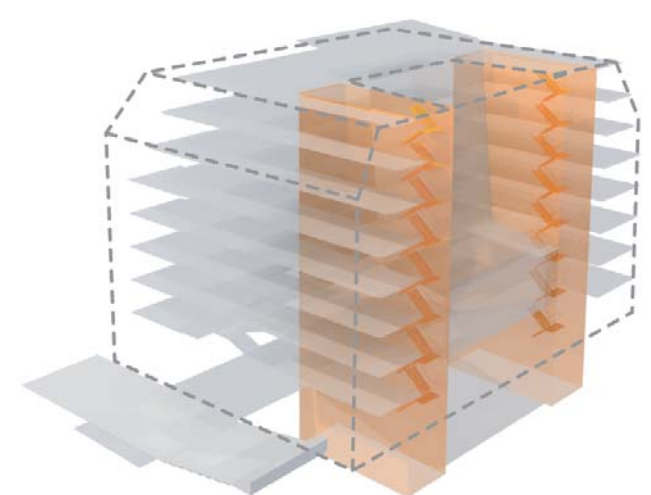
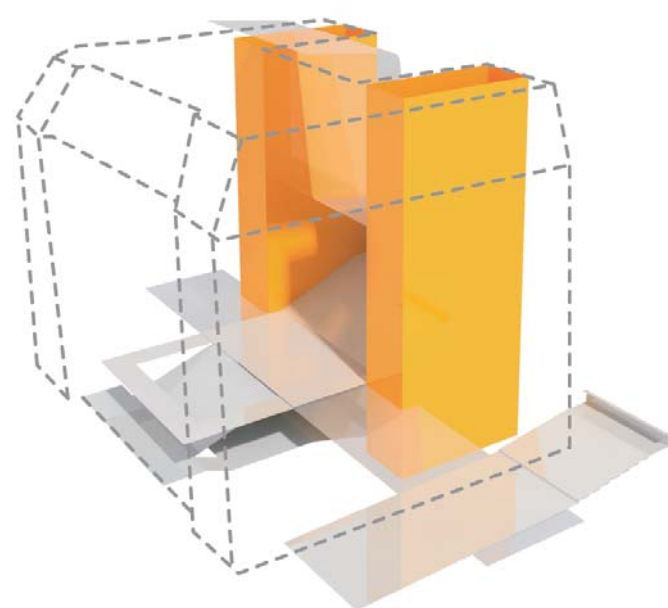
The roof of the atrium is fully glazed to allow natural light to filter downwards and fill the space. The light-coloured limestone terrace steps serve to reflect this daylight. The side facades of the light well are also treated to increase reflection down into the atrium, complemented by the white glazed brick walls of the adjacent building.

The atrium roof is positioned at level 3. When considering the existing lightwell and how it might be reconfigured for the New Academic Building, we set as an objective that the design must fall within the existing Rights of Light envelope. To work outside this envelope would involve a risk of delays and costs for the LSE. This is an important point as without the Rights of Light issue, the design may very well have had a high level roof to create a very large atrium.





4.0 SCHEME/DESIGN



4.5 VERTICAL CIRCULATION AND LIGHTWELL

The same connectivity and balance applies to the vertical circulation through the atrium and the reconfigured light well of the New Academic Building. There is a strong visual connection between the atrium and the upper floors and those moving vertically between them. By placing the lift landings beside the light well, all movement between floors is concentrated beside the light well and then continues along the circulation spines at upper floors. This is reflected in the glazed roof of the atrium folding upward to form the vertical façade of the light well until it connects with the truss at roof pavilion level.

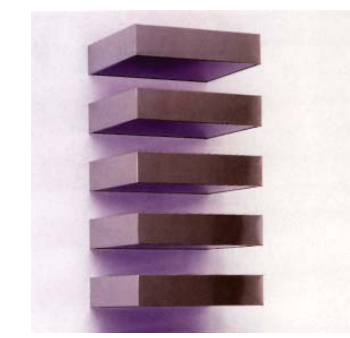
It is proposed that vertical access is controlled via swipe cards at ground level. Further control can be provided at the entrance points of the building and at the stair down to the lower ground, if required. It is envisaged that in the normal operation of the building there would be free movement through the ground-floor street and probably into the lower ground floor. During evening functions, including those using the lower ground floor, all the grand spaces of the ground floor can be used whilst the rest of the building is closed off. The ground floor cafes could also be integrated with such an event.

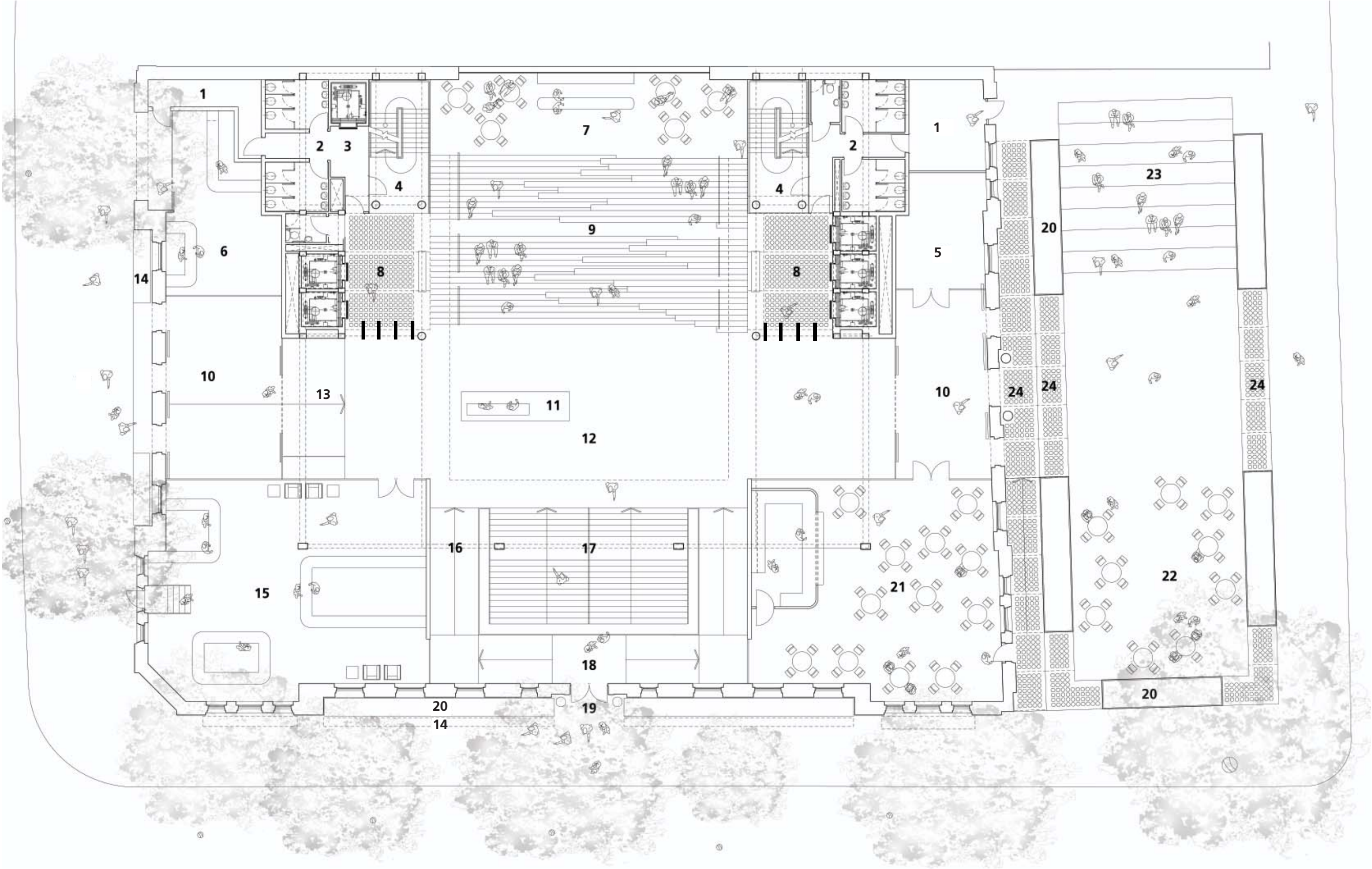
Ground Floor Plan Key

- | | | | |
|-----|---|-----|---|
| 1. | Fire exit | 13. | Kingsway ramped entrance |
| 2. | Toilets | 14. | Glass skylights along perimeter |
| 3. | Fire-fighting lift | 15. | Retail space |
| 4. | Main stair | 16. | Ramped access from Sardinia St |
| 5. | Security point/ cloak room | 17. | Steps down to main lecture theatres |
| 6. | Retail | 18. | Access from Sardinia St |
| 7. | Upper level atrium café | 19. | Glass entrance doors |
| 8. | Lift lobby with security card swiping gates | 20. | Glass boxes open above - fresh air intake/ views down to lower ground |
| 9. | Steps/ informal meeting/ lecture space | 21. | Café |
| 10. | Double height lobby | 22. | Outdoor café seating |
| 11. | Reception/ student information point | 23. | Informal gathering/ meeting space |
| 12. | Atrium space | 24. | Trafficable skylights |
| | | 25. | Security system to upper levels |

There are two cores either side of the atrium, located to maximise space planning flexibility and access around the building. Both cores contain amenities and in both cores an accommodation stair doubles as a fire stair. The stairs complement the atrium space and express vertical circulation within the building. Both the stairs and the lifts bring people through the same area of space, generating a sense of activity promoting cross exchange between the building users. The split core also provides a very convincing diagram for meeting fire escape provisions.

The building is provided with a total of 6 lifts including 1 fire fighting lift. Within the eastern bank of lifts, one lift also serves as a goods lift. Should the LSE prefer a dedicated goods lift, this could also be integrated into the design of the eastern core.

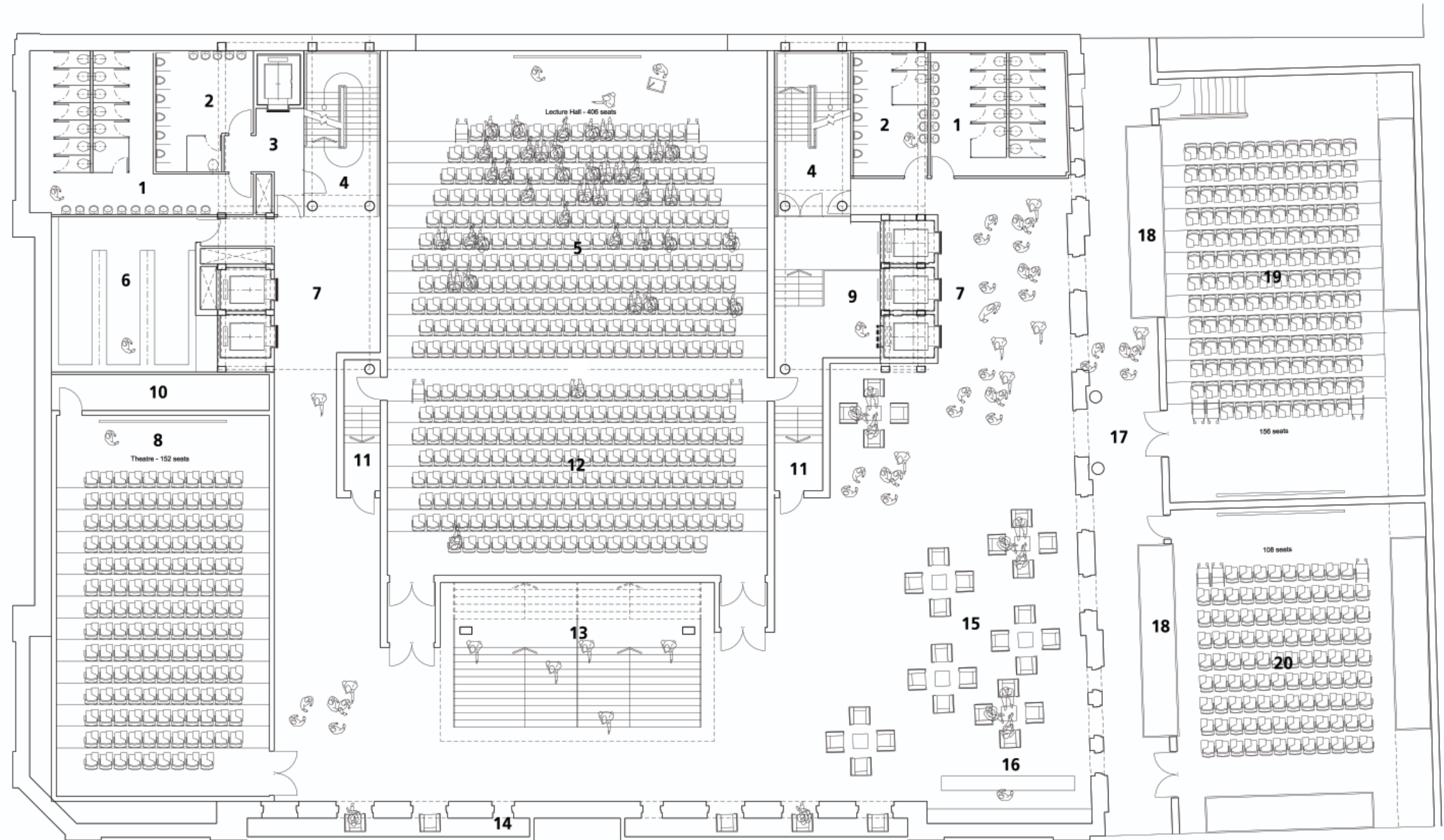




4.0 SCHEME/DESIGN

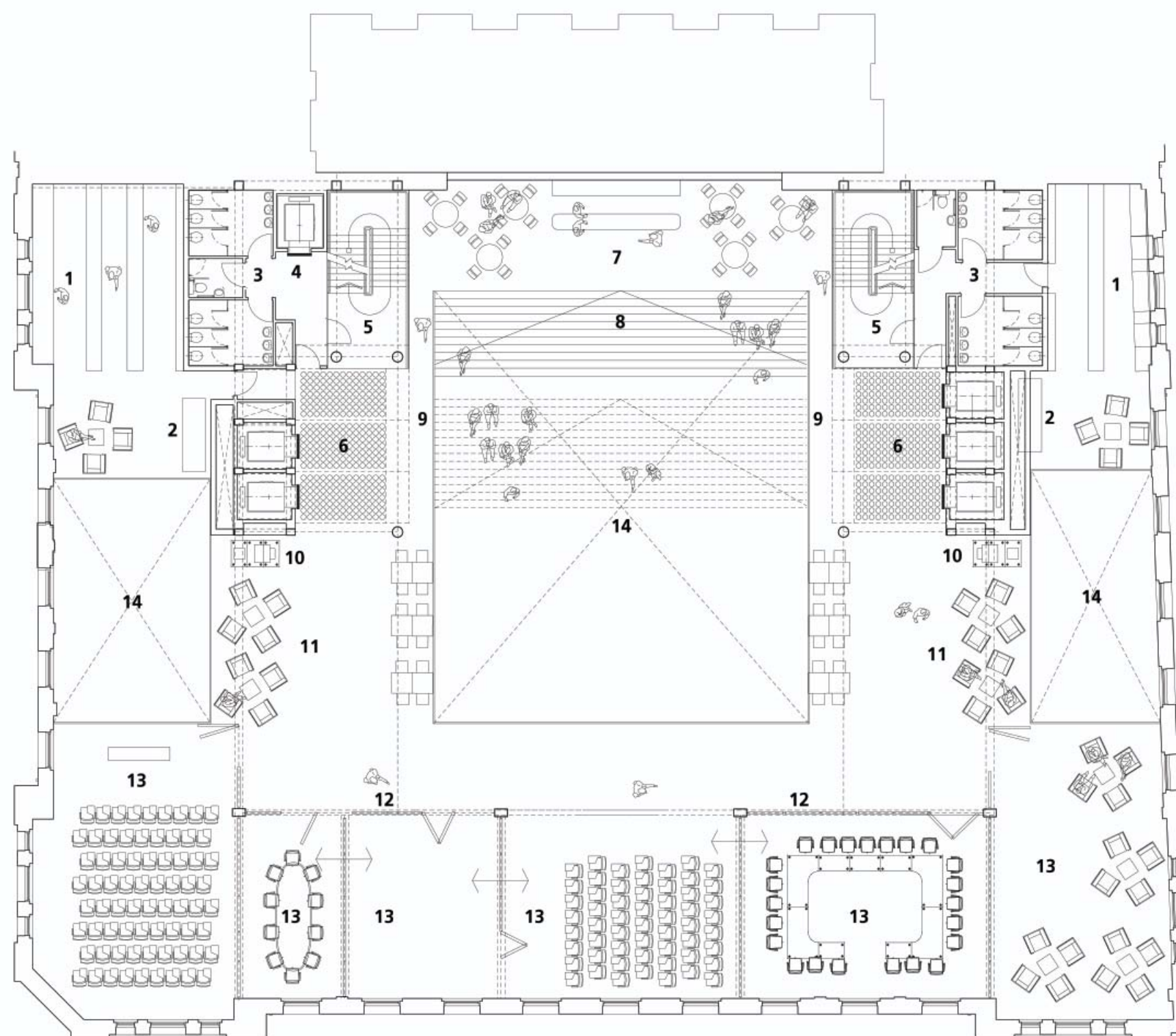
Lowerground

1. Female Toilets
2. Male Toilets
3. Fire-fighting lift
4. Main stair
5. 406 seat raked lecture theatre
6. Locker Rooms
7. Lift Lobby area
8. 153 seat raked lecture theatre
9. Mid Level lift lobby
10. Exit from lecture theatre at basement level
11. Stairs down to mid level
12. Upper section of Lecture Theatre
13. Primary Stairs down from Ground Floor
14. Roof light above
15. Foyer seating area/ Function space
16. Bar/ Coffee shop
17. Foyer with roof lights above
18. Glass boxes open above/ fresh air intake/ views up
19. 158 seat raked lecture theatre
20. 108 seat flat lecture theatre



First

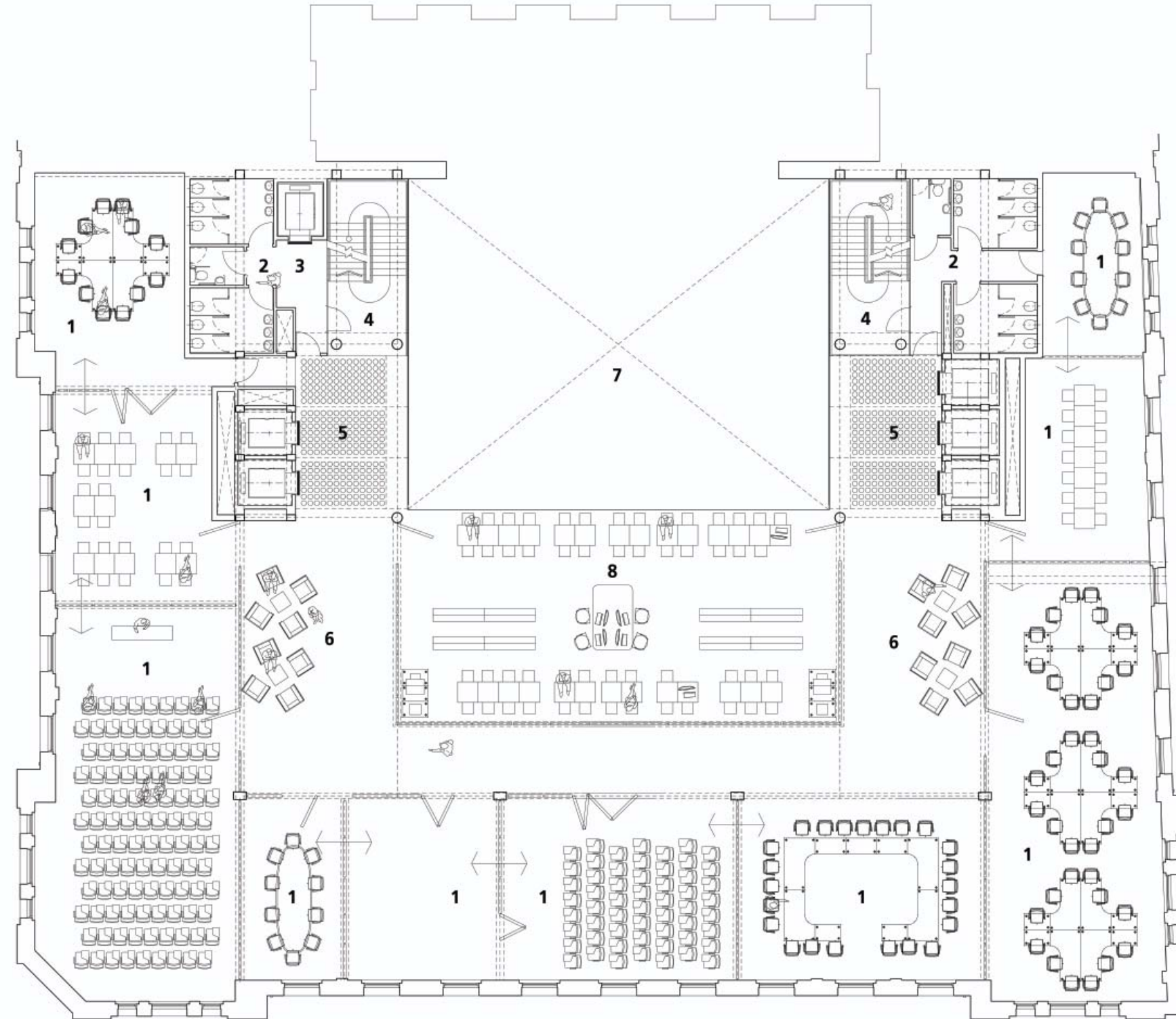
1. Student locker room areas
2. Vending machines
3. Toilets
4. Fire-fighting lift
5. Main stair
6. Lift lobby
7. Upper level atrium café
8. Steps/ informal meeting/ lecture space
9. Balcony access to first floor
10. Resource point
11. Informal seating
12. Flexible acoustic glass partitions for teaching spaces
13. Flexible teaching spaces
14. Void in atrium space



4.0 SCHEME/DESIGN

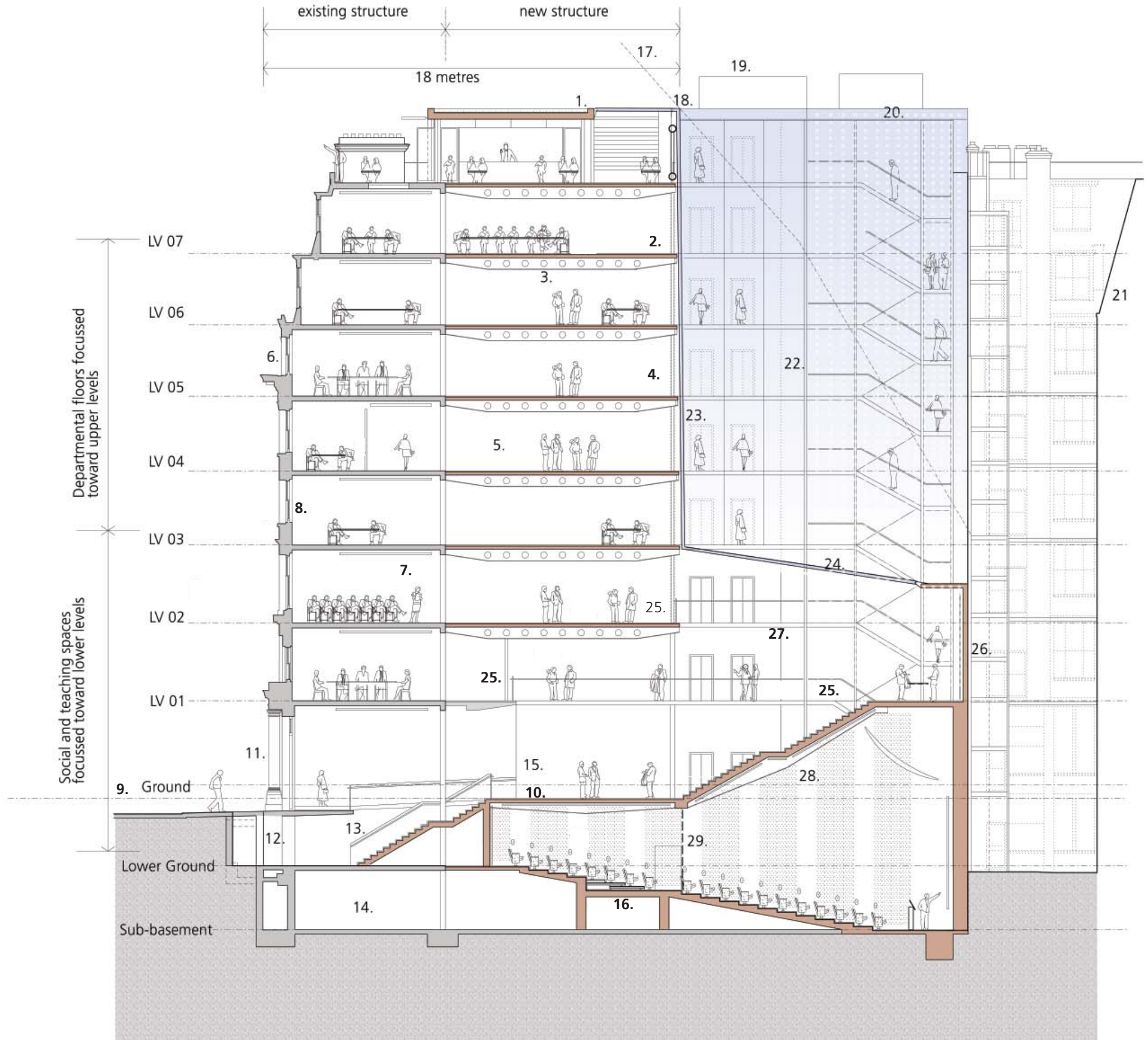
Second

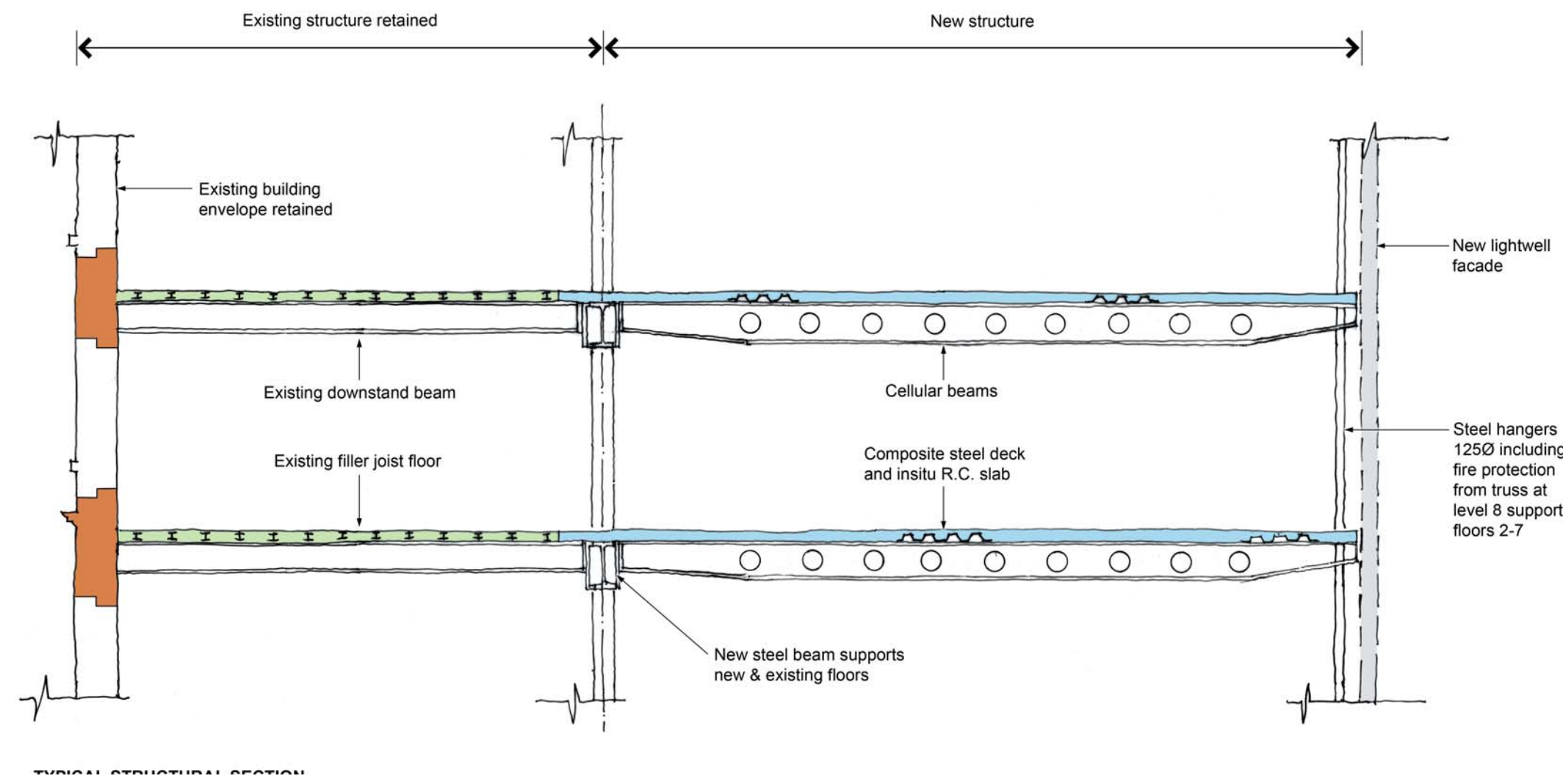
1. Flexible teaching spaces
2. Toilets
3. Fire-fighting lift
4. Main stair
5. Lift Lobby area
6. Informal seating area
7. Void to atrium space
8. Library/ touchdown work area/ central study/ resource centre



Section

1. Grass roof to roof pavilion
2. Floors with glazed cell inserts to maximise daylight penetration
3. Castellated beams allow services to run through and link with entire floor
4. Circulation and informal spaces focused around light well
5. 18m wide floor plates maximise flexibility
6. Existing windows replaced with double-glazed Sash window - generally openable at upper floors
7. Multifunctional space with operable walls and very few columns allowing multiple configuration
8. Existing structure and facades retained
9. Existing street trees retained
10. Ground floor partially lowered to enable smooth access from street level
11. Sardinia Street entry with shallow gradient Walkway, street and ground levels
12. Daylight washes down backdrop wall
13. Expansive stair connects ground and lower ground spaces
14. Plant and services to sub-basement
15. Central internal street with double height space connects Kingsway and Lincoln's Inn Fields to the central atrium and entry from Sardinia Street
16. Retractable rows with demountable seating
17. Original rights of light envelope
18. Levels 2-8 suspended from truss
19. Lift core beyond
20. Translucent glazed accommodation and fire stair to increase reflection of daylight to lower levels
21. Line of Adjacent building
22. Clear glazed facade to lift landings
23. Facade also hung from truss at high level and folded to form glazed roof. Cable net system possibly using spinlock system developed by Grimshaw Industrial Design
24. Glazed atrium roof
25. Open galleries - level 1 directly accessible from atrium
26. Cafe to top of amphitheatre with backlit super-graphic screen to anchor cafe
27. Triple-height atrium space with terraced seating provides orientation, activation, and visual connection
28. Lecture theatre 'presses' upwards upon ground plane, forming terraced amphitheatre
29. Lecture theatre can be divided into two spaces via operable wall (stacks into acoustic panelled wall beyond)





4.6 STRUCTURAL SOLUTION

The concept design has sought to address a number of key issues with the existing building including:

- The large number of internal columns that severely limit the flexibility of the floor plate
- The inadequate lift and stair provision
- The corrosion problems evident within the structural framing, particularly in the courtyard as evidenced by the cracked, glazed brickwork
- The requirement for a 250-seat lecture theatre with a desire to increase this to 400 seats

Retaining the existing structure in its entirety places severe restrictions on the use and flexibility of the spaces within the existing building and could work against the desired impression of a progressive and vibrant, interactive academic body as well.

The team considered a range of options from partial demolition, facade retention and total demolition and redevelopment. However, it was felt that the Local Authority would not consider a new building on the site to be beneficial to the conservation area and, if attempted, would have a protracted planning period. A full facade retention provided little overall benefit, so the adopted solution retains the external façade and external bay of floor structure, which equates to approximately two thirds of the existing floor area.

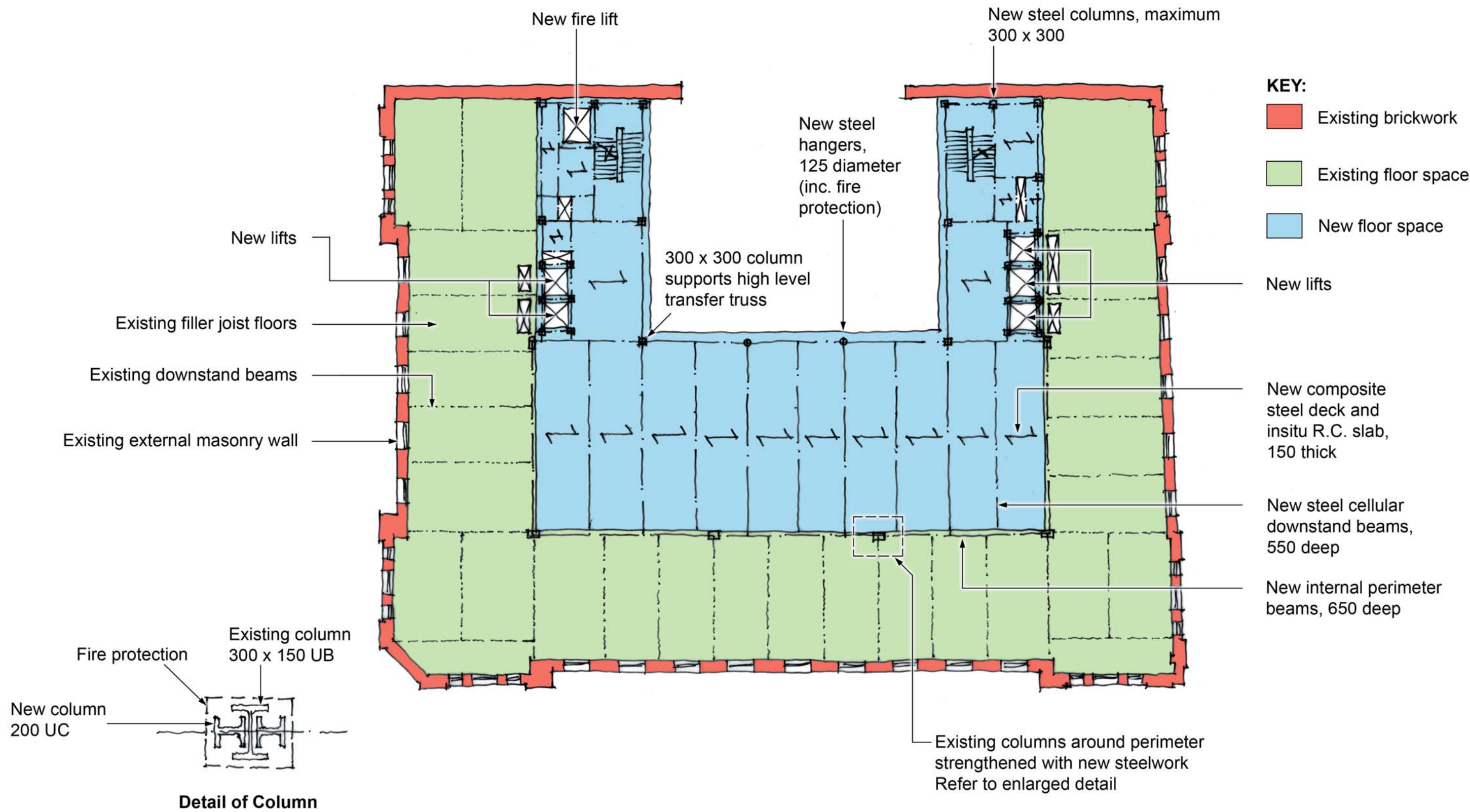
This structural strategy achieves:

- The removal of the existing columns to enable multiple configurations
- The removal of inboard, double loaded corridors, replaced with a primary circulation zone
- The insertion of an efficient new structure

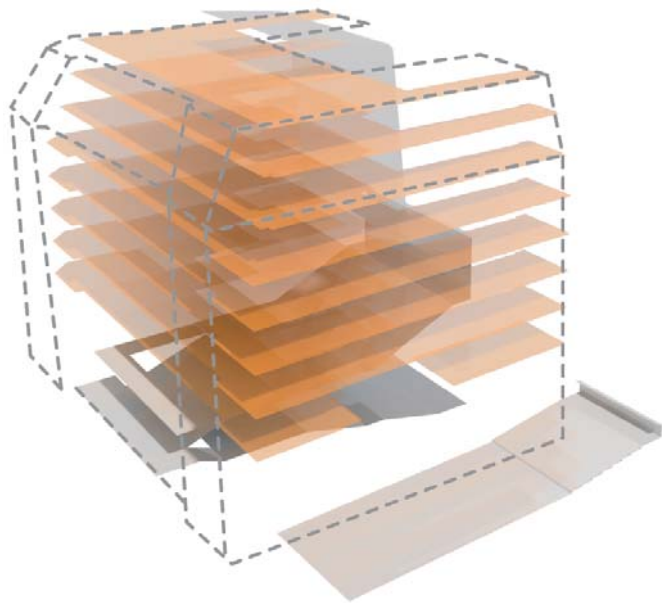
- A flexible 18m wide floor plate with virtually column free space, (refer also DEGW studies)
- An increase in floor area
- Sufficient space for the 250 seat lecture theatre to be upgraded to a 400 seat lecture theatre
- New cores appropriate to the needs of LSE and current building requirements, including new lifts, stairs, and amenities
- The widening of the new light well
- Modern construction with daylight maximised
- Cost Efficiencies by overlapping the location of the insertion of new works with existing works which would otherwise require remediation or replacement. This includes upgrading the existing stair, constructing new lifts, upgrading or relocating the existing amenities, and addressing the partially corroded perimeter columns to the light well.

The new 18m wide flexible floor space along the south block extends over the lecture theatre at lower-ground level, so the floor plates are hung from a storey-deep transfer structure at roof level.

The existing structural line of internal columns that have been retained are generally at approximately three-metre centres. Where feasible each these will be retained, but it is proposed that a number of these are removed in order to provide more flexible space to allow a variety of academic and office uses. The proposed structural solution balances flexibility with structural efficiency and cost.



TYPICAL STRUCTURAL FLOOR PLAN

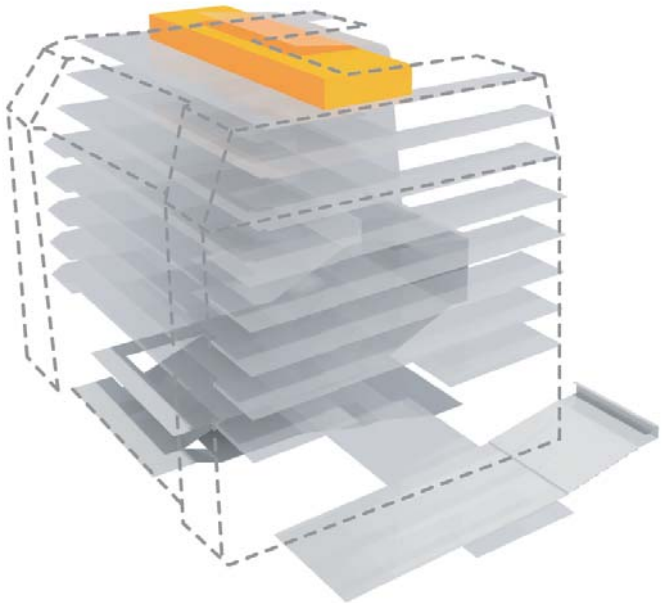


4.7 UPPER LEVEL

The strategy of removing the inner bay of structure from the building whilst retaining the outer bay, allowed the team to determine the most flexible floor footprint for the LSE. The increase in floor plan to an 18m plate with very few columns has maximized plan efficiency and is able of being configured in any number of ways. This will ensure that now and into the future the flexibility required of the New Academic Building is provided.

Within the proposed scheme, teaching spaces gravitate towards the lower half of the building with departmental spaces focused on the upper floors. This is a strategic response to managing population flows within the building and a sense that some degree of buffer may be desirable between these levels. However, the flexibility of the floors will accommodate different approaches should they arise.

A key to legibility within the building is the repetition of the internal street running between the two cores. This space provides for a socially interactive and informal space to be defined and allows this to shift progressively through privileged spaces to more private space.



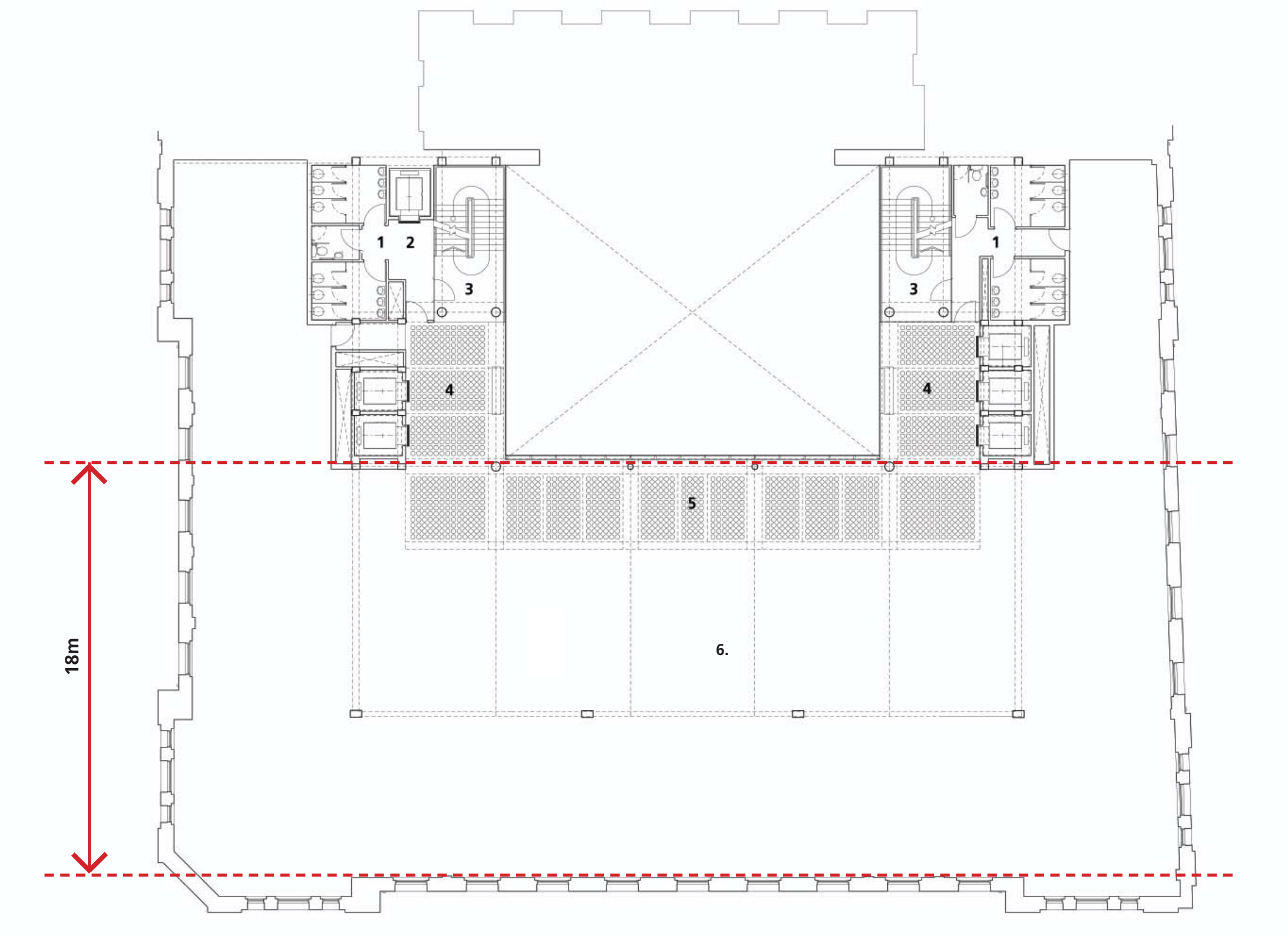
4.8 ROOF PAVILION

The roof pavilion is orientated East- West with outdoor terraces harnessing views to Sardinia Street and Lincoln's Inn Fields. The internal volume is capable of being divided up into a number of function spaces or can operate as a single large venue. The pavilion is an outward looking space, wrapped in a glass skin, and with a grass-planted roof.



OPEN FLOOR PLATE BEFORE FITOUT

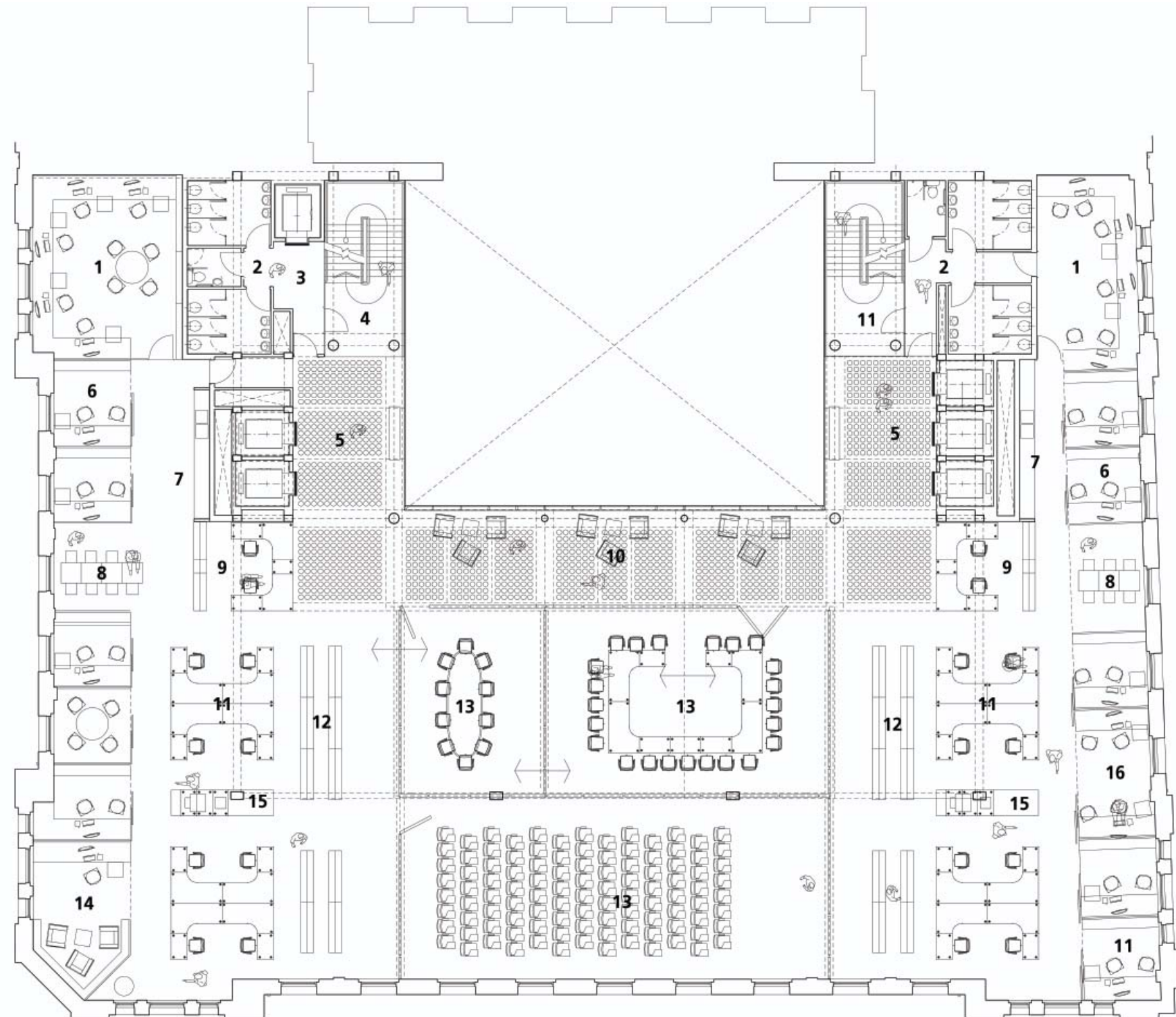
- 1. Toilets
- 2. Fire-fighting lift
- 3. Main stair
- 4. Lift lobby
- 5. Circulation / informal space zone
- 6. Open floor plate



4.0 SCHEME/DESIGN

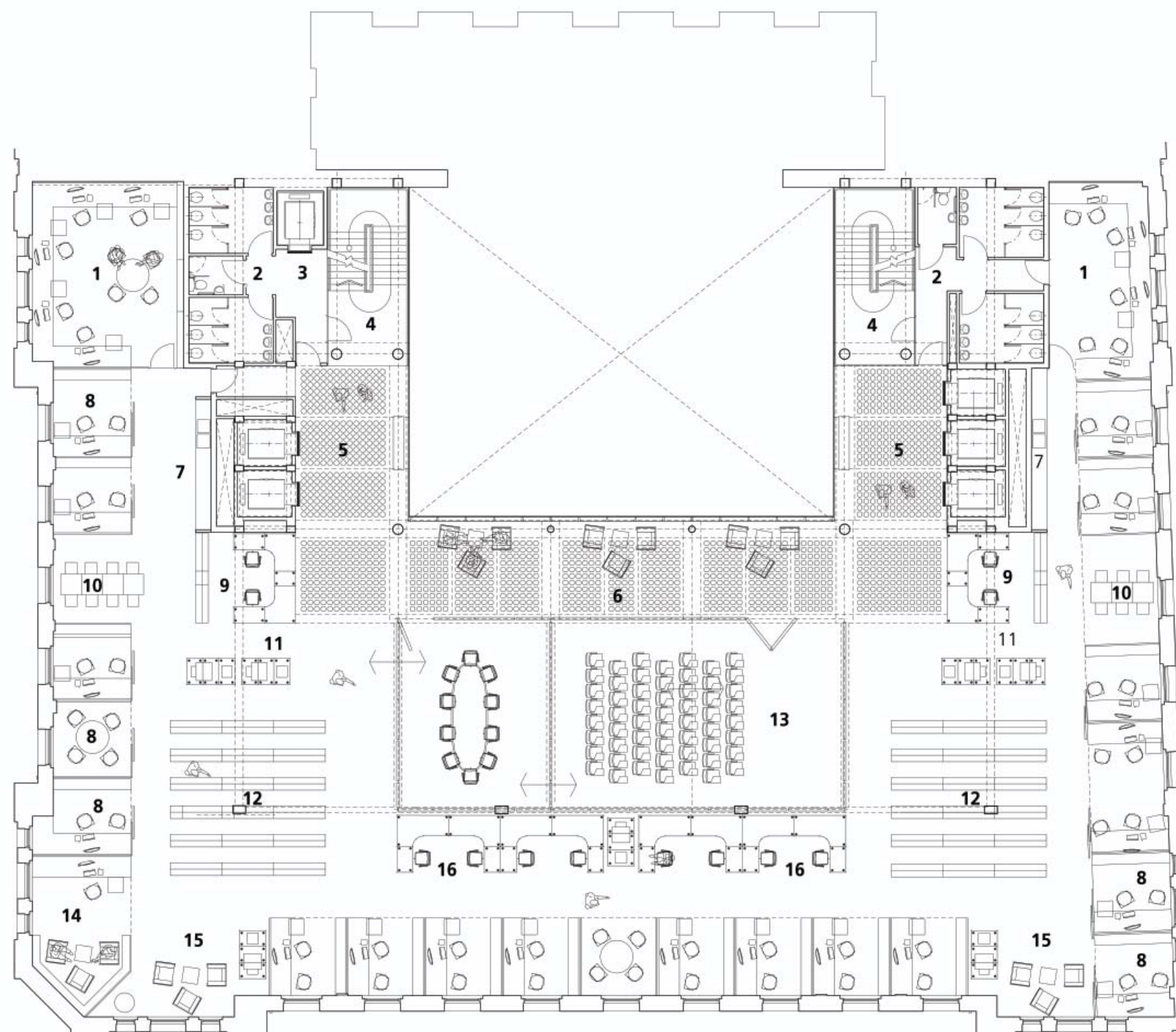
Third

1. Shared office areas academic/ study or admin
2. Toilets
3. Fire-fighting lift
4. Main stair
5. Lift lobby
6. Academic/ administrative offices/ meeting rooms
7. Kitchen
8. Informal meeting space
9. Reception/ control point
10. Informal seating area
11. Open plan workstations
12. Open storage
13. Flexible teaching spaces with acoustic partition system
14. Academic space/ professor
15. Resource point
16. Shared office areas academic/ study



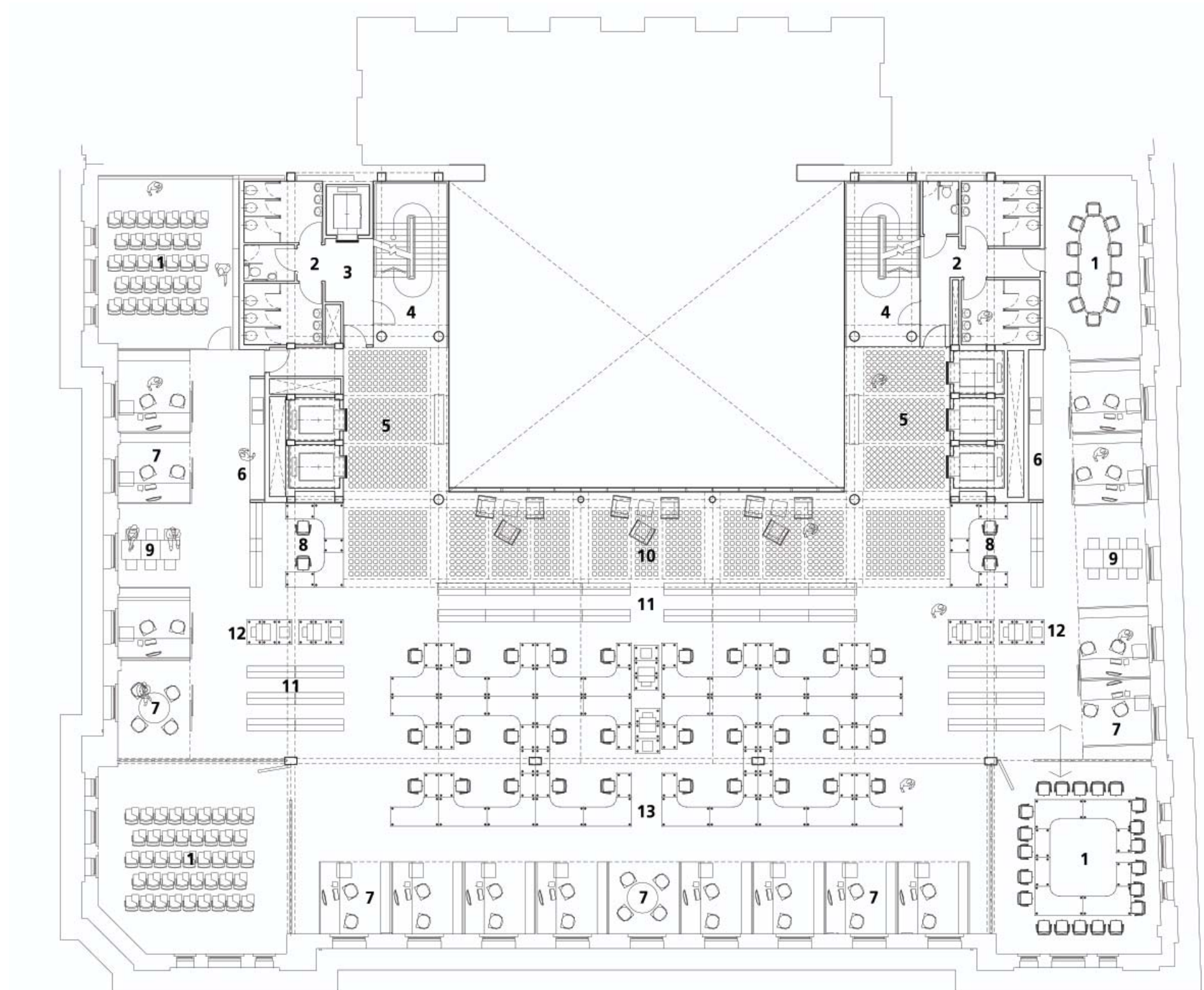
Fourth

1. Shared office areas academic/ study or admin
2. Toilets
3. Fire-fighting lift
4. Main stair
5. Lift lobby
6. Informal meeting space
7. Kitchen
8. Academic/ administrative offices/ meeting rooms
9. Reception/ control point
10. Informal seating area
11. Resource point
12. Open storage
13. Flexible teaching spaces with acoustic partition system
14. Academic space/ professor
15. Informal seating area
16. Open plan workstations



Fifth

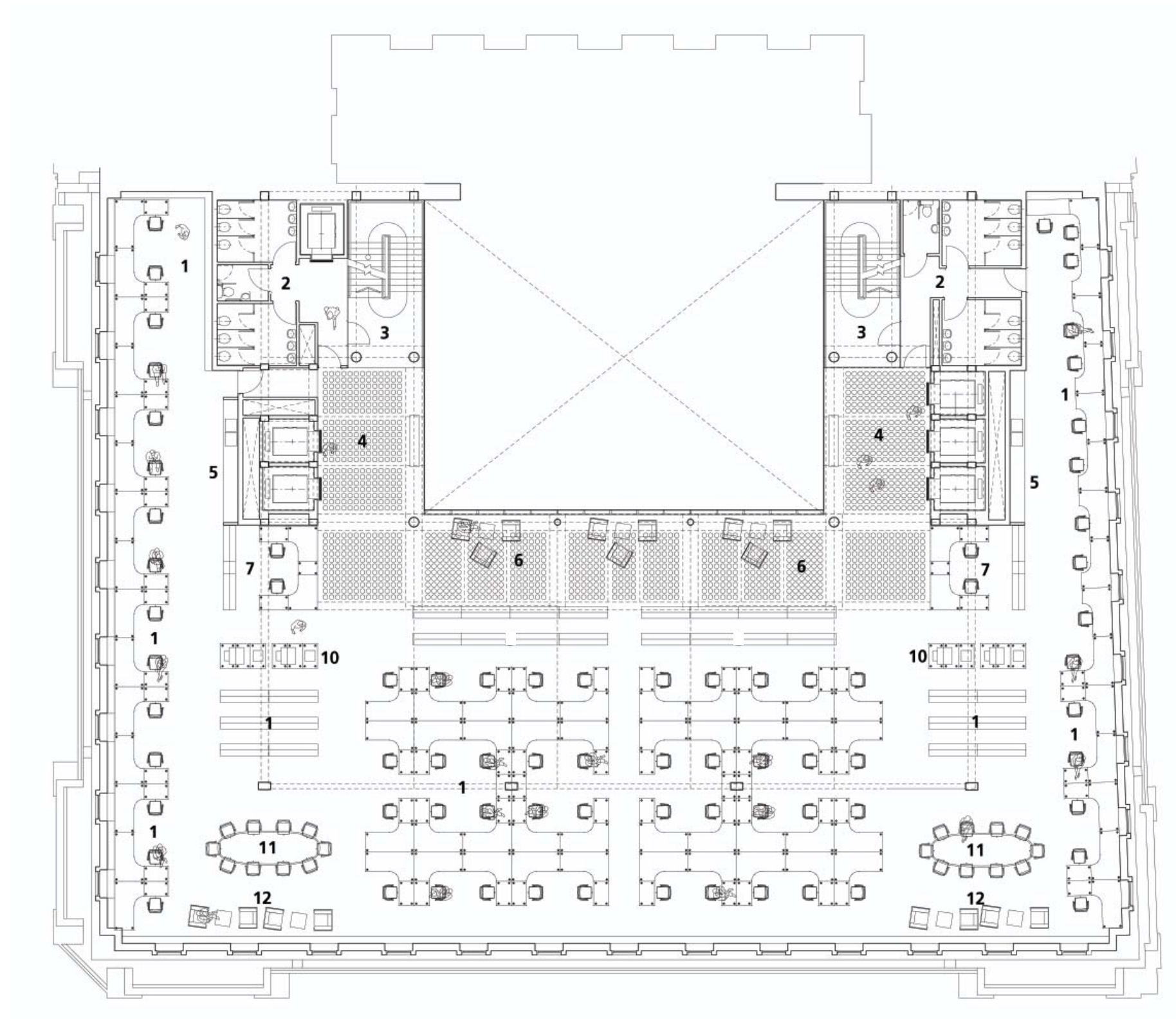
1. Teaching/ meeting spaces
2. Toilets
3. Fire-fighting lift
4. Main stair
5. Lift lobby
6. Kitchen
7. Academic/ administrative offices/ meeting rooms
8. Reception/ control point
9. Informal meeting space
10. Informal seating
11. Open storage
12. Resource point
13. Open plan workstations



4.0 SCHEME/DESIGN

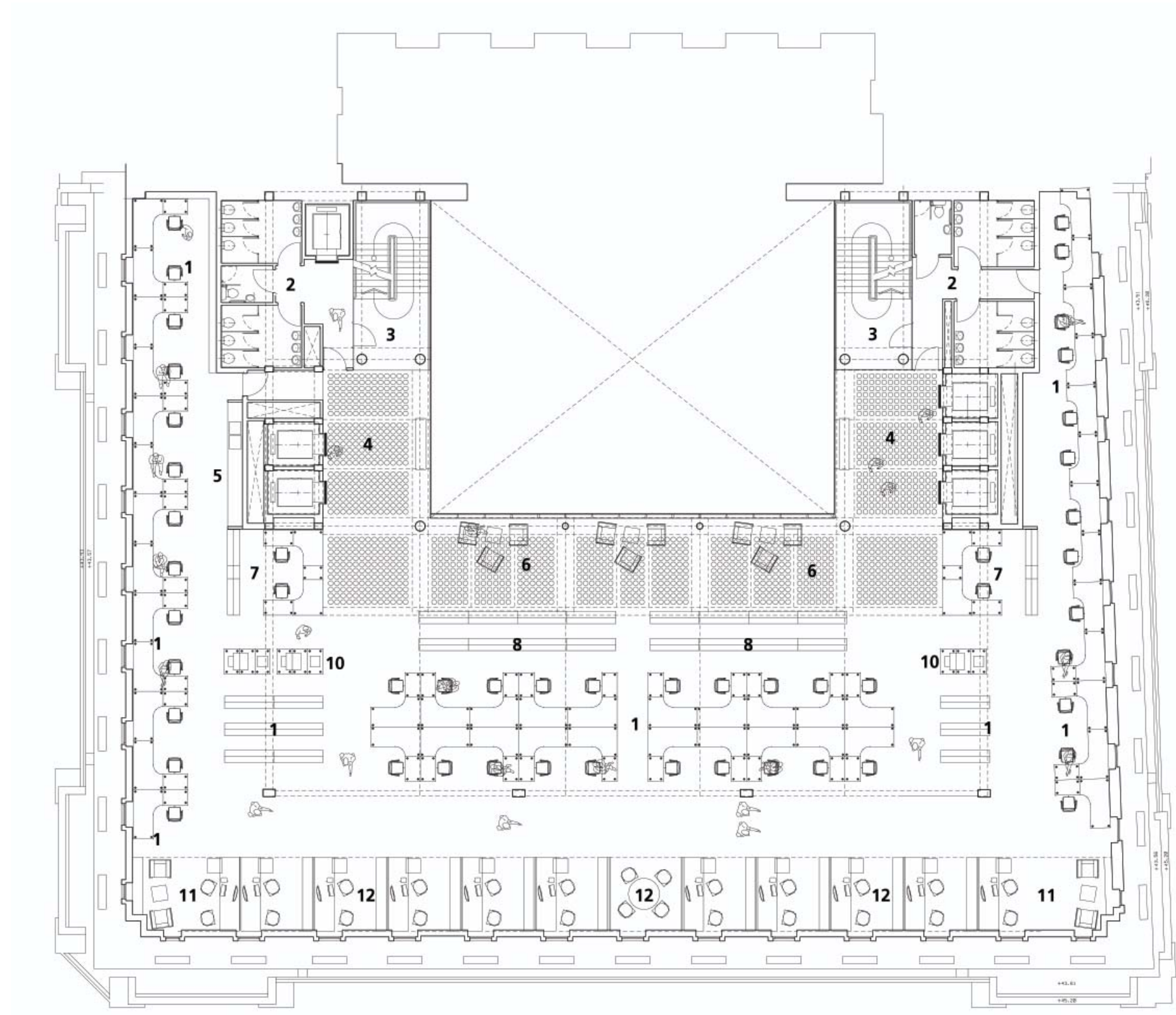
Sixth

1. Open plan workstations
2. Toilets
3. Main Stair
4. Lift lobby
5. Kitchen
6. Informal seating area
7. Reception/ control point
8. Open storage
9. Open plan workstations
10. Resource point
11. Informal meeting rooms
12. Informal seating area



Seven

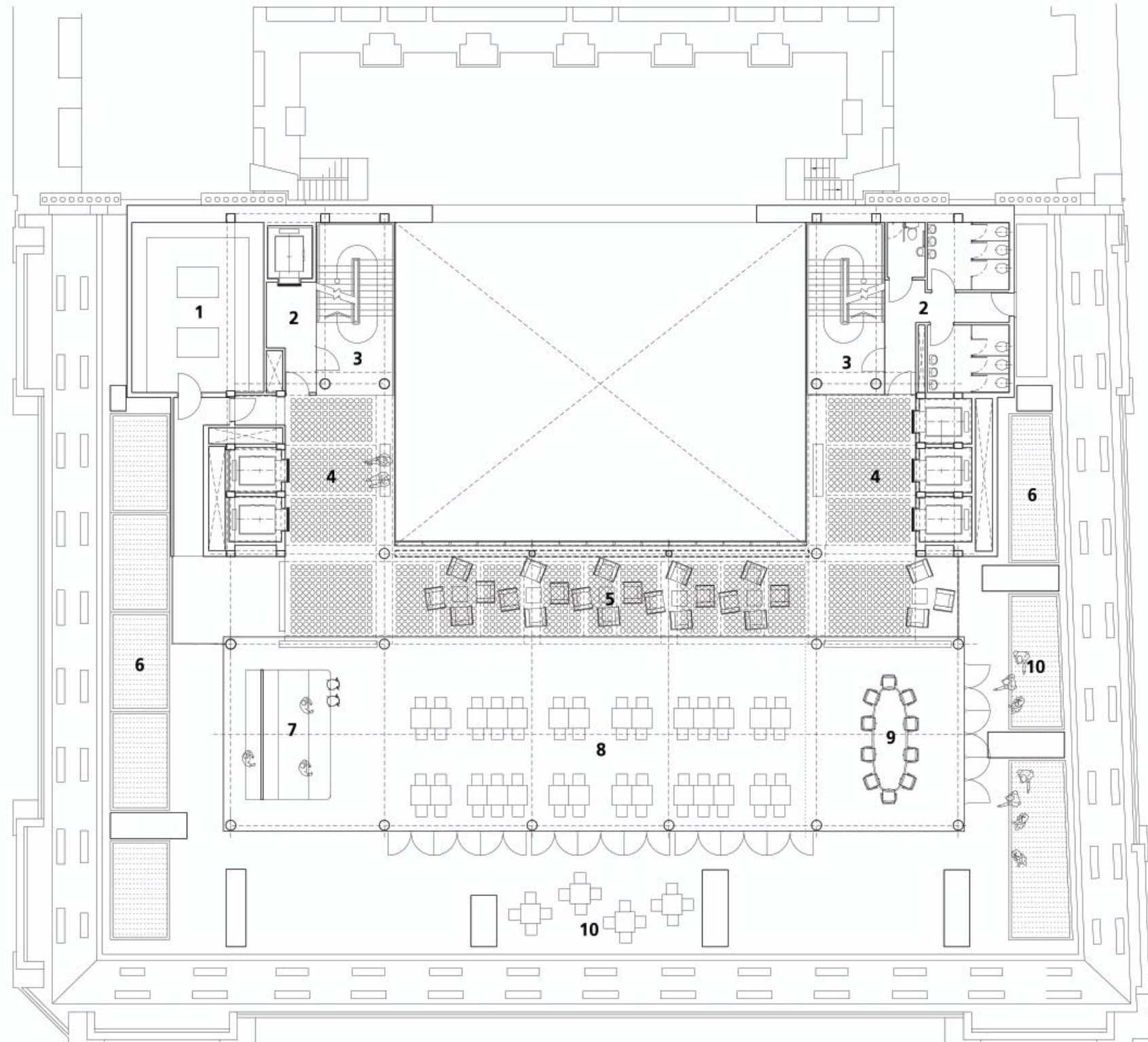
1. Open plan workstations
2. Toilets
3. Main Stair
4. Lift lobby
5. Kitchen
6. Informal seating area
7. Reception/ control point
8. Open storage
9. Open plan workstations
10. Resource point
11. Informal meeting area
12. Informal seating area



4.0 SCHEME/DESIGN

Eight

1. Restaurant kitchen
2. Fire-fighting lift
3. Main stair
4. Lift lobby
5. Informal seating
6. Trafficable roof lights to spaces below
7. Bar/ service point
8. Main restaurant area
9. Private dining
10. Outdoor terrace dining



Elevations



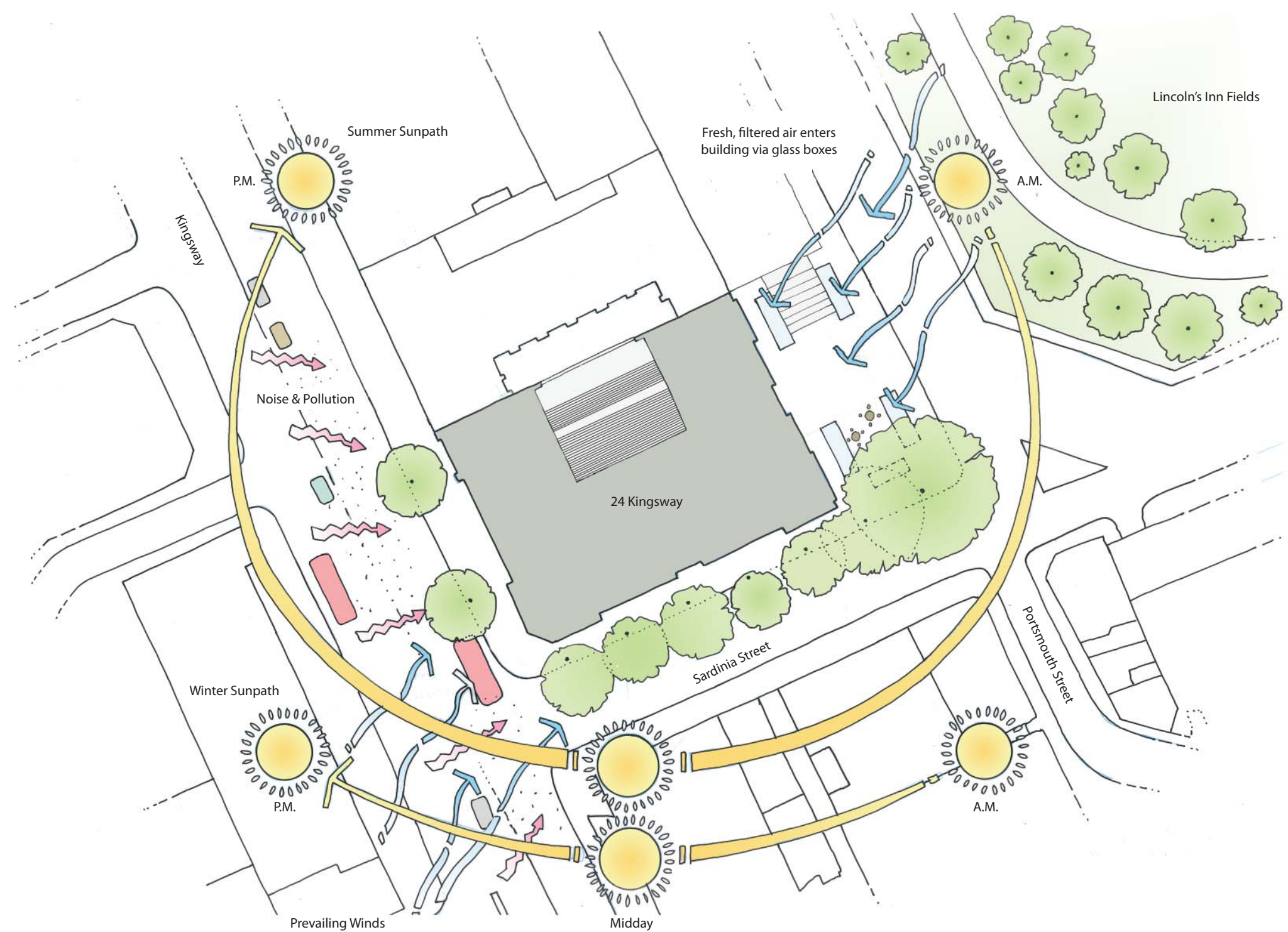
LSE comp - Brief Space Requirements - 090205																						
		brief			comp design																	
Category		Space Type	Area m2	No. rooms	Total Area	Area m2	No. rooms	Total Area		b	lg	g	public	student	social	student study	academic	academic	academic	academic	academic	club
Departmental Space	d1	Professor	20.25	[40]	[812.5]	20.25	[40]	[812.5]									8	8	8	8	8	
	d2	Lecturer	13.5	[60]	[812.5]	13.5	[60]	[812.5]									12	12	12	12	12	
	d3	Researcher	9	[90]	[812.5]	9	[90]	[812.5]									18	18	18	18	18	
	d4	Clerical/ technical	6.75	[120]	[812.5]	6.75	[120]	[812.5]									24	24	24	24	24	
					3250			3250														
Study Areas/ common rooms	s1	Phd study	30	8	240	30	8	240									2	2	2	2		
	s2	M Sc study	30	1	30	30	1	30								1						
	s3	Informal Group	45	2	90	45	2	90						1	1							
	s4	Library	25	1	25	25	1	25							1							
	s5	Common Room	45	2	90	45	2	90			1			1								
				475			475															
Teaching Rooms	t1	400 Lecture raked	[440]	1	[440]	380	1	380				1										
	t2	150 Lecture raked [156]	165	2	330	[186+ 140]	2	326				2										
	t3	100 Class flat	110	1	110	110	1	110				1										
	t4	75 Class flat	82.5	5	412.5	82.5	5	412.5									1	1	1	1	1	
	t5	50 Class flat	55	20	1100	55	20	1100							5	5	2	2	2	2	2	
	t6	20 Class flat-desks-meeting	60	15	900	60	15	900							5	5	1	1	1	1	1	
				2852.5			3228.5															
Common/ ancillary areas	c1	student information	5	2	10	5	2	10				1	1									
	c2	breakout/ lobby	250	1	250	266	1	266				1										
	c3	locker rooms	200	2	400	80	3	240				1		2								
	c4	computer room	45	2	90	258	1	258		1												
	c5	kitchen	75	1	75	75	1	75													1	
	c6	touchdown work area	150	1	150	150	1	150								1						
	c7a	café	150	1	150	150	1	150					1									
	c7b	coffee shop/ ground fl				149	1	149					1									
	c7c	restaurant/ club				322	1	322													1	
	c7d	restaurant/ terrace				271	1	271													1	
	c7e	restaurant/ kitchen				40	1	40													1	
	c7f	forecourt/ ext café area				268	1	268					1									
	c8	medical-centre/ retail	280	1	280	217	1	217				1										
	c9	copy areas/ tea points	14	4	56	14	6	84							1	1	1	1	1	1	1	
c10	goods in / storage	45	1	45	45	1	60		1													
c11	furniture storage	45	1	45	45	2	60		1													
c12	atrium informal meeting space				300	1	300															
				1551			2920															
Plant	p1a	plant	100	1	100	100[+250]	1	350		1												
	p1b	misc roof plant				40	1	40													1	
Misc	m1	cores				81	20	1620		2	2	2	2	2	2	2	2	2	2	2	2	
					8228.5			11843.5														



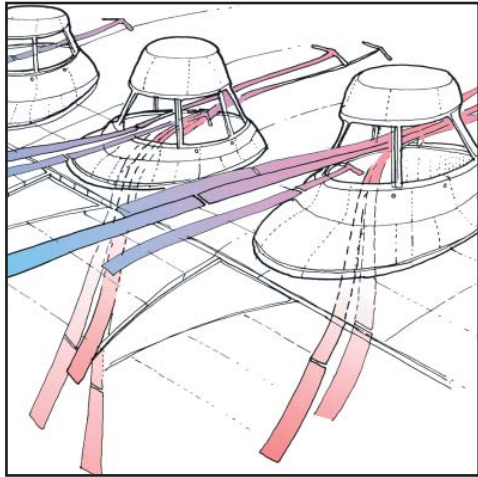
4.0 SCHEME/DESIGN
4.10 SUSTAINABILITY

Sustainable design has been integral to the development of the concept for the New Academic Building. Opportunities to improve the environmental quality and performance of the design are examined through the design process to arrive at a set of key strategies for the project. The natural ventilation strategy draws fresh air in from Lincoln's Inn Fields. Solar energy is harnessed to provide hot water. Natural daylighting is used to an optimum considering the fabric of the building. Low embodied-energy materials, low energy lighting along with efficient ventilation systems, the exploitation of thermal mass, and good insulation all work to minimise energy consumption. Green roofing and planting are incorporated into the design and rainwater is collected and recycled. Fundamentally, the proposal is an excellent example of the reuse of an existing building rather than demolishing and constructing a new building.

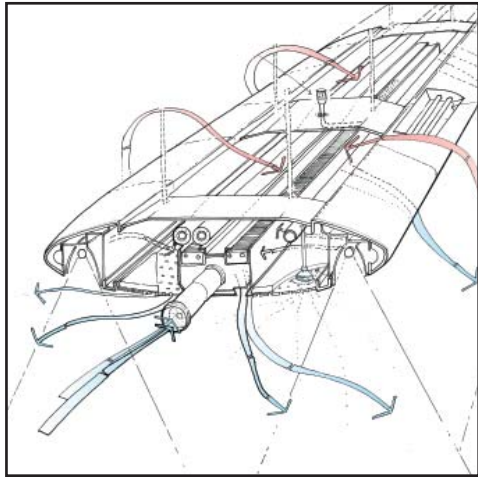
Climatic Site Analysis



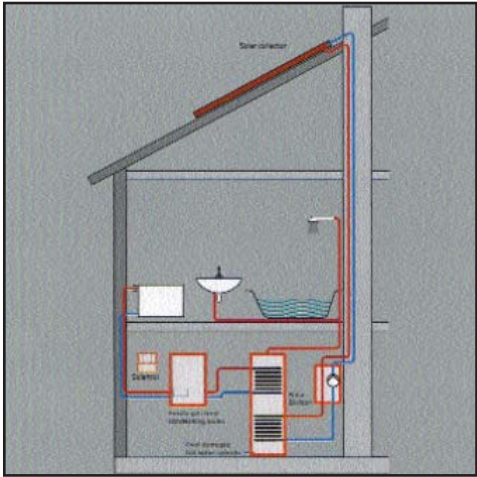
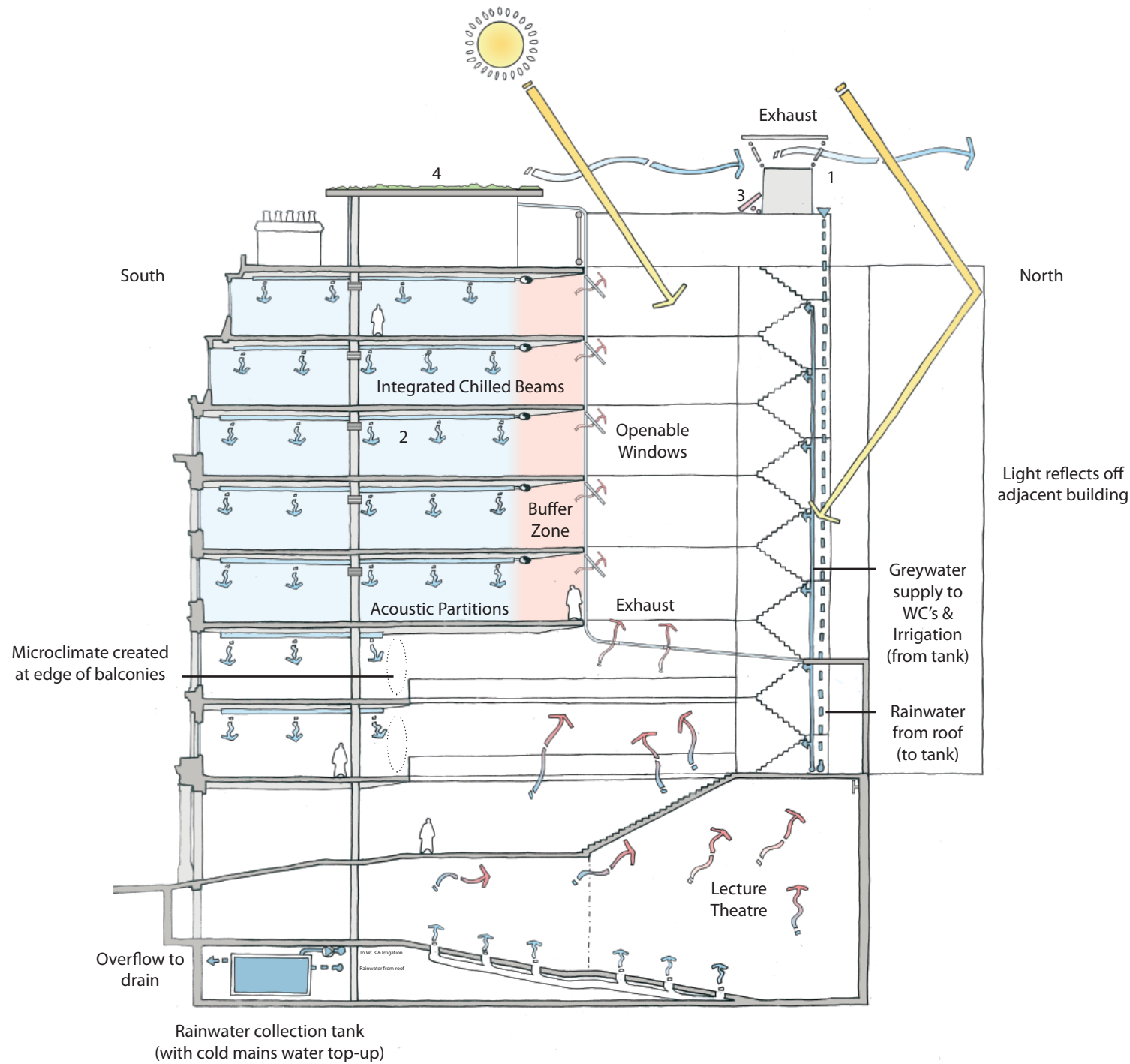
North-South Section



1. Natural Ventilation Heat Recovery & Free Cooling



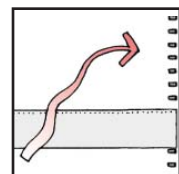
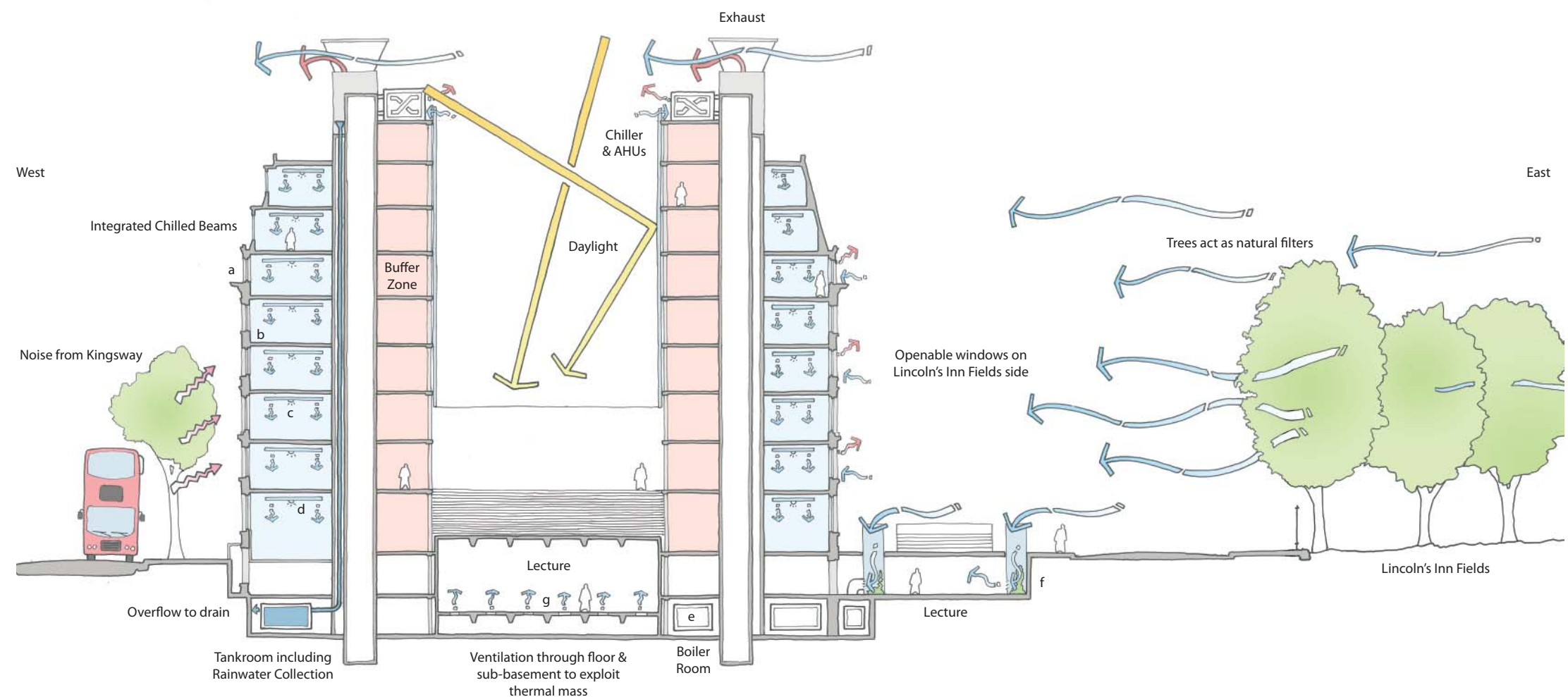
2. Integrated Chilled Beam



3. Solar Water Heating



4. SEDUM "Green Roof"



a. Reduced Air Leakage



b. Super Insulation



c. Photocell & PIR Sensor: Daylight/ Occupancy activated lighting



d. Energy Efficient Lighting



e. CHP combined with high-efficiency boilers

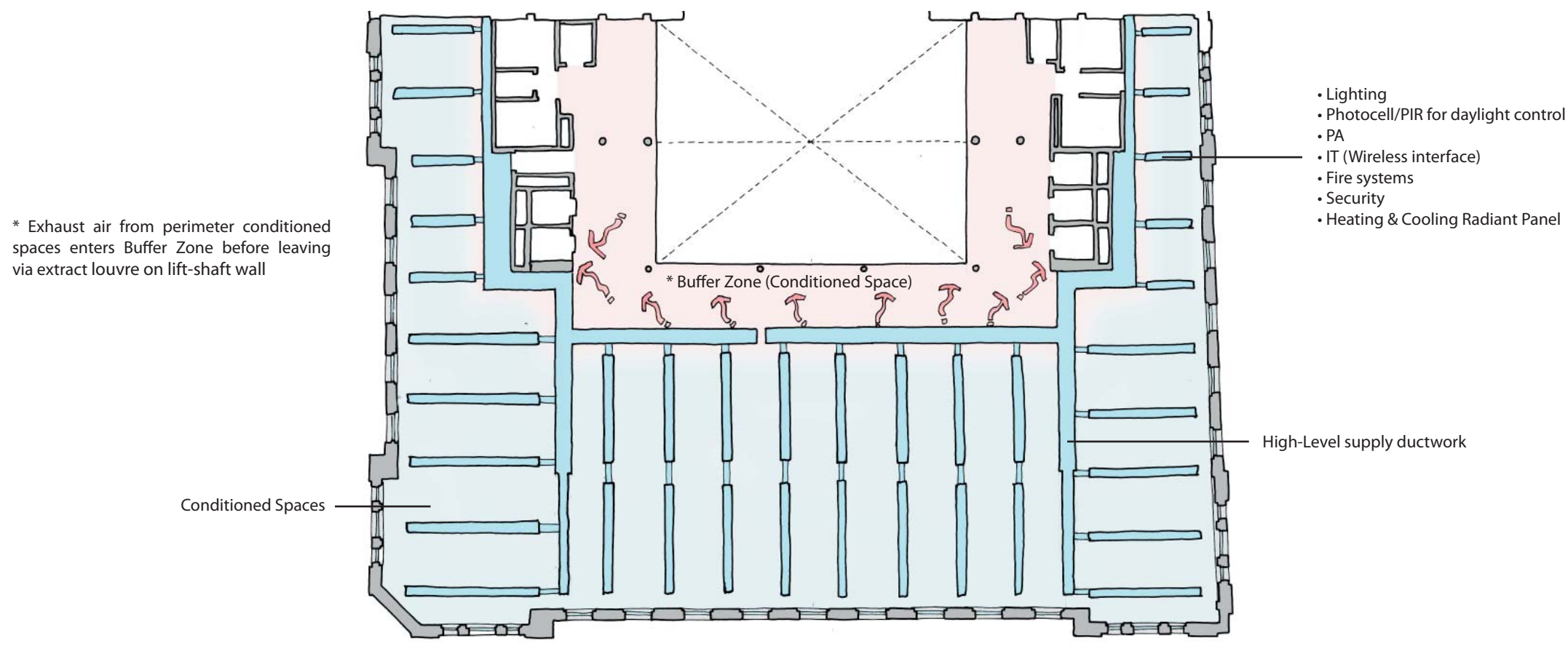
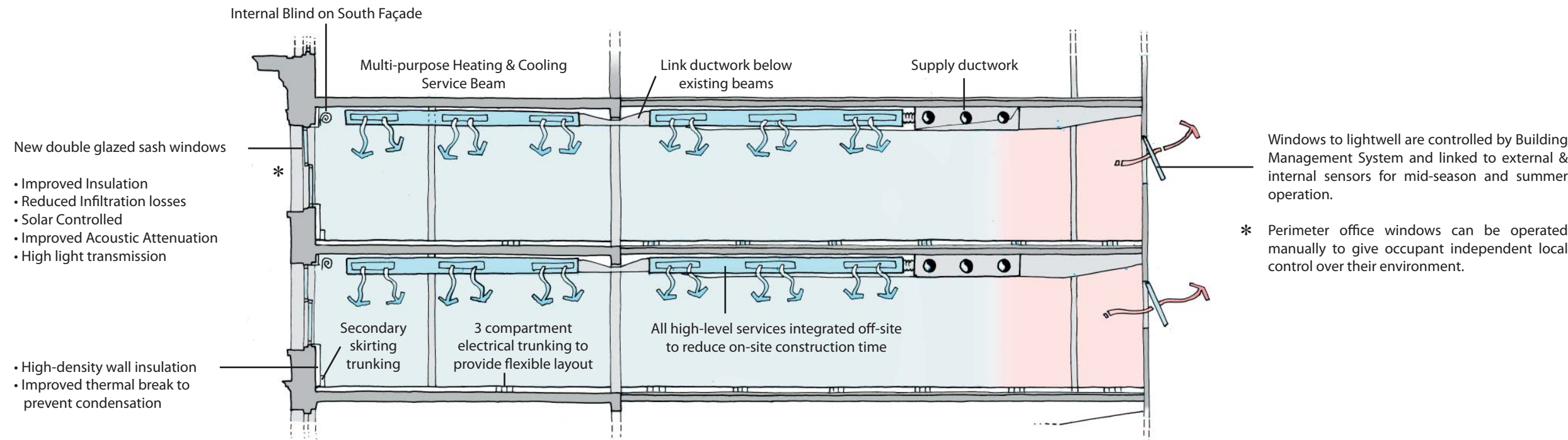


f. Nature's air scrubbers/Planting



g. Floor Diffuser

Plan & Section



5.0 BASE SCHEME

The base scheme strategy is one which much work within the existing fabric of the building in order to meet the indicated budget. This budget is tight and will be dominated by bringing the existing structure into a satisfactory condition.

The investigations into the existing building suggest that the structure is generally robust. However, there are the usual problems in a building of this age and type of corrosion of the steel frame where it is built into the external masonry, with subsequent cracking of the masonry. The normal approach to this problem is to remove the masonry locally, treat the corroding steel with a high quality paint system and reinstate the masonry. Repairs of this type will be needed on an ongoing basis.

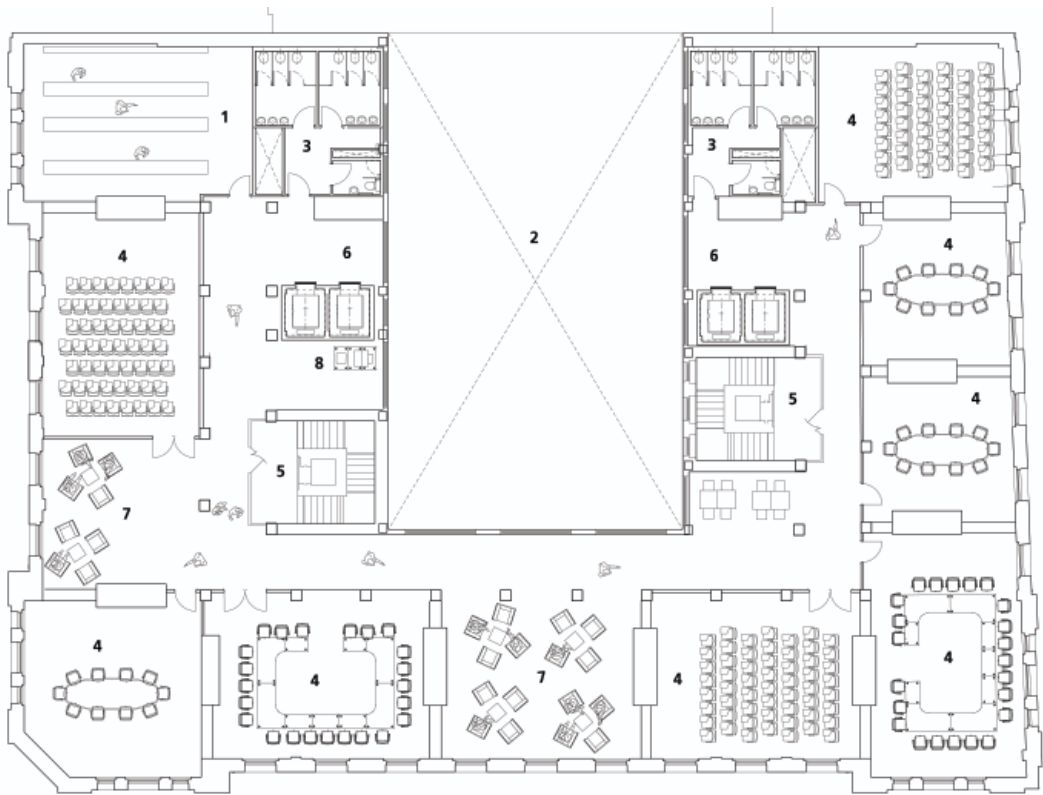
A steel-framed building of this age and type would have been constructed as an independent steel frame. The external masonry, internal walls and chimney stacks would then have been built around the steel frame. This means that it should be feasible to extract the chimney stacks where required.

The existing stairs and lift shafts are unsuitable for the proposed uses of the building. However, it is relatively straightforward to insert new vertical circulation provided the locations of the existing columns are generally retained.

The building should be suitable for the proposed academic use provided that the existing columns do not overly constrain the layout. A lecture theatre of approximately 250 seats can be installed at lower ground floor level within the existing light well. Any new services will also have to work within the structural constraints.

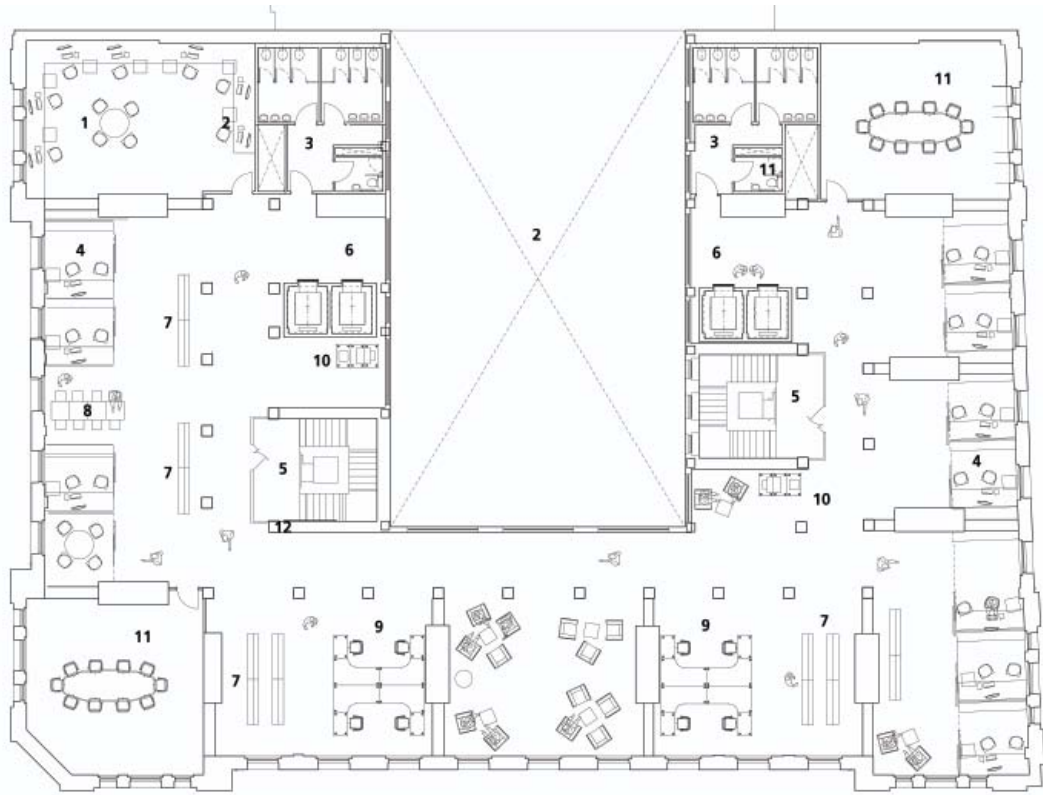
A solution can be produced to meet the needs of the LSE which would basically consist of the following key strategies:

- Existing windows removed and replaced with double glazing – multipanel to match existing and openable sash options subject to budget
- Existing services removed and replaced
- Existing envelope remediated only where necessary*
- It must be considered whether it is better to attend to any remaining masonry to the light well elevations now rather than some form of intervention later. Of all the options, over cladding would probably be the best course given the parallel replacement of windows.
- New stairs inserted into existing stair locations and lobbied to provide for fire escape
- New lifts – existing lifts are considered beyond service life. 4 no. lifts including 1 no. fire fighting lift and 1 no. shared goods lift would be a minimum for the building. A 6no. lifting strategy would be much better fit for the LSE.
- New, larger amenities to relocated to replace existing and provide for disabled access
- 250 seat lecture theatre inserted in to base of light well – potentially retaining similar amphitheatre treatment
- Glazed atrium roof at low level
- Forecourt - insertion of lecture theatres and classroom beneath forecourt with cranked and stepped forecourt amphitheatre retained – avoids excavation. Glass boxes replaced with select luxcrete or similar paving panels to maintain daylighting.
- Existing structure largely maintained including perimeter and inboard columns
- Entries retained in similar arrangement apart from provision for disabled access – note lower ground would not be able to be lowered.
- New shop front to Kingsway at north west corner



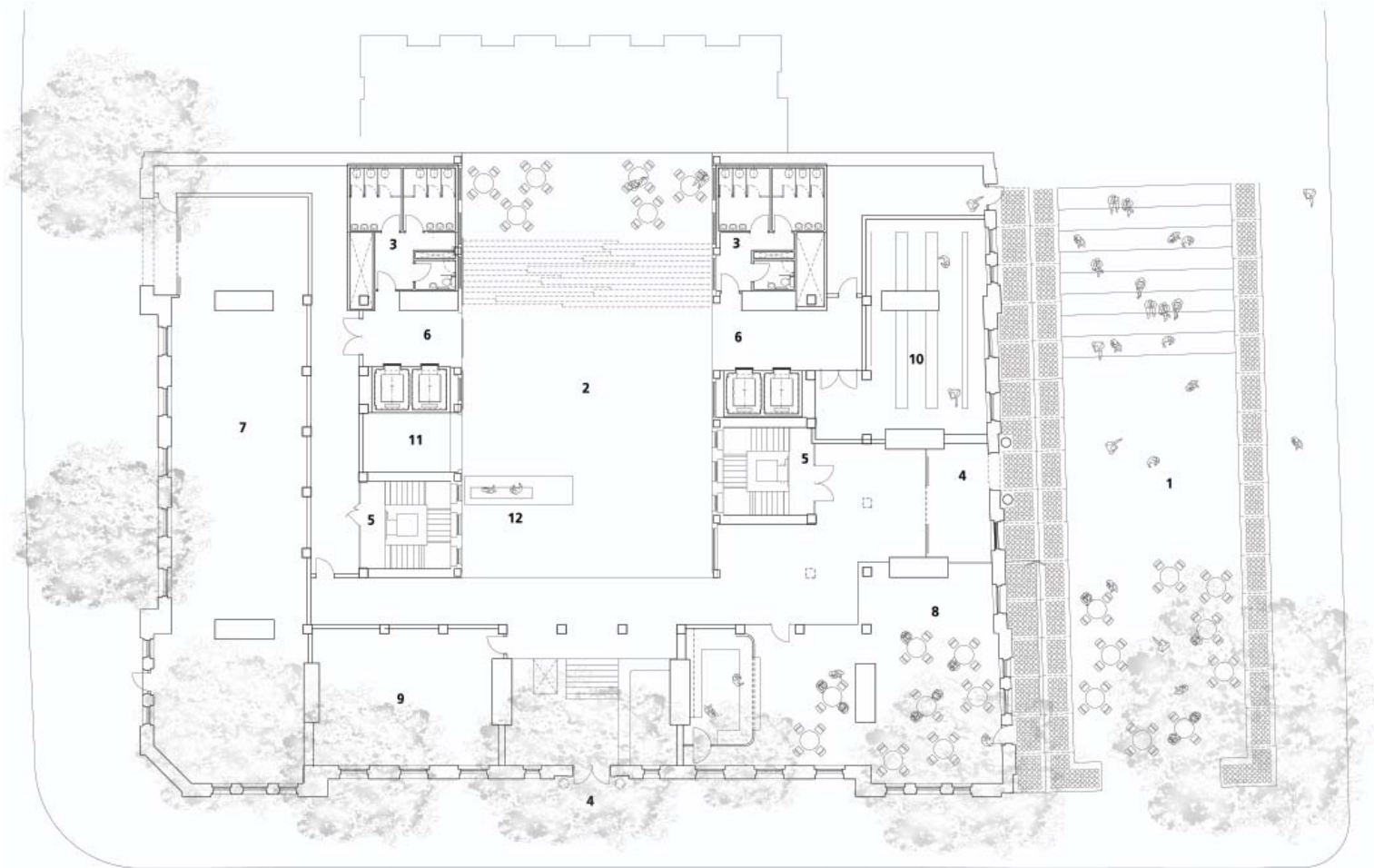
Base scheme: teaching levels

1. Locker room
2. Atrium/ lightwell
3. Toilets
4. Teaching space
5. Main stair
6. Lift lobby
7. Informal seating area
8. Resource point



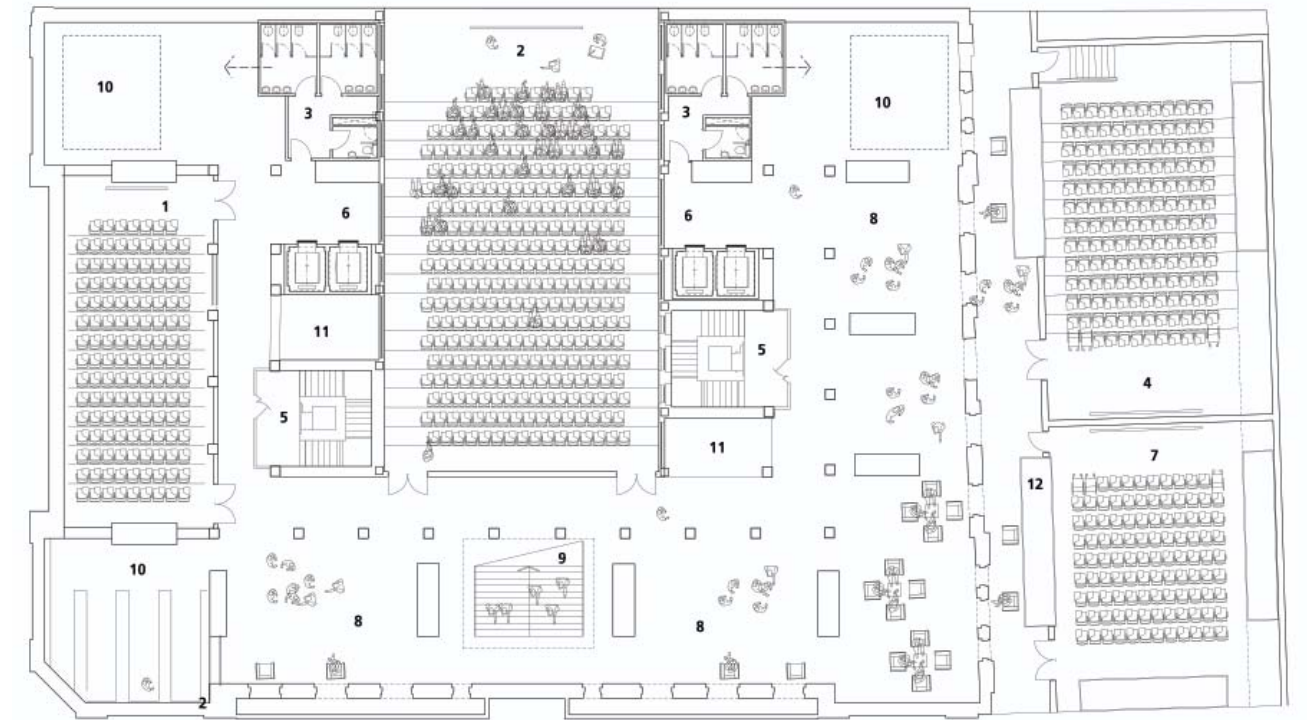
Base scheme: departmental levels

1. Shared workspace
2. Atrium light well
3. Toilets
4. Academic/ administrative offices/ meeting rooms
5. Main Stair
6. Lift lobby
7. Open storage
8. Informal meeting area
9. Open plan resource center
10. Resource point
11. Meeting rooms



Base scheme: ground floor

1. Forecourt
2. Atrium space – potential stepped terrace/ café area
3. Toilets
4. Entry
5. Main stairs
6. Lift lobby
7. Retail/ possibly two stores
8. Café
9. Locker room / goods in
10. Locker room
11. Cloak room
12. Information point



Base scheme: lower ground floor

1. 140-150 seat raked lecture theatre
2. 250- 300 seat raked lecture theatre
3. Toilets – capable of being expanded
4. 150 seat raked lecture theatre
5. Main stair
6. Lift lobby
7. 100 seat classroom
8. Function space
9. Stair to ground floor
10. Possible locker room location
11. Cloak room

6.0 THE TEAM

6.1 ARCHITECT

GRIMSHAW

CONCEPT AND IDENTITY

Grimshaw's international reputation has grown from our innovative approach to design. Our work is developed from first principles: there is no imposition of a predetermined house style. Every scheme is unique and each design is tailored to the specific needs of the site. This avoidance of a formulaic approach is evident in the wide range of building types we design, the materials we use and the forms that the buildings take.

With a broad portfolio of buildings, Grimshaw have the benefit of being able to draw from our extensive knowledge of the various sectors: educational buildings will incorporate office areas and laboratories may resemble spaces more common to industrial buildings. Where requirements are more particular, we collaborate with specialist firms to establish an appropriate design solution.

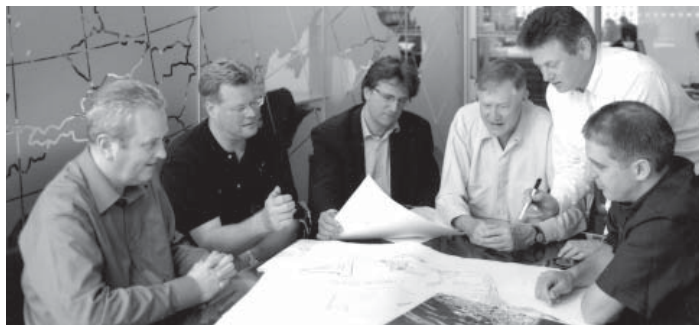
TEAMWORK & COLLABORATION

Grimshaw recognises that teamwork is the foundation of the design process. The key to a successful building project is to assemble a team with the requisite skills and personalities. Once in place, this team will manage all the people and processes involved in the realisation of a project.

Grimshaw are able to produce high-profile signature buildings, but we understand that every educational establishment has different priorities and strengths. We work closely with the client to develop a brief that accommodates their specific needs. Often different educational departments will be integrated into one building; there might be various ways a scheme can successfully draw the departments together, so we will provide the client with different options.

FUNDING & PLANNING CONSENT

Grimshaw has a reputation for obtaining planning consent in difficult situations, by working creatively with sensitive sites. Much of our UK work deals with areas of special planning control, includ-



LSE NEW ACADEMIC BUILDING

ing conservation areas, listed buildings and Areas of Outstanding Natural Beauty. We have in-depth experience of consultations and negotiations with a wide range of statutory and advisory bodies including CABE and English Heritage.

Educational buildings, particularly universities, are often located in towns of historic interest. We make use of our strong relationship with the various consulting bodies, combined with our understanding of how to deliver a project that respects a sensitive site, to help secure planning consent.

Given that educational buildings are frequently subject to financial constraints, the client's budgetary restrictions are considered at the outset of a project. We are experienced in handling modest budgets which very often have complex funding arrangements involving government grants and European funding bodies.

PROCUREMENT & DELIVERY

It is not only a strong design aesthetic that makes our buildings successful. Grimshaw provides a complete architectural service: from feasibility studies and planning applications through tendering to construction and inspections on site. Speed of response, flexibility to change resources and swift problem solving are priorities.

The academic year places an additional constraint on any build; institutions are governed by strict cycles, with important curricular demands. Consequently we are driven to complete buildings to a prescribed schedule in advance of the academic year's start so that the educational programme is not compromised.

Alternatively, Grimshaw will build while an the school or university is 'in operation'. In these instances the construction process will be tailored to minimise the impact on the continued use of the facility.

ENGINEERING & FLEXIBILITY

Grimshaw has a long tradition of engineering-led design. We place strong emphasis upon working with engineering consultants to generate integrated structure and services design solutions. Engineers work with our teams from an early stage to assimilate the necessary solutions with the design aesthetic.

Because educational buildings can vary considerably in their usage we try to incorporate a certain amount of flexibility in the internal layout, which can accommodate a building's changing function over time.

Educational buildings and research facilities provide an opportunity for students and scientists to socialise and share ideas. The more opportunities for informal interaction, the more a building is suited to its function and the broader purpose of the institution. Grim-

shaw are aware of these requirements and endeavour to produce architecture that actively contributes to the social achievements of a building.

ENVIRONMENT

Grimshaw is the first major firm of architects to obtain certification to ISO 14001, the international standard for environmental management systems. We believe that our skill and experience places us in a unique position to establish a sustainable built environment. We have developed a system that assists our architects to understand, assess and control the impacts that our projects have on the environment.

PUBLICITY & MEDIA MANAGEMENT

Grimshaw's work on high-profile landmark projects has provided the practice with a good understanding of the importance of publicity and media management throughout the planning application process and during the construction and marketing phases. Our in-house Communications team works with clients to manage publicity.

First-class computer generated images can be produced within the practice so we can respond quickly to design developments. Desktop publishing is also carried out internally, enabling high quality reports and documents to be produced as required.



ALAN BAXTER & ASSOCIATES

Alan Baxter & Associates is in its thirty-first year. The practice has grown steadily over this period and is now recognised as an established consultancy working in the built environment. The core work of the firm is structural engineering design but a wider interest in buildings and cities has led us into other creative areas of work, including conservation consultancy, urban design and masterplanning, and movement engineering.

The Practice

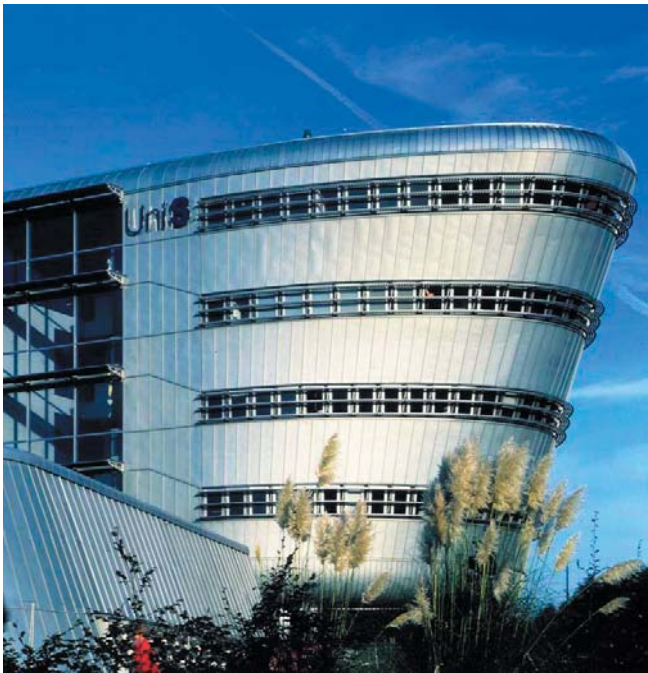
We have a permanent staff of around 150 with a head office in Central London which is wholly owned by the partners and provides a first class working environment. The practice was established in 1974 and is controlled by six partners and 25 associates. At least two of these senior staff are involved in the design and direction of each project. In its thirty years of practice, there have not been any successful claims against the firm – a track record of which we are very proud and this reflects the rigour and care we apply to all of our work.

Holistic Designers

Alan Baxter & Associates is a firm of Consulting Engineers, able to contribute to projects in the built environment on a variety of disciplines. These include: Civil and Structural Engineering of new, existing and historic buildings; Specialist Conservation advice; Transport and Movement Engineering; Place-making and Urban Design. The practice regularly works on significant commissions where a blend of these skills is required and clients benefit from our unique ability to knit them together so that a holistic approach is adopted to design. We have a deep interest in the creation and evolution of first class buildings and places, born out of 30 years of professional practice where we have witnessed the many changes that society, clients and users bring to bear on the built environment. We are very conscious of the indelible mark that designers can leave on towns and cities and as a result, invest heavily in creative design so that the assets that we are involved in creating, serve not only the current user, but also many generations to come.



Our offices



Surrey University EIHMS Building

Existing & Historic Buildings

The firm has earned a reputation as leaders in the field for our work on historic and existing buildings of national importance. This involves us in thinking strategically about how existing buildings and sites should be reused and rejuvenated. It involves us in engineering repairs and appropriate alterations to structures as well as advising on the historical significance of many listed buildings. This work often informs how historic sites can be used in the future. St Paul’s Cathedral, The Tower of London and the Palace of Westminster are amongst the buildings in our care and the Victoria and Albert Museum, Salisbury Cathedral and precinct and St Pancras Chambers have been the subjects of some of our conservation advisory work.

Structural Engineering

On contemporary structures we have wide experience of working with Architects of international repute. Our projects range from the engineering of new housing and commercial buildings through to galleries, theatres, hospitals and educational facilities. Major architectural engineering projects have included new facilities for the RAC around the country including the award winning control centre at Bristol. We have recently completed a major reworking of the Great Eastern Hotel at Liverpool Street Station which has turned it from a rather seedy, down at heel, low grade hotel to a 4 star (plus) contemporary hotel with a number of popular bars and restaurants. The new building for the City University Business School is a state of the art facility which incorporates new ideas and arrangements for highly motivated students all achieved within an elegant and adaptable structural form. At Asprey’s on New Bond Street we have provided a new heart and focal point for the store and at the National Gallery, we are working on a phased project to facilitate access from Trafalgar Square and provide greatly enhanced in situ facilities in the floor below the main gallery level with improved links to the galleries above. Other special projects include the new extension to the Geffrye Museum in Hackney and a new European Institute for Health and Medical Sciences at Surrey University.

The following two projects are directly relevant to the where significant interventions have been made in each building to create modern office buildings.



Asprey & Gerrard



City University Business School

COMPANY INFORMATION

Space Syntax

How do buildings and urban areas ‘function’? What are the key factors in planning and design that can make a positive difference?

For example, how does the network of streets in a city influence peoples’ movement and their interaction?

How does the design of a residential area affect its desirability or the overall safety of the people who live there?

In what ways does the layout of a retail centre influence how people browse and buy, and how is this affected by the location of particular uses?

These are the kind of questions Space Syntax can answer. Our approach is based on analysis and evidence but also requires value judgements and creativity. We have pioneered the use of computer modelling to forecast how different plans and designs will affect the ways in which people will use buildings, streets and open areas. But this is combined with an overview of the whole project that is often not possible for the different parties involved.

We work with public and private sector planners, consultants, developers, architects, engineers and designers to help make sense of their plans and resolve what can sometimes be conflicting requirements.

OUR CONTRIBUTION

Space Syntax provides clear property and design guidance that gives decision-takers greater confidence in the financial surety, economic vitality and social success of urban and complex building projects.

We employ evidence-based techniques to robustly forecast the effects of property and design decisions on social and economic outcomes. These include: pedestrian and vehicular movement flows, crime patterns, rental incomes and land values.

Our approach is based on rigorous academic research and extensive application in a wide range of property and design projects throughout the world. The objective basis of our methodology overcomes the often subjective and risk-laden nature of traditional property and design consulting.

In recent years Space Syntax has worked to:

- **advise** property owners, funders and investors on the functional performance of their building stock,
- **construct** spatial design strategies and design masterplans for buildings and urban areas,
- **form** design-led solutions to problems of low footfall and poor trading in retail centres and public spaces,
- **craft** building and campus layouts that promote interaction and knowledge-exchange,
- **support** planning applications for major building and urban design projects,
- **present** evidence at planning enquiries,
- **develop** new guidelines for safer residential design,
- **challenge** received wisdom regarding land-use planning, zoning and layout design.

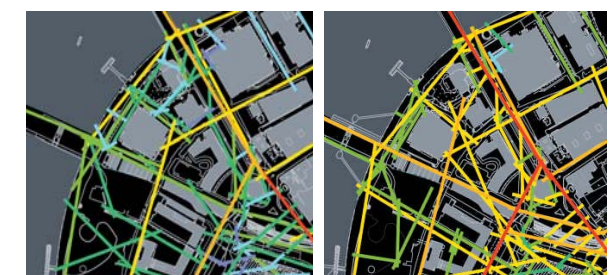
Our expertise falls into various sectors, including urban development, crime, transportation and safety, work environments, hospitals and schools. As successful places rely on movement, we work to deliver proposals that anticipate use patterns and deliver best value.

"I know that these techniques work from the tough environment of practice. I love the world of analysis, observation, of research, but also passion, imprecision, the hunch. Space Syntax is the testing of the interaction of these opposing worlds."

Norman Foster



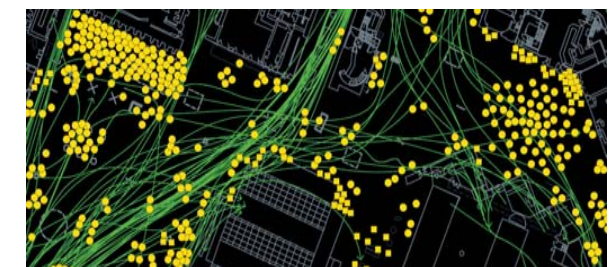
BASELINE SURVEYS



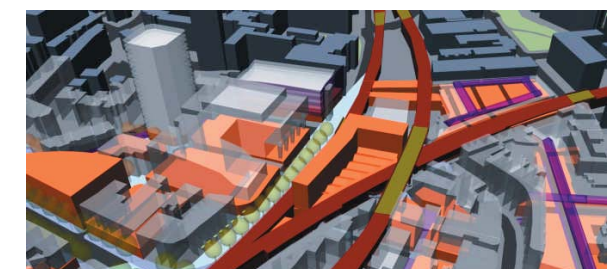
MOVEMENT FORECASTING



PROPERTY & SAFETY ANALYSIS



RESEARCH, EVALUATION & ADVICE



PLANNING & POLICY GUIDANCE

OVERVIEW OF SERVICES

www.spacesyntax.com

Space Syntax

THE PROBLEM

Pedestrian movement around Princes Circus today is impeded by fast-moving traffic and complicated pedestrian crossings. The public spaces are fragmented, unreadable, unattractive, and confusing for people who live and work in the area, and especially for the visitors. Low levels of pedestrian movement mean that the local economy is blighted. This situation is exploited through drug dealing and other anti-social activities.

OUR CONTRIBUTION

Space Syntax was asked by Camden Council to redesign Princes Circus to address its present failings. The resulting proposals turn the unpleasant traffic junction into a major route between Covent Garden and Bloomsbury.

The designs emerged following careful analysis and detailed observation studies which showed that, although Princes Circus is strategically located, it forms a barrier to movement through the area. Many people - especially tourists - fail to make the short journey between Covent Garden and the British Museum because Princes Circus appears uninviting and impenetrable. Many take the underground, making a 30 minute train journey instead of a 5 minute walk. However, with the creation of a new pedestrian link between north and south, Princes Circus can become a focus for everyday pedestrian activity in the local area. In the new design, traffic is reorganised to flow down the sides and across the bottom of the spaces, rather than through the middle of each. This allows the creation of a more effective network of pedestrian routes. A clear landscaping concept - a north-south "catwalk" between two anchor spaces - provides a framework for the lighting and signage strategy.

THE OUTCOME

The Space Syntax design concept has helped marshal the interests of residents and businesses in the local area, including the British Museum.

The design itself has been adopted by local landowner, Legal and General which is redeveloping its St Giles Court site on the south-west side of Princes Circus. The southern part of Princes Circus – the design of which will be detailed by landscape practice West 8 - will be delivered as part of Legal and General's planning contributions.

Design Proposal



"What we know and feel about cities is hard to put into words or images, still harder to enumerate. Space Syntax has the vocabulary, graphics and data to do this."

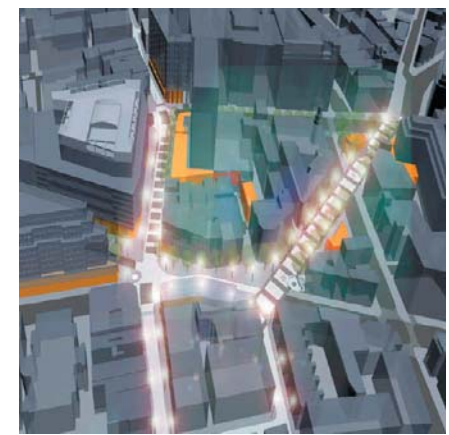
Paul Fisher
Daily Telegraph



PHOTO: junction of St Giles High St & Shaftesbury Ave



DESIGN PROPOSAL: southwest from Bloomsbury Street



SPACE SYNTAX'S DESIGN PROPOSAL

PRINCES CIRCUS, LONDON

www.spacesyntax.com

6.0 THE TEAM

6.4 ENVIRONMENTAL AND SERVICES ENGINEERS

DELIVERING A SUSTAINABLE FUTURE WITH BATTLE MCCARTHY

Guy Battle and Christopher McCarthy founded Battle McCarthy Consulting Engineers & Landscape Architects as a partnership in 1993. In May 2000, the company was incorporated as Battle McCarthy Limited, with the addition of Patrick D’Cruz and Piers Heath as Directors.

The practice now has over 60 staff with the main office based in central London. Additional offices have been set up in New York and Kuala Lumpur in order to support our growing workload in the USA and Asia.

Battle McCarthy is a multi-disciplinary practice that specialises in the design and delivery of sustainable solutions for the built environment. Our goal is to seek solutions that find an optimum balance between environmental impact, social benefit and financial return both for the client and the community. We deliver innovative yet practical solutions through the combined skills of civil, structural and MEP engineers, environmental analysts, landscape architects, environmental planners and artists.

Battle McCarthy’s success has grown out of our ability to foster and synergise this unique range of skills and experience within the practice, in tandem with our passion for delivering solutions that not only meet the Client’s objectives and budget expectations but are also sustainable. As a consequence, we have established a world renowned reputation for breaking boundaries and producing award-winning results.

In each project, we encourage the engineering and architectural teams to explore and understand the engineering issues generated by the design brief. Computer and physical analysis is carried out to assess: stress and strain; daylight and solar penetration; thermal control; and ventilation and sound control. The results of the analysis are then used to develop the engineering strategy of the building design and assist the architect to generate an architectural form that accommodates all design issues including structural materials and building systems.

In particular, the practice has developed analytical tools to understand the climatic interaction between landscape, building form and structural materials. In our work, we always look to explore the opportunity offered by the interaction between climate and structure rather than just approaching it as a problem to be resolved. The result is designs that are influenced through an awareness of natural forces such as light, heat, sound and air movement.

As a practice, we recognise the importance of education and the need to engage students from all disciplines. Many of our engineers are actively involved in lecturing, course setting and tutoring. We have an active student intern programme looking to employ both engineering and architectural students with interest in incorporating sustainable design into the built environment.

BUILDING SERVICES ENGINEERING

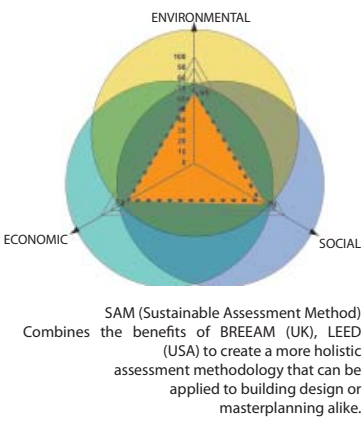
Our Building Services (MEP) team have worked on a diverse range of projects where we have provided integrated MEP design. Our engineers are dedicated to providing high quality solutions that meet client needs with appropriate technology and within budgetary constraints and we will always look for solutions that utilise the client’s resources in the most efficient manner. Whether this means full air conditioning, mixed mode or natural ventilation, we will always strive to develop the solution that is low energy, efficient, highest performance, minimum environmental impact and offers best value. Battle McCarthy provides the following individual and incorporated building design services:

Core Services

- Mechanical Engineering
- Electrical Engineering
- Public Health
- Fire Protection
- Vertical transportation
- IT solutions

As Services Designers our unique skill base allows us to provide a holistic service. Our engineers have completed Title 24 (2001) seminars and BRE courses. As a result Battle McCarthy have in-house licensed assessors for BREEAM (UK) and LEED (USA).

In order to future-proof our projects Battle McCarthy aim to achieve ‘Excellent’ ratings for all our building designs. Through the University Carbon Club and our in-house R&D work we are fully conversant with the European Energy Performance of Buildings Directive and the aims of the revised Part L Building Regulations due out in 2006.



SPECIALIST ENVIRONMENTAL DESIGN

Engineering is dominated by the physics of natural forces: gravity, temperature, humidity, light, sound, vibrations; and the forces of climate, weather and microclimate. Until recently, the physics of these forces could only be understood through static equations. Engineers merely executed the calculations that were possible within their limited resources of time and calculating power.

In recent years more and more sophisticated computer modelling techniques have been developed together with more accurate climatic data that allow us to model building performance in real time and for future climatic events. Using these techniques buildings can be designed for many different moments of time, enabling them to meet comfort requirements by responding to changes in the ambient environment.

Battle McCarthy Engineering Simulation has a wide range of computer-based modelling tools that we use to assist us and the design team in the understanding of the interaction between natural forces and buildings, enabling us to optimise building performance in response to the changing environment.

In addition, we believe that there is a continuous role for physical modelling tools. We are the only consultancy in central London to have a wind tunnel, Heliodon and access to an artificial sky, which allow us to explore the influence of the physical environment in a more reactive manner with architects and planners.

By using these tools from the outset of the design process we are able to test ideas and options at concept design stage, in order to ensure that the chosen solution will meet expectations in terms of technical performance, environmental impact and economics.

We also have experience of carrying out Environmental Impact Assessments (EIAs). Our approach is to address the issue of sustainable development in an integrated way throughout the assessment. Our work has included both the coordination and production of the Environmental Impact Statement (EIS) as well as technical expertise in the assessment of sustainable development, microclimate, energy, water, landscape and ecology.

Computer Analysis Tools

- Thermal analysis - TAS, E+TA (OASYS)
- Computational fluid - Phoenix VR Dynamics (CFD)
- Lighting analysis - Radiance
- Building simulation - Visual DOE
- Structural modelling - Robot
- Building services - HEVACOMP, CYMAP

In-house Modelling

- Wind tunnel
- Daylight modelling
- Heliodon
- Solar shading

Environmental Analysis

- Dynamic thermal analysis
- Solar studies
- Daylight
- Natural ventilation
- Air movement
- Passive solar heating
- Wind
- Passive cooling systems
- Innovation

Climate Analysis

- Building massing studies
- Energy strategy - supply and conservation
- Daylight design
- Natural ventilation
- Passive cooling & solar heating
- Façade performance
- Renewable energy analysis & implementation (wind, sun, rain, geothermal)
- Rainwater collection & re-use
- Water conservation & recycling

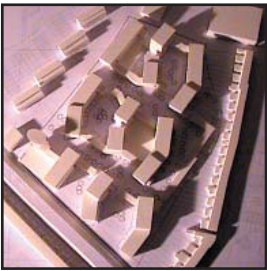
Our engineers have also completed Title 24 (2001) seminars and are conversant with ASHRAE standard 90.1 1989.

In house assessment of:

- BREEAM (UK)
- GBC 2001
- LEED (USA)

Carbon Management

- Energy Audit
- Carbon Trading
- Strategic Advice
- Battle McCarthy manages the University Carbon Club and advises the E.U.



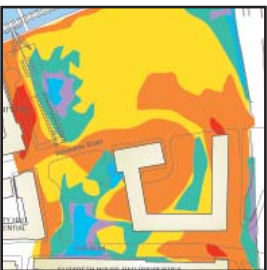
Overshadowing study using physical model



Shadow impact study using computer model



Battle McCarthy wind tunnel in use



Analysis of wind tunnel results



PROJECT:
Newcastle University, Devonshire Building, UK

CLIENT:
Newcastle University

ARCHITECTS:
The DEWJOC Partnership

BM SERVICES:
Sustainability Consultants, MEP Engineers
& Structural Engineers

VALUE:
£11million/5400m²

DESIGN BRIEF

The Devonshire Building is a major new six storey building in the heart of the campus of Newcastle University and it was the Client's requirement that the building should be considered a landmark building. It has been an important requirement that the Structural Engineering is integrated with the Architecture, the Building Services Engineering and the Landscape Architecture to reflect the Client's aspirations and concern towards the environment.

The building houses laboratories and office spaces for the University's Multidisciplinary Environmental and E-science Research Centre. The building became fully operational in March 2004.

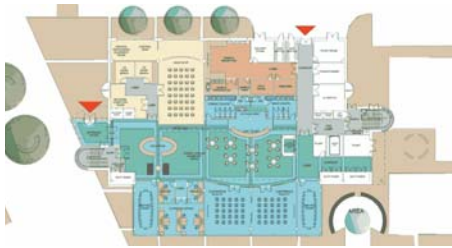
The environmental strategy is currently being used as a case study by the HEFCE in their policy document 'sustainable development in higher education'.

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

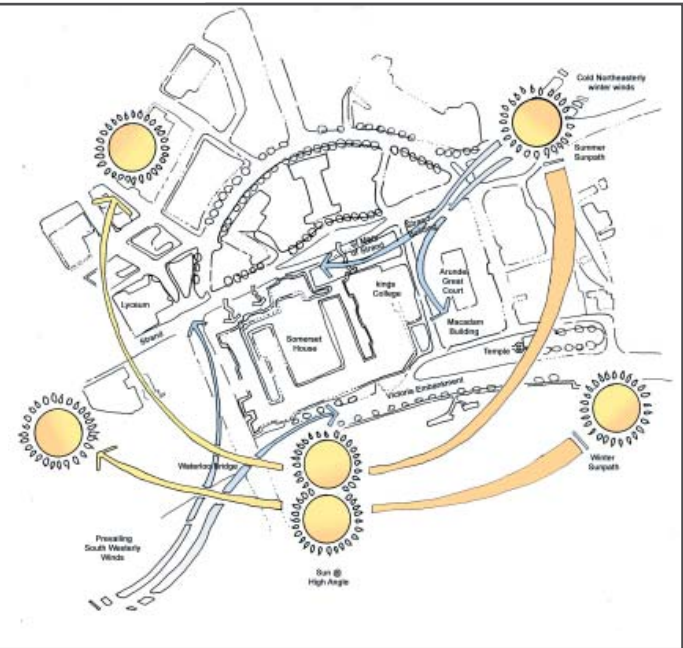
The structural and services schemes are based upon the innovative use of proven technology combined with progressive designs for flexibility and has the following attributes:

- Provision of high thermal mass floor allowing a reduction to the cooling load during the summer and the regulation of the internal temperature during the winter.
- Integration of Structure and Service routes to optimise useable space and hence minimise materials.
- High acoustic isolation standards.

The building is the first laboratory building to be awarded a BREEAM excellent rating, presented by Energy Minister Stephen Timms. Because of the range of functions the building was assessed under the bespoke BREEAM scheme, and achieved the highest ever score in this category.



Case Studies



PROJECT:
King's College, London - The Strand Campus

CLIENT:
King's College

ARCHITECTS:
Inskip & Jenkins Architects Ltd

BM SERVICES:
Masterplan and infrastructure and full MEP design for Phase 1 works.

VALUE:
£30million

DESIGN BRIEF

To design a high quality building that will be flexible and adaptable in the future. As an effective educational facility the building must also offer high comfort standards and take full advantage of the existing building orientation and climatic conditions.

The first phase of the masterplan is currently being undertaken which includes new service cores and a new 3 storey laboratory extension.

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

Battle McCarthy were requested to provide services and environmental design for incorporation into the proposed redevelopment of the Strand Campus of King's College. This guidance was in support of architectural masterplanning provided by Inskip & Jenkins Architects Ltd.

The services and environmental design provided an overview of the general infrastructure strategy for the whole of the Strand Campus site. More detailed design was also provided for the two major service cores and the South Court laboratories.

A number of design opportunities and environmental objectives were highlighted and implemented in the overall masterplan;

- energy alternative cooling strategies including night cooling
borehole water
renewable energy opportunities
passive solar heating
wind driven ventilation
- health global daylighting strategy
natural ventilation with opening windows
high comfort standards
- water rainwater harvesting and recycling
minimum potable water consumption
greywater systems
- materials sustainable materials strategy
recycling and re-use strategy
- ecology meet local agenda 21 guidelines
use BREEAM as a guideline
- education the design should be appropriate to users but also inspire and stimulate students

GRIMSHAW

CURRICULUM VITAE

Neven Sidor BArch BA(Hons) RIBA

Qualifications

1978	Registered Architect in the UK (ARB and RIBA)
1977	Bachelor of Architecture (Hons) (University of Nottingham)
1974	Bachelor of Arts (University of Nottingham)

Professional Career

1981 - Present **Nicholas Grimshaw & Partners Ltd, London, Director**

Current Projects:

The Minerva Building, City of London - Director
KPMG German Headquarter Building, Berlin – Director
Hamburg Congress Centre extension - Director
Institute of Cancer Studies, UCL - Director
Engineering Building, UCL – Director
Bijlmer Station, Amsterdam for Dutch Railways – Director
“5 Boats” office project, Duisburg, Germany – Director
Caixa Galicia art gallery, La Coruna, Spain – Director
Ijburg bridges 2060 and 2080, Amsterdam - Director

Completed Projects:

Ijburg Bridges 2001 and 2002, Amsterdam - Director
Lloyds TSB headquarters, Gresham Street, London – Director
Frankfurt Trade Hall H3A - Director
Ludwig Erhard Haus, Berlin - Director
Waterloo International Terminal, London - Director
Waterloo Raft Development (Domestic Station) London - Director
Sainsbury development, Camden Town, London - Associate
Oxford Ice Rink, Oxford UK - Project Architect
Herman Miller distribution facility, Chippenham UK - Project Architect

Competitions:

KPMG German Headquarter Building, Berlin – winner
Hamburg Congress Centre extension - winner
“5 Boats” office project, Duisburg, Germany – winner
Gumga Bridge competition, South Korea – shortlisted
Song San Bridge competition, South Korea – shortlisted
Frankfurt Trade Hall H3A – winner
Bridges for Ijburg Development – winner
Pusan High Speed Rail Complex – winner
Berlin Stock Exchange & Communications Centre, Berlin – winner
UK Pavilion at EXPO 92, Seville, Spain – winner
Bibliotheque Nationale, Paris, France - runner up
British Embassy, Berlin - runner up
Urban Entertainment Centre, Frankfurt - third prize

Space Syntax

SUMMARY CURRICULUM VITAE

15.02.2005

KAYVAN KARIMI

BArch March PhD IIA

Associate

Dr. Kayvan Karimi is an architect and urban designer with thirteen years of experience in practicing architecture, research and lecturing in England and Iran. He earned his PhD on architectural and urban morphology (1993-98) from UCL, and joined Space Syntax during his doctoral studies in 1994 as a project consultant, where he became an associate in 1999. He has lectured at UCL and has also been an assistant professor at Tehran University.

EDUCATION & QUALIFICATIONS

2000	Assistant Professor, The Graduate Faculty of Environment, Tehran University
2000	Honorary senior researcher, the Bartlett, UCL
1998	Ph.D. In Architecture, University College London (UCL)
1992	Registered Architect, Institute of Iranian Architects (IIA)
1990	MArch in Architecture, Tehran University
1988	BArch in Architecture, Tehran University

KEY PROJECTS

- **Bowater House**, London: Analysis of spatial layout and pedestrian activity patterns and generation of strategic design guidelines for a large, mixed-use development, with Wilkinson Eyre Architects for Land Securities Group PLC.
- **St Botolph's Quarter**, Colchester (2002): development of a masterplan for the co-ordination of major development infrastructure in a historically sensitive environment, including a £15million Arts Centre, Magistrates Court and 300,000sq.ft of town centre retail for Colchester Borough Council.
- **British Museum**, London: Analysis of visitor circulation patterns and spatial layout, leading to the construction of a visitor circulation model and strategic design advice regarding the future development of the museum, for the British Museum.
- **Skelmersdale Town Centre**: Strategic urban redevelopment advice to English Partnerships.
- **AGORA**, Cities for People: Development of an audit methodology for European cities to identify, analyse and re-design ‘Capital Routes’ with research and design teams from Barcelona, London, Malmo and Utrecht for European Commission under Framework 5 Research Programme.
- **Camden Clear Zone**, London: development and calibration of a high-resolution pedestrian movement model, for the London Borough of Camden, as part of its Clear Zones Strategy.
- **Brixton Town Centre**, London: pedestrian and cycling movement study and development of a strategic design vision for Brixton Town Centre for the London Borough of Lambeth.
- **Princes Circus**, London: pedestrian movement study and urban space redesign proposals for London Borough of Camden as part of its Clear Zones strategy.
- **Arena Central**, Birmingham: spatial layout and pedestrian movement study with HOK Architects for Hampton Trust PLC.
- **Frankfurt Urban Entertainment Centre**: pedestrian movement, urban form and design evaluation study for EisenbahnImmobilien Management GmbH.
- **Greets Green**, Sandwell: pedestrian movement, crime and urban form study leading to a spatial masterplan design for Sandwell MBC.
- **Margate**, historic core: pedestrian movement, land use and urban form study leading to a spatial masterplan design for Kent Architecture Centre, Thanet DC and Kent CC.

ALAN BAXTER AND ASSOCIATES

JIM GARDINER
BSc Edinburgh MICE MStructE

Partner

Jim Gardiner joined the Practice in 1984 and became a Partner in 1987.

His work includes many of the special new build projects but has also dealt with the reuse of a number of important existing buildings.

Education projects include new college facilities in Cheltenham, new business schools for both City University and London Business School, special buildings for Climate Research and the Teaching Faculty at East Anglia University and the European Institute for Health & Medical Sciences in Guildford.

His experience on residential projects has included a wide range from luxury single homes for owner occupiers, to high-rise highly serviced apartments luxury apartments with basement car parks and plant rooms. He has recently completed a large block of flats over a deep basement close to the River Thames and is involved with a 500 flat development in North London. Other projects include a range of social housing projects including the use of pre-fabricated units, and the refurbishment of 1960's housing estates.

His hotel experience includes the Hat and Feathers Hotel in Clerkenwell and the development of a stressed skin pre-fabricated hotel system which is now in the development phase.

His experience on refurbishment projects range from 18th Century timber framed buildings through to modern office buildings. He is familiar with most types of 19th and 20th Century construction techniques. Recently completed projects include the fitting out of a 1930's office building for multi-tenanted use and the fitting out of a 1980's framed building constructed within a 19th Century façade. Currently he is involved with the refurbishment of the 1950's Herbert Art Gallery.

His work on existing structures includes the sensitive repair of listed buildings. He has been responsible for the reconstruction of Cams Hall, Fareham (Grade II*), which was in an advanced state of decay when the project started, but which has now been rebuilt as offices. He recently completed a long-term programme of restoration at Waddesdon Manor, Aylesbury, the home of the Rothschild art collection.

Battle McCarthy
Consulting Engineers & Landscape Architects

Name	: BATTLE, Guy, Scoley
Profession	: Building Services and Environmental Engineer
Year of Birth	: 1962
Current Position	: Director
Nationality	: British

Key Data
Guy Battle is a founding partner of Battle McCarthy Consulting Engineers (1993). Previously he worked with Ove Arup and Partners (from 1986). He is an environmental and building services engineer who specialises in the integrated design of low energy and environmentally responsive buildings.

He has worked on a wide range of projects throughout the world and with many world renowned architects including Alsop Architects and Stormal, Sir Richard Rogers, Terry Farrell and Partners, Kohn Pedersen Fox, Hijias Kasturi Associates, T R Hamzah and Yeang. He has worked on a number of prestigious low energy projects such as Greenwich Millennium Village and has been responsible for developing a sustainable approach to masterplanning including Greenwich Peninsula and ParcBIT Sustainable Masterplan, Mallorca. Guy is actively involved in education and presently holds the post of visiting professor at the Illinois Institute of Technology in Chicago where he helps run a unit and lectures in issues of sustainability. He has also previously been involved with the Architectural Association, Royal College of Art and the Bartlett School of Architecture.

Guy's work is published widely and he was a Jury member for the AIA Top Ten Green Buildings of the Year 2002 in Washington D.C. He also regularly participates in The Council of Educational Facility Planners International, as well as being invited to speak at the United Nations conference (2001) on Global Habitats.

Guy has worked on a number of high profile projects and below is a selection of projects that he has worked on:

Relevant Office/Commercial Experience: Freedom Tower, New York, USA World Trade Centre, Amsterdam Los Angeles Courthouse, USA New Home Office, Marsham Street, London Paddington Basin, London SIDC-SC Headquarters, Kuala Lumpur ENDESA Headquarters, Madrid Ionica Headquarters RARE Headquarters, Twycross M & C Saatchi Headquarters GSW Headquarters, Berlin TAG Headquarters, Chicago	Relevant Mixed-Use/Masterplanning Experience: Hudson Yards, New York, USA Queens Plaza, New York, USA Brooklyn Bridge Park, New York, USA Elephant & Castle Sustainable Masterplan Greenwich Peninsula, UK ParcBIT Sustainable Masterplan, Spain Greenwich Millennium Village, UK DestiNY USA Mixed-use development & Sustainable Masterplan Eco Hotel, Syracuse, New York State National Institutes of Health (USA) Hudson River and Estuaries Masterplanning Project, New York Chicago O'Hare Masterplan for East Side, Chicago
Relevant Educational Experience: The Millennium Dome University of Nottingham Jubilee Campus Hendon Learning Resource Centre and Library Peckham Library, London Science Centre, Beijing, China Gothenburg Museum of Culture National Innovation Centre, UK Bartholomew Middle School, Indiana NY Jets Stadium, USA Arts Instructional Center, Rockford Wrigley Innovation Center, Chicago	PROFESSIONAL QUALIFICATIONS BSc (Hons) CEng MCIBSE Fellow of the Royal Institute of British Architects

Articles published:
"Carbon Is the New Gold" GreenTrading:
Commercial Opportunities for the Environment,
Peter C. Fusaro and Marion Yuen

GRIMSHAW

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