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Chobham Harris Academy

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Chobham Harris Academy

Chobham Harris Academy is a new all-ages school in the London 2012 Olympic Park. Opening in September 2013 with a specialism in literature and the performing arts, it will serve 1,800 students aged 3 to 19 and the established local communities of Leyton and Stratford, and the emerging community of the post-Games Park, both in and out of school hours.

Designed as part of a strong new urban grain whose pattern is reflective of existing London streets, a powerful drum form centres three connected buildings. The three buildings include a main building, a primary school with nursery accommodation and a specialist arts building that also serves the community. These define space on a campus that is open, attractive, economical and sustainable. The buildings contain distinctive but unfussy spaces carefully related to the pupils, staff and activities within. Facades are varied yet controlled, and restrainedly coloured.

The Academy is a dynamic civic focus for the area.

Sector :	Education
Location :	Stratford, UK
Address :	Straford, London
Client :	Lend Lease plc
Value :	£33m
Start :	2008
Completion :	September 2011
Contract Type :	2 stage tendered, bespoke Design and Build

Building Areas

Main Building: 8472m²
Phase One Building: 2661m²
Specialism Building: 4163m²
Gross Internal Area: 15,297m²

Key Dates

2006	AHMM begin on Stratford City Masterplan	
Dec 2008	Planning permission granted	
Jan 2009	First stage tender / Stage D	
July 2009	Second stage tender / Stage E	
Dec 2009	Start on site	
Sept 2011	Completion of Chobham Harris Academy	} Completion for Olympic use
March 2012	Landscaping and Bridge completion	
Sept 2013	Completion for school use	

Designing for Legacy

The Olympic Village, which lies adjacent to the Olympic Park and Stratford City sites, will accommodate athletes during the 2012 Games and will leave the legacy of thousands of new homes, parks, and community facilities after 2012. During the Olympic Games, Chobham Harris Academy will be used for administrative and security functions and provide a gym for the athletes. It will open to students in September 2013.

Chobham Harris Academy is an essential element in ensuring the ongoing regeneration of East London beyond the Games. Complete with state-of-the-art facilities it will play a key role in creating a mixed, diverse and more sustainable community, with education at its core.

Project Team

Client :	Lend Lease Retail and Communities
Architect :	Allford Hall Monaghan Morris
Structural Engineer :	Adam Kara Taylor
Civil Engineer / Highways :	Arup
Project Manager :	Lend Lease
Cost Consultant :	Gardiner and Theobald
Quantity Surveyor :	Gardiner and Theobald LLP
Service Engineer :	Buro Happold (pre contract) Hoare Lea (post contract)
Landscape Architect :	Kinnear Landscape Architects
Fire Consultant :	JGA Fire
Main Contractor :	BAM
Approved Inspector :	JLAB
Planning Consultant :	RPS/Quod Planning
CDM Co-ordinator :	Lend Lease
Acoustic Consultants	Hawksmoor
Traffic Consultant :	WSP Group
Theatre Design :	Charcoal Blue
Access Consultant :	David Bonnett Associates
Catering Consultant :	DesCat
Client Representative :	George Cochrane

Trade Contractors

Parry Bowen
Thorp
Litchfield
Lee Warren
WRR
Toureen Mangan
Graham Wood
Atlantic Joinery
Lab Systems

Suppliers

Schuco
Lindner
SAS
Leaderflush
Grant Westfield
Novum
Fermacel
Ideal Standard
British Gypsum
Schindler
Nora
Duracryl
Ryebrook Dulux
Zumtobel
Iguzzini
Encapsulite

Allford Hall Monaghan Morris Team Members

Simon Allford, Stefan Busher, Jon Brent, Ben Clark, Corinne Davidson, Cormac Farrelly, Jonathan Hall, Anita Howard, Tamsin Landells, Will Lee, Timothy Neville-Lee, Paul Monaghan, Peter Morris, Andrew O'Donnell, Mirin Leon-Perfecto, Maria Plura, Louise Regan, Jonathan Rixon, Christian Schwedler, Holli Thackray, Philip Turner, Joe Wright.

For further information and images please contact

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Site History

Stratford is a thriving, diverse area of east London located to the north of the river Thames, around three miles from the City.

The Olympic Park covers 2.5 square kilometres of the Lower Lea Valley. Remains of Stone Age human activity have been found at Stratford, with settlement dated to the Bronze Age. Major Roman road systems passed through the area. The river Lea was joined to the nearby Thames in the eighteenth century, and emergence as a chemical engineering base and the coming of the railway in the mid-nineteenth century confirmed the locale's importance in the development of east London.

The project site was latterly occupied by an international rail and road freight terminal and housing. Contamination was present, although remediation associated with the Lee Valley Park had occurred in places.



Map of land use and ecology in Stratford,



Aerial photograph showing Education Campus site



Stratford railway line running alongside the site



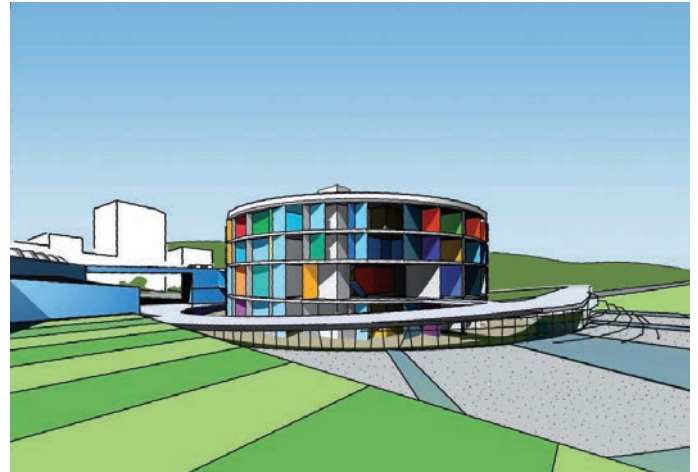
Aerial photograph showing approximately the site boundary

Pre- Olympic Bid

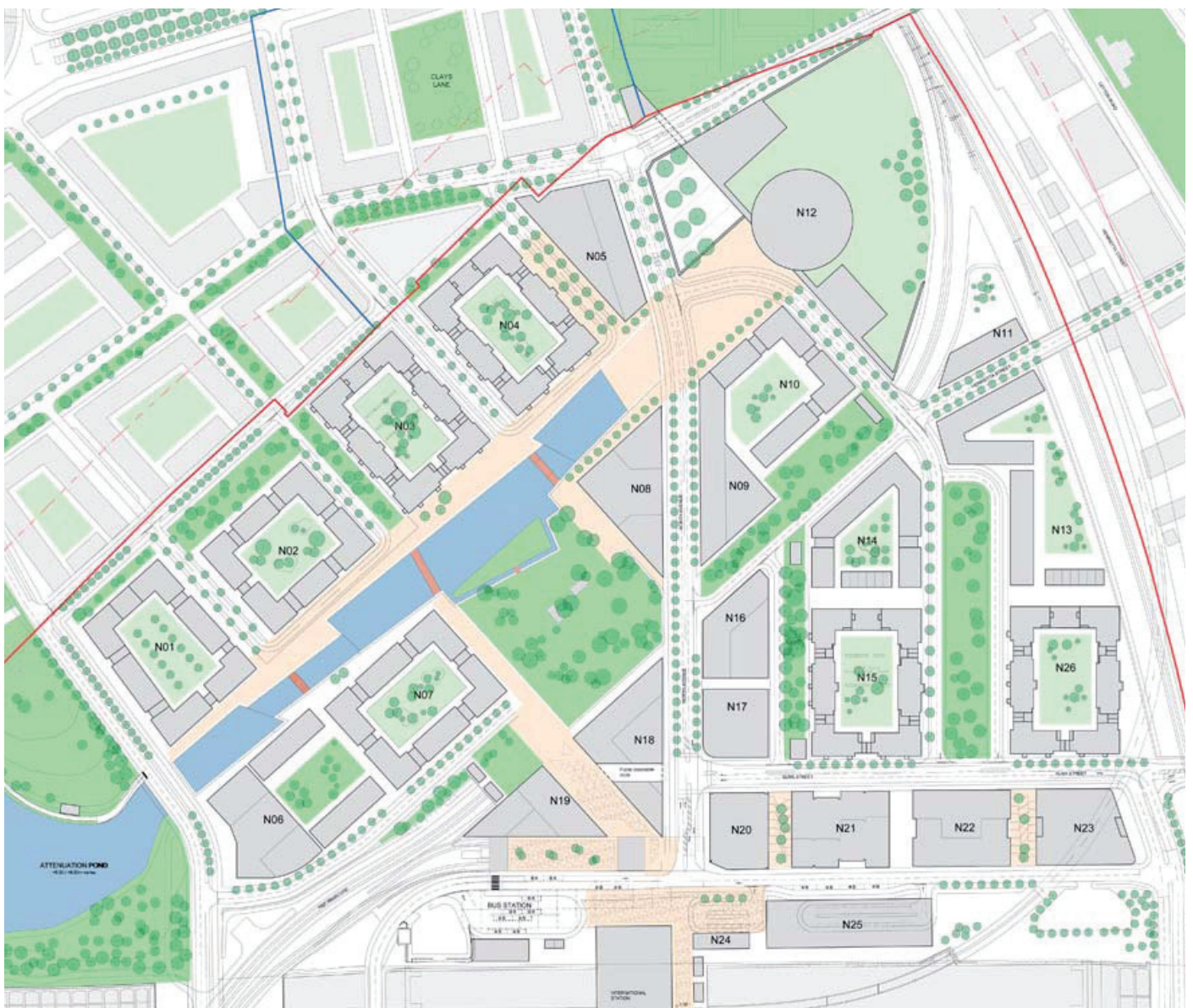
Stratford City Residential Masterplan

The vast Thames Gateway regeneration plan, begun in the 1980s, had brought the Jubilee Line Extension depot to Stratford in 1996. In 2004, Allford Hall Monaghan Morris (AHMM) was engaged by developers Chelsfield and Stanhope and London & Continental Railways to test sites within a mixed-use masterplan by architects Fletcher Priest for a new scheme called Stratford City, west of the town centre.

The work encompassed residential blocks further north and, at broadly the same location as the current project, an academy. A drum shape for this important public building was presented by AHMM for the masterplan at this early stage.



Stratford City School



Stratford City residential masterplan

Post-Olympic Bid

Urban Analysis of City Scale and Grain

With selection in 2005 of London as host for the summer Games of the XXX Olympiad, Stratford City was suggested for the principal sporting venues and the Olympic Village. The latter could be used as housing after the Games, a sustainable legacy that also supported the Thames Gateway plan. Lend Lease acquired the other developers' interests and refocused the existing masterplan.

Returning to work with Fletcher Priest, who retained responsibility for infrastructure, overall planning and a Westfield shopping centre, AHMM examined the residential areas anew with the aim of making them feel like a piece of London. Close study of successful quarters like Maida Vale, Pimlico and Mayfair showed how large repetitive blocks bring formal identity, though with pleasant deviations and moments of surprise such as a crank in a road or a crescent that gives onto a street. Vistas are terminated appropriately, with churches and other prominent civic buildings. A hierarchy of city spaces that are alike but varied results, that delights as well as impresses.

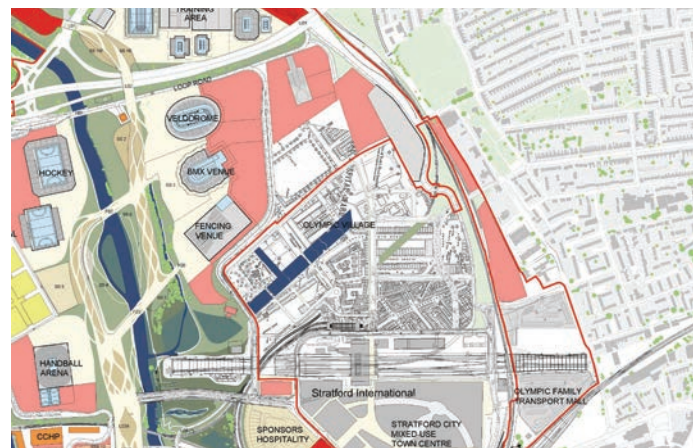
AHMM's masterplanning work, carried out in 2006/07, produced a set of ideas and proposals which led to the fundamental re-thinking of the residential masterplan. These proposals underpin the successful urban aspects of the Village and highlighted the key position and function of the academy within it, as the only public building. (An analogy was drawn to the Royal Albert Hall and its adjacent mansion house blocks.)

After helping to select the architects for the residential buildings AHMM withdrew to concentrate on the academy, leaving Lend Lease to undertake the further development and densification of standard units, frames and cladding systems with other architects.

In order to illustrate the comparative scale of this development, a model of London was developed for its ideas of scale, urban grain and street patterns, for Stratford City was to be considered a new piece of London. The diagrams below and on the next few pages, aim to analyse the features of the urban grain that contribute to the London residential character and the perceived coherence of these neighbourhoods.



Figure ground plans of other world cities overlaid on the site



Olympic Masterplan, Pimlico



Olympic Masterplan, Mayfair



Olympic Masterplan, Maida Vale

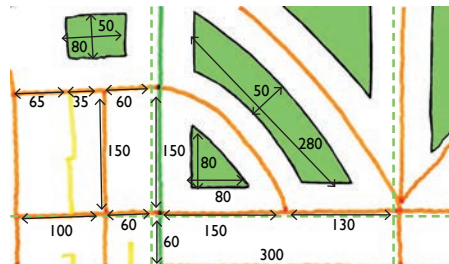
Post-Olympic Bid

Urban Analysis of London Grain and Street Networks

Maida Vale

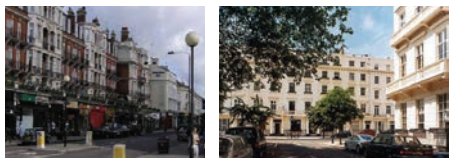
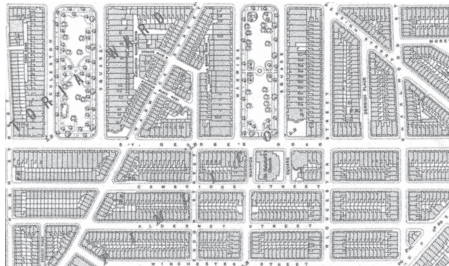


- KEY**
- Primary (i.e Road) —
 - Secondary (i.e Avenue) —
 - Secondary 2 (i.e Street) —
 - Tertiary (i.e Mews) —

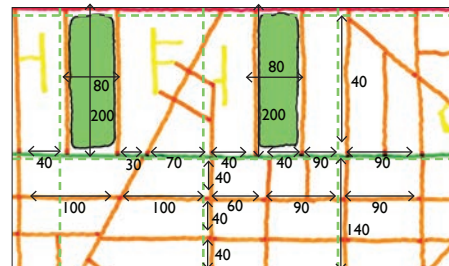


- Block size // 300x60m / 150x60m within a typical 320x320 grid
- Height // 4-5 storeys + basement
- Front Doors // 10 to 37
- Setbacks // 4 to 8m
- Hierarchy of street widths // Major Road 30m, Minor Road 18m, Mews 8m
- Private Gardens // 6 to 40m deep
- Public Amenity // Clifton Gardens 80x50m, Warrington Crescent 300x50m

Pimlico

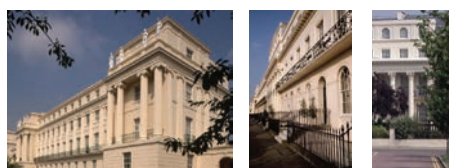
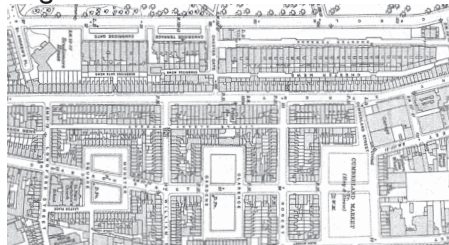


- KEY**
- Primary (i.e Road) —
 - Secondary (i.e Avenue) —
 - Secondary 2 (i.e Street) —
 - Tertiary (i.e Mews) —

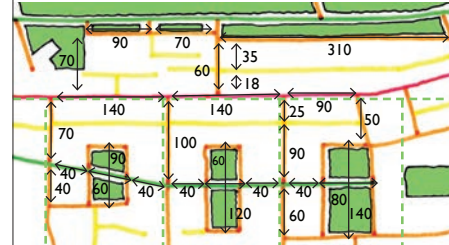


- Block size // 170x50m / 90x40m / 60x40m in 190x190 grid
- Height // 5 storeys + basement
- Front Doors // 10 to 26
- Setbacks // 2 to 4m
- Hierarchy of street widths // Major Road 18m, Minor Road 14m, Mews 6m
- Private Gardens // 4 to 10m deep
- Public Amenity // Eccleston Square 200x80m, Warwick Square 200x70m

Regent's Park



- KEY**
- Primary (i.e Road) —
 - Secondary (i.e Avenue) —
 - Secondary 2 (i.e Street) —
 - Tertiary (i.e Mews) —

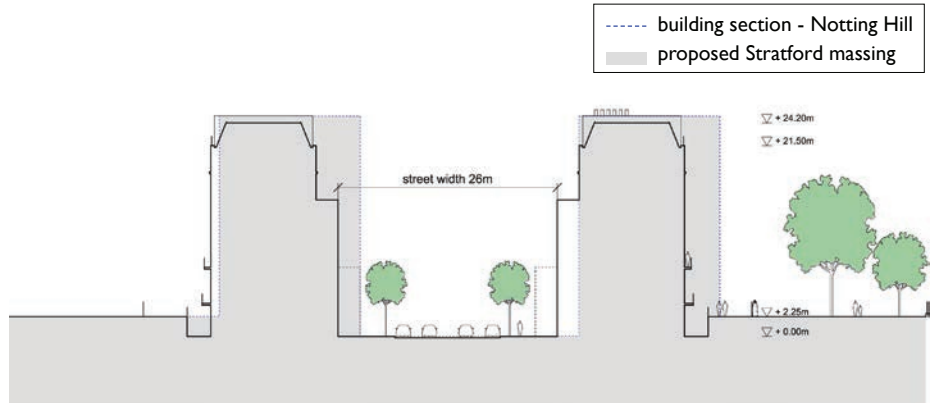


- Block size // 310x60 facing park & 140x100/50 in 160x120 grid
- Height // 4-6 storeys + basement
- Front Doors // 28-39 doors
- Setbacks // 2 to 3m set back from pavement
- Hierarchy of street widths // Major Road 25m, Minor Road 18m, Mews 6m
- Private Gardens // 5 to 12m deep
- Public Amenity // Regent's Park - 166 hectares, Clarence Gardens 60x120m

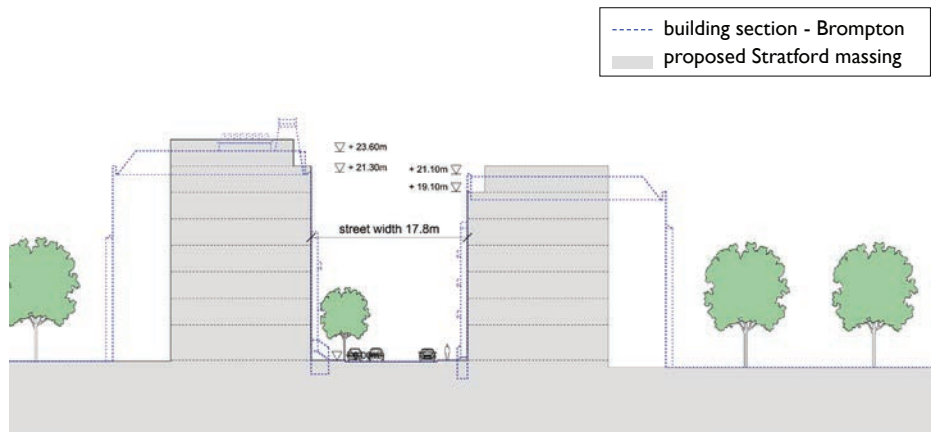
Post-Olympic Bid

Urban Analysis of London Street Sections

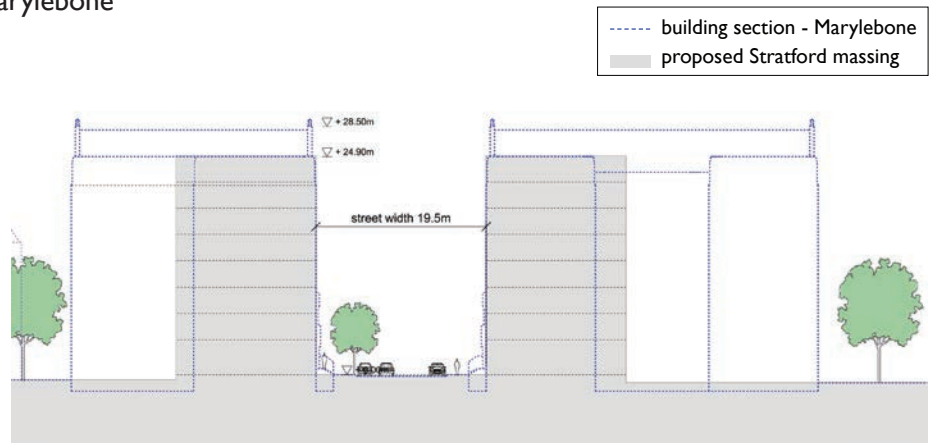
Comparison with Colville Gardens - Notting Hill



Comparison with Cadogan Gardens - Brompton



Comparison with Bickenhall Street - Marylebone

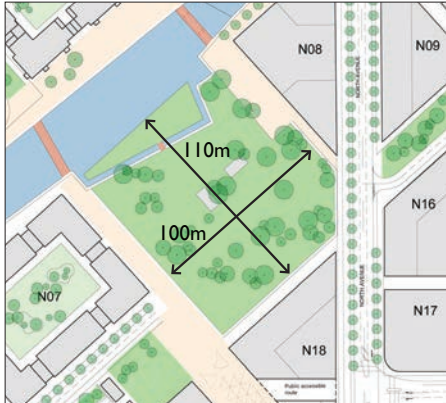


The sections above show examples of Stratford City's proposed residential streets (in grey) overlaid with London street sections of similar scale (blue outline).

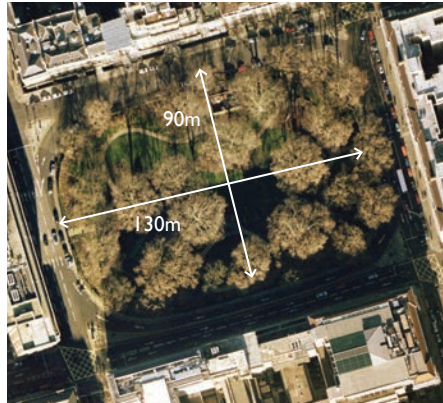
Post-Olympic Bid

Urban Analysis of Stratford City's Parks

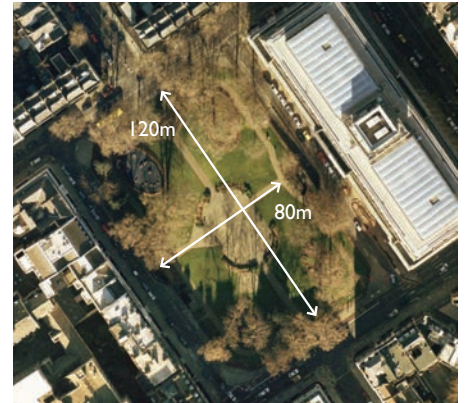
North Square



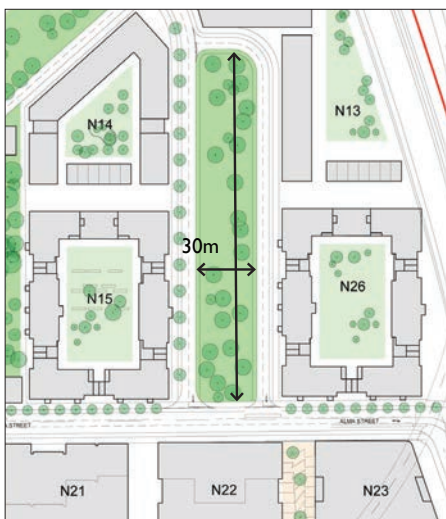
Portman Square - Marylebone



Bloomsbury Square - Bloomsbury



Crescent Park



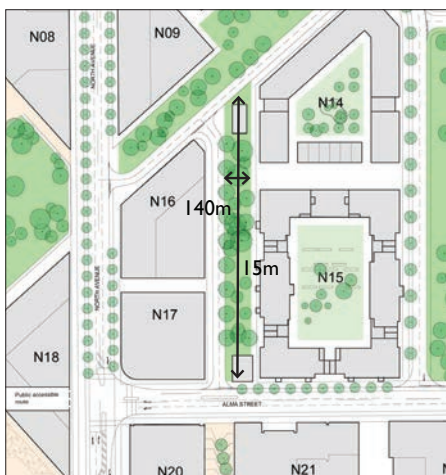
Lowndes Square - Knightsbridge



Brompton Square - Brompton



Linear parks



Duncan Terrace - Islington



Lower Sloane Street - Belgravia



To put the scale of the proposed open spaces into context, they have been compared to some of London's successful 'squares' of various shapes and sizes

Post-Olympic Bid

Neighbourhood and Architectural Character Elements

Trees



Line of foliage at the street edge is the primary linking element between streets, serving as a consistent screen in front of varied building forms. Points to consider:

- > species
- > size when mature
- > position of underground services
- > building setbacks
- > maintenance requirements



Materials



Consistent materials, palette, and detailing across different scales and forms. 'Brick-land' vs 'Stucco-land' Common building technology and construction across neighbourhoods is sufficient to unite different buildings and establish a sense of place.



Landscape



Neighbourhood exists around natural landscape elements such as water or significant landforms. The landscape elements provide a focus for the public realm that makes the buildings less dominant within the visual hierarchy.



Street Edges



Ground floor and street edge treatment is constant, while building form, colour, and materiality above may vary. Building elements used to establish this consistency include fences, entrance porticoes or canopies. Street edges establish visual consistency in the street from the pedestrian viewpoint.



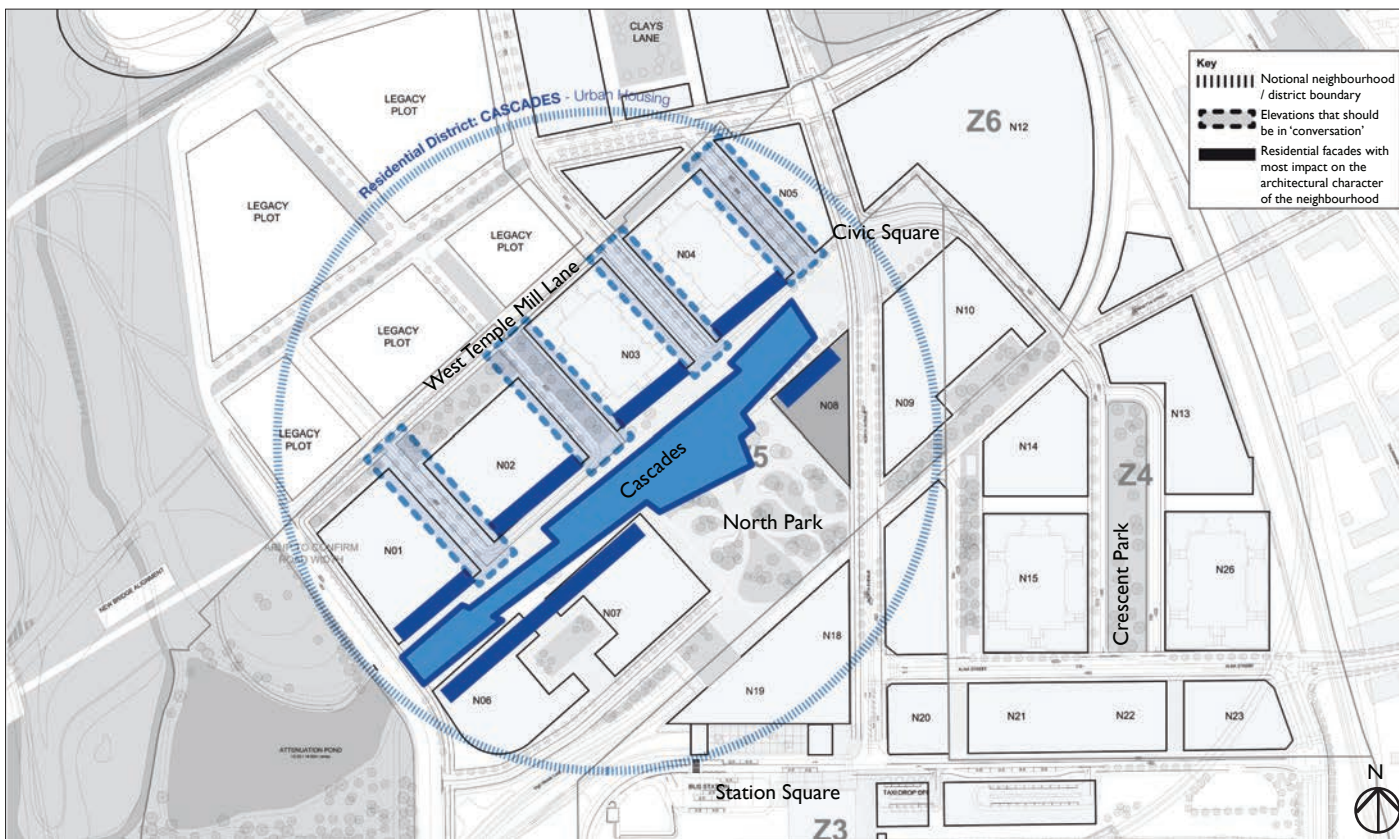
Landmarks



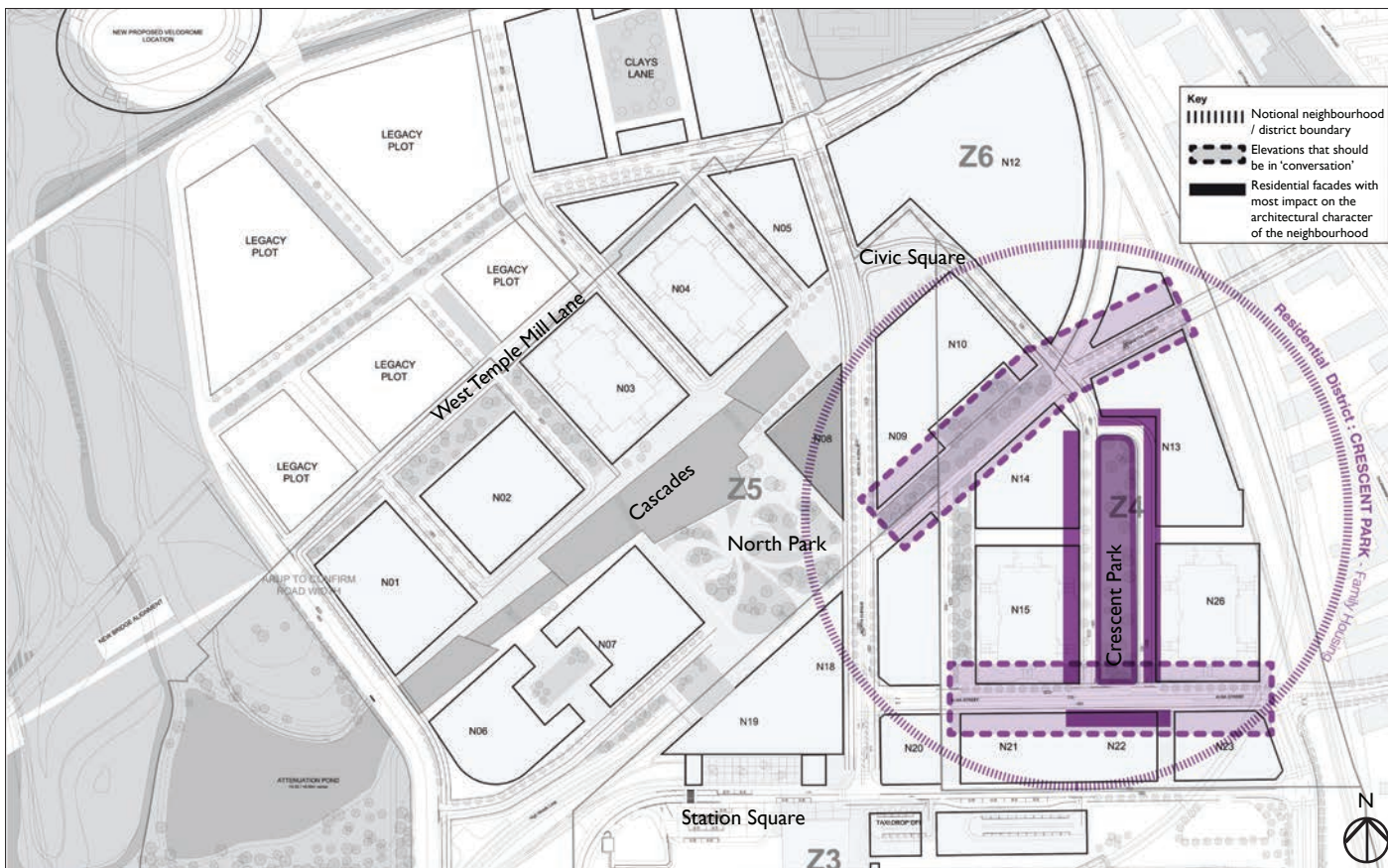
Axial and oblique views along streets to significant local buildings or places. Ties residential areas to public and social spaces - schools, churches, parks, squares, high streets etc.



Stratford City Residential Neighbourhoods



Overview of Cascades neighbourhood



Overview of Crescent Park neighbourhood

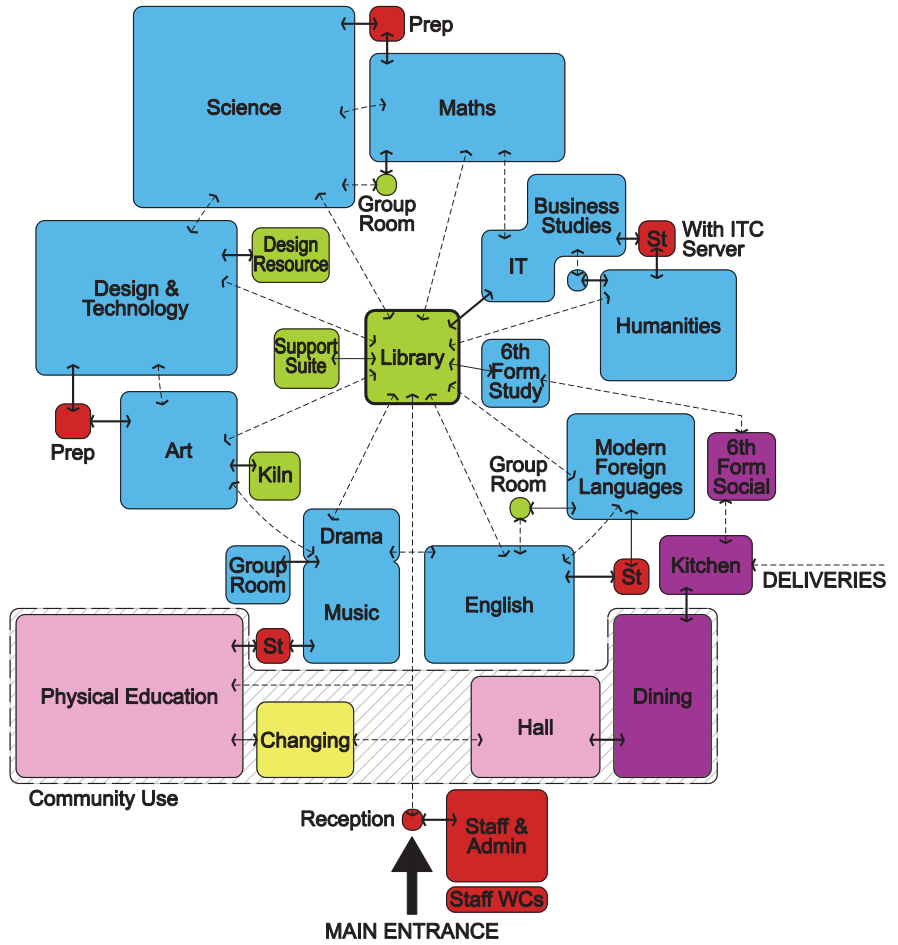
All-through Briefing: Uniting Two Schools

In 2008 an academy – which is funded centrally but with a contribution from a private sponsor, and independent of local authority control – was confirmed on the previously-examined site, its catchment including the existing population. It would though now be an ‘all-through’ school for ages 3 to 18, and be named Chobham Academy after a mediaeval manor house historically located on the site. (This was later changed to Chobham Harris Academy.)

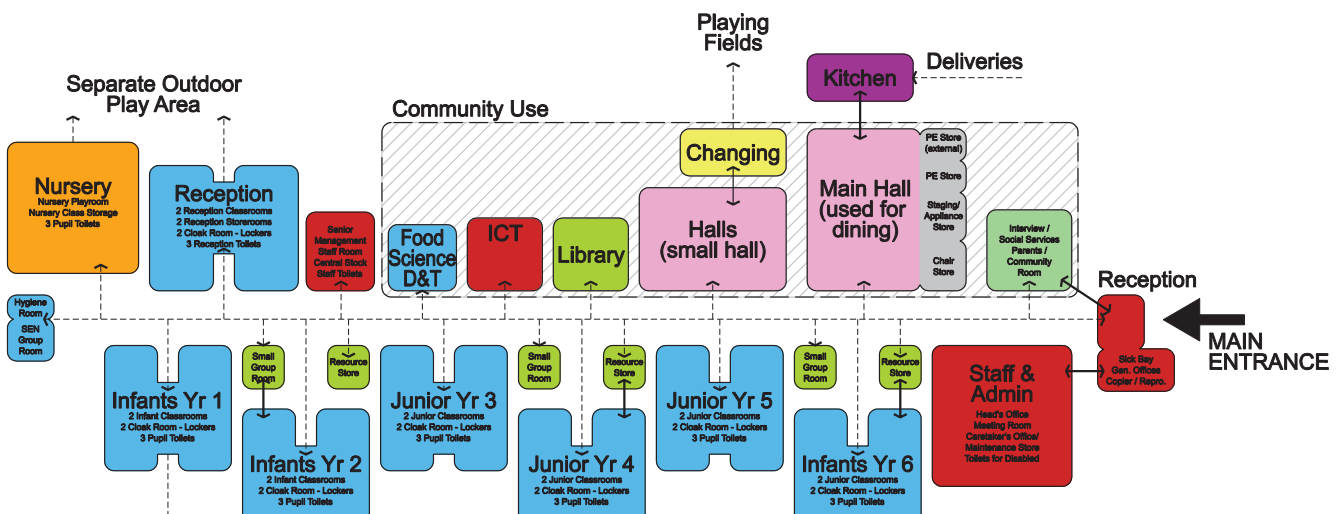
A key figure was socially-minded developer Nigel Hugill, formerly managing director of Chelsfield and at this time executive chairman of Lend Lease Europe. Hugill encouraged development of an academy and Lend Lease as the school’s sponsor. Although Hugill later resigned from the firm, he remains personally involved as chair of Chobham’s trustees.

AHMM was now invited to validate the academy’s provisional form in context, design it in detail and retest its suitability for other uses during the Games.

The diagrams (right and below) show the traditional departmental structure of a secondary school, primary school, and the useful links between subject areas.



Secondary school organisation diagram - from building bulletin 98

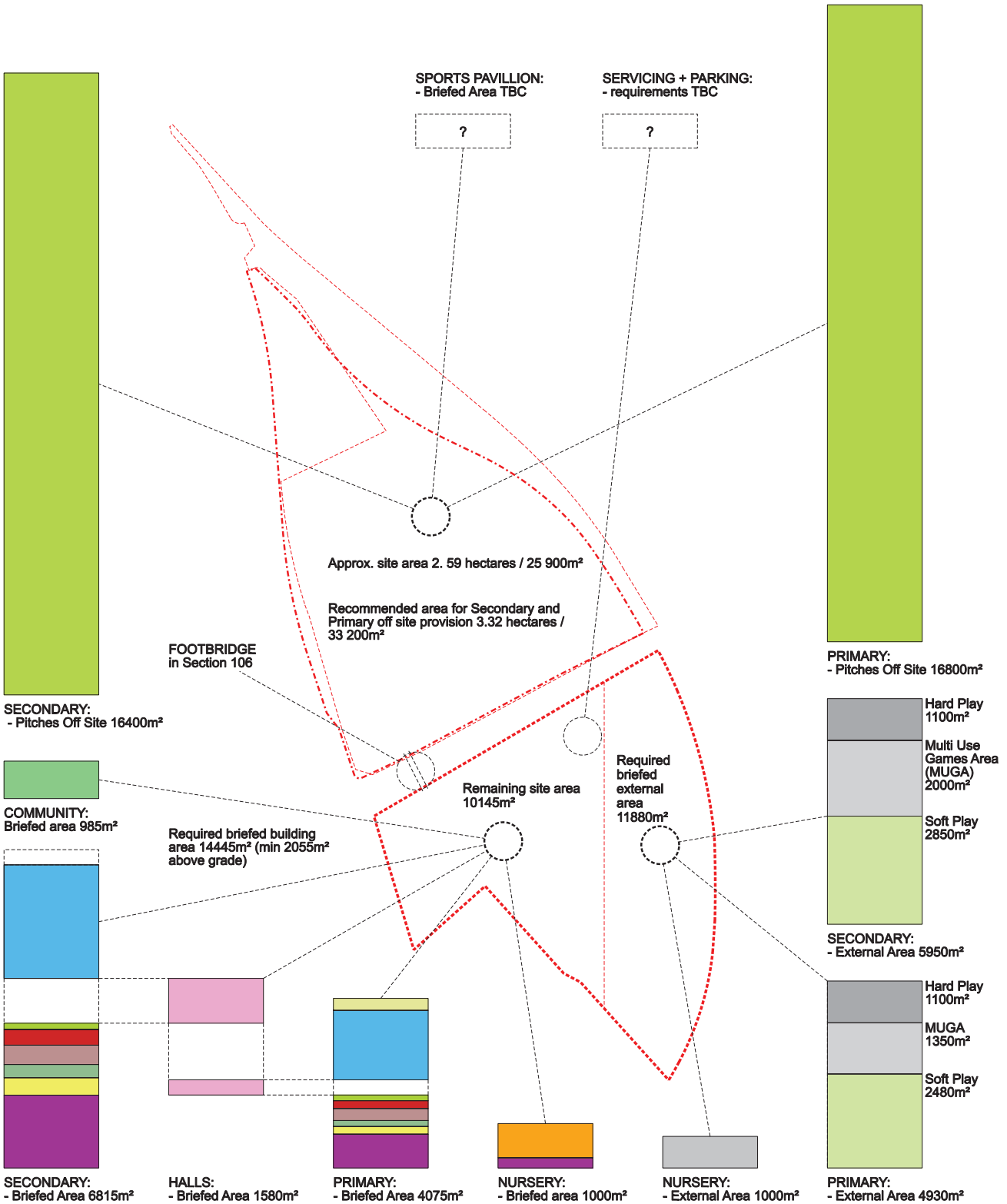


- KEY**
- Community use
 - Teaching area
 - Nursery area
 - Staff / Admin
 - Halls
 - Learning Resource Area
 - Sports and Changing
 - Kitchen / Dining / Social

Primary school organisation diagram - from building bulletin 99



REMOTE OFFSITE PROVISION 48 000m²

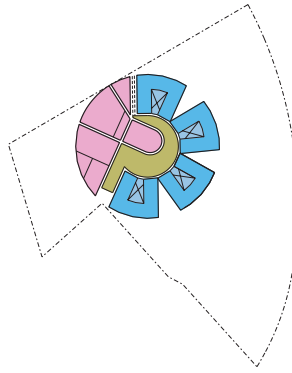


Educational Models

Evolution of the masterplan had cleared an axis to concentrate more visibly on the school. Returning to the site, AHMM reviewed the drum shape in light of the earlier existing London street grain analysis and also thoroughly investigated alternative theoretical and constructed spatial layouts for the requirements of a typical academy. The lack of involvement from an existing school brought freedoms, but also unanswerable questions as to future intentions.

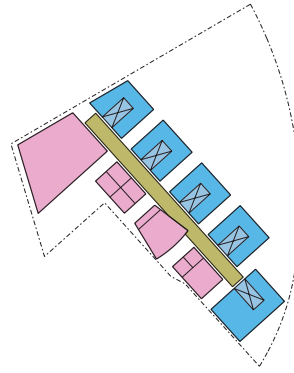
AHMM identified three organisational types illustrated in the diagrams below, which represent different models of school planning. The three types are 'Street', 'Courtyard' and 'Campus'.

While 'Campus' defines a particular architectural strategy (individual and distinct buildings), both 'Street' and 'Courtyard' are principles that can be defined within two different architectural forms - the 'drum' building and the 'mat' building.



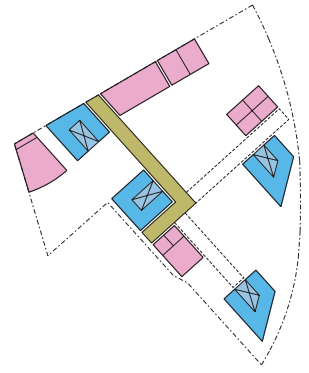
Drum

> Shared (pink) spaces face community uses; cellular (dedicated education) face playgrounds; a strong geometry shapes the diagram



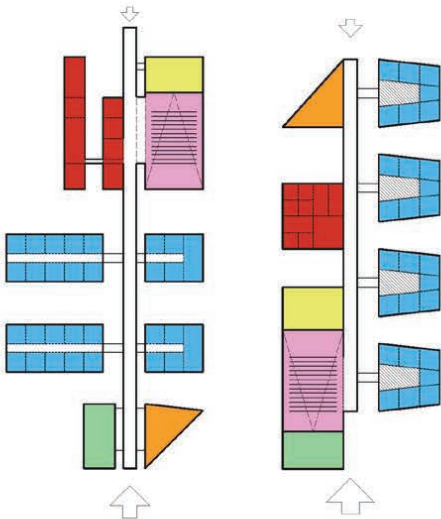
Matt

> Shared (pink) spaces face street frontage; classrooms to private side; a clear diagram



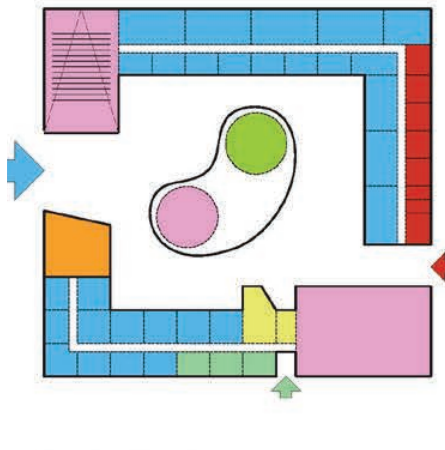
Campus

> Different buildings take on different identities; pink (shared) facilities near public routes; a looser shaping of the diagram



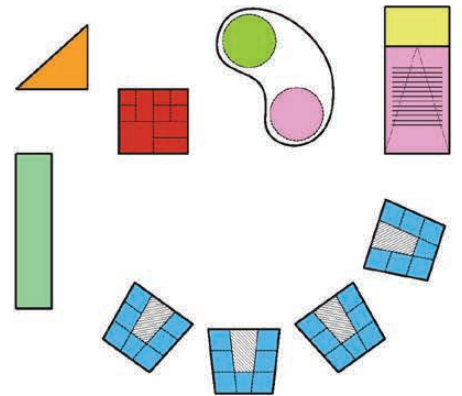
Type 1: Street

> Historically popular principle of organising functionally separate spaces into a school community



Type 2: Courtyard

> BSF exemplar All-Age Academy



Type 3: Campus

> Traditional model of school with individual buildings arrange over the site

Type 1a: Street with clusters

> Departmental spaces can be grouped into clusters, recouping circulation to use as bonus amenity area, and possibly providing pastoral 'houses' with physical identity

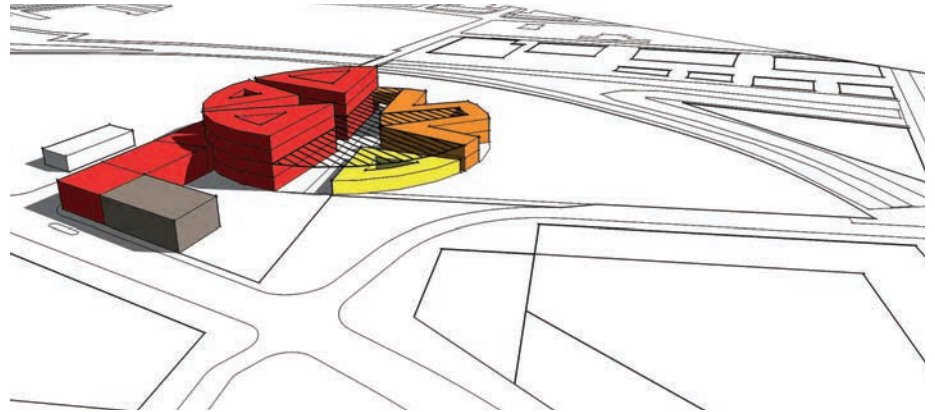
KEY

- Community use
- Teaching area
- Nursery area
- Staff / Admin
- Halls
- Learning Resource Area
- Sports and Changing
- Core

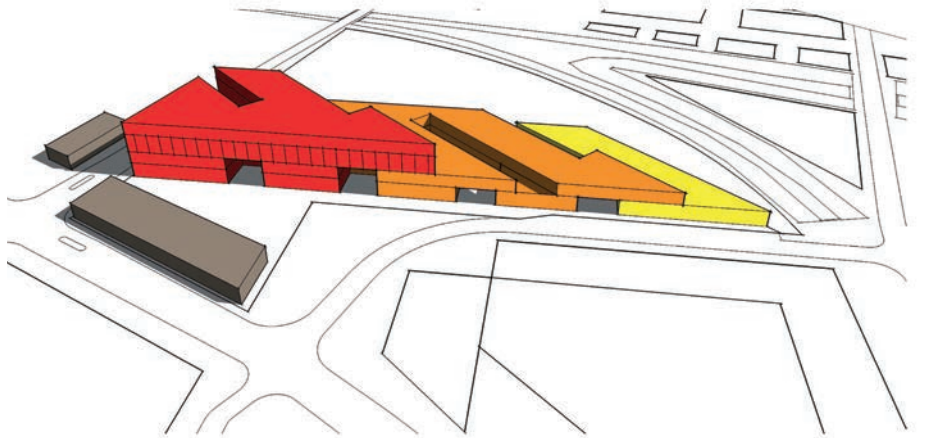
Design Options

AHMM determined that the drum form would allow the school to become an effective marker building at its terminus. It also replied equally to the old and new sides of the site. Various radii were explored to successfully verify that a circular plan would be neither more expensive to construct nor less practical than a more conventional shape, and determine the optimal size of rooms.

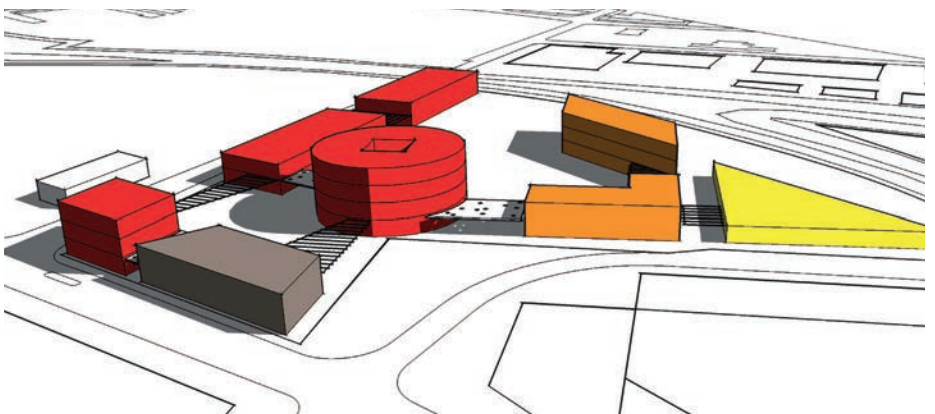
Considerations of programme, flexibility, security and expandability saw other buildings placed to make an urban, site-specific campus that delineated the borders of that site but also engaged with the surrounding streets. A new public realm emerged between the two providing shelter, entrances and good community access. Within the buildings were placed clusters of classrooms with larger-span spaces for specialism areas.



Drum layout



Matt layout



Campus layout

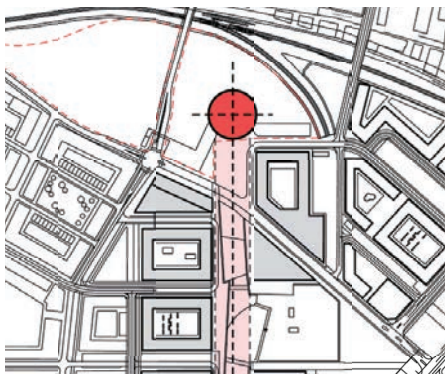
Chobham Harris Academy

Urban Integration

The relationship of the school buildings to the masterplanning and emerging massing of the residential buildings that form the majority of the Stratford City Development was key to crystallising AHMM's decisions on how the school would operate on a functional level, as well as fulfilling the aspirations of the building as an urban marker. Predating the Stratford City Development as the Athlete's Village, AHMM had looked at this particular site as a school for Chelsfield. This is when the idea was formed that a predominantly round building has no front or back and equally addresses the existing Leyton and the emerging Stratford City communities.

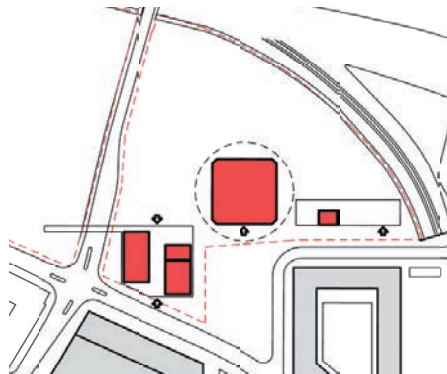


Model of the 70m drum selected for initial development



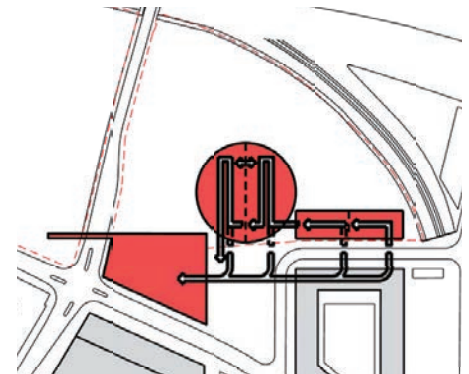
Drum within masterplan

- > Drum should be located on the central axis of the cascades



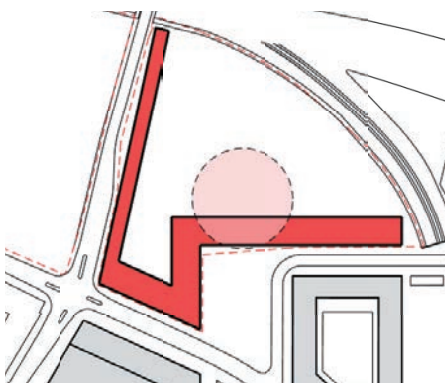
Community Access

- > Functions that can benefit the community, halls, resource centres and sports facilities should be located on the ground floor
- > Community use functions should be visible within the overall mass of the building



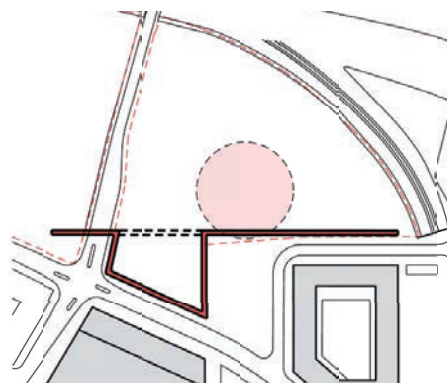
Linear progression of education

- > Building should follow a progression from Nursery through Primary and Secondary to Community
- > Access to specialism facilities for all ages



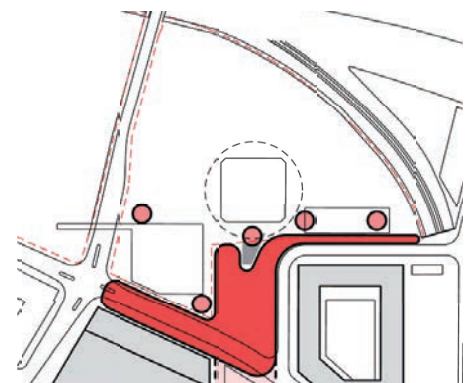
Urban edges of the site

- > Urban edges of the site should be defined by buildings as far as is possible



Urban Forecourt & Entrances

- > Each portion of the school should have its own defined entry
- > School main entrances should be off the urban forecourt at the head of the cascade
- > Community entrances should be located off the urban forecourt, but also adjacent to community uses and the buildings opposite



Colonnade / Screen / Wall

- > Urban face of the building can provide shelter, entrances and shade, creating a screen colonnade element
- > Colonnade can link directly into bridge connection across Temple Mills Lane

Chobham Harris Academy

A Public Building in Stratford

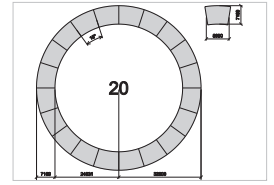
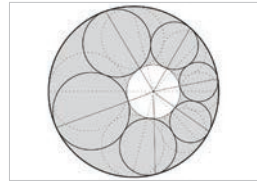
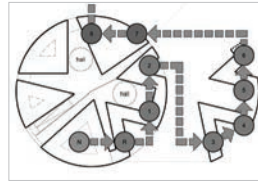
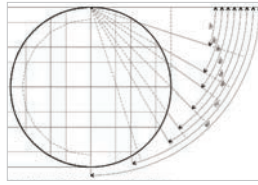
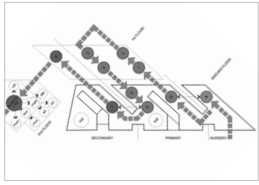
The school is a principal civic building in the development. In a traditional cityscape the most significant civic buildings were given the greatest prominence. Historically, those buildings were churches and town halls, and strong axial relationships were arranged to guide the eye to a set-piece of classical architecture. The architecture of modern schools can function in a similar, less formal way, providing strong urban and community focus. It became evident that the 'drum' solution for the academy was the most appropriate in the context of the Stratford City development, placing the drum at the termination of the masterplan's major landscape axis. In addition to dedicated education facilities for community use, some school facilities will be available for out-of hours use by residents of Stratford City and the wider catchment area. Sports playing fields, indoor sports hall, dance studios, and a fully functioning 190 seat theatre were identified as the Academy's key spaces and appropriately positioned on site for secure school use and open public access.



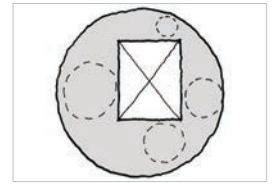
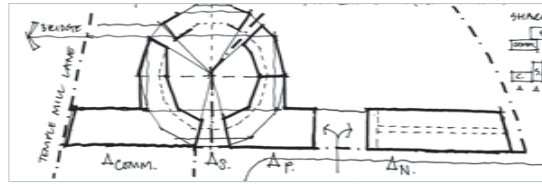
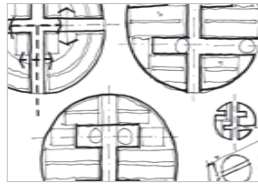
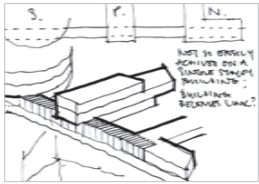
Campus

Chobham Harris Academy

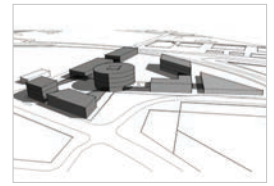
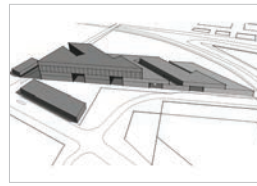
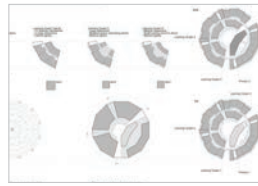
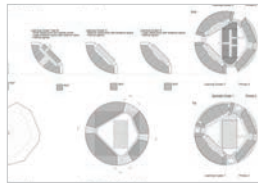
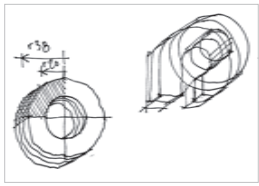
Design Development



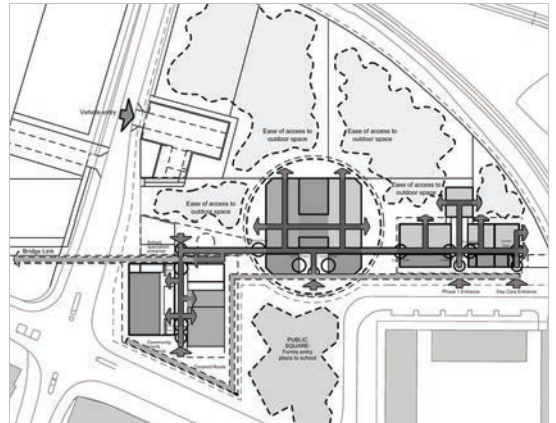
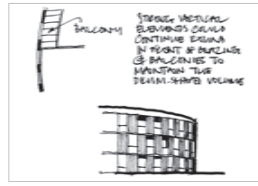
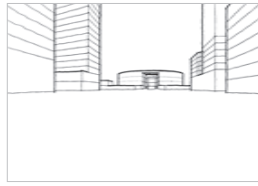
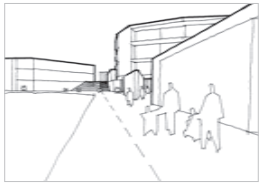
Educational organisation



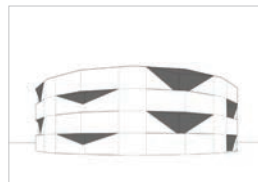
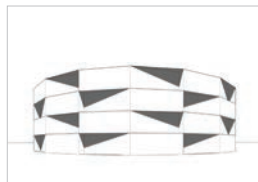
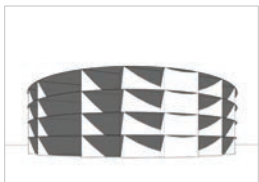
Educational organisation



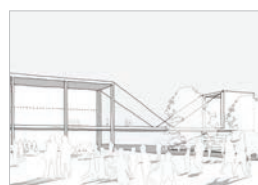
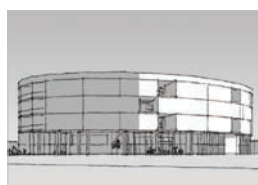
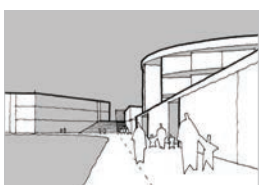
Spatial development



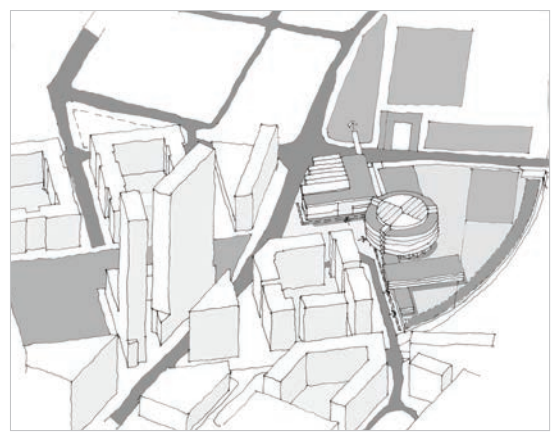
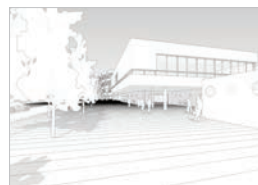
Drum development



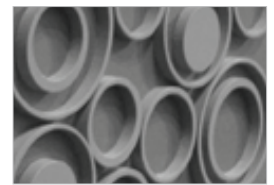
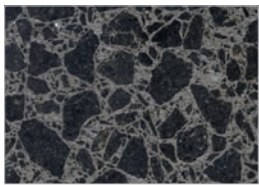
Drum development



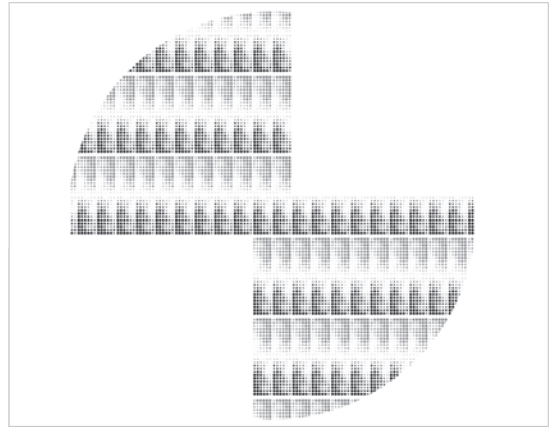
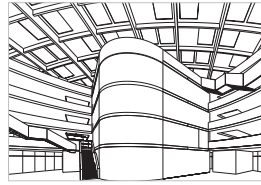
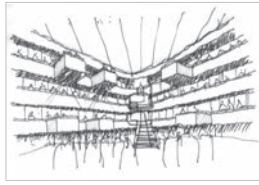
Campus organisation



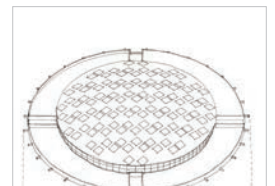
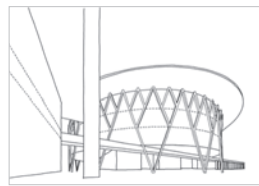
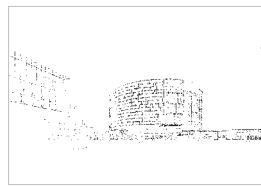
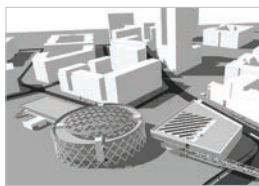
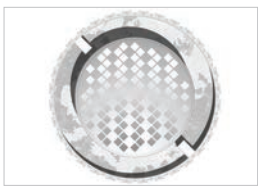
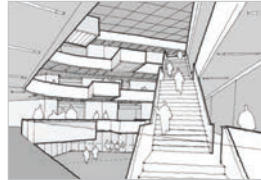
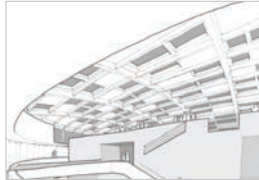
Campus organisation



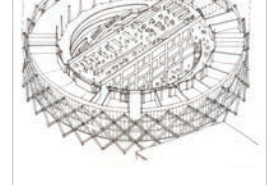
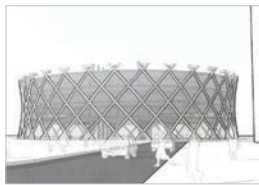
Facade development



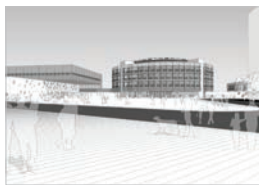
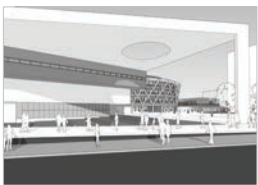
Atrium roof development



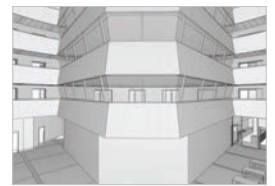
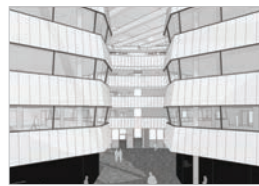
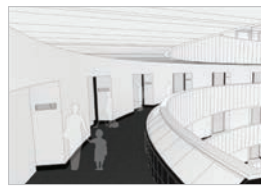
External lattice



External lattice



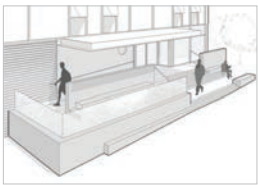
Public interface



Concept development



Concept development



Concept development

Chobham Harris Academy

Elements

Chobham Harris Academy comprises three buildings that are linked to each other and work independently but also together, reflecting usage of and progress through the school by its pupils and availability for the wider community.

Phase 1: Infant School

The infant school occupies a two-storey rectilinear block to one side of the drum, with its own entrance. A day care centre, currently run separately from the academy, has a directly south-facing play area whose five wall portholes will be ringed with bright Olympic colours. Here, the architectural language has been adapted to be as sensitive as possible to very small children for whom a single storey is a double height space. Nursery and reception spaces on the ground floor open onto their own play areas. On the upper floor teaching spaces share a top-lit corridor, with an external stair making a direct connection to the playground.

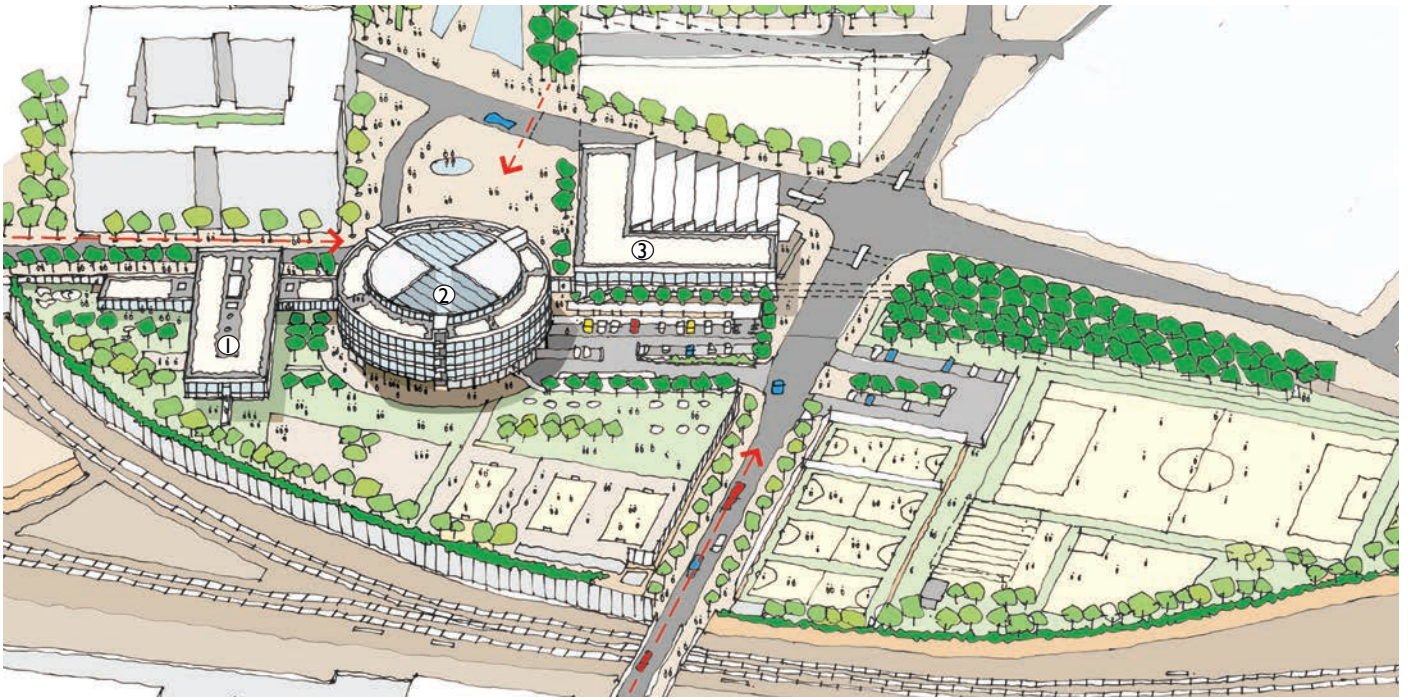
Phase 2: Upper School

A ground level connection is made to the five-storey drum-shaped structure of the middle and upper school. A full-height atrium is overlooked by open galleries on each floor. It is pinched by two stacks of wedge-shaped 'lobes' projecting into it, subtly demarcating a more private area beyond for dining and cafe areas. Access to the playground is via a covered, external buffer space, a comfortable place on a rainy day.

The main public entrance is a glazed box with discreet security and monitoring control, and secondary entrances link to the other buildings. The lobes hold more fully-serviced teaching areas, acoustically and thermally separated, and feature glass and spandrel panels gently inclined at opposing angles. Three roof terraces with views to the City and beyond are fully usable as open-air teaching spaces. Roughly a third of the building may be isolated to allow separation at age 11 or 12 if desired.

Specialism Building

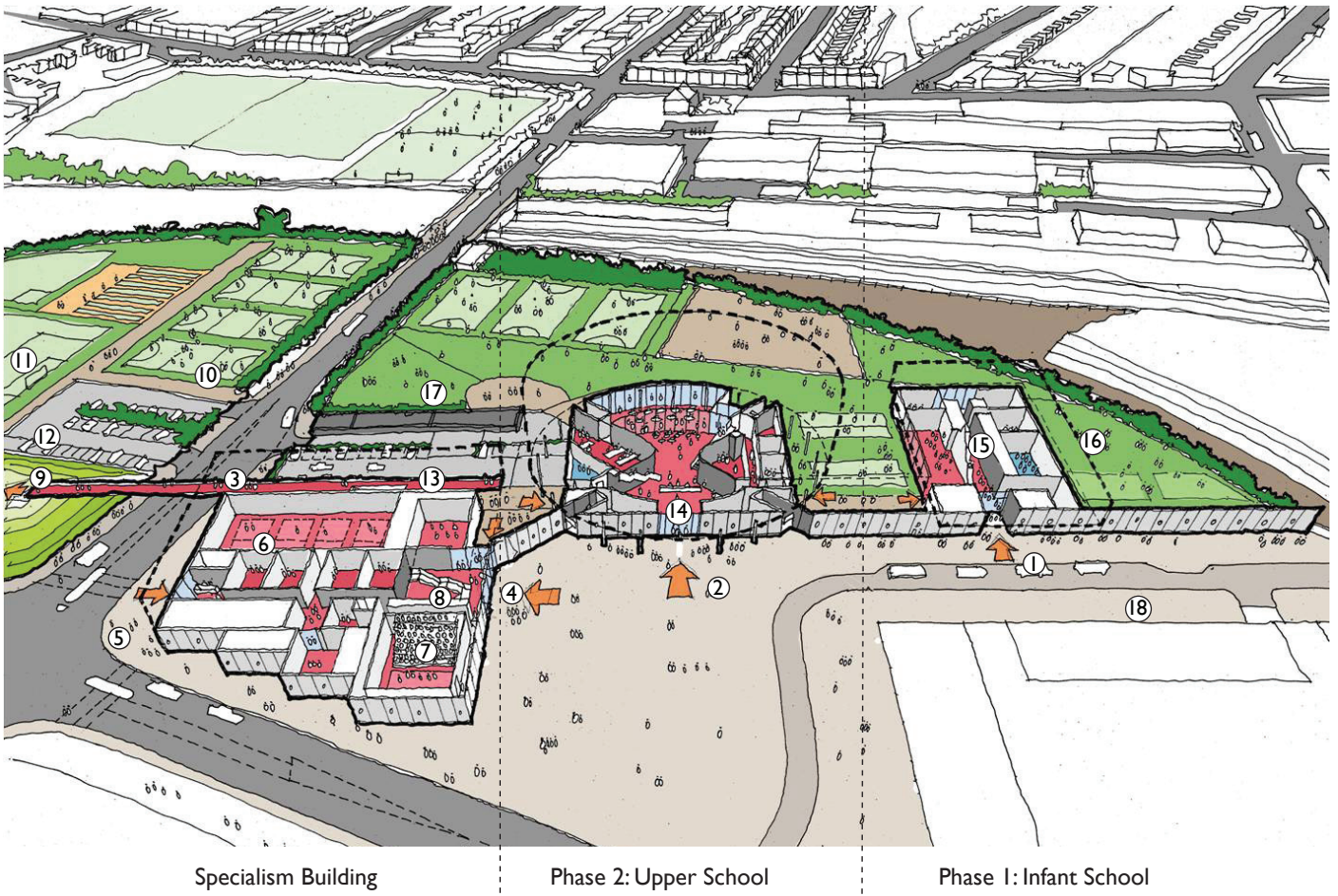
The specialism building is equipped with a theatre complete with rehearsal space and retractable bleacher seating, dance and drama studios, music rooms, art and design technology rooms top-lit via generous north lights and a sports hall. Entered from the playing fields during the school day, there is also an entrance from the public square; a continuous canopy here wraps around a corner of the building, a welcoming gesture recalling classic inter-war theatre and cinema architecture. The sports hall can be locked off from the rest of the school for community use through a third entrance.



KEY

- 1 Phase 1: Infants School
- 2 Phase 2: Upper School
- 3 Specialism Building

Aerial view of Chobham Harris Academy



Specialism Building

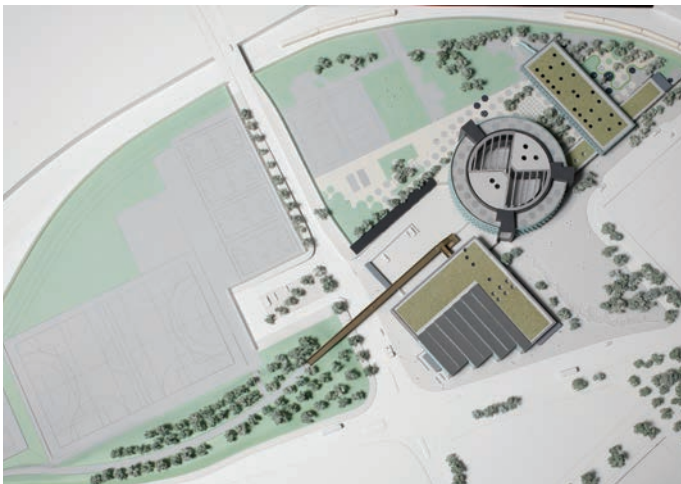
Phase 2: Upper School

Phase I: Infant School

KEY:

- | | |
|---|--|
| 1 Phase I entrance | 10 Public use MUGA |
| 2 Phase 2+3 entrance | 11 MOL / school playing fields |
| 3 Temple Mills Lane entrance | 12 MOL Carpark |
| 4 Public entrance to cultural events | 13 School carpark + servicing |
| 5 Public entrance to sporting facilities and changing | 14 Phase 2+3 Atrium |
| 6 4-court sports hall | 15 Phase I reception + nursery |
| 7 Auditorium | 16 Nursery and Day care external area |
| 8 Lobby / exhibition space | 17 Phase 2+3 External area including MUGAs |
| 9 Bridge to Playing Field site | 18 Phase I School drop-off zone |

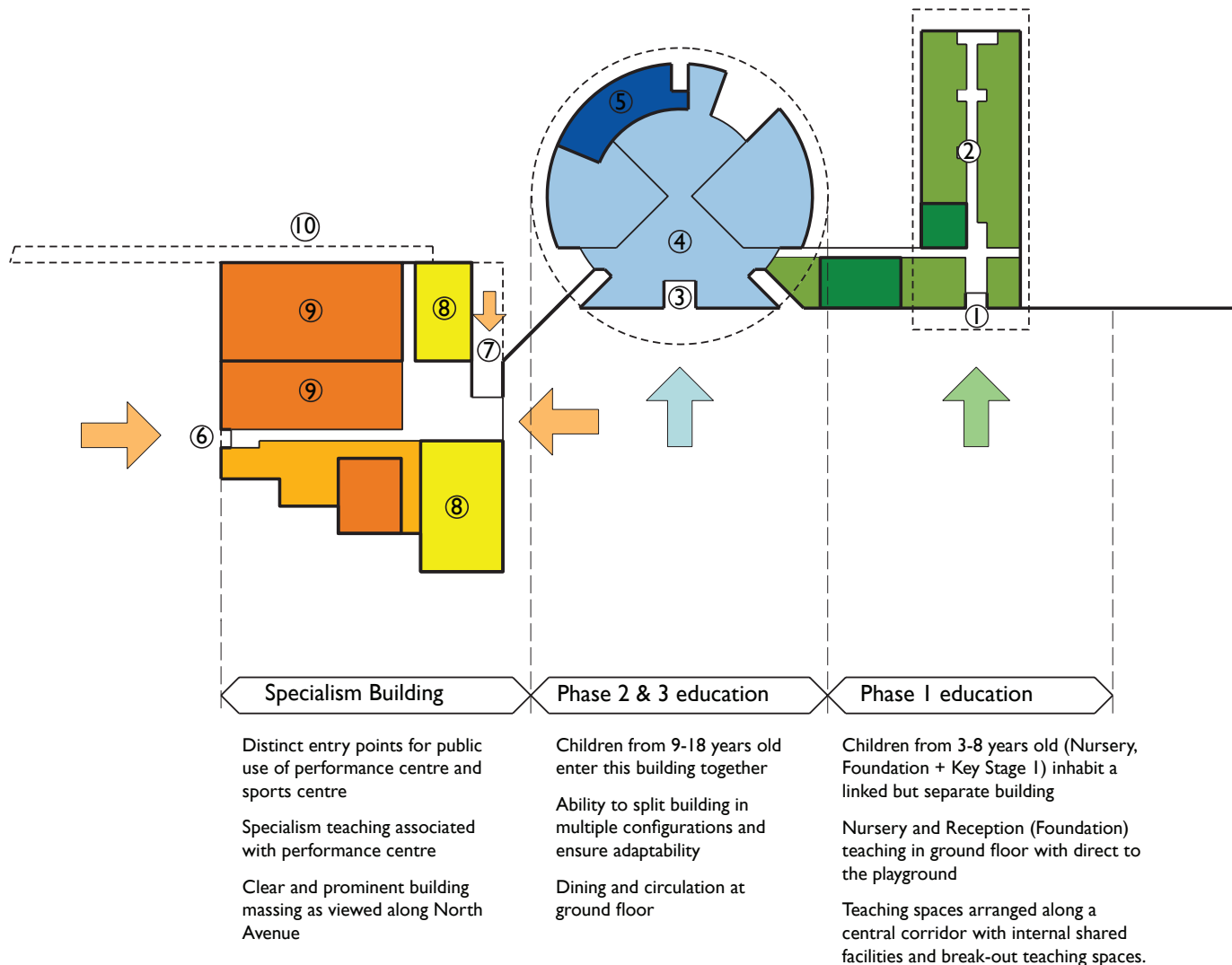
Strategic arrangement of the building



Aerial model view of Chobham Harris Academy



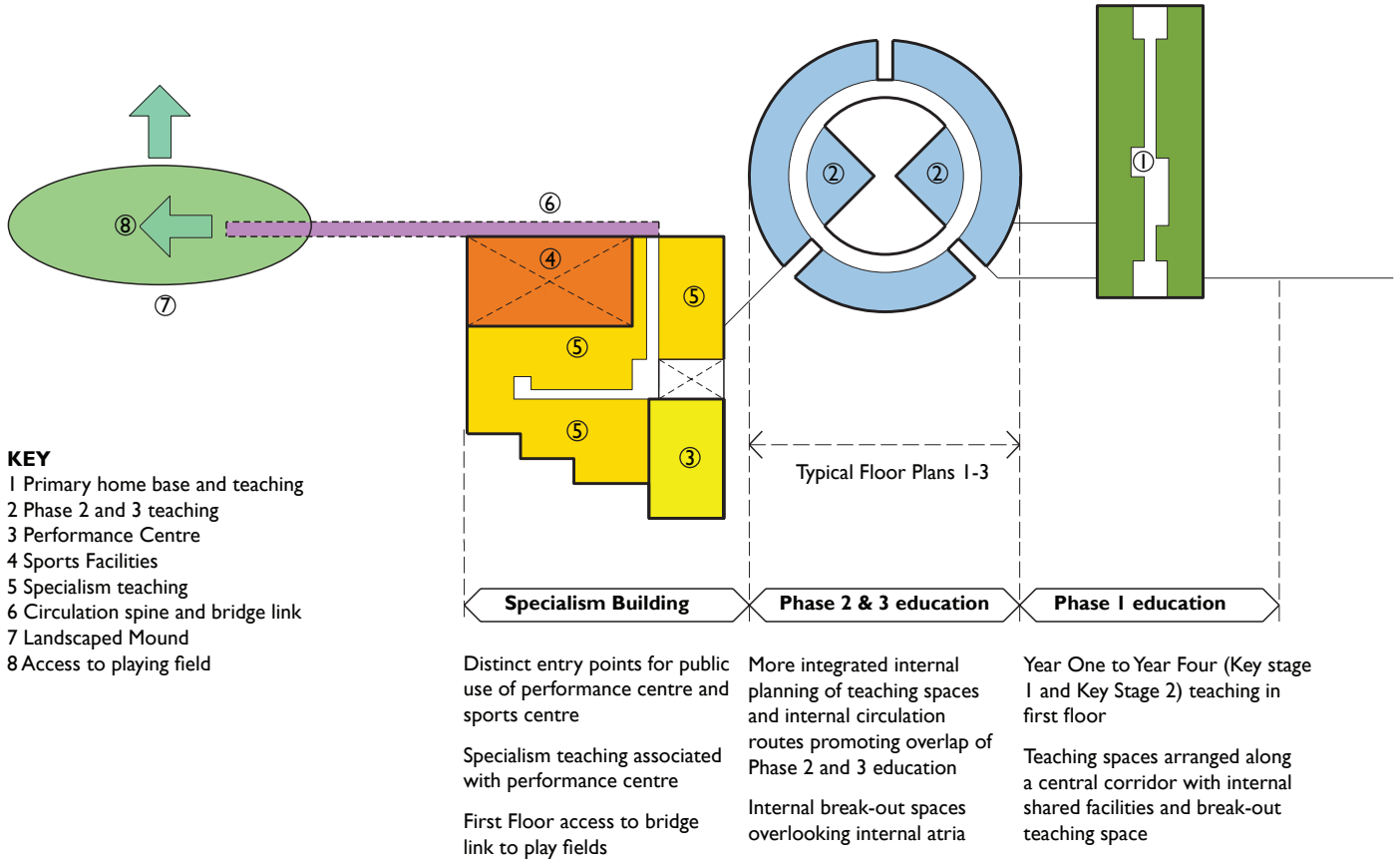
Detailed model view of Chobham Harris Academy



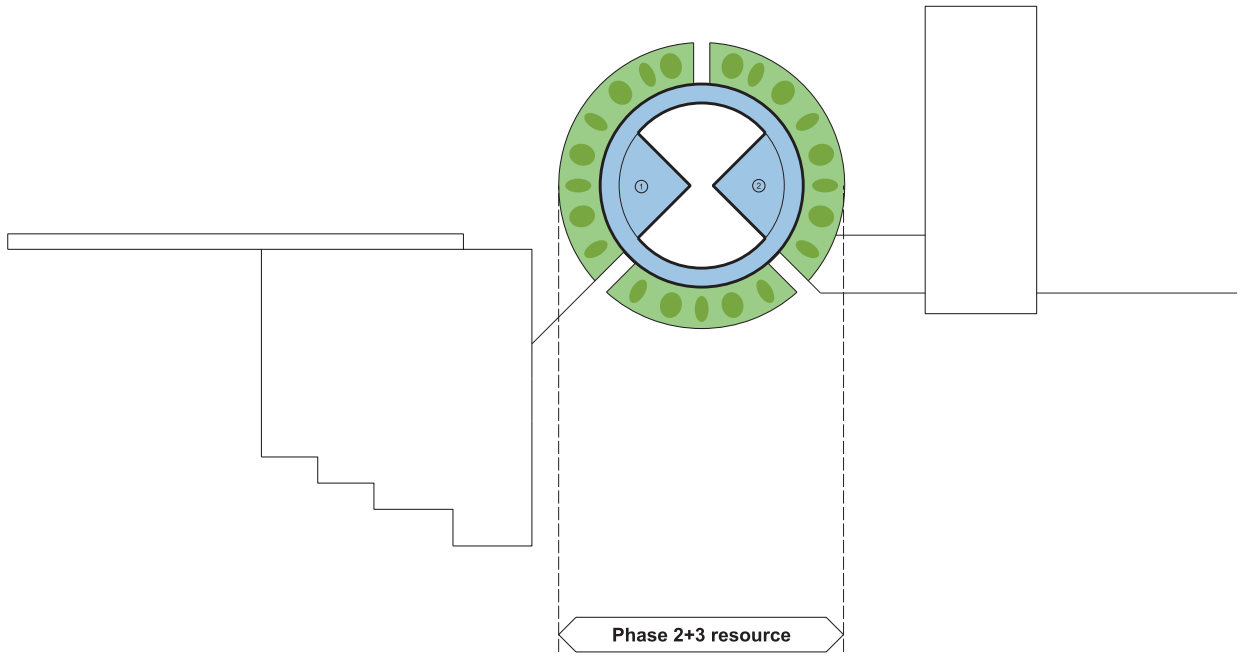
KEY

- 1 Nursery and Phase 1 drop-off
- 2 Phase 1 Building (Nursery and Phase 1)
- 3 Phase 2 and 3 entry
- 4 Main School Building (Phase 2 and 3)
- 5 Shared Facilities (Dining)
- 6 Specialism Building - Community Sports entrance
- 7 Specialism Building - School entry
- 8 Specialism Building - Performance Centre
- 9 Specialism Building - Sports Facilities (Sports Hall and Changing Rooms)
- 10 Circulation Spine and Bridge Link

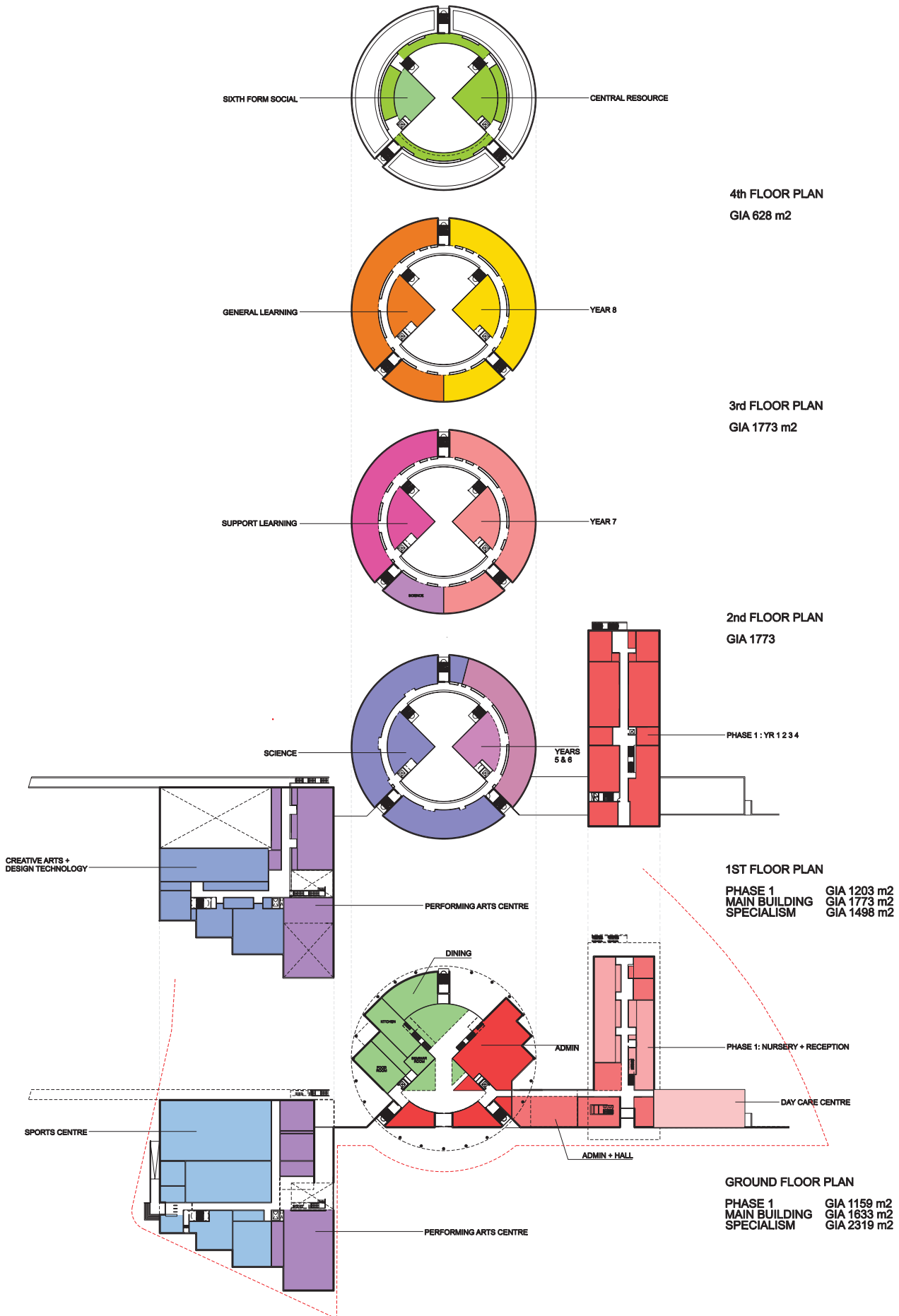
Campus Organisation: Ground Floor



Campus Organisation: First Floor

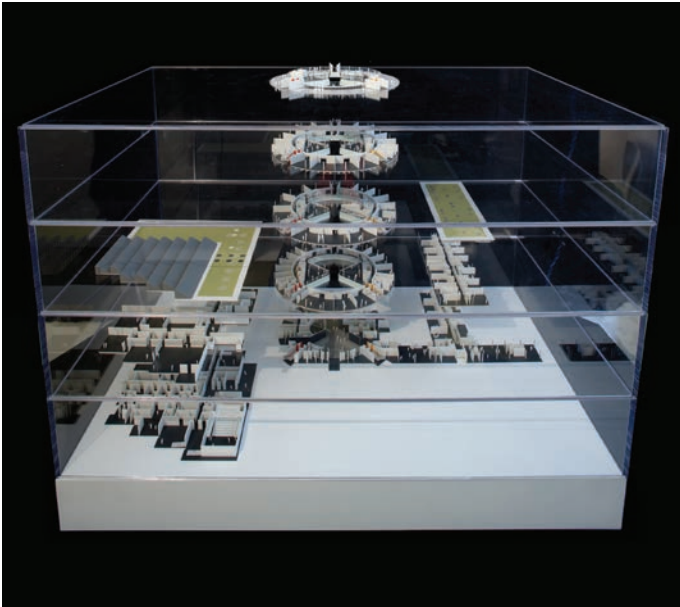


Campus Organisation: Fourth Floor

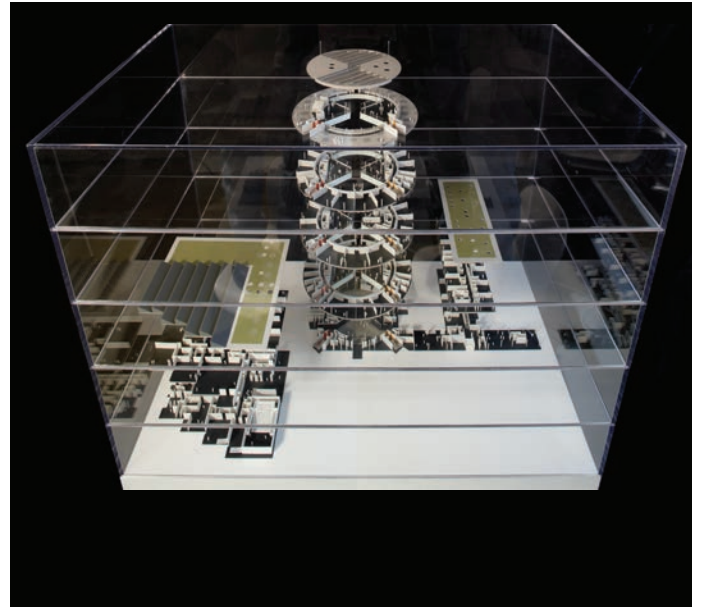


Chobham Harris Academy

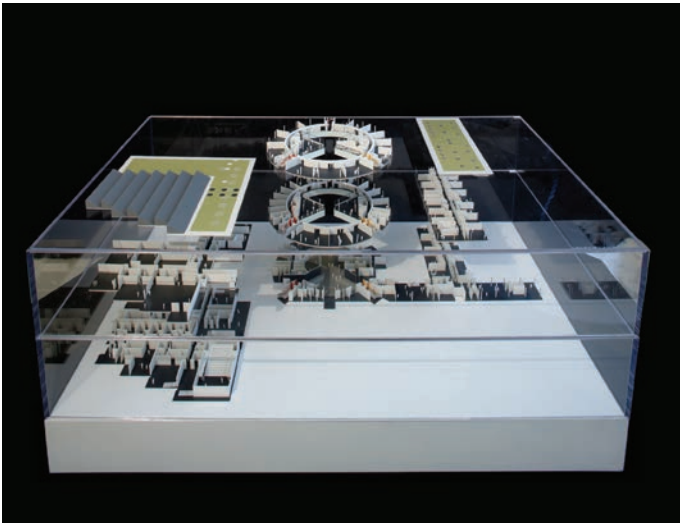
Chobham Harris Academy cluster models



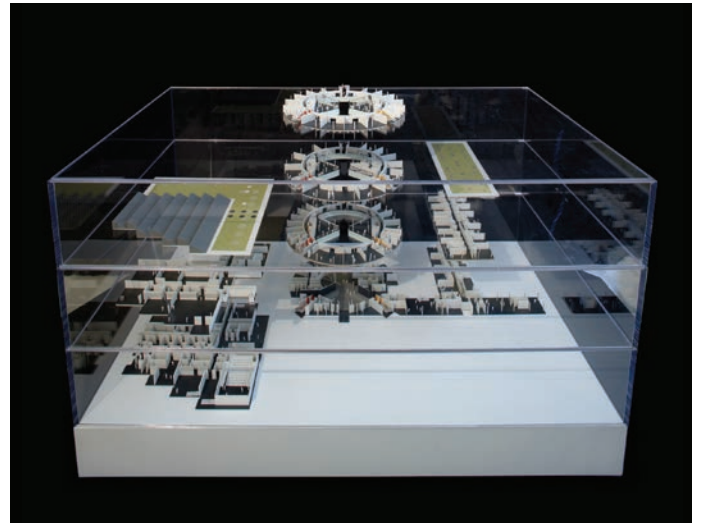
Fourth Floor cluster model



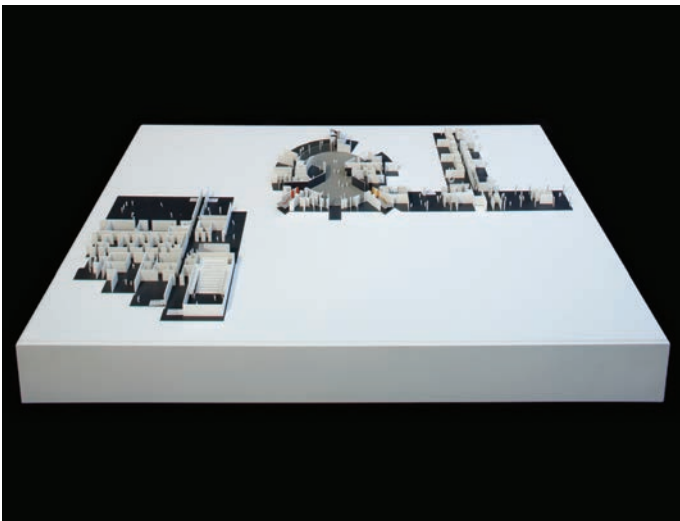
Roof cluster model



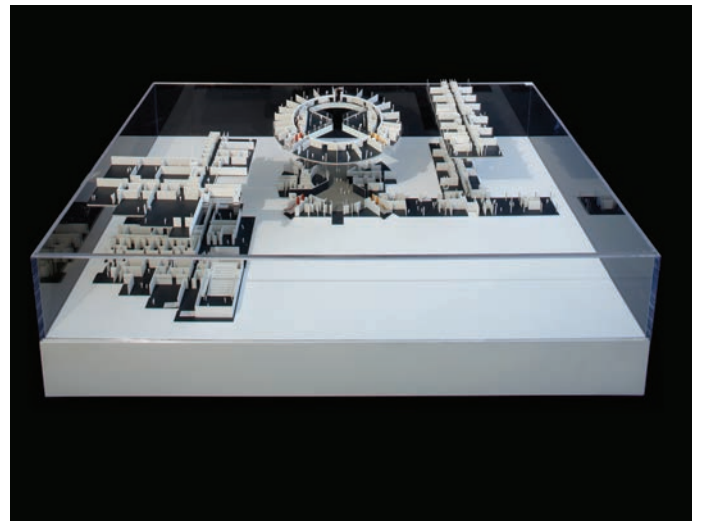
Second Floor cluster model



Third Floor cluster model



Ground Floor cluster



First Floor cluster model

Landscaping

The campus is integrated into its surroundings through its landscaping strategy as well as its materials, generating a significant new public realm. This manifests itself in often-subtle details.

The school is somewhat higher than the surrounding streets through gentle manipulation of levels, discussed at an early stage with Nigel Hugill and an unusual benefit made possible by distribution of spoil from site-wide tunnelling works. It is circled by a low wall, of the same polished concrete as the plinths of its buildings. A single line of Tennyson's Ulysses has been selected for installation along the length facing the square following a public competition.



Across the play areas, hard and soft materials are used to make ponds, catwalks, games areas and seating. An acoustically-absorbent willow-bundle hedge, gently illuminated at night, shields the campus from a railway line at its furthest boundary and brings a perception of depth across the site.



KEY

- | | |
|--|------------------------|
| 1 Nursery block (Nursery and phase 1) | 15 MUGA |
| 2 Main school building (phase 2 and 3) | 16 Primary pitch |
| 3 Specialism building | 17 Cricket nets |
| 4 Phase 1 entry and drop-off | 18 Forested embankment |
| 5 Phase 2 and 3 entry | |
| 6 School entrance plaza | |
| 7 Public access to sports facilities | |
| 8 School entry to specialism building | |
| 9 Covered external play space | |
| 10 Covered bicycle store | |
| 11 Outdoor performance | |
| 12 Car park | |
| 13 Bridge link | |
| 14 Feature landscape areas (school playground) | |

Sustainability

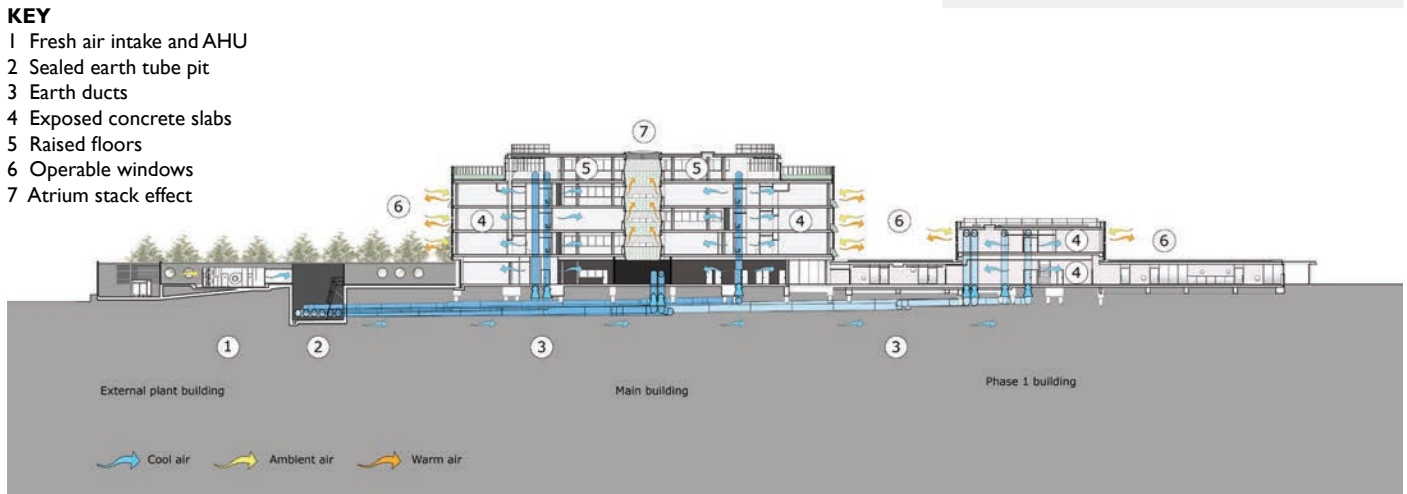
Sustainability is embedded within Chobham Academy. Recycled aggregate is used in concrete. Artificially-chilled air is minimised, and used only for ICT-rich areas. Assisted natural ventilation through the façade cowls supplies working spaces in the main building with heated air which leaves through grilles above internal doors. Mechanical extraction only occurs in the specialism building.

A stand-alone plant room delivers air through wide-bore earth tubes buried six metres below ground to circulation areas in this and the phase I block; such air is between two and four degrees above or below ambient temperature year-round.

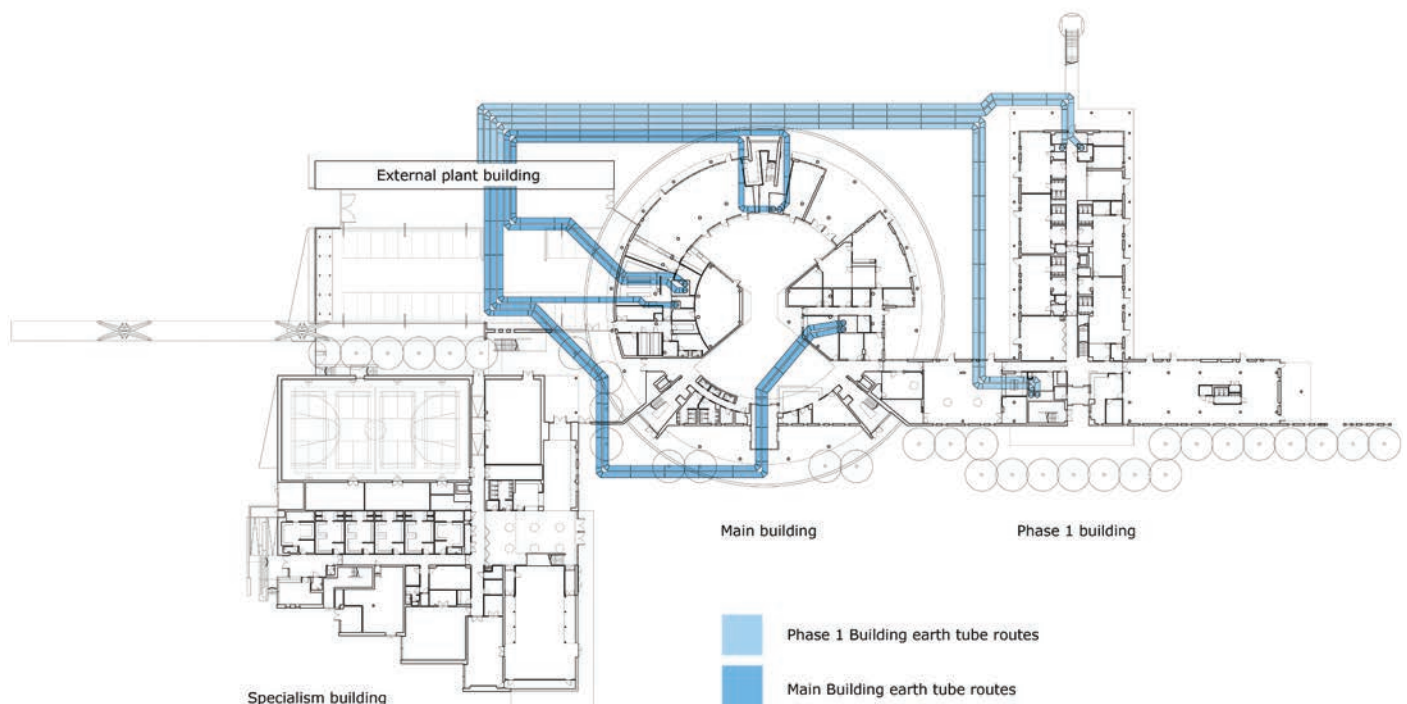
A combination of meadow flower-seeded turf, planters and 'brown' roof features top the buildings, promoting biodiversity and strengthening amenity for users and neighbours.

Environmental Data

- **BREEAM** : Excellent (target)
- **CO² emissions reduction beyond Building regulations Part L 2006** : 40%
- **Materials** : All A-C rated in the Green Guide, compliant with Lend Lease grey lists of undesirable materials and ISO 9001 and 14001 certified
- **Recycled content (proportion of secondary materials as percentage of value)** : 23%
- **Recycled aggregate (proportion of secondary materials as percentage of mass)** : 26% in slabs and 38% in foundations and substructure
- **U-values**
 - walls : 0.30 W/m² K
 - roof : 0.20 W/m² K
 - floorslab : 0.20 W/m² K
 - glazing : 1.15 W/m² K



Sectional earth tube diagram



Ground floor plan showing routes of the earth tubes



The Code for Sustainable Buildings

This is to certify that

**Chobham Academy School,
Chobham Place,
London
E20 1GL**

has achieved a score of 70.70%, and a BREEAM rating of

EXCELLENT



Pass



Excellent

This Design and Procurement assessment was carried out under the 2006 version of BREEAM Schools

Signed on behalf of BRE Global Ltd

15th February 2012

Date

Jane Boyle

Licensed Assessor

Buro Happold

On behalf of

Lend Lease

Client / Developer

Allford Hall Monaghan Morris

Architect / Design Team

Buro Happold

Building Services Engineer

Adams Kara Taylor

Structural Engineer

Certificate Reference: BH-SCH-JB24-4

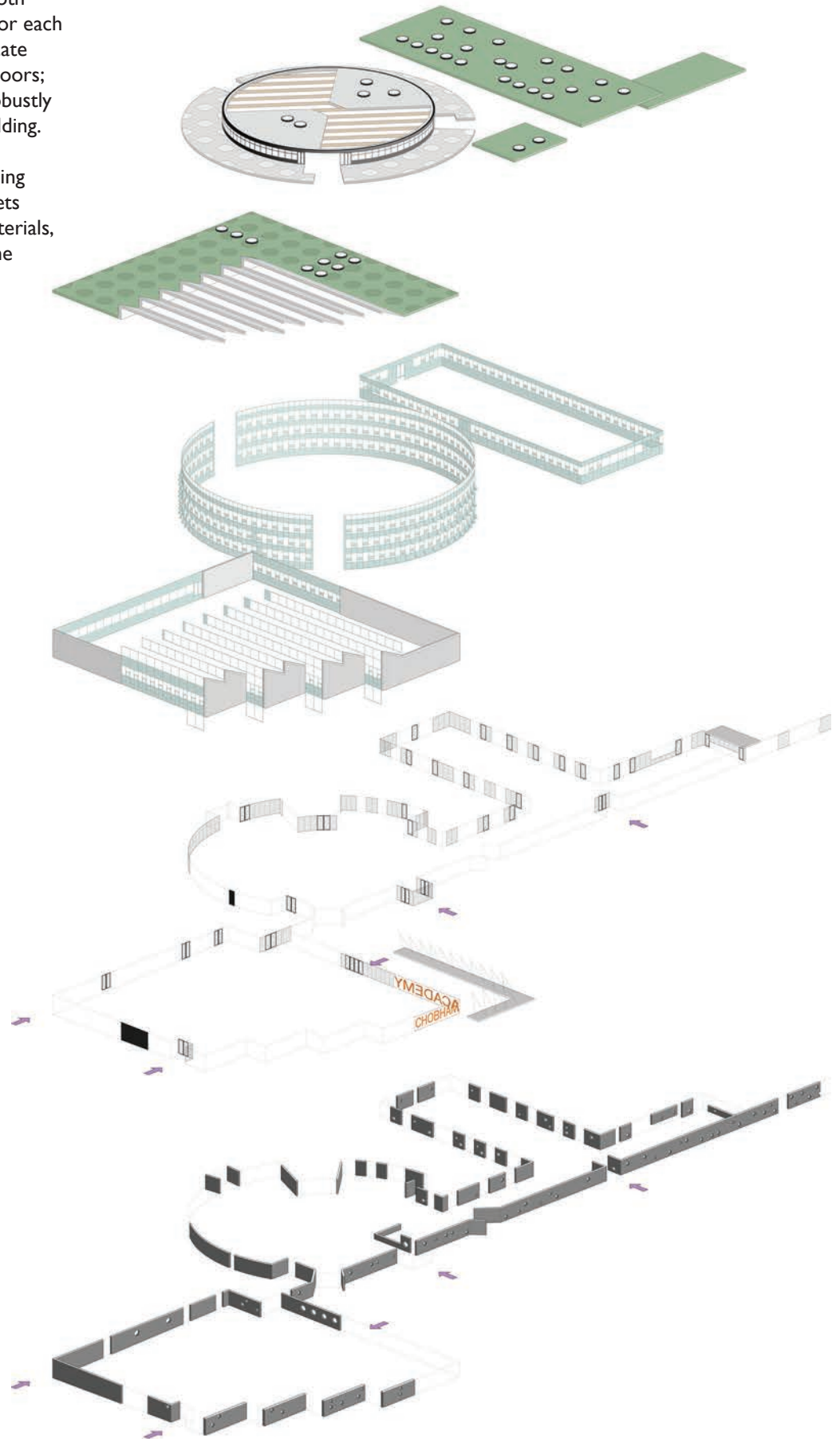


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www.breeam.org

Architectural Composition

Externally, the buildings are articulated by three principal materials: smooth black concrete, a unifying plinth for each element; curtain walling in a delicate pale green, enclosing the upper floors; and light grey concrete panels, robustly ribbed, to clad the specialism building.

The diagram right splits the building into different components, and sets out the relationship between materials, and the colour strategy across the various elements.

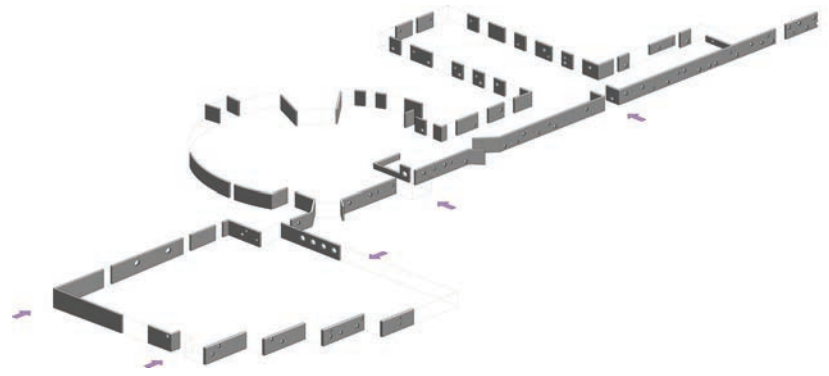


Architectural Composition

Concrete Podium Wall

The design of the building employs a continuous ground floor linear wall to all three buildings, uniting the three separate masses on one base. This element positively and simply defines the urban realm and site enclosure and has the characteristic of solidity and permanence. The wall is smooth, simple in detail and monolithic, to contrast against the more complex, articulated surface textures of the building masses above.

The plinth wall is of concrete self-coloured by the use of black aggregate in a dark grey matrix. Pre-cast in sections, it is highly polished to provide a calm face to the street, in contrast to the more highly modelled storeys above.



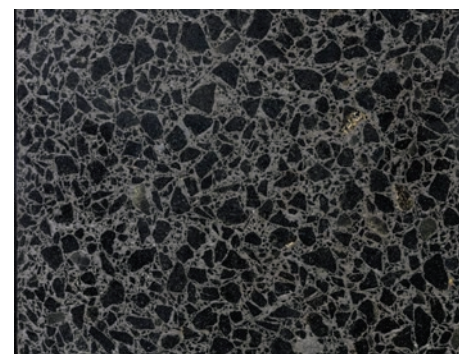
Podium Wall



External view of pre-cast concrete panels



Podium wall punctuated by circular windows, which are framed with black power coated metal



Precast concrete naturally self coloured by the use of large scale black stone aggregate held in a dark grey coloured matrix, with a polished finish.

Architectural Composition

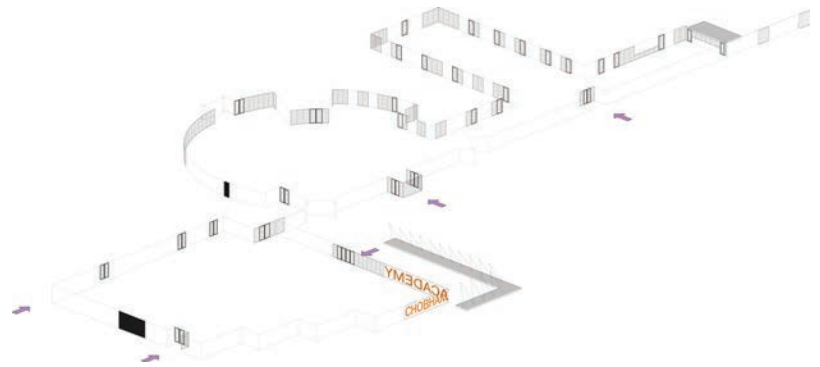
Podium Insertions

The podium wall is punctuated by entrances, windows and display elements. Intended to not detract from the powerful linearity of the wall, gates, fences and punched circular windows are coated with black powder metal work to blend in with the adjacent dark grey precast. Punched circular windows to the Daycare Centre are brightly coloured to express a sense of playfulness.

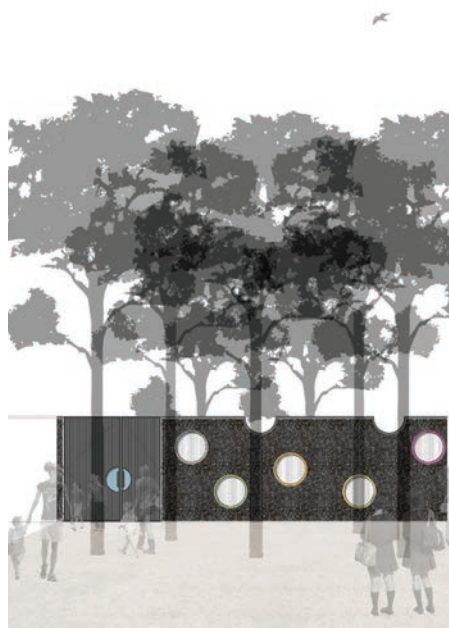
At night, integrated lighting highlights these circular windows. Full height glazing is used extensively within the private side of the school buildings where classrooms are adjacent to the play areas. Large full height openings from the public realm side are limited to the main entrances. Points of entry are therefore very clear and are strongly illuminated at night. In addition, the Specialism Theatre display screen addresses the wider urban realm. This full-height glazed screen is back-lit and has an extensive graphic motif to sign the Academy and the wider community functions of the out of hours uses.

Right

At ground level entrance zones, as well key spaces that require access and visibility to external play areas, have been fitted with shopfront glazing.



Podium wall insertions



External view of pre-cast concrete panels

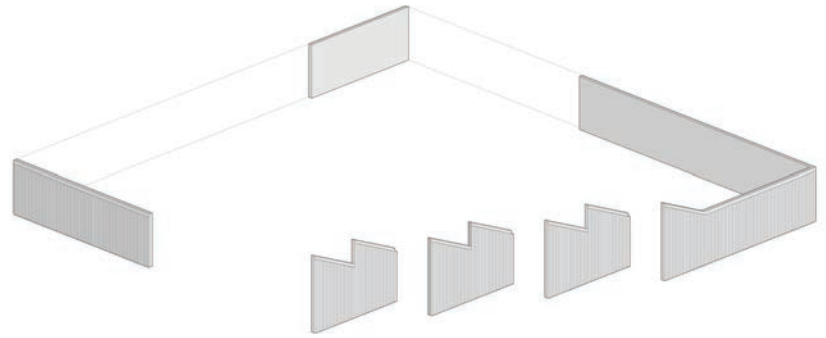
Images of shopfront glazing / gates

Architectural Composition

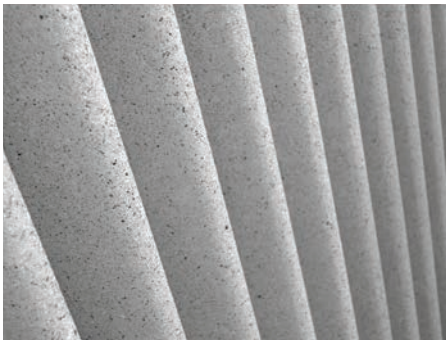
Pre-cast Concrete

The Specialism building has partial full-height facades without fenestration due to the adjacent internal uses of the theatre and sports hall. These facades are clad with precast concrete and treated differently from the ground-level polished wall. The upper areas of concrete are more naturally coloured light grey, with a matt finish to contrast with the polished treatment below.

On parts of the specialism building, the light grey concrete is acid-etched to bring out the silvery flecks of mica present in the mix and moulded into a deep, sinusoidal profile section. The ribbing is drawn back from the top edges of the panels to give a neat finish to a surface that provides a visually effective but economical covering for much of the large box that is this building.



Pre-cast concrete



Pre-cast concrete with vertical sinusoidal ribbing



External view of pre-cast concrete panels



Specialism Building ribbed pre-cast concrete



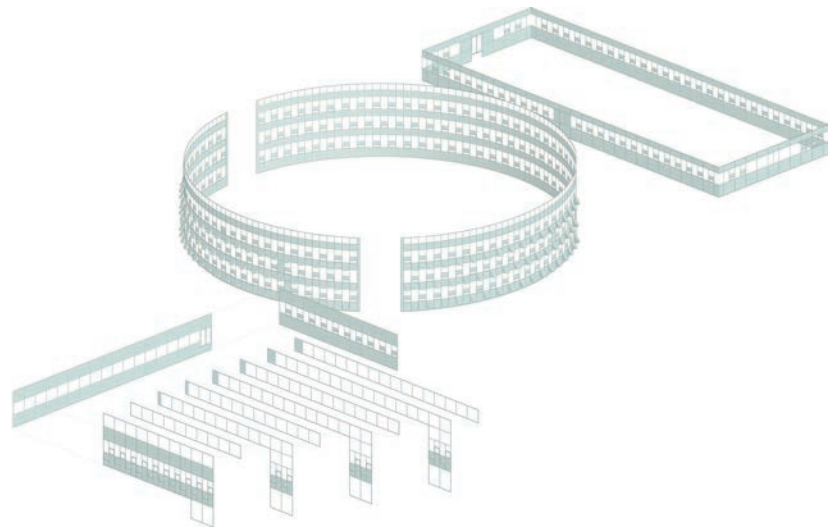
Specialism Building

Architectural Composition

Façade

Above the ground floor wall, aluminium-framed curtain walling forms the skin in a modularised system of repeated cladding panels. The curtain walling employs deep cover caps to generate a crisp, well-defined grid, accented by sloping and projecting air intake cowls.

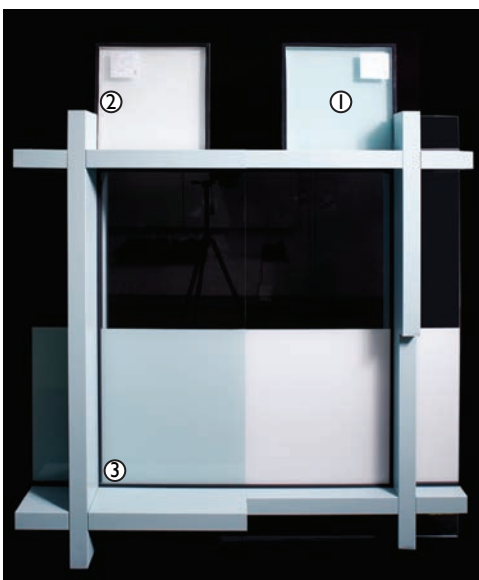
The masterplan called for single-colour buildings in the Olympic Village, and these from a very restricted colour palette. After a flirtation with shades of orange (vetoed by others), AHMM considered the colouration of glass as a natural material. Inherent iron content gives standard float glass a slightly green appearance. This natural tint will change the colour of any paint applied, such as on the reverse of glass spandrel panels which were always intended to be opaque.



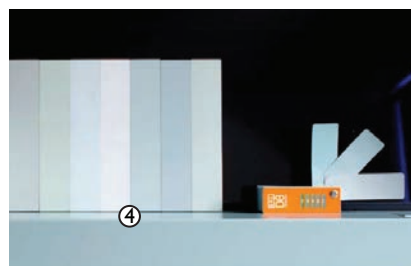
Cladding panels



Early cladding studies



Full-scale sample of the colour strategy



KEY

- 1 Standard glass panel (normal Iron Oxide levels), back-painted white
- 2 Low Iron glass, back-painted white: note true colour transmission
- 3 Spandrel panel mock up, with metalwork painted to match
- 4 Various in-house colour samples and RAL swatches, used to select the colour for the mock-up shown.



Full-scale cladding mock-up

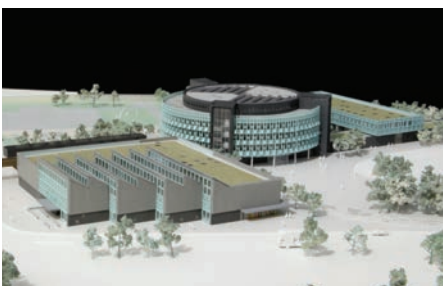
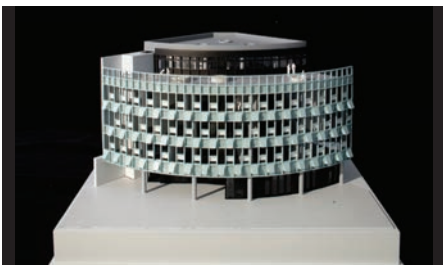
Architectural Composition

AHMM decided to coat all insulated spandrel panels with a simple white colour, which reads as eau de nil when seen through the glass. Importantly this colour is on the back face of the inner pane of a double glazed unit – seen through the sheets of float glass not only is the white turned to eau de nil but a series of small and large scale reflections occur.

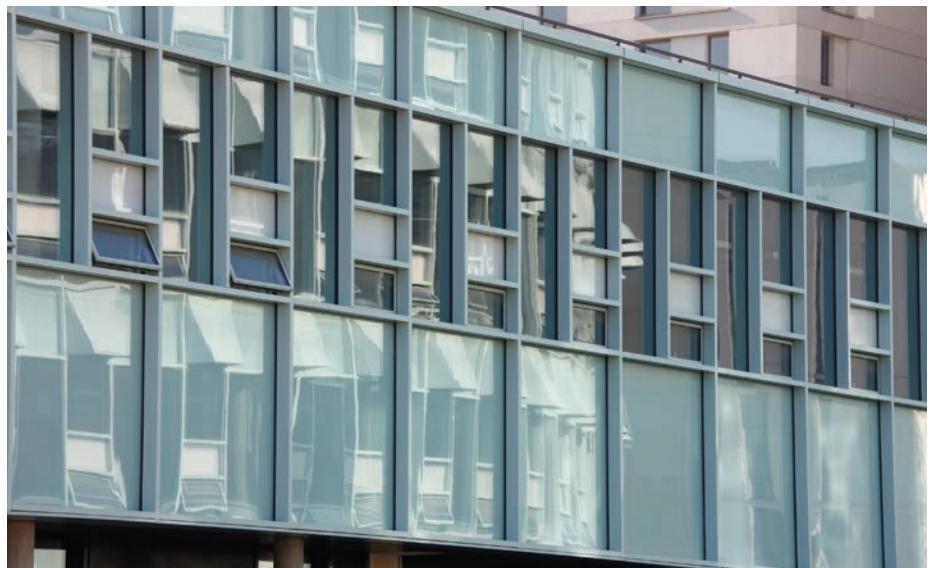
The design thinking that transformed this from a standard treatment into something more powerful and unusual was that this eau de nil colour was also selected for the grid of aluminium mullions and transoms. The colour was mixed to order by the paint manufacturer, and matches perfectly the colour of the glass spandrel panels. As a counterpoint and witty comment on the cost and material characteristics of glass, more expensive low-iron glass is inset as small panes into the facade; backed with the same paint, they remain pure white, a non-colour highlight creating an effect similar to that of ticking on a tailored suit.



Main Building cladding detail



Chobham Harris Academy cladding models

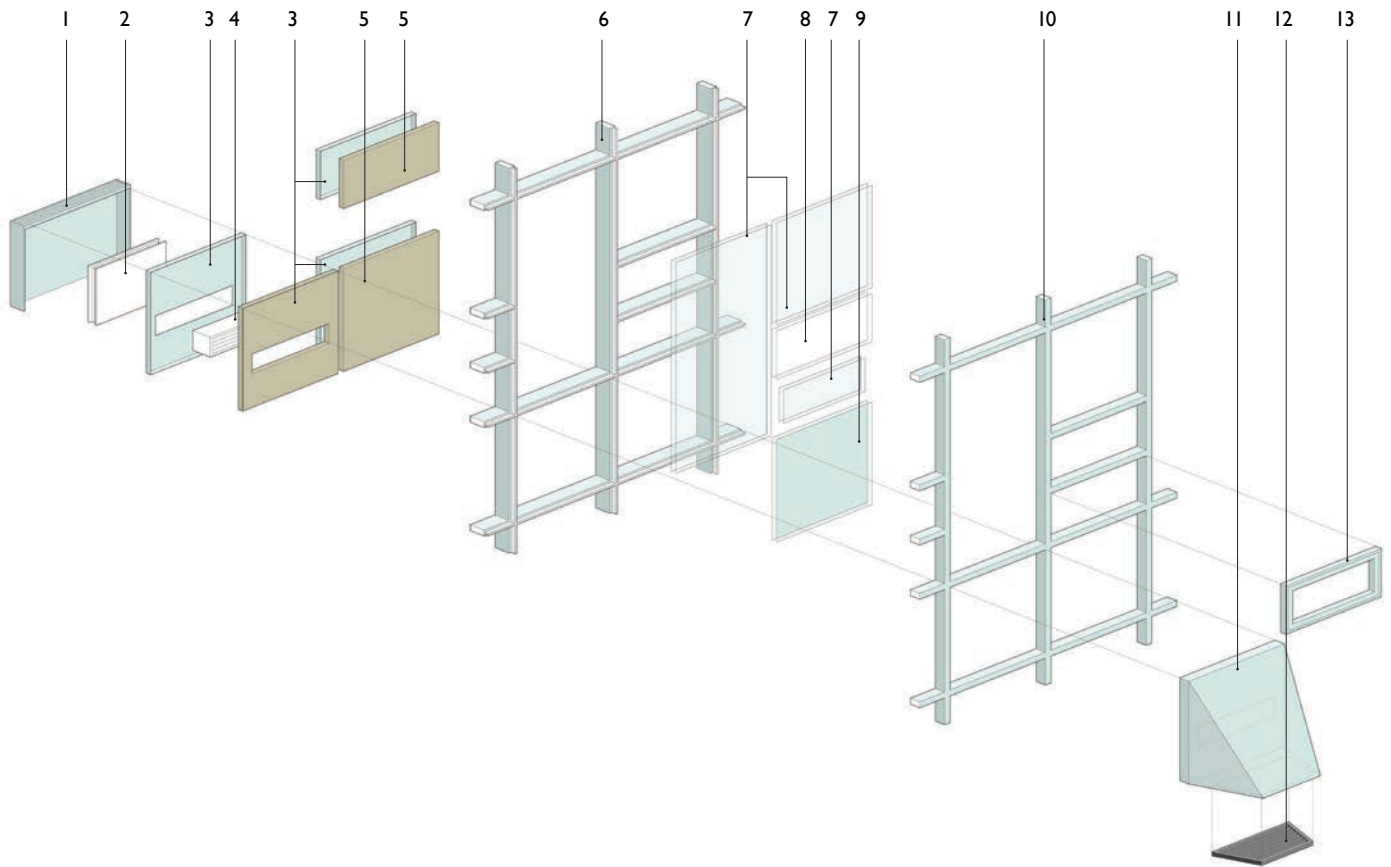


Phase One Building cladding detail

Architectural Composition

KEY

- 1 LST radiator cover (colour matched to cladding)
- 2 Radiator
- 3 Back spandrel panel of cladding system
- 4 Acoustic damper
- 5 Insulation board
- 6 Aluminium curtain wall back boxes PPC finish
- 7 Double glazing: low e-glazing
- 8 Back painted low iron glass spandrel panel (white ceramic paint)
- 9 Back painted low e-glass spandrel panel (white ceramic paint - final cladding colour achieved through natural glass tint)
- 10 Aluminium cover cap. PPC finish 100/150mm deep
- 11 PPC aluminium cowl including acoustic lining
- 12 PPC aluminium framed opening glazed vent
- 13 Aluminium louvre

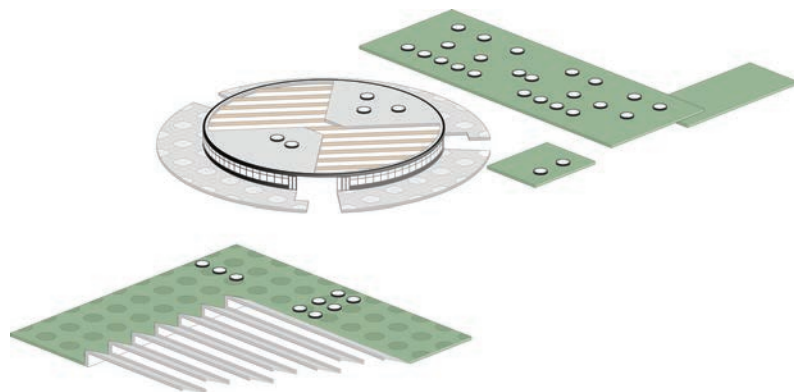


Exploded diagram of Main Building cladding

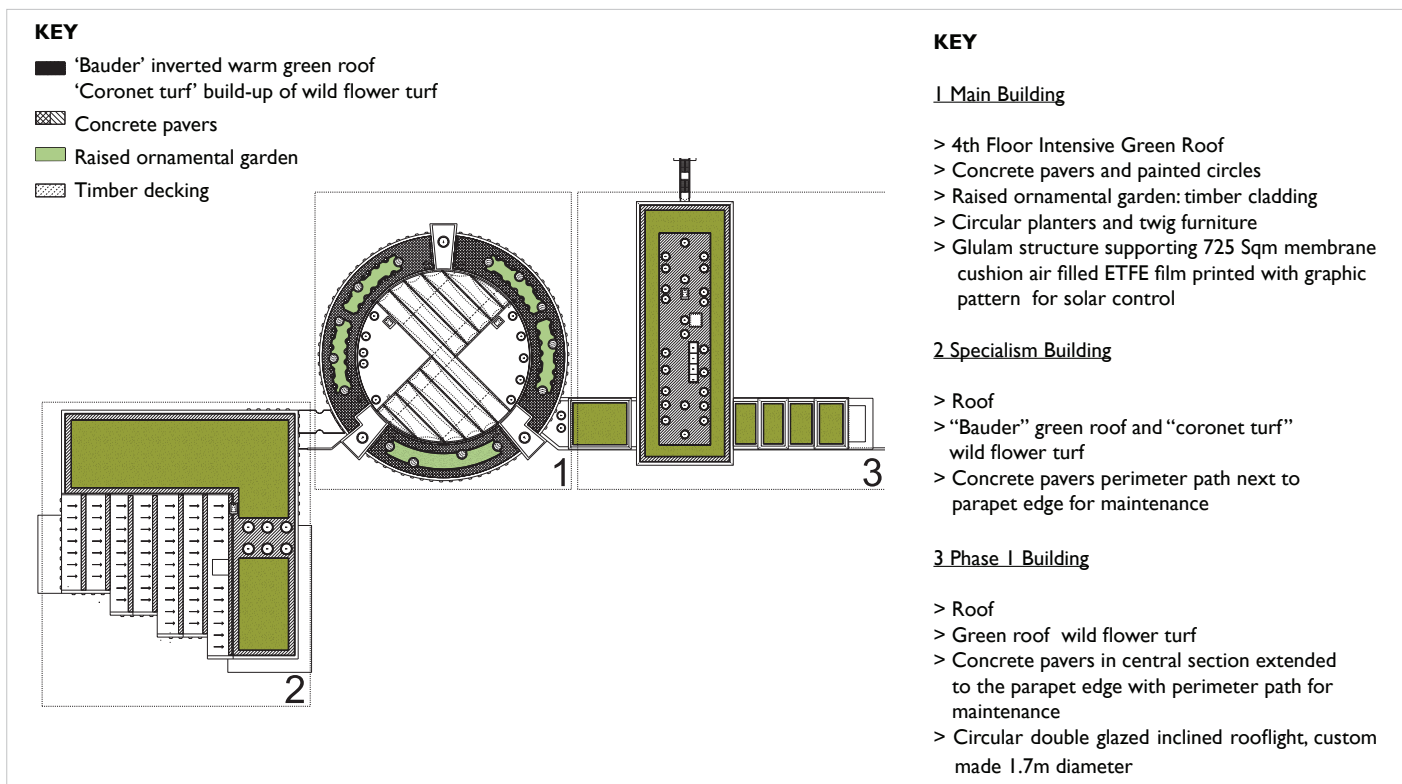
Architectural Composition

Roof

The Academy has 3 principal roofs to the buildings. All 3 are overlooked by the surrounding higher massed residential plots and therefore have been considered for their visual amenity. In consultation with the Landscape Architects (KLA) a mixture of accessible roof terrace, wildflower turf and brown roof systems encourage biodiversity.



Roof



Roof scope drawing



Aerial shot of Chobham Harris Academy



Phase One Building: Green roof

Architectural Composition

Internal Envelope

Self-finished materials predominate, including blue engineering bricks to the atrium's lower walls and exposed fair-faced concrete on ceilings and columns. The atrium is roofed with ETFE pillows; solar control patterning alternates between top and bottom surfaces, creating interest and revealing their form. They are supported by beams of glulam timber, a warm, natural material.

Where applied colour is used, this is done sparingly. Vestibule walls in the lower school and balustrading in the main building are of different primary colours, helping children mark their movement through the school daily and annually. Black joinery for doors and frames maintains their appearance for longer.

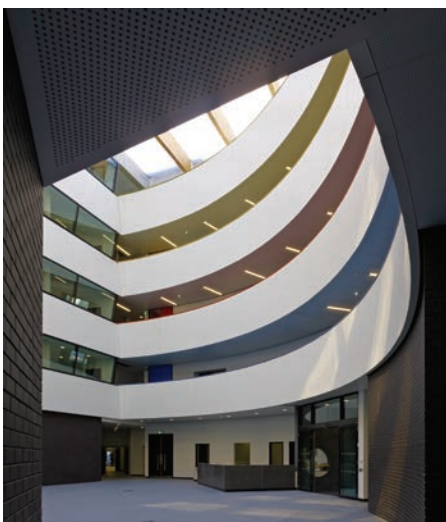
The use of such materials without additional applied finishes reduces cost, speeds construction and makes buildings durable in use, without the need to maintain ceilings and paintwork.



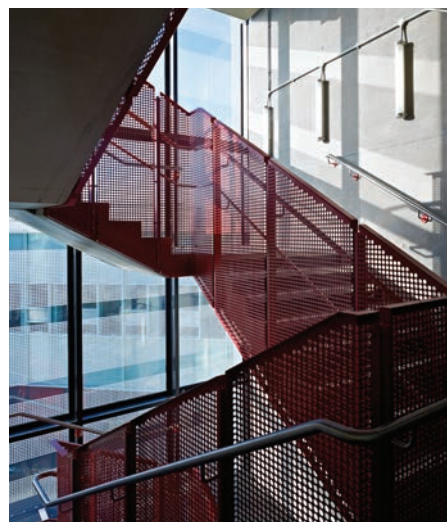
Proposed Main Building atrium



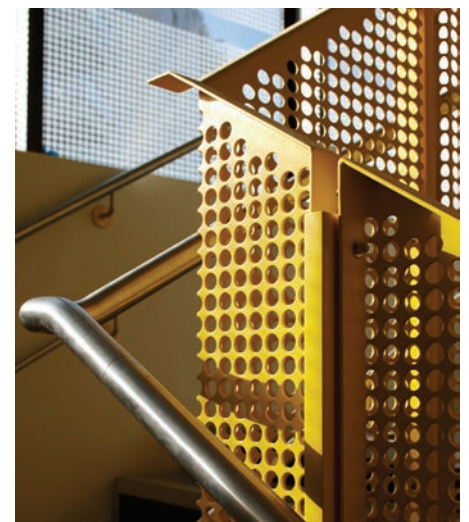
Coloured balustrading in the Main Building atrium aids navigation



Looking towards Main Building entrance



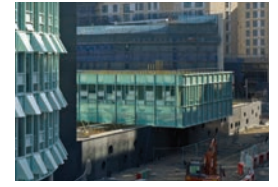
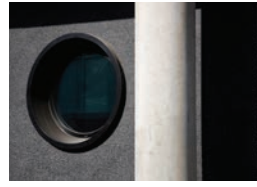
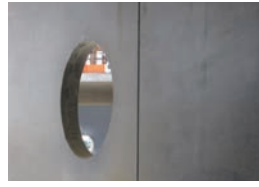
Balustrade colour schemes to aid navigation



Site Photos



Concrete podium wall



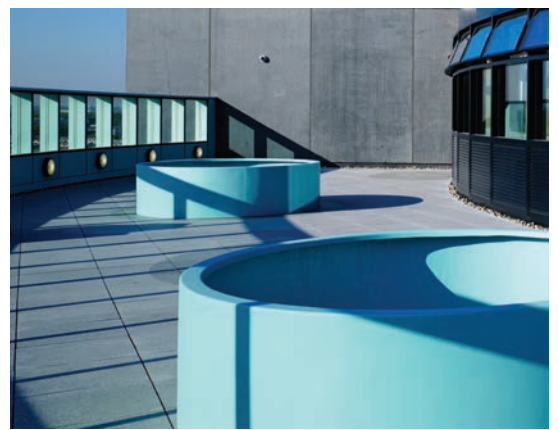
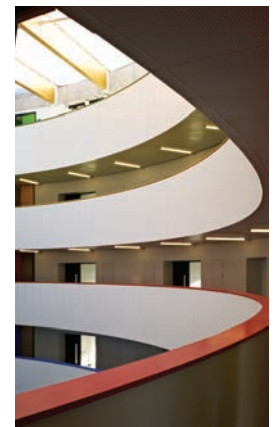
External cladding



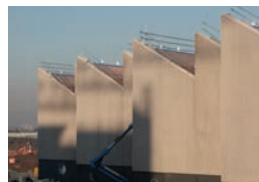
Atrium



Atrium



Roof



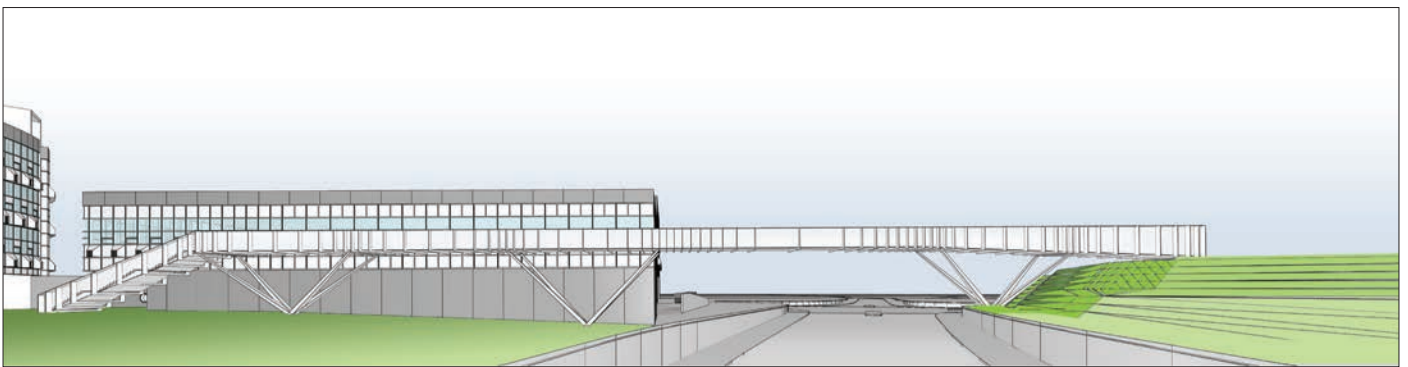
Specialism Building

Bridge

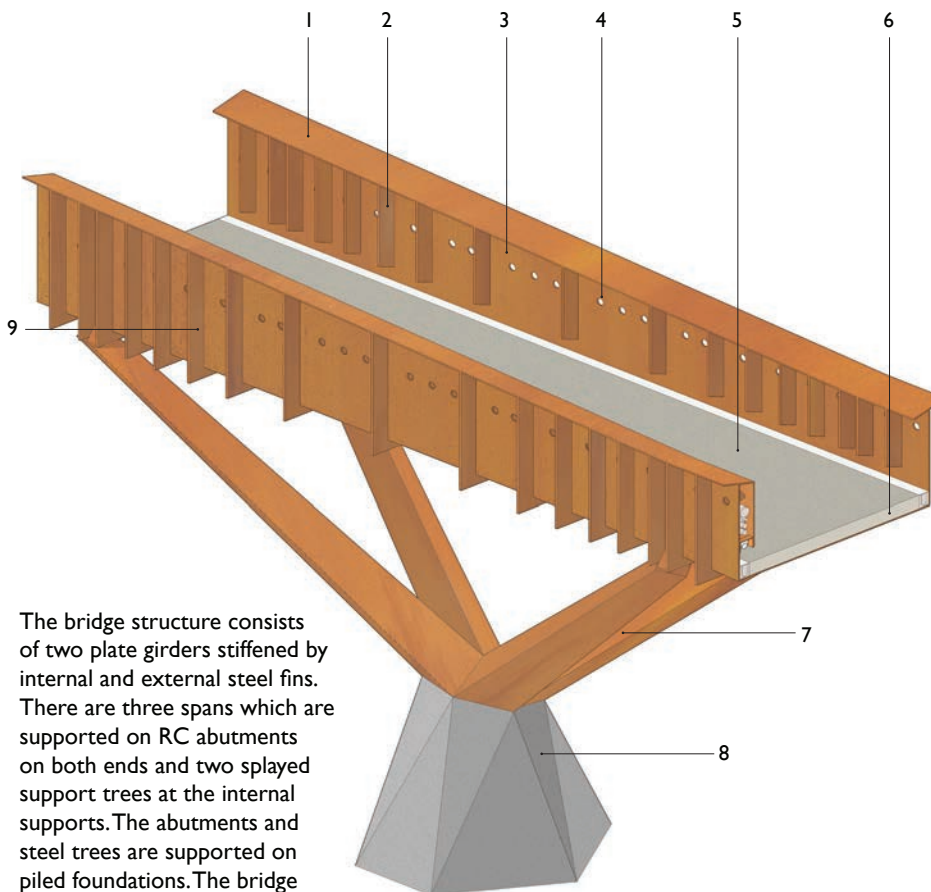
A new bridge, 95 metres in length and acting as a gateway from the north east, springs from the Specialism Building across the busy Temple Mill Lane and lands on a formed mound sitting within additional playing fields. Executed in COR-TEN® weathering steel, it is defiantly slender and an expression of the structural stress diagram used to create it, with external fins describing a ribbon of varying size along its length. Two double-V support 'trees', also of weathering steel, rest on pre-cast concrete piers. Providing safe transit day and night, concealed internal feature lighting diffuses through a series of portholes which respond to the rhythm of the fins.



Sketch of the bridge on approach along Temple Mill Lane



Sketch of the bridge on approach along Temple Mill Lane



The bridge structure consists of two plate girders stiffened by internal and external steel fins. There are three spans which are supported on RC abutments on both ends and two splayed support trees at the internal supports. The abutments and steel trees are supported on piled foundations. The bridge is fabricated entirely from weathering steel flat plates.

1. 23mm thick weathering steel plate forms the top flange of the plate girders and also acts as the balustrade.

2. 18mm thick weathering steel internal fins at maximum 1500mm centres provide buckling restraint to the top flange, support for services and fixing points for steel panels which conceal the services.

3. 18mm thick side panels form the webs of the plate girders.

4. 100mm diameter viewing portholes.

5. Bridgemaster finish to the walkway

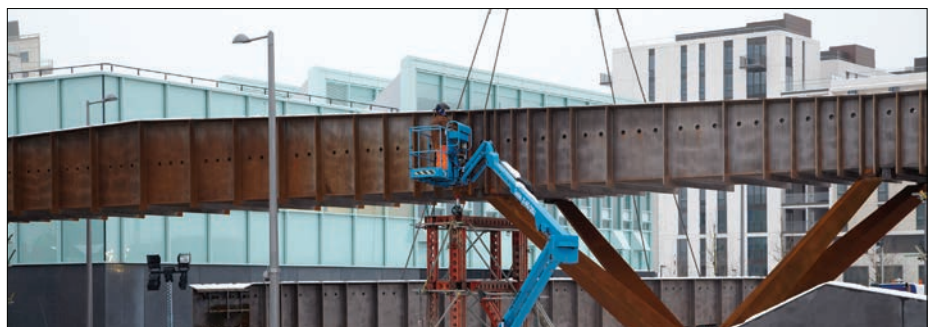
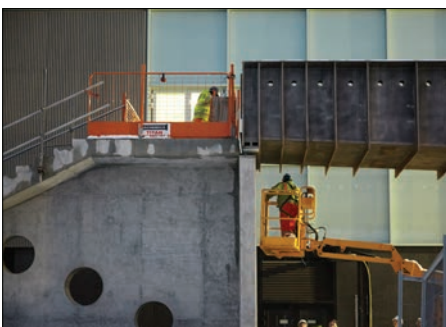
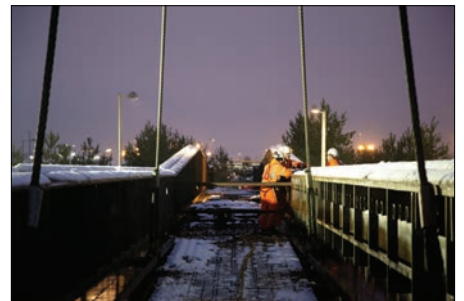
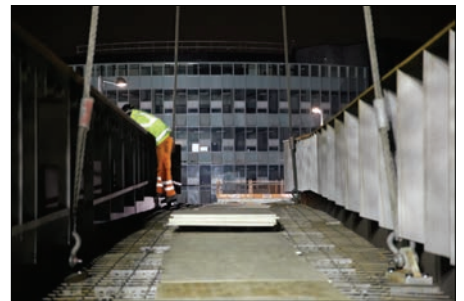
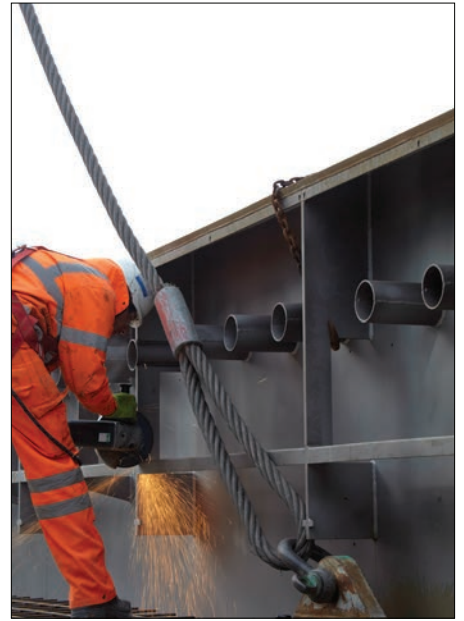
6. 140mm RC slab acts compositely with the 7.5mm thick weathering steel soffit plate. Together they provide the walking surface and lateral stiffness of the bridge structure.

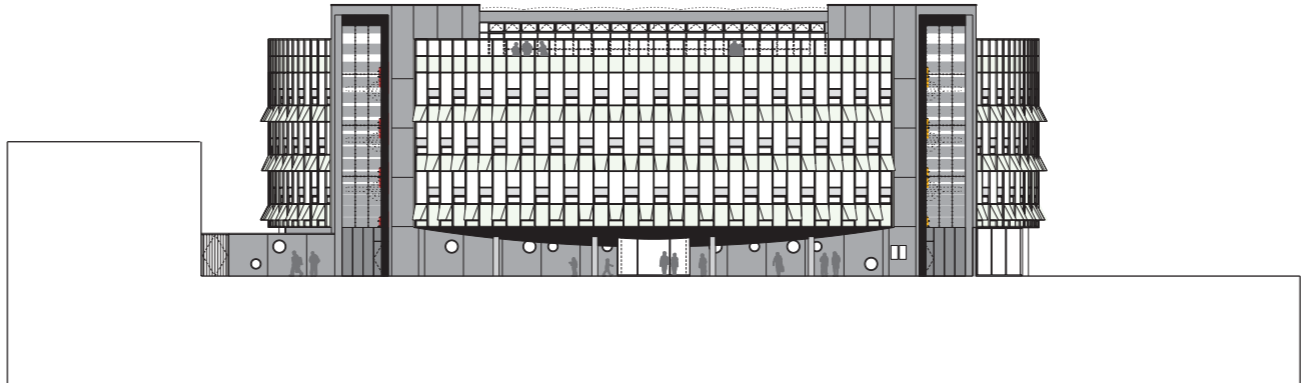
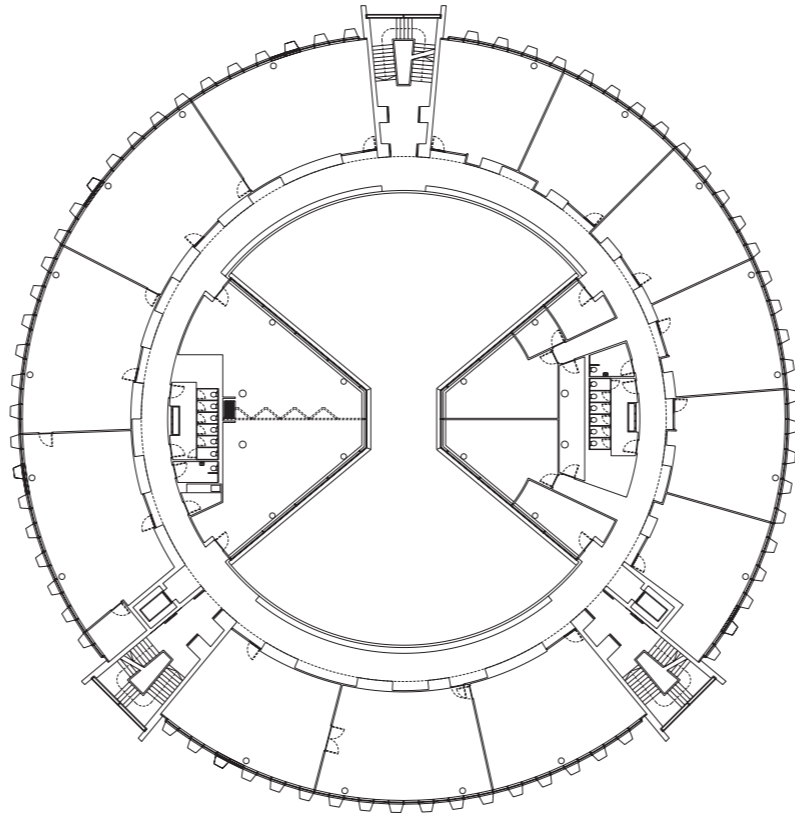
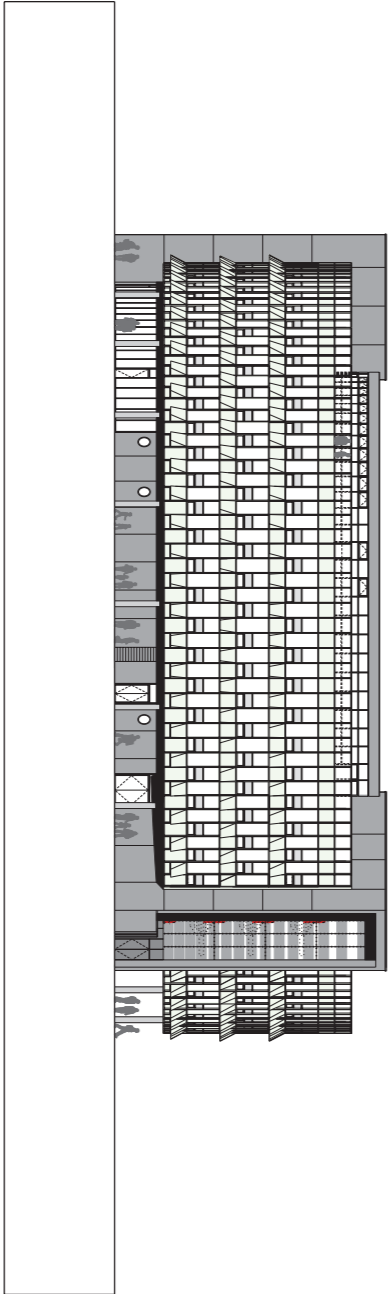
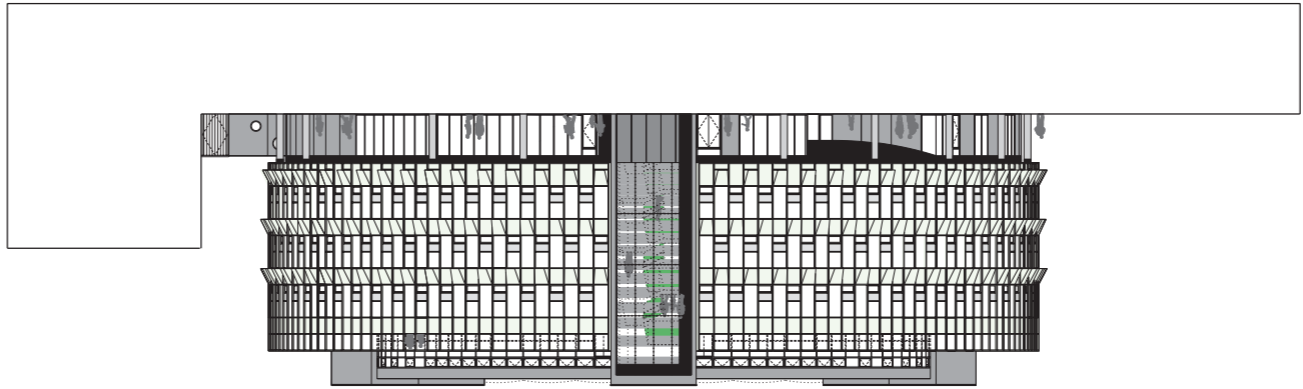
7. The bridge is supported on splayed support 'trees' which reduce the effective span of the bridge sections. The trees are fabricated from flat plates in weathering steel.

8. Precast cladding over insitu-RC plinths

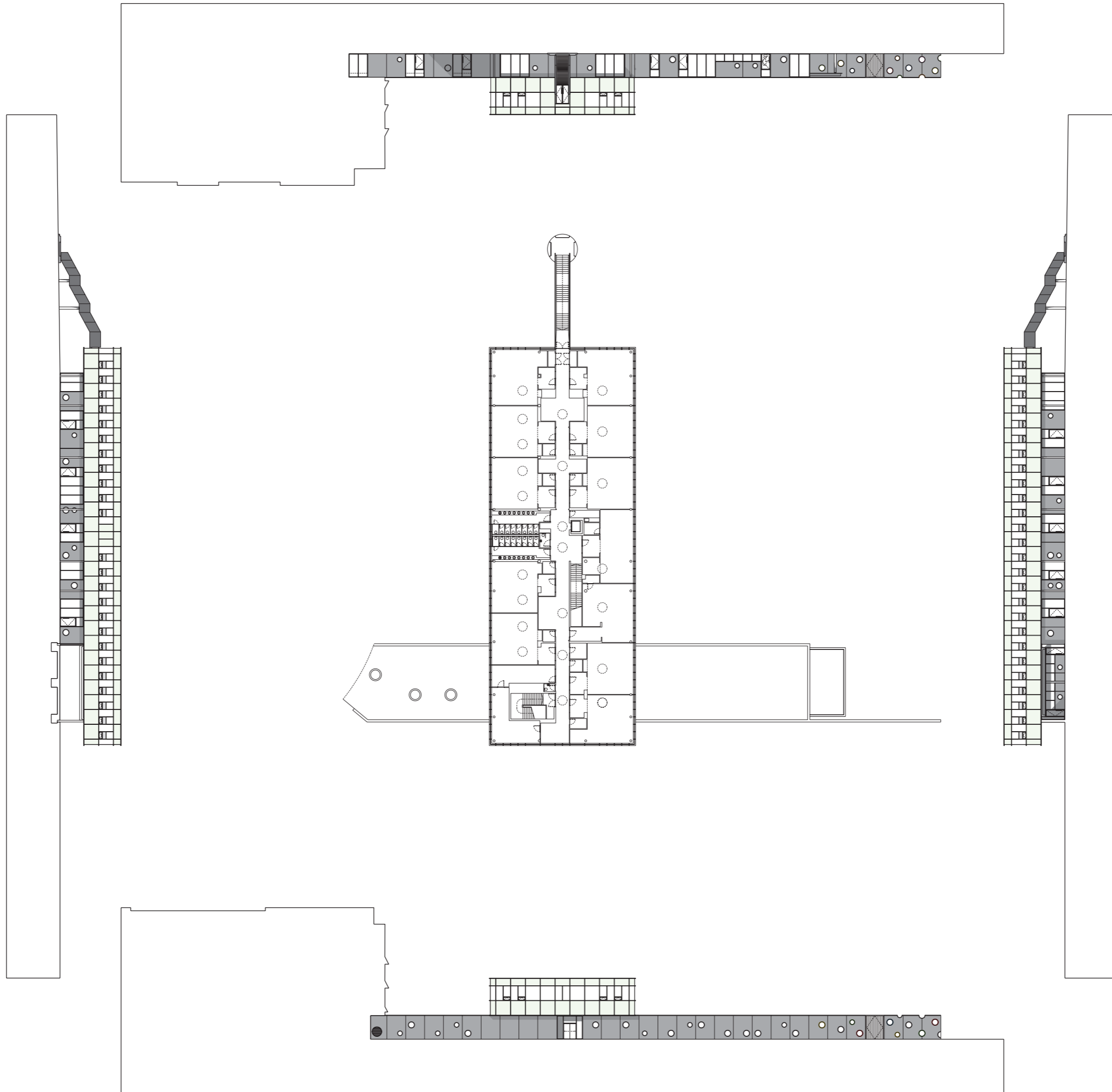
9. 18mm thick weathering steel external fins at maximum 1500mm centres provide lateral restraint to the top flange and contribute to the overall buckling resistance of the plate girders.

Bridge Construction Site Shots
February 2012

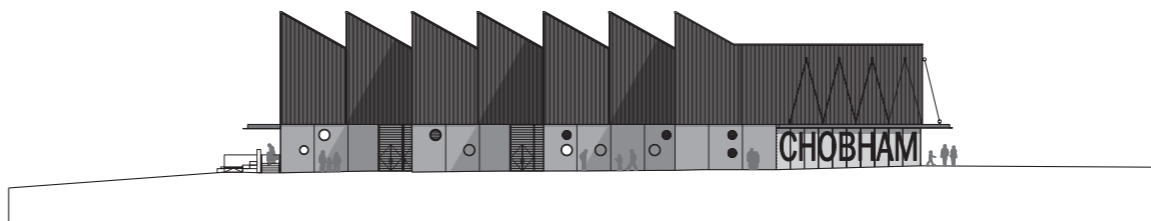
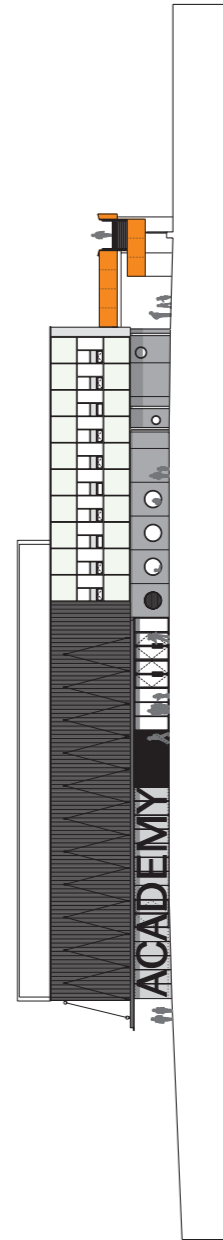
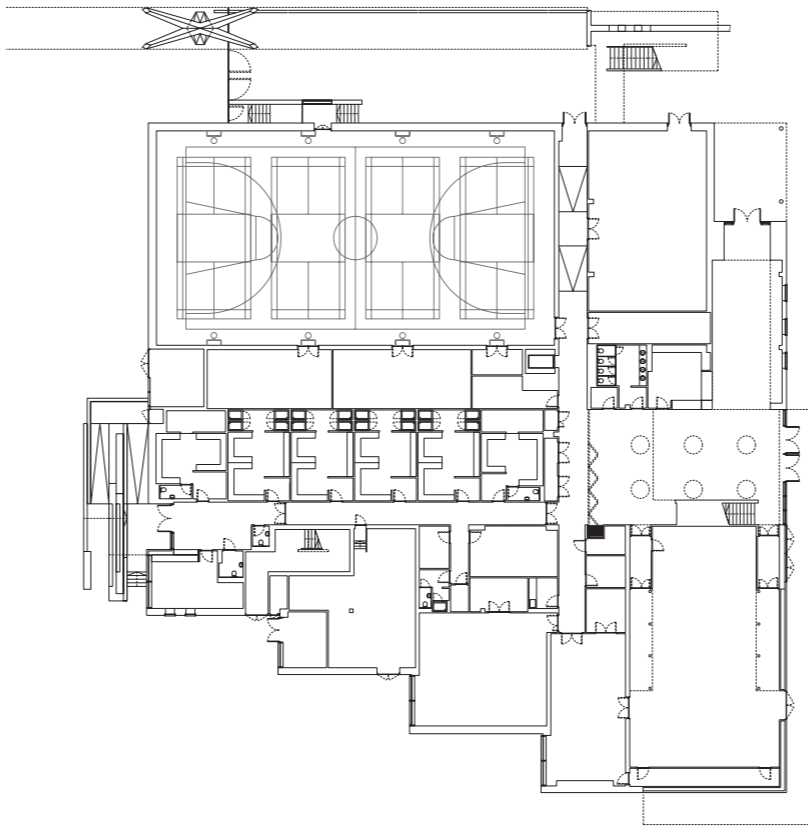
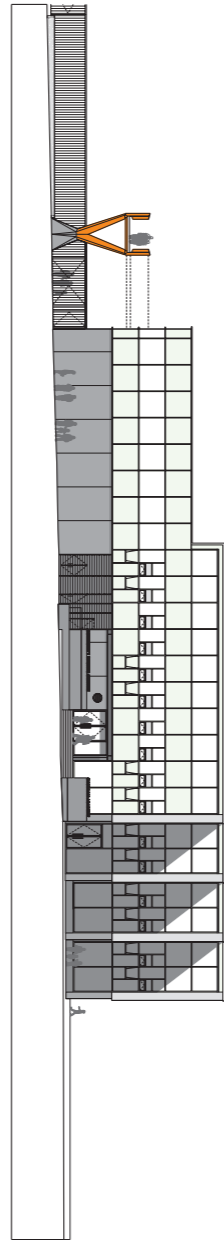
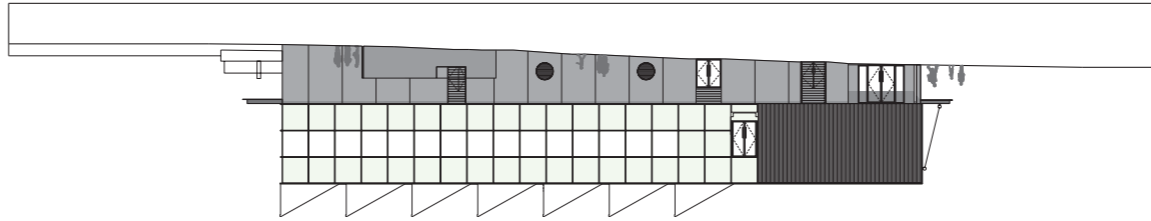
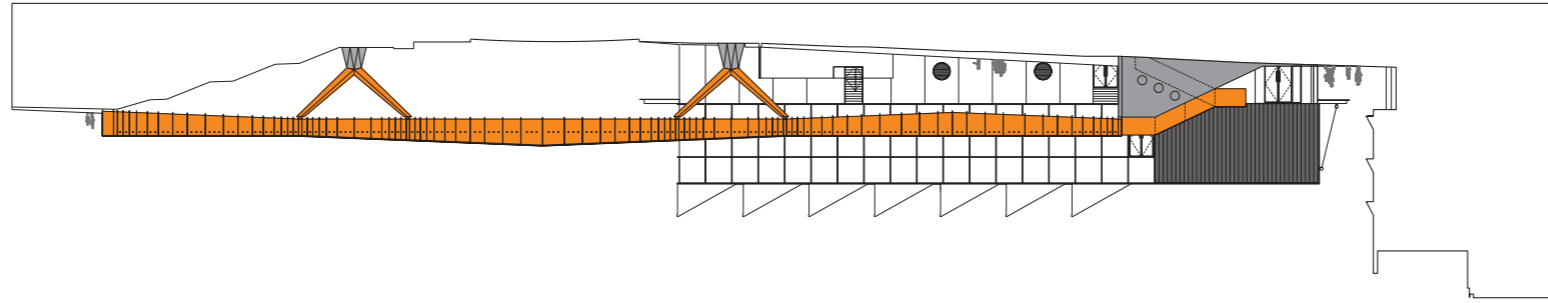


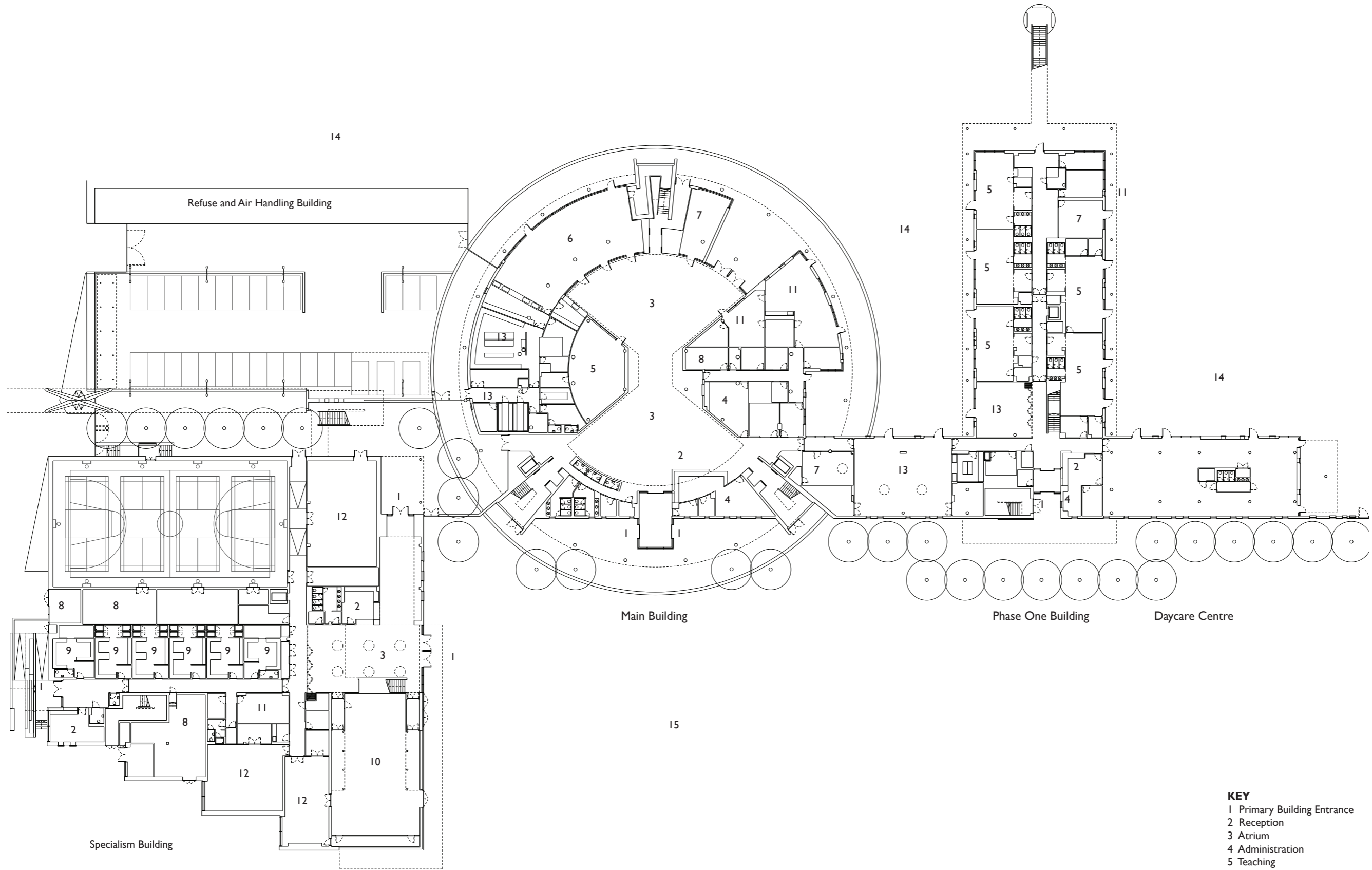


Main Building Composite



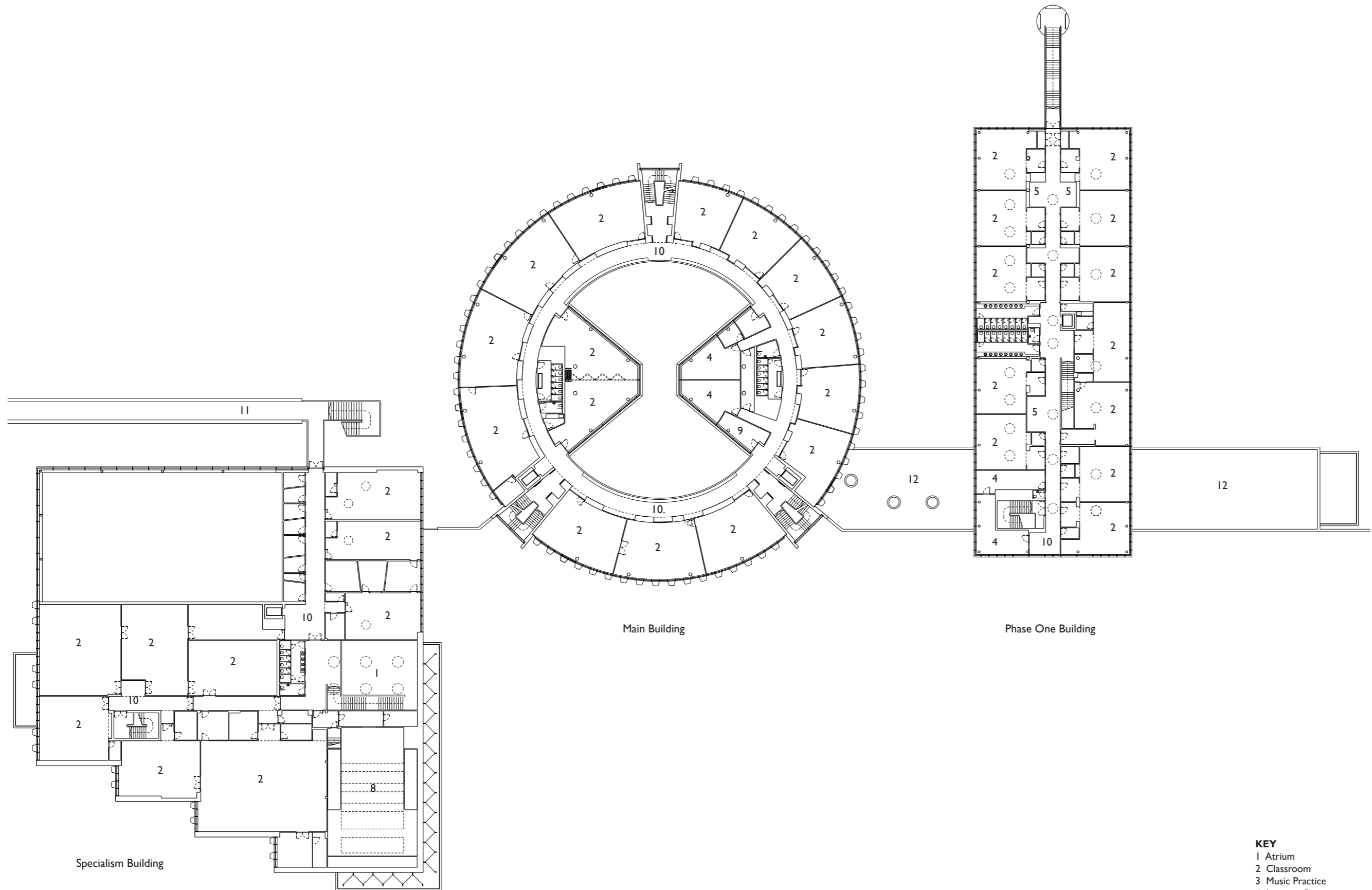
Phase One Building Composite





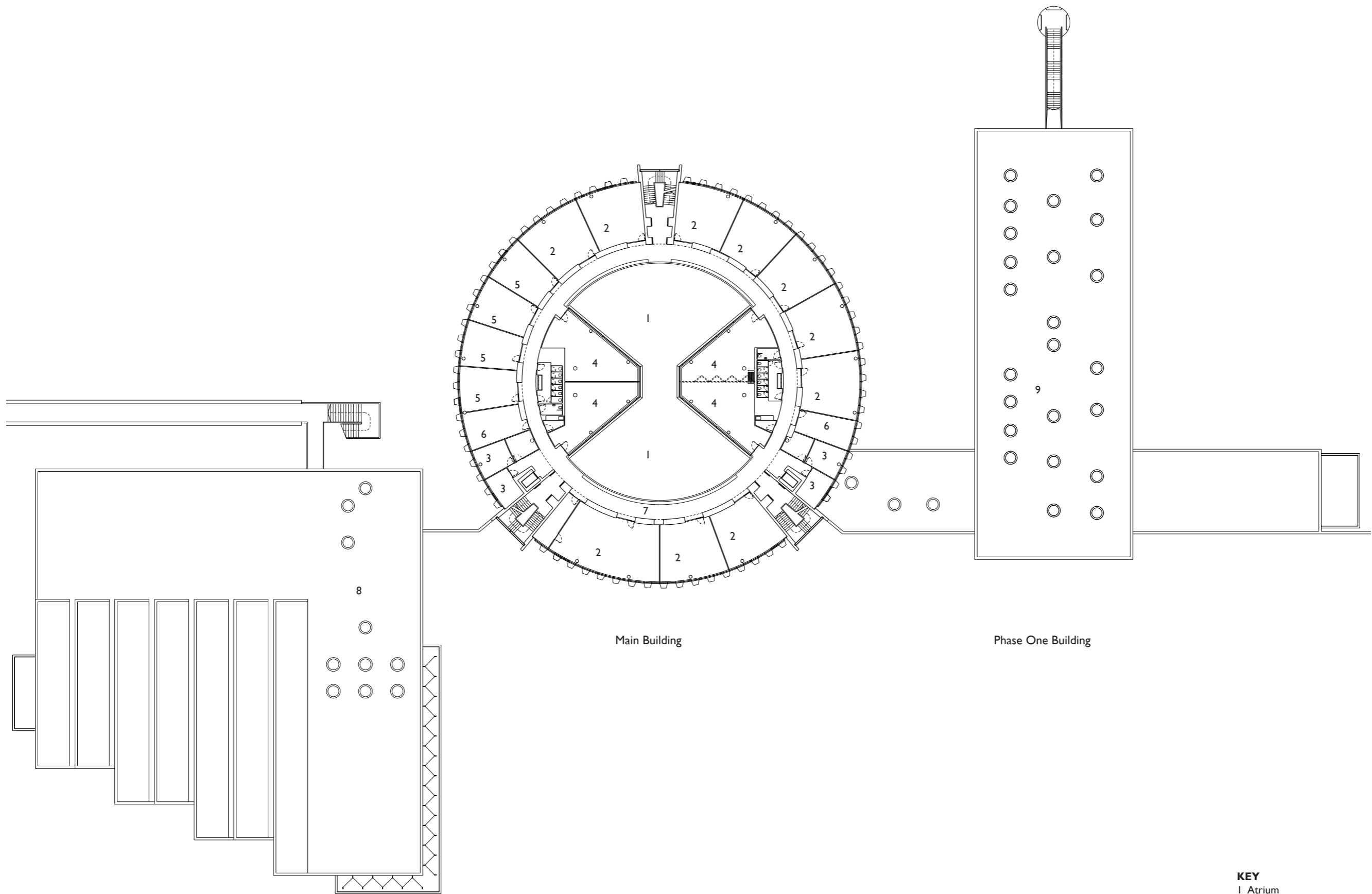
- KEY**
- 1 Primary Building Entrance
 - 2 Reception
 - 3 Atrium
 - 4 Administration
 - 5 Teaching
 - 6 Dining
 - 7 Learning Resource
 - 8 Plant
 - 9 Changing
 - 10 Theatre
 - 11 Staff Area
 - 12 Hall
 - 13 FM + Catering
 - 14 Playground
 - 15 Chobham Square

Ground floor plan



First floor plan

- KEY**
- 1 Atrium
 - 2 Classroom
 - 3 Music Practice
 - 4 Learning Resource
 - 5 Breakout Teaching Space
 - 6 Administration
 - 7 Hall
 - 8 Theatre
 - 9 Staff Area
 - 10 Corridor
 - 11 Bridge to Playing Fields
 - 12 Brown Roof



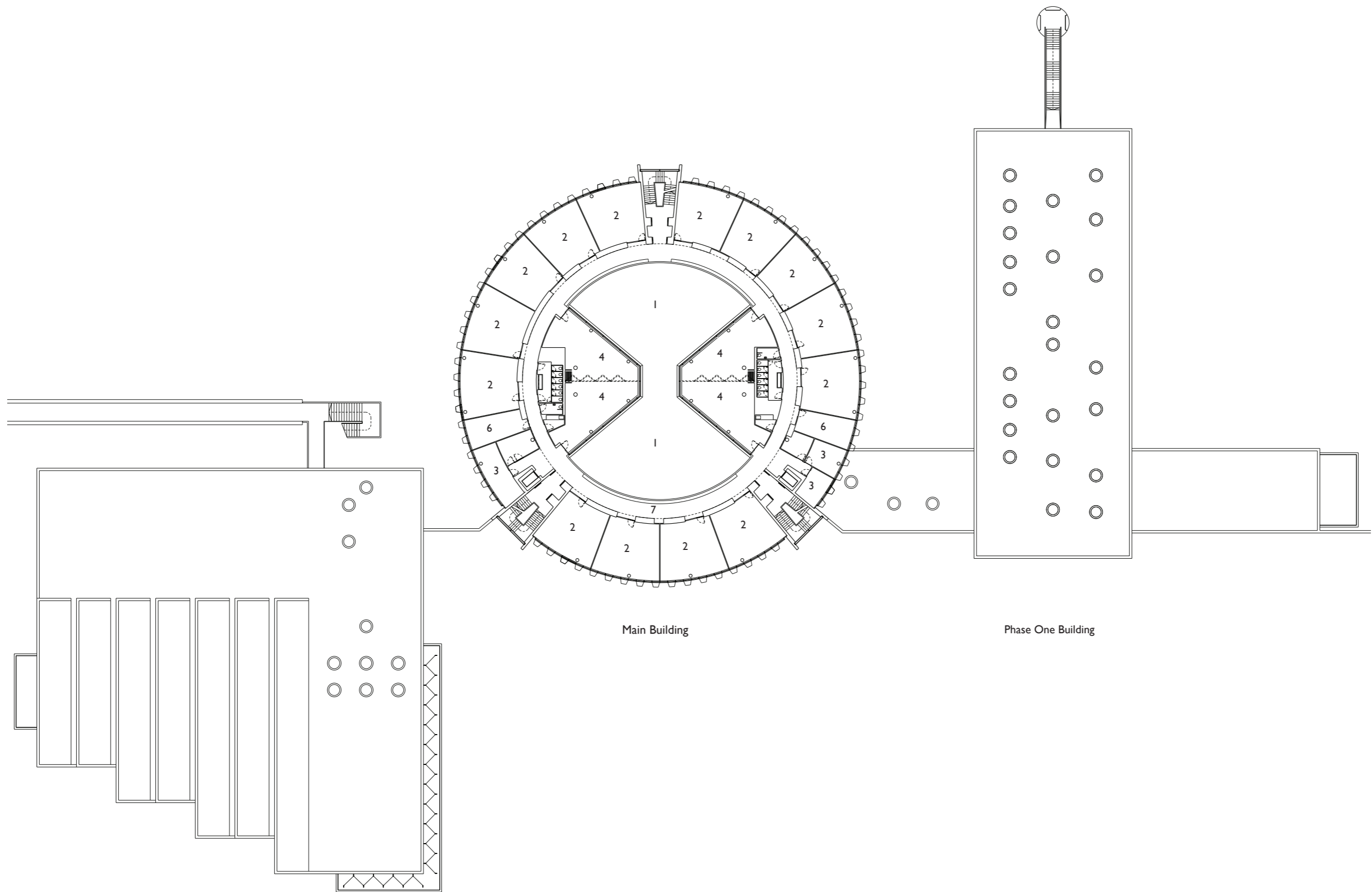
Main Building

Phase One Building

Specialism Building

- KEY**
- 1 Atrium
 - 2 Classroom
 - 3 Group Room
 - 4 Learning Resource
 - 5 Seminar Room
 - 6 Staff Work Room
 - 7 Corridor
 - 8 Wildflower/Brown Roof
 - 9 Green Roof

Second floor plan



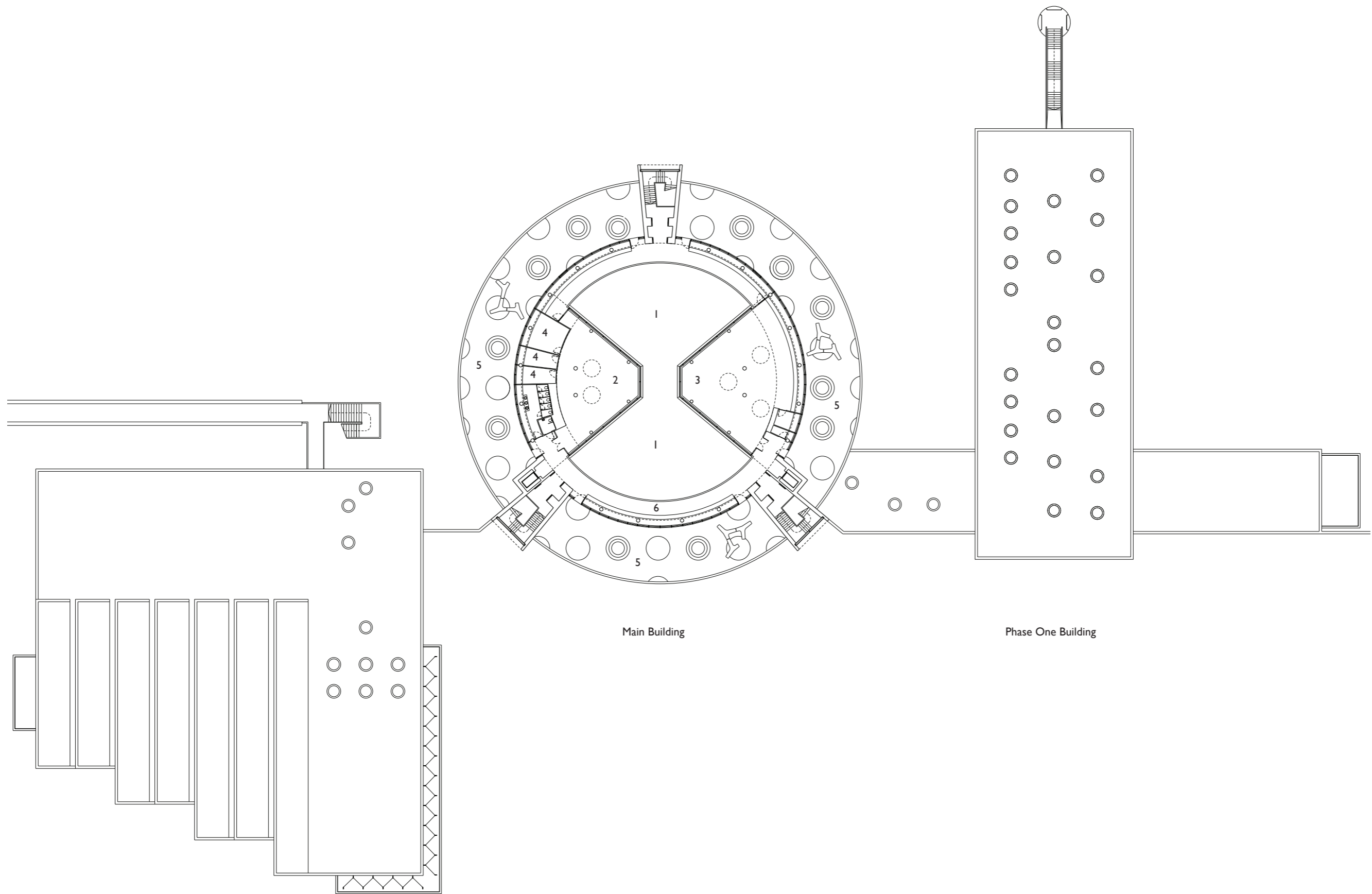
Main Building

Phase One Building

Specialism Building

- KEY**
- 1 Atrium
 - 2 Classroom
 - 3 Group Room
 - 4 Learning Resource
 - 5 Seminar Room
 - 6 Staff Work Room
 - 7 Corridor

Third floor plan



Specialism Building

Main Building

Phase One Building

Fourth floor plan

KEY

- 1 Atrium
- 2 Sixth Form Study
- 3 Library
- 4 Group Room
- 5 Roof Terrace
- 6 Corridor

Ground Floor

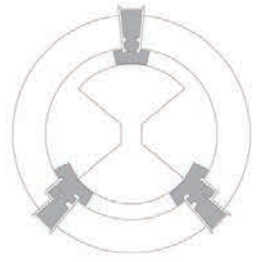
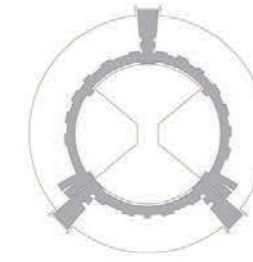
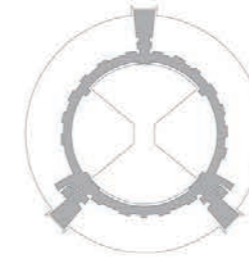
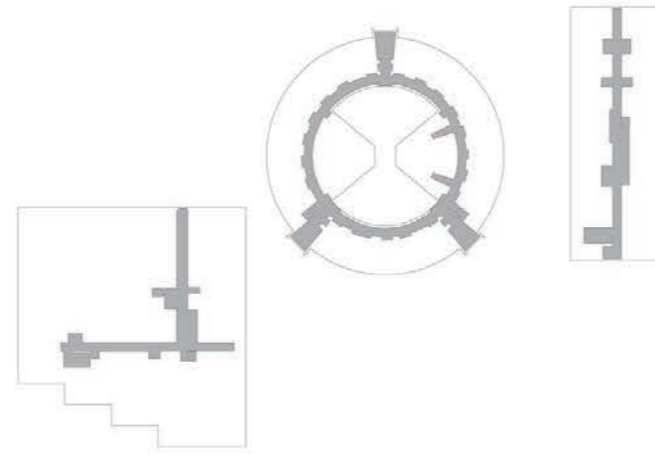
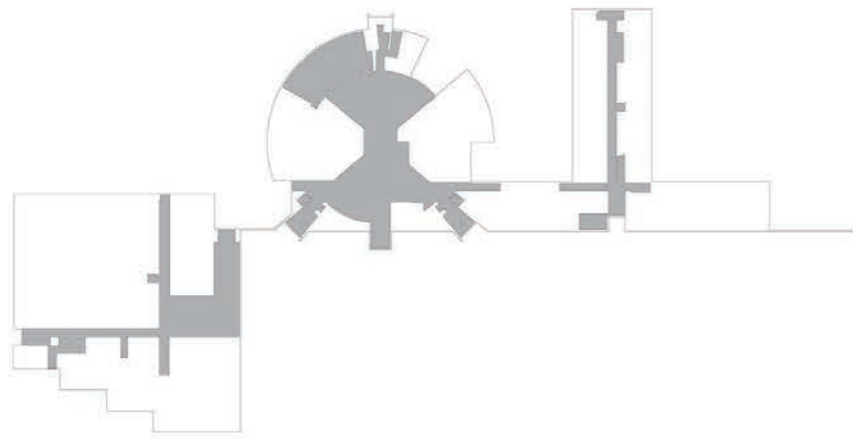
First Floor

Second Floor

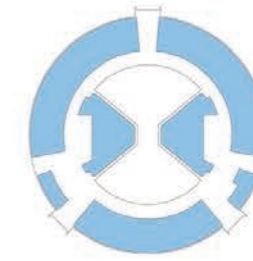
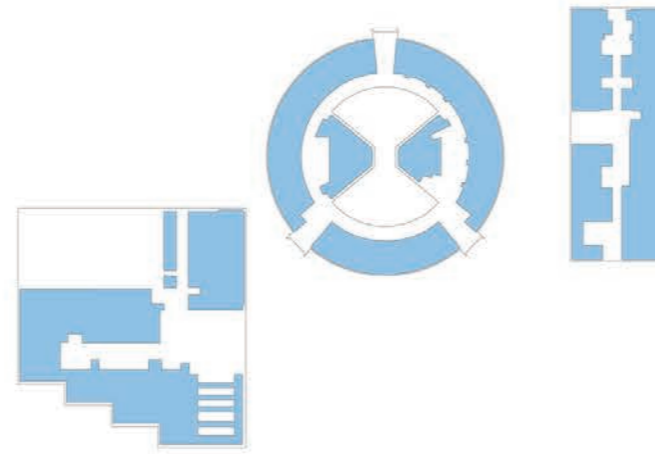
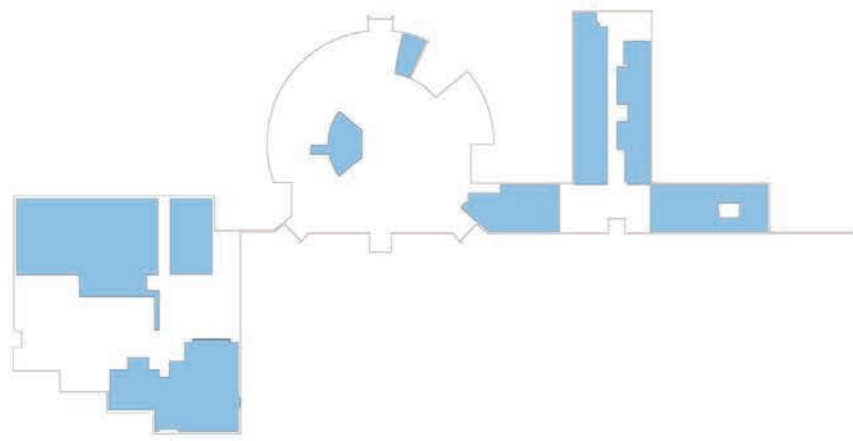
Third Floor

Fourth Floor

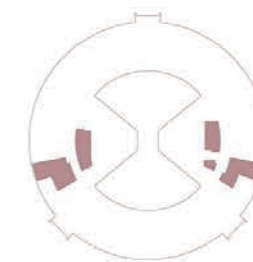
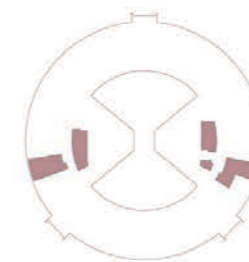
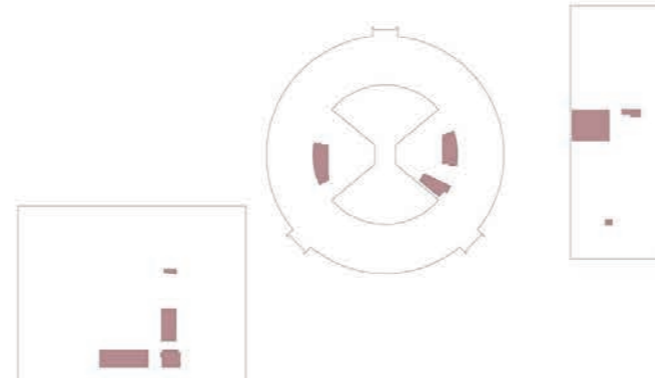
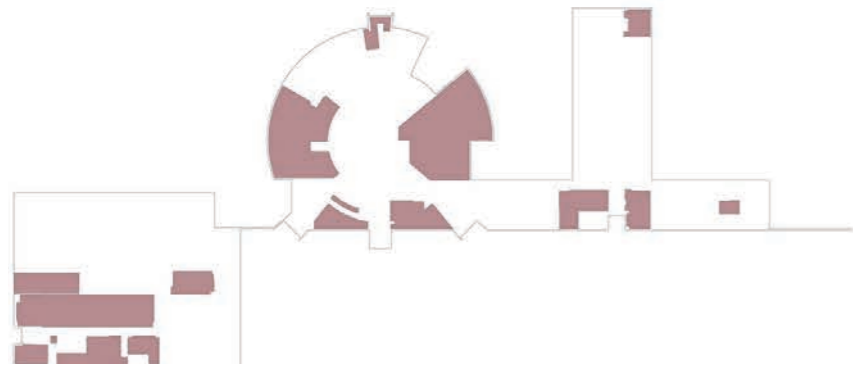
Circulation

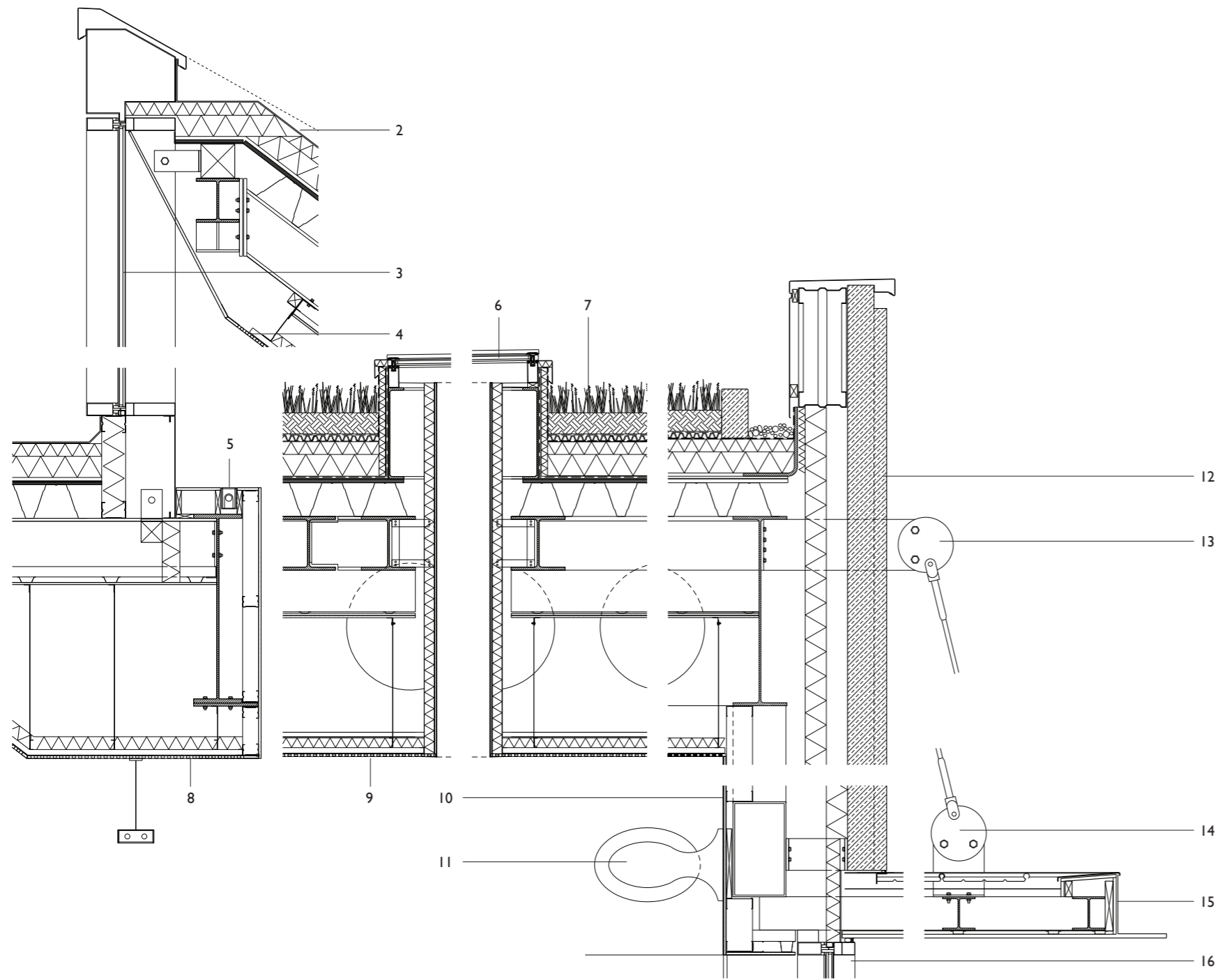


Teaching Space



Service

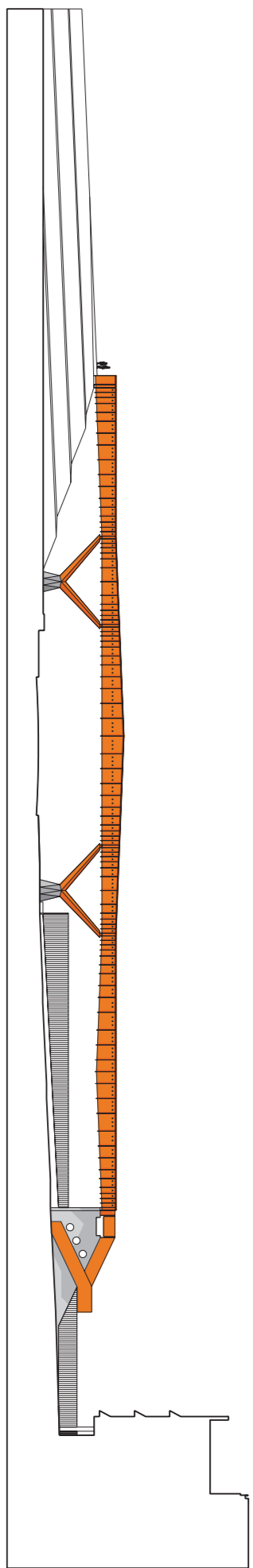




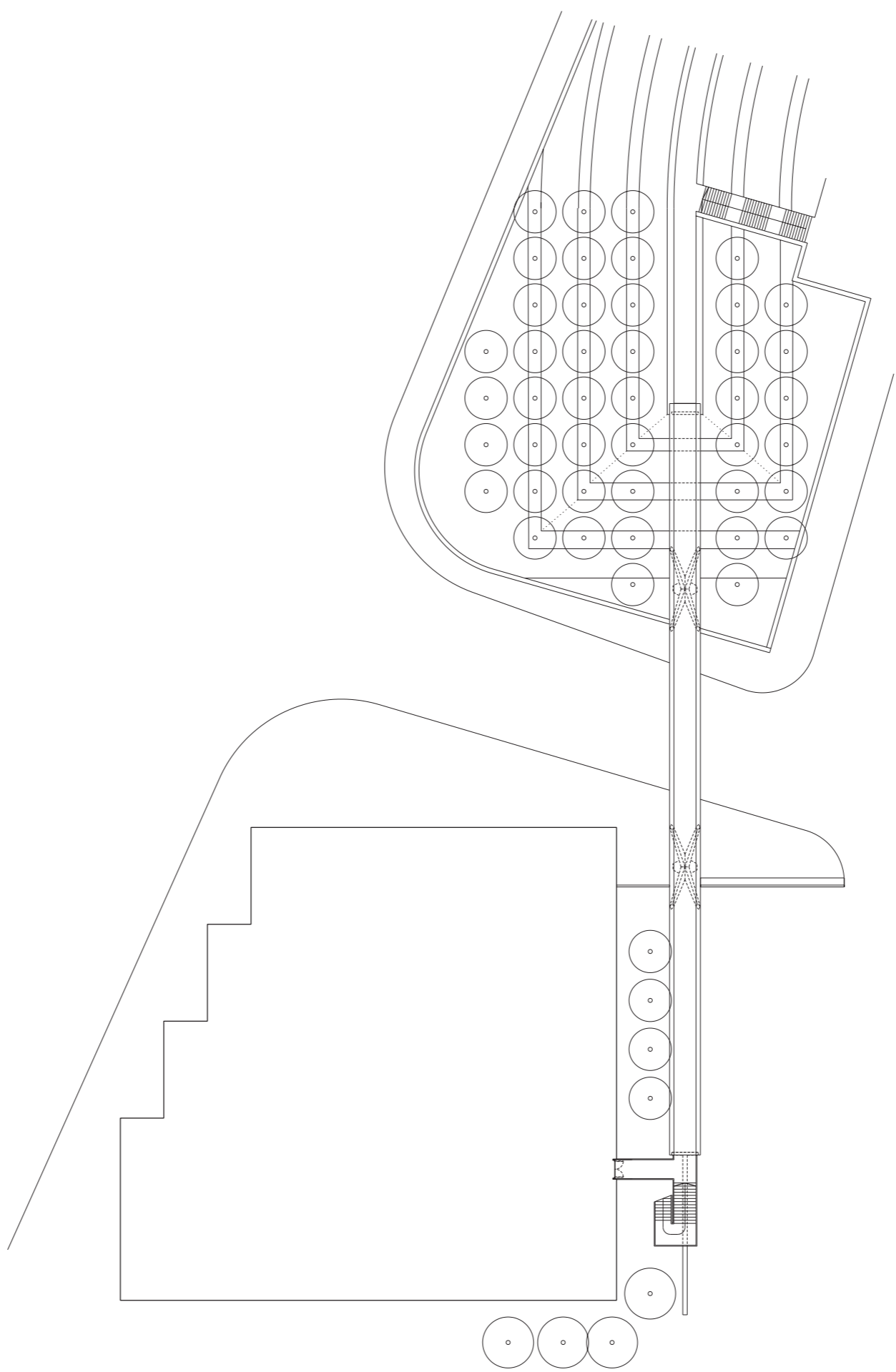
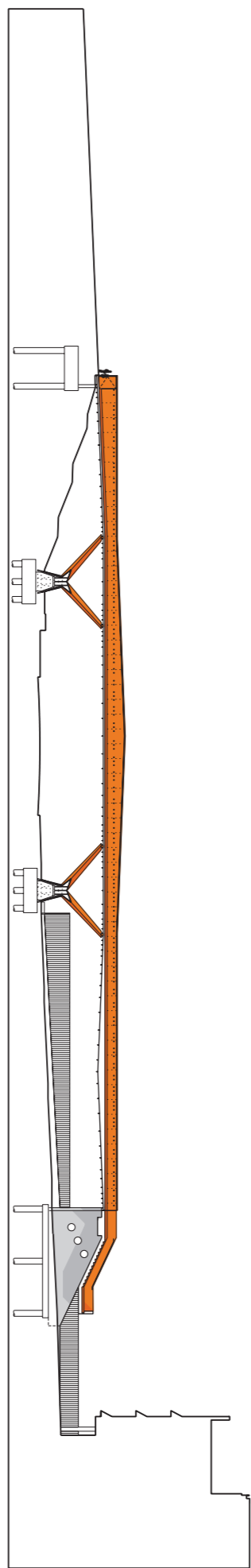
KEY

- 1 PPC aluminium roof fascia
- 2 Sarnafil roof membrane on insulation on metal deck on steel structure
- 3 External Schuco PPC aluminium cladding
- 4 Perforate plasterboard internal finish for acoustic absorption
- 5 Zumtobel Slotlight recessed into drylining to uplight sawtooth roof
- 6 Circular rooflight in atrium
- 7 Wildflower roof on insulation on steel deck on structural steel
- 8 Perforate plasterboard ceiling to classroom, folding up to Fermacell face
- 9 Perforate plasterboard ceiling to atrium, folding up into plasterboard rooflight
- 10 Double height Fermacell wall to atrium
- 11 Black PPC exposed air curtain fixed to structural steel beam
- 12 Acid etched ribbed concrete cladding fixed to steel structure
- 13 Satin stainless steel bracket for canopy hanger fixed back to steel structure
- 14 Satin stainless steel bracket for canopy hanger
- 15 L shaped black PPC fascia to canopy overhanging main entrance
- 16 Main Entrance doors from Chobham Square into Specialism Building

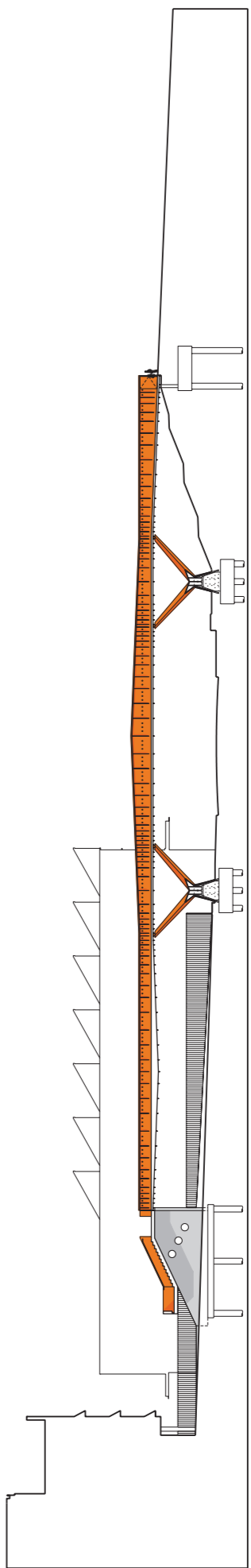
Elevation



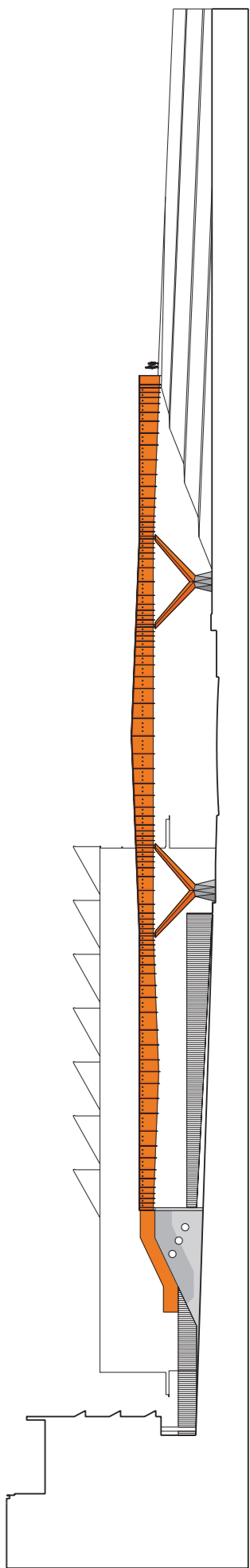
Section

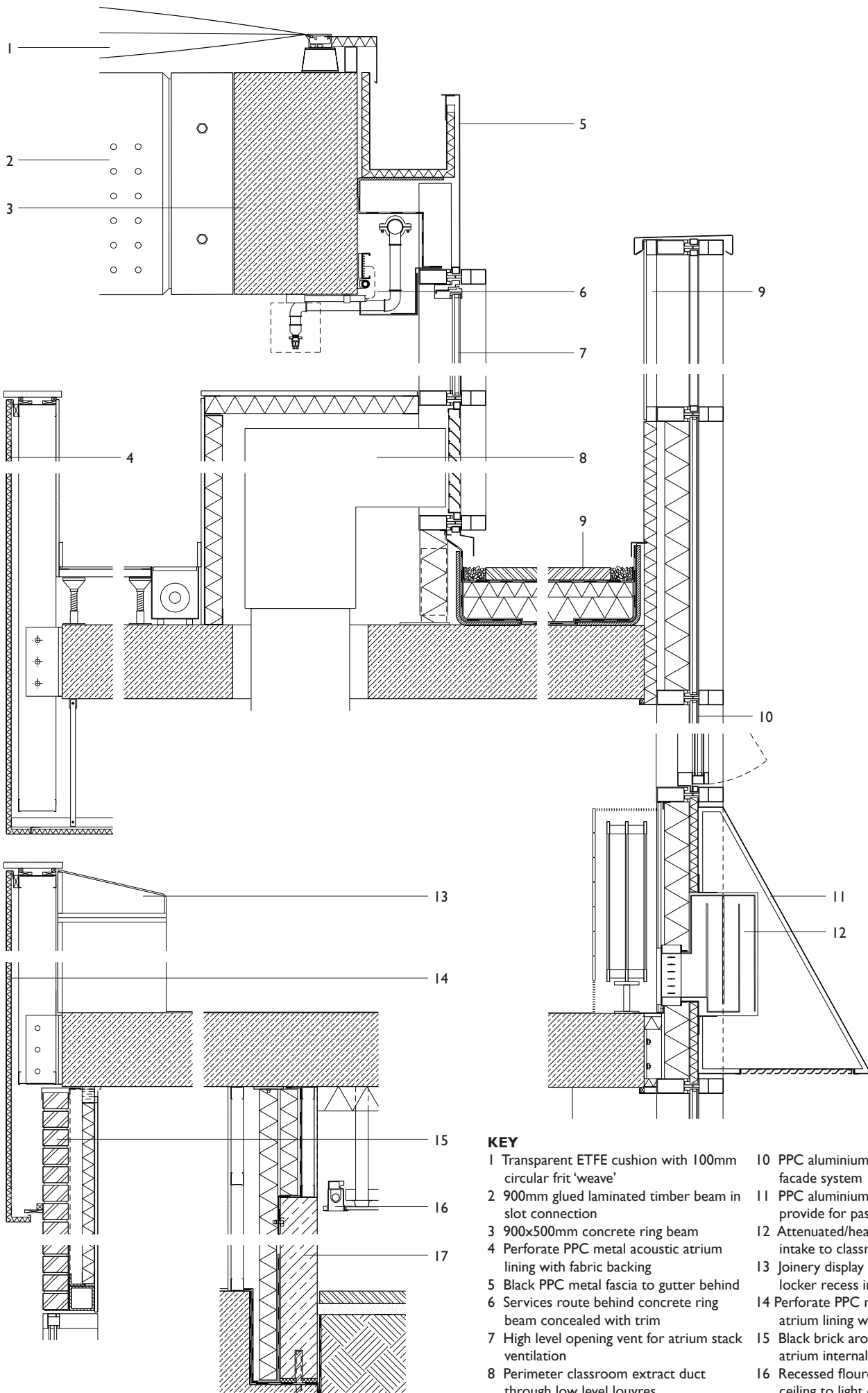


Section



Elevation

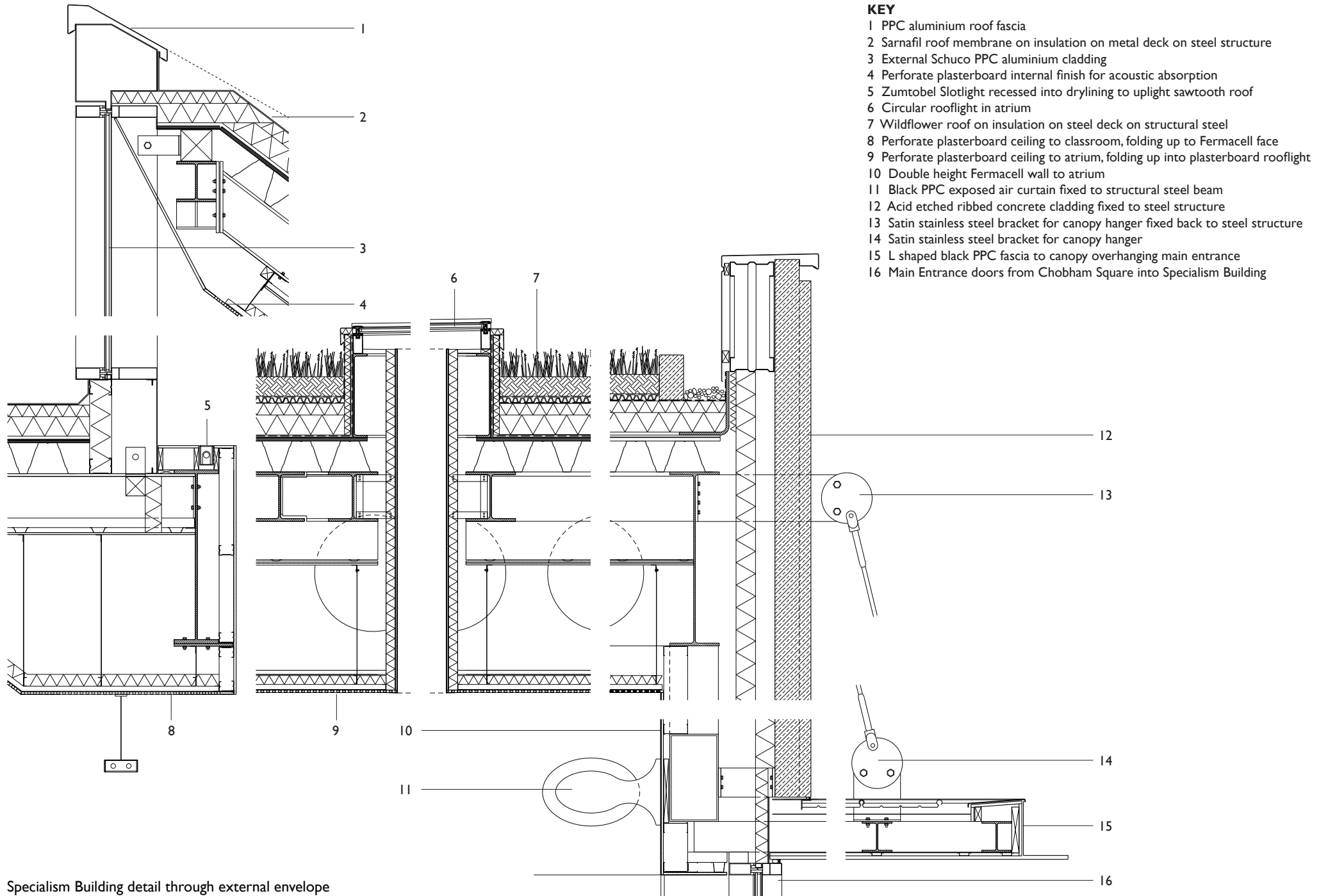




KEY

- 1 Transparent ETFE cushion with 100mm circular frit 'weave'
- 2 900mm glued laminated timber beam in slot connection
- 3 900x500mm concrete ring beam
- 4 Perforate PPC metal acoustic atrium lining with fabric backing
- 5 Black PPC metal fascia to gutter behind
- 6 Services route behind concrete ring beam concealed with trim
- 7 High level opening vent for atrium stack ventilation
- 8 Perimeter classroom extract duct through low level louvres
- 9 Structurally bonded clear glass balustrade to roof terrace
- 10 PPC aluminium curtain walling facade system
- 11 PPC aluminium facade cowl to provide for passive air intake
- 12 Attenuated/heated passive air intake to classrooms
- 13 Joinery display unit on top of locker recess in corridor
- 14 Perforate PPC metal acoustic atrium lining with fabric backing
- 15 Black brick around ground floor atrium internally
- 16 Recessed fluorescent tube in ceiling to light concrete
- 17 Black precast concrete cladding external wall

Main Building detail through external envelope



Specialism Building detail through external envelope

The Building in the City



Aerial view of Chobham Academy (top centre) and the surrounding Olympic Athletes' Village

© Olympic Delivery Authority



Aerial view of Chobham Academy and the surrounding landscape

© Olympic Delivery Authority



View of Chobham Academy from the playground

06044_1481© Tim Soar



View of the Specialism Buildings dramatic saw-tooth roof

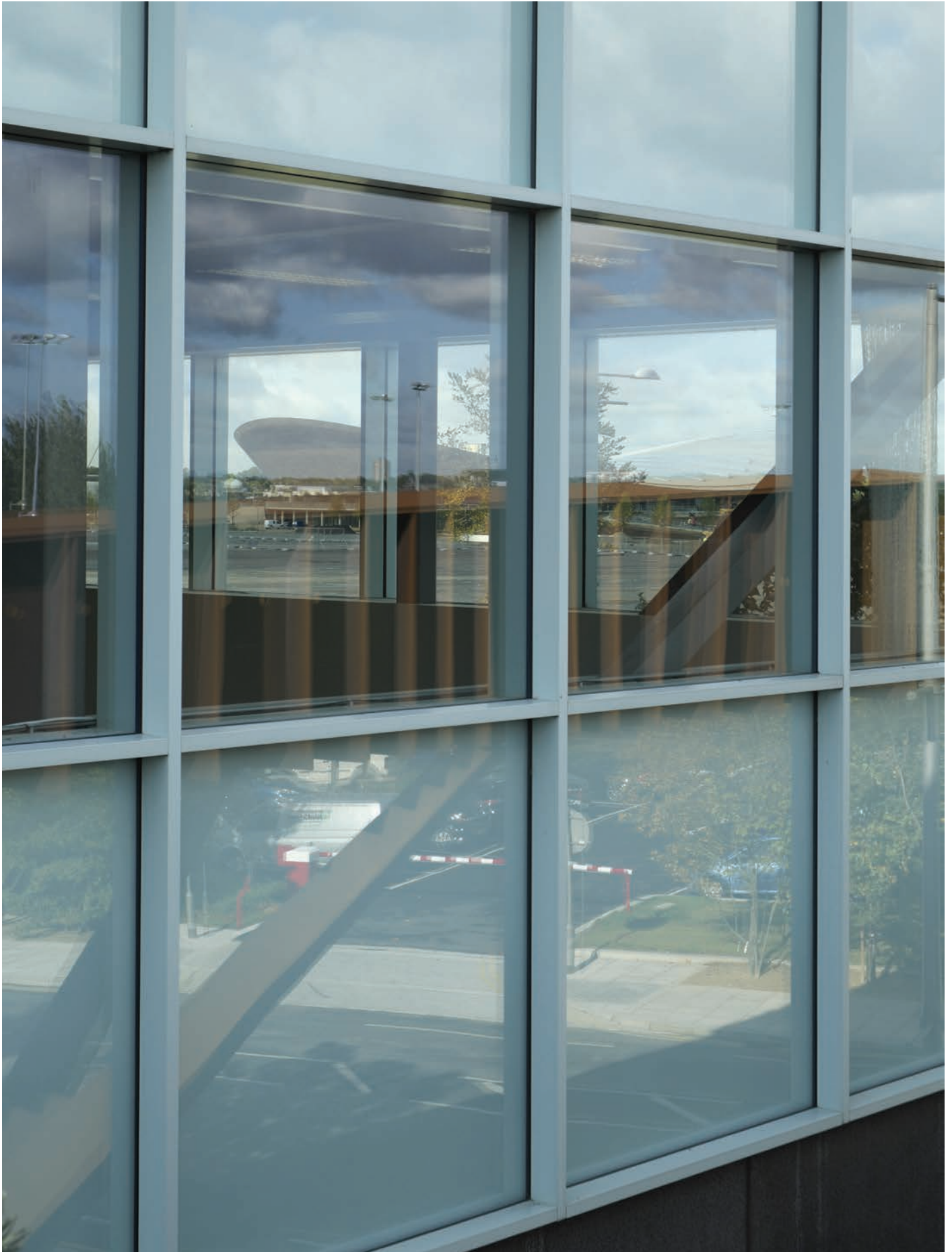
06044_1482© Tim Soar



Main Building stair tower



View of the landscaped playground



Phase One Building facade detail



The Phase One Building sits among soft landscaping

06044_1472 © Tim Soar



Chobham Academy in the Olympic Village, playing host to the Athletes day-day Information Centre and the International Olympic Committee

06044_1437 © Tim Soar



Chobham Harris Academy and surrounding hard landscaping

06044_1414 © Tim Soar



View of Chobham Harris Academy during the Olympic Games



Approach to the Specialism Building during the Olympic Games



View of the Main Building from the Phase One Building



Internal atrium is converted into the Olympic Sports information centre



Bridge detail



Bridge detail



The 95-metre footbridge extends the school's reach over Temple Mill Lane

06044_1483 © Tim Soar



The 95-metre corten steel footbridge extending across to Temple Mill Lane

06044_1487 © Tim Soar

The Building in Use: Chobham Academy



Entrance to Phase One Building surrounded by landscaped gardens

06044_1571 © Tim Soar



Chobham Harris Academy with new soft landscaping

06044_1389 © Tim Soar





Playground in use

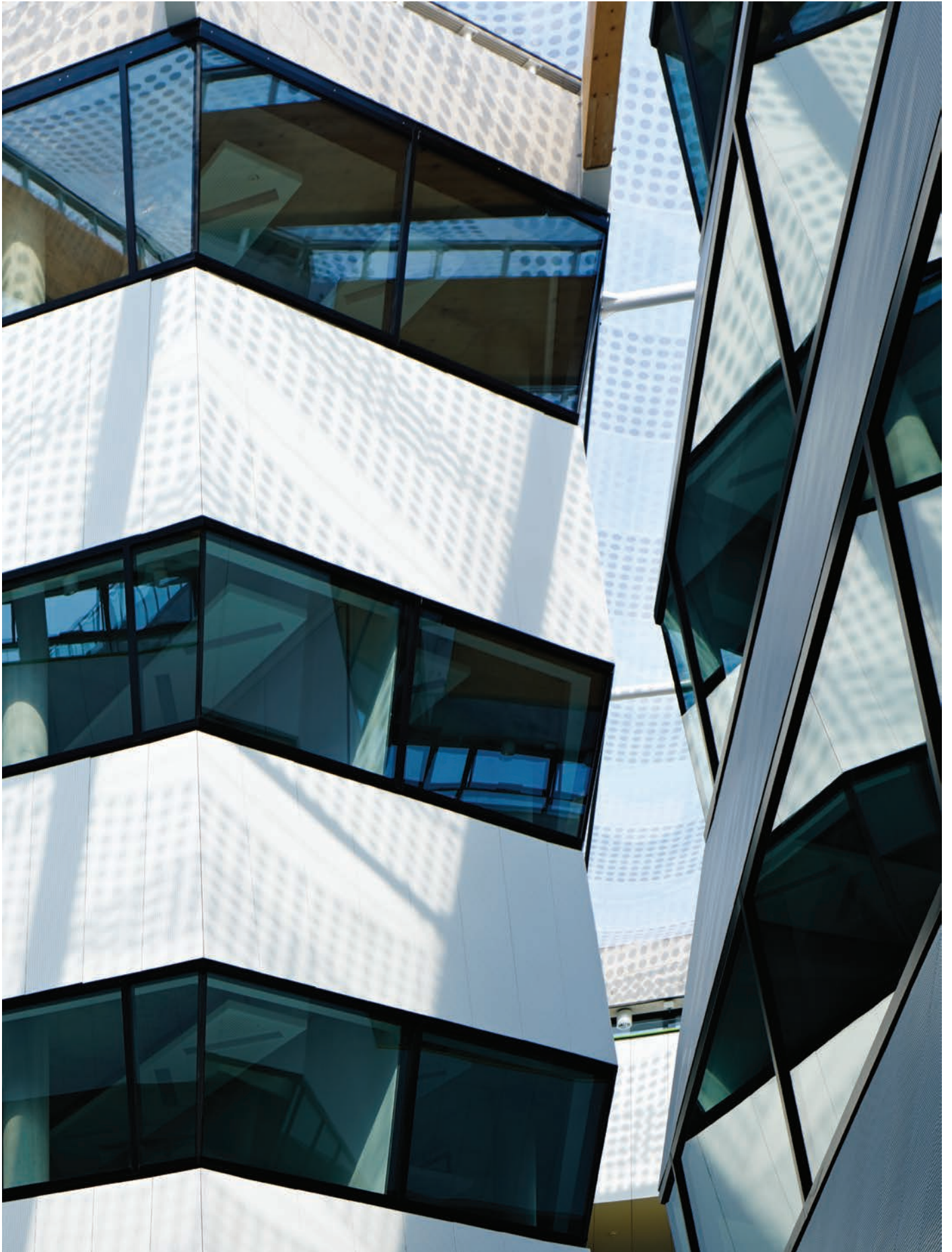


Landscaping by Kinnear Landscape Architects

06044_1607 © Tim Soar

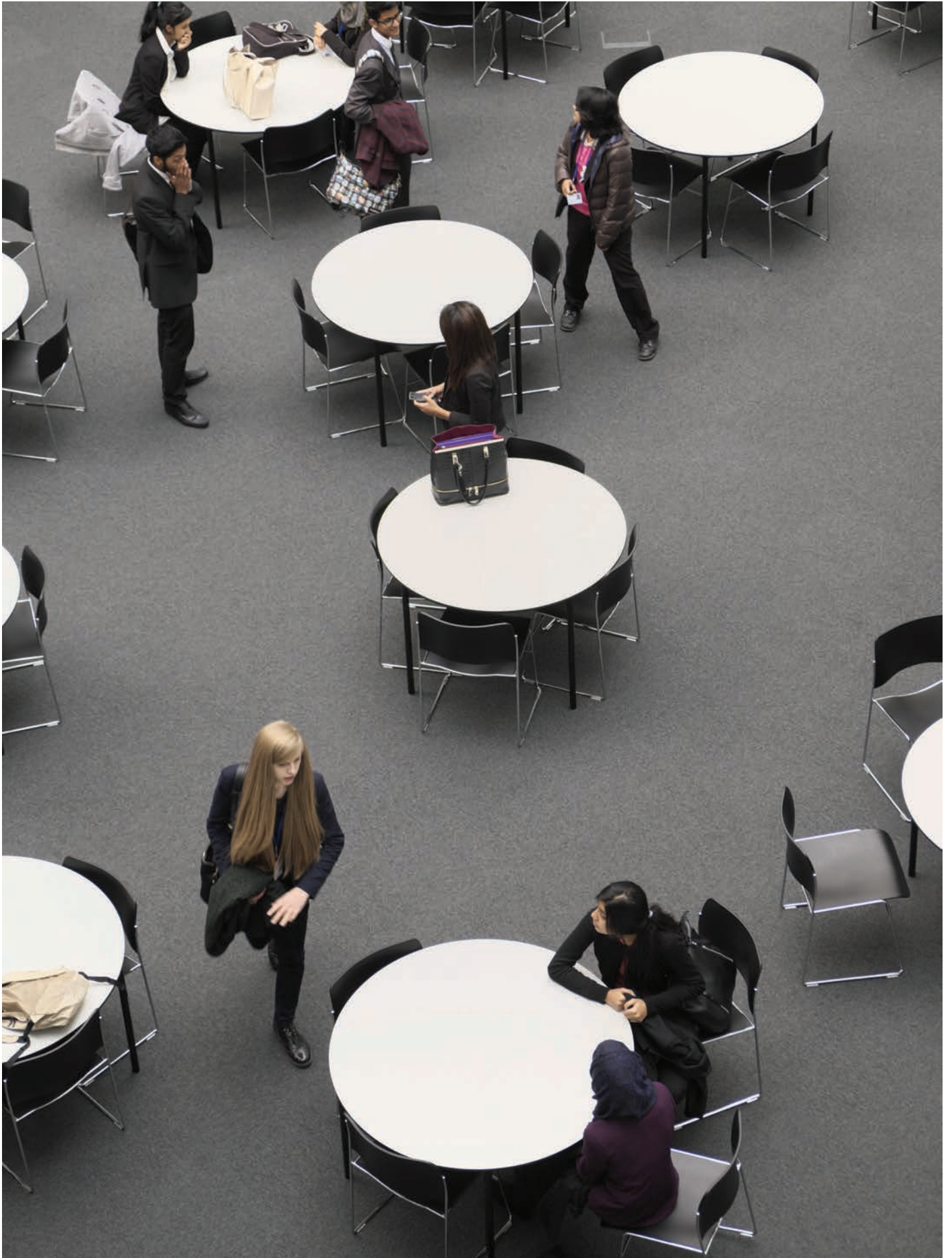


The atrium



Atrium





Seating within the atrium



Specialism Building art rooms flooded by natural light

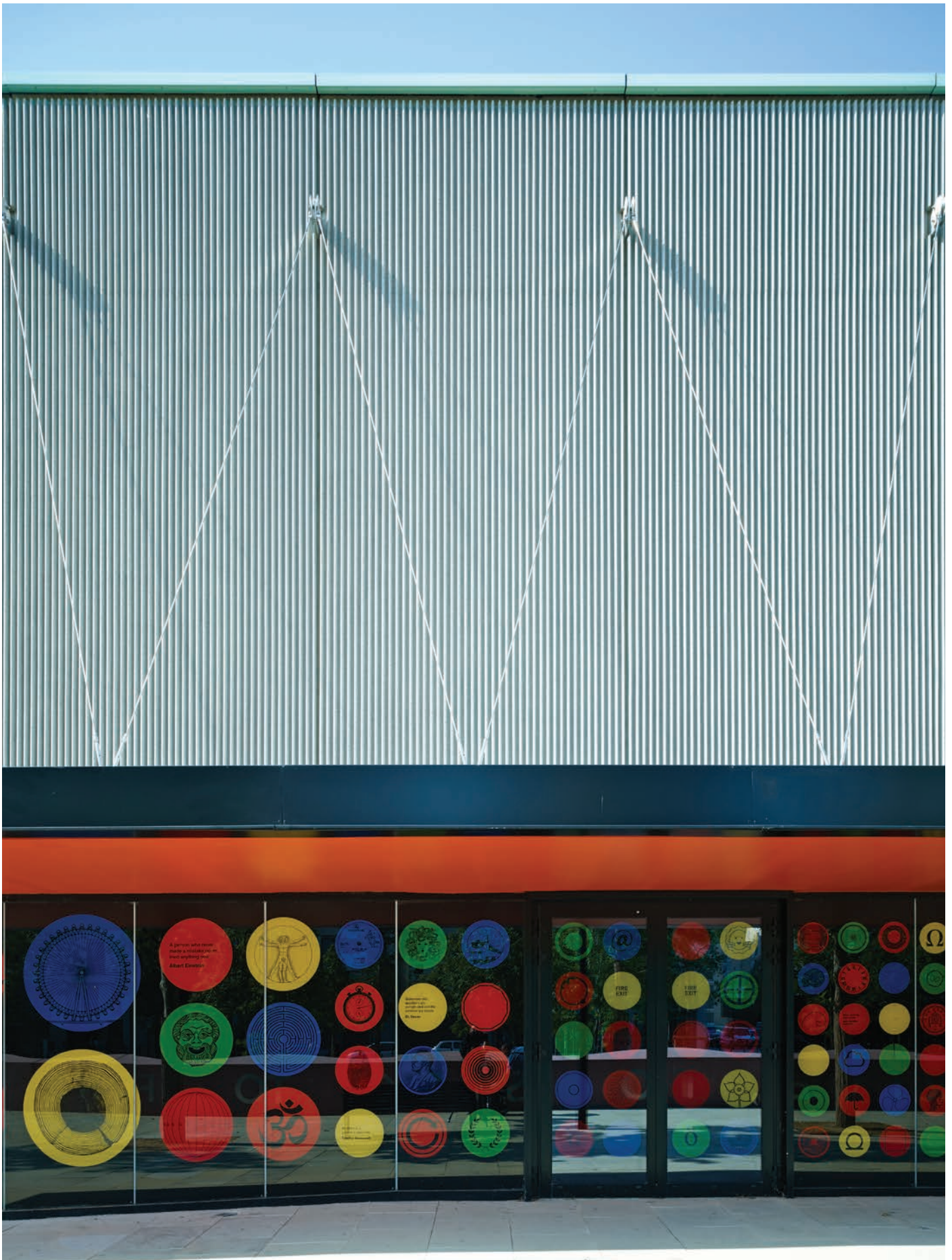


Specialism Building art rooms flooded by natural light

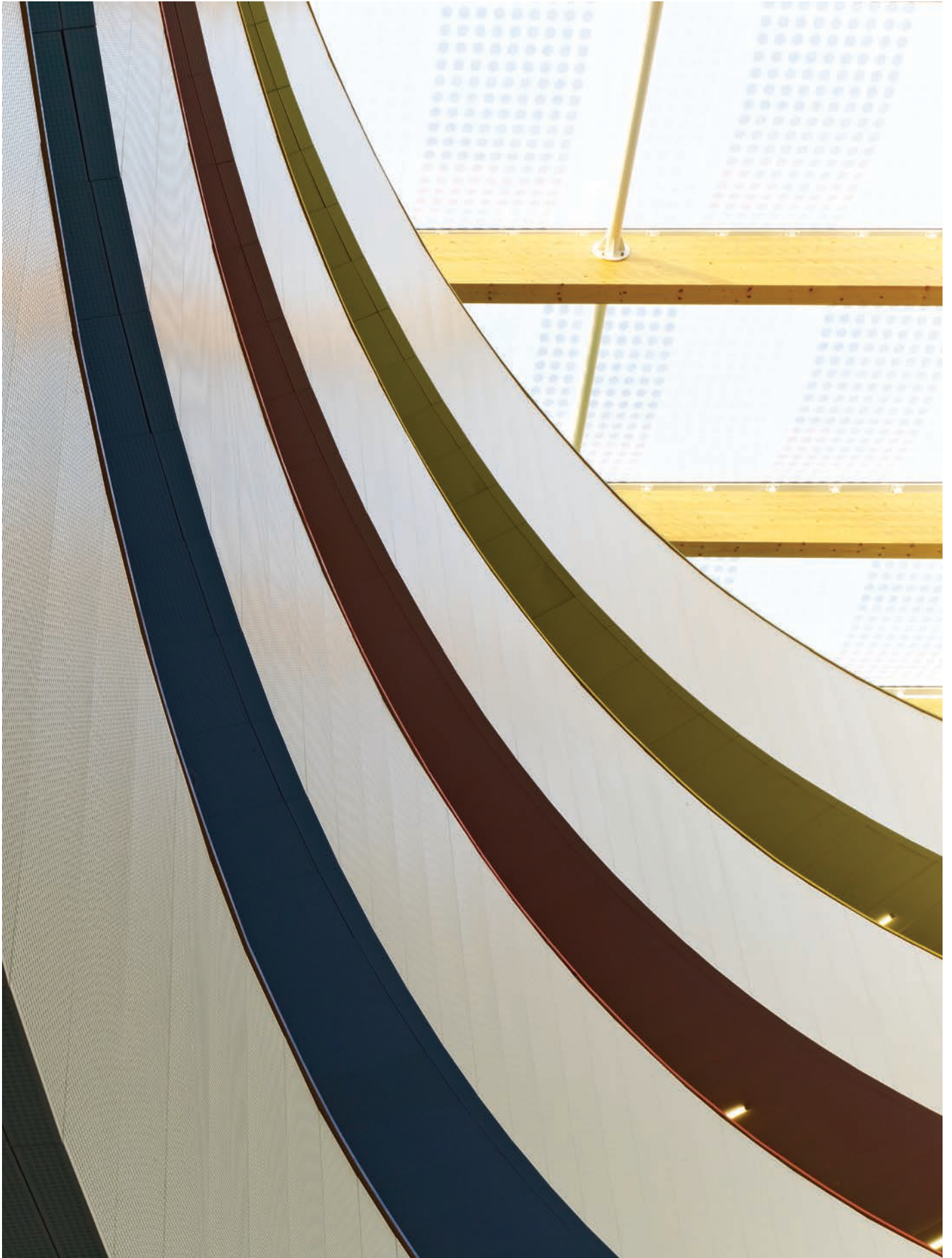
06044_1660 © Tim Soar



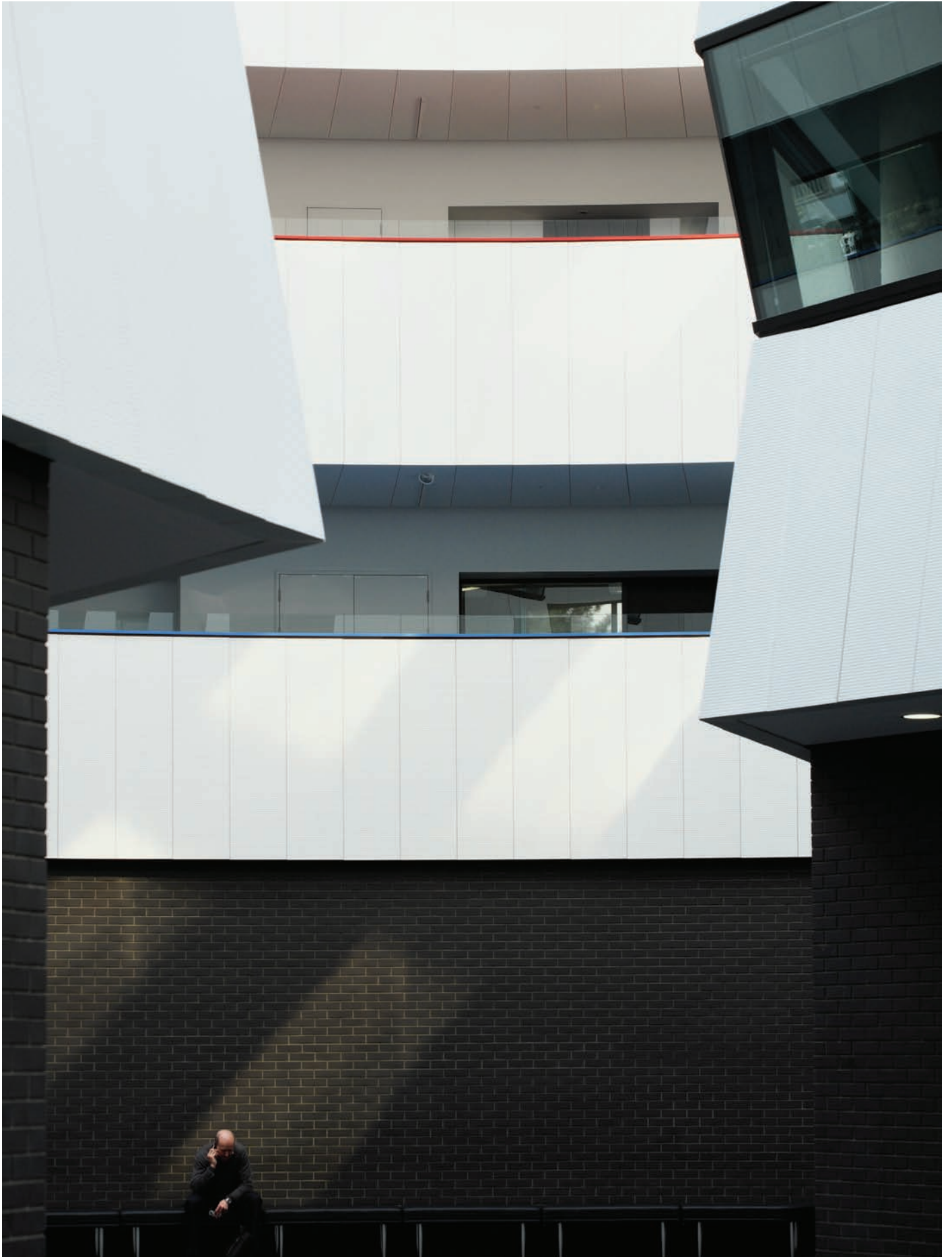
Nursery classroom within the Phase One Building



Detail of the Specialism Building facade and graphics



Detail of atrium balustrades and ETFE roof

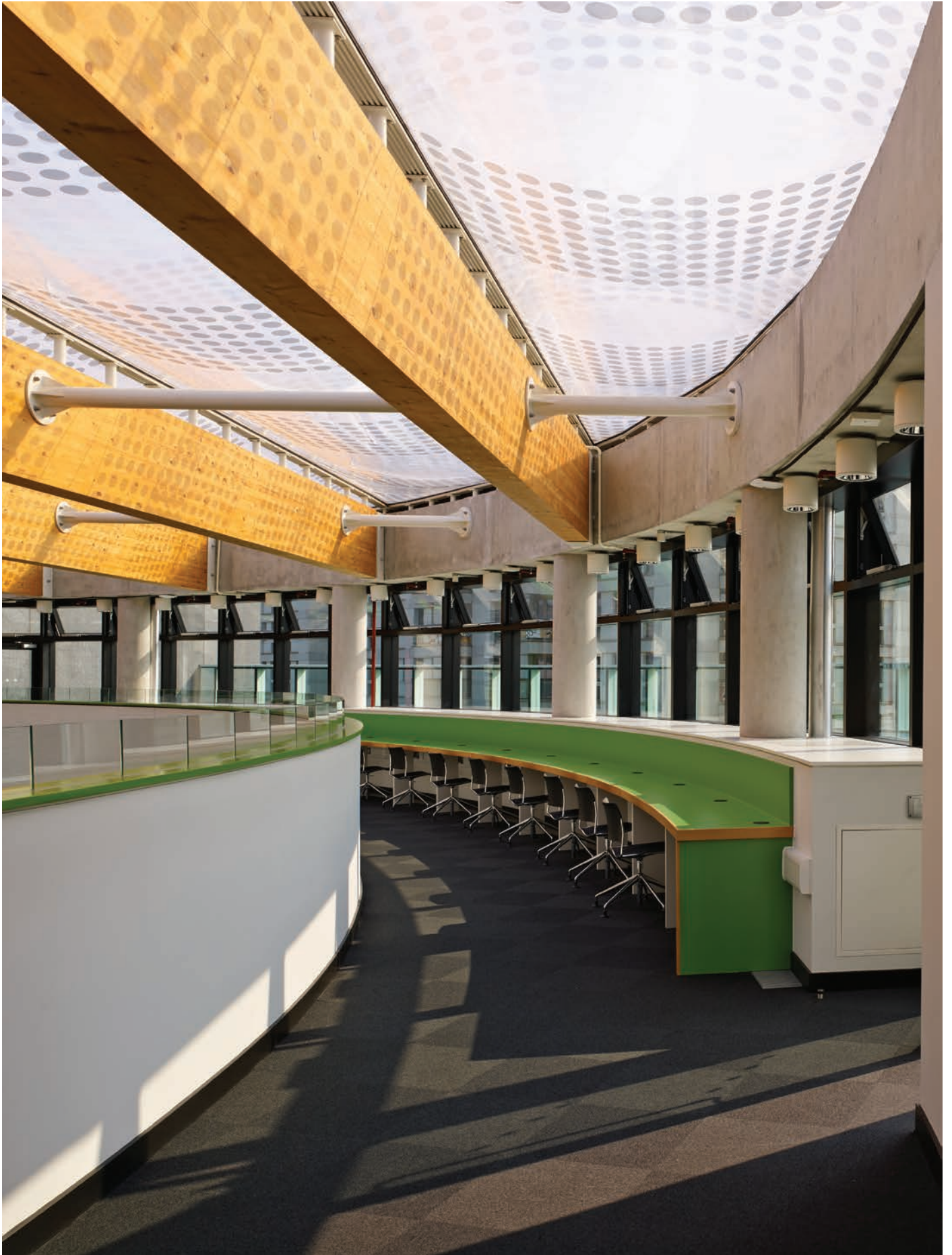


Main Building atrium detail



Main Building reception and atrium

06044_1130 © Tim Soar



Main Building atrium corridor with seating area



Phase One Building first floor corridor



Phase One Building classroom vestibules



Phase One Building Nursery classroom

06044_1123 © Tim Soar



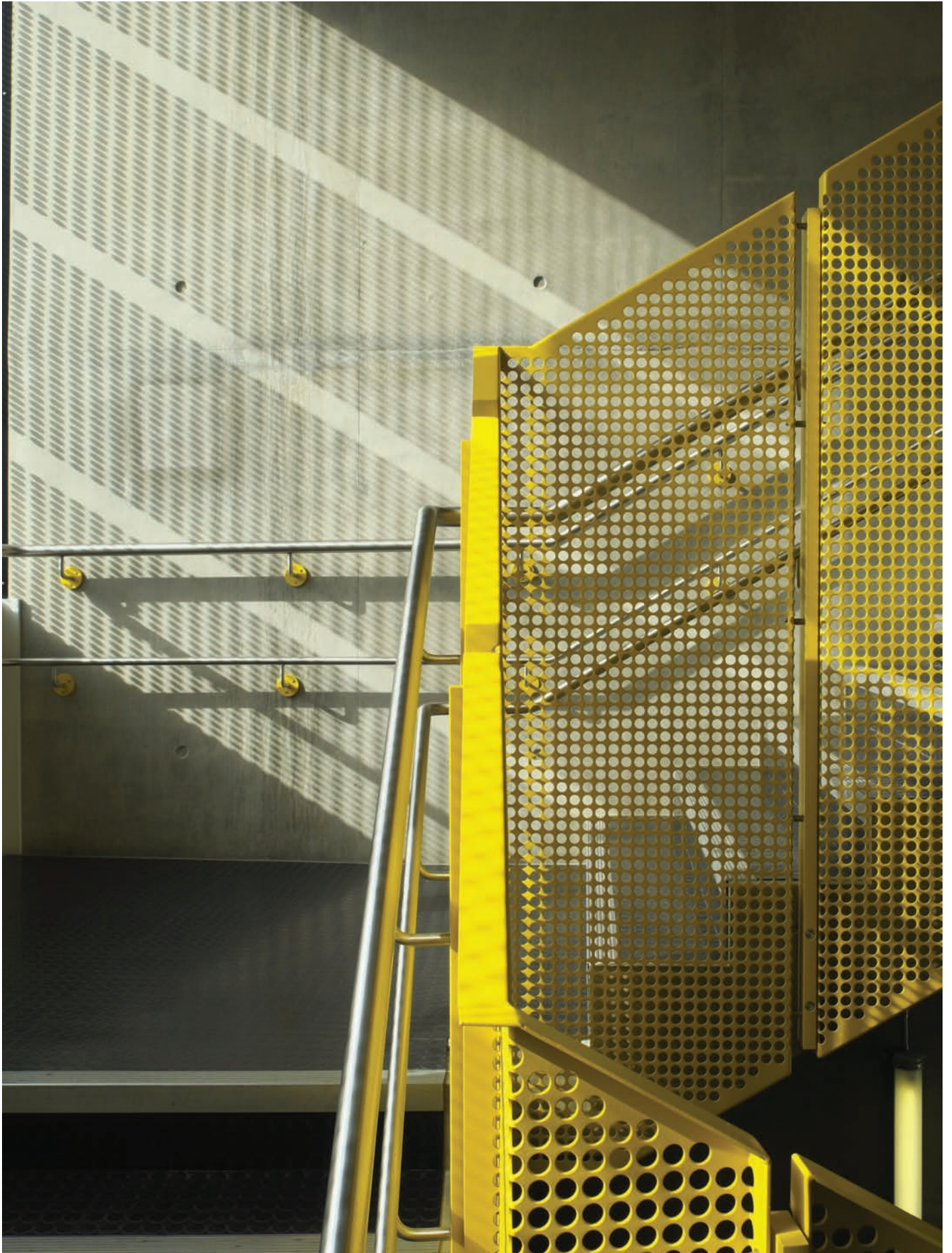
Specialism Building Theatre lobby

06044_1135 © Tim Soar



Specialism Building Theatre

06044_1148 © Tim Soar



Stair detail