5

Design evolution

5.1 Introduction

This chapter describes the evolution of the design proposals for Oriel and the design team's response to consultation with the user groups, LB Camden planners and other stakeholders.

Proposals to create a new integrated home for Moorfields Eye Hospital and the UCL Institute of Ophthalmology have been in gestation since 2012, with a great deal of preparatory and strategic work being undertaken. In the second half of 2018, by now having secured the site and defined a high level brief, Oriel partners held an international design competition which was by Aecom, Penoyre & Prasad and White Arkitekter. The competition process was an effective way of thoroughly exploring different schemes for the building organisation, to seek out the design strategy that captured the essence of the brief, namely to create 'an environment for innovation to flourish, inspiring advances to improve people's sight'.

Each competition entry was the result of multiple explorations, which were subject through the process to rigorous testing for operational functionality as well as place-making. The building's formal concept - the *parti* – two arms embracing a public atrium with a 'collaborative tower' at its heart – emerged as the typology selected above credible alternatives, and has been at the core of the design development ever since. The strategy of adapative floor plates, envelope, structure and services, has also been validated ensuring the building will be able to accommodate changes in practice and use while also following circular economy principles.

The design has progressed along two separate but linked streams. The first is the shell and core – those elements that are fixed and that serve the whole building, irrespective of internal layout. This includes the public realm design, access, massing, façades, servicing, and ground floor uses. These aspects have been developed through close and regular discussions with LB Camden's planning team and wider stakeholders (GLA, Canal and Rivers Trust, KCCLP, and others).

The second stream is the internal fit-out – the internal departmental arrangements and building organisation. This has been developed through a carefully co-ordinated user group engagement process, with the design team developing each departmental layout and details through a series of workshops with each user group, plus wider leadership group strategy workshops, patient engagement sessions and wider staff consultation.

As previously mentioned in Section 3, during January and March 2020, the design team carried out the first tranche of workshops with the user groups. However, due to the Covid-19 lockdown, the rest of the engagement could not proceed. It is planned to complete this from January 2021 onwards. However, continual engagement, approvals and sign-off with the client and leadership team throughout the development of the proposals outlined in this report has ensured the shell and core design will meet the future needs of the user groups and Oriel as a whole.

Competition view of the atrium and Oriel

5.2 Competition design

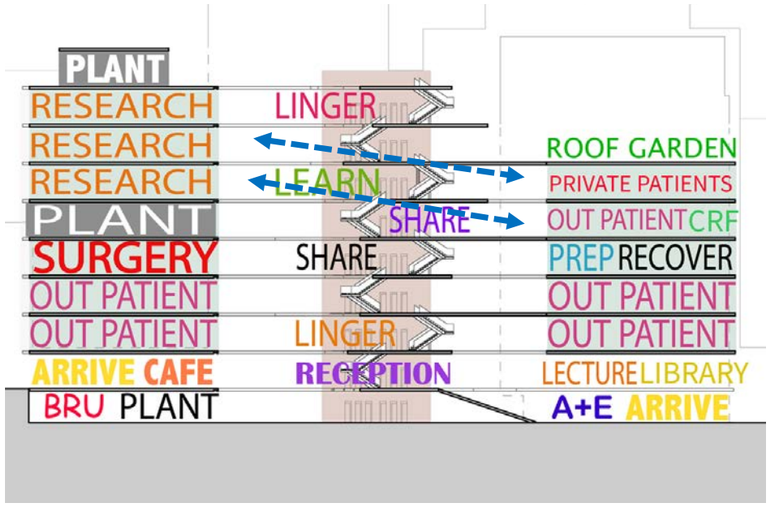
Key principles informed the competition design and have underpinned the development of the design all the way through its evolution.

Creating a magnetic place
The building and its new context will create a welcoming public realm that occupies the two-level ground plane and connects to the surrounding streets and spaces, existing buildings and new developments. The new building will collect people coming from several directions, as dictated by the nature of the location. People will arrive at two primary entrances – a lower one to the southwest facing a new 'heritage' square, and an upper one to the northeast, looking towards the canal and a second new square, dubbed 'Oriel Square'. The ground floor activities are geared towards maximising public activities and enlivening the public realm – retail, cafés, and educational facilities allow for a transparent and open façade. The Accident & Emergency Department, located along St Pancras Way, is located close to the patient drop off and pick up lay-by.

A place of collaboration
The building comprises two arms embracing a central atrium and internal public space. A structure named 'the Oriel' occupies the centre of the atrium and contains the main vertical and lateral circulation to all parts of the building. A stack of multi-functional platforms and semi-enclosed spaces, the Oriel is a spatial embodiment of the concept of translational medicine and research. It is a response to the challenge in the brief to 'encourage collaboration between patients, clinicians and researchers' and to 'harness the collective power of staff, students and patients'. All users of the building are expected to circulate via the Oriel stairs, lifts and bridges, creating the maximum possibilities for fruitful encounters. On the lower levels there will be waiting spaces with refreshment points, giving way to meeting and work spaces further up.

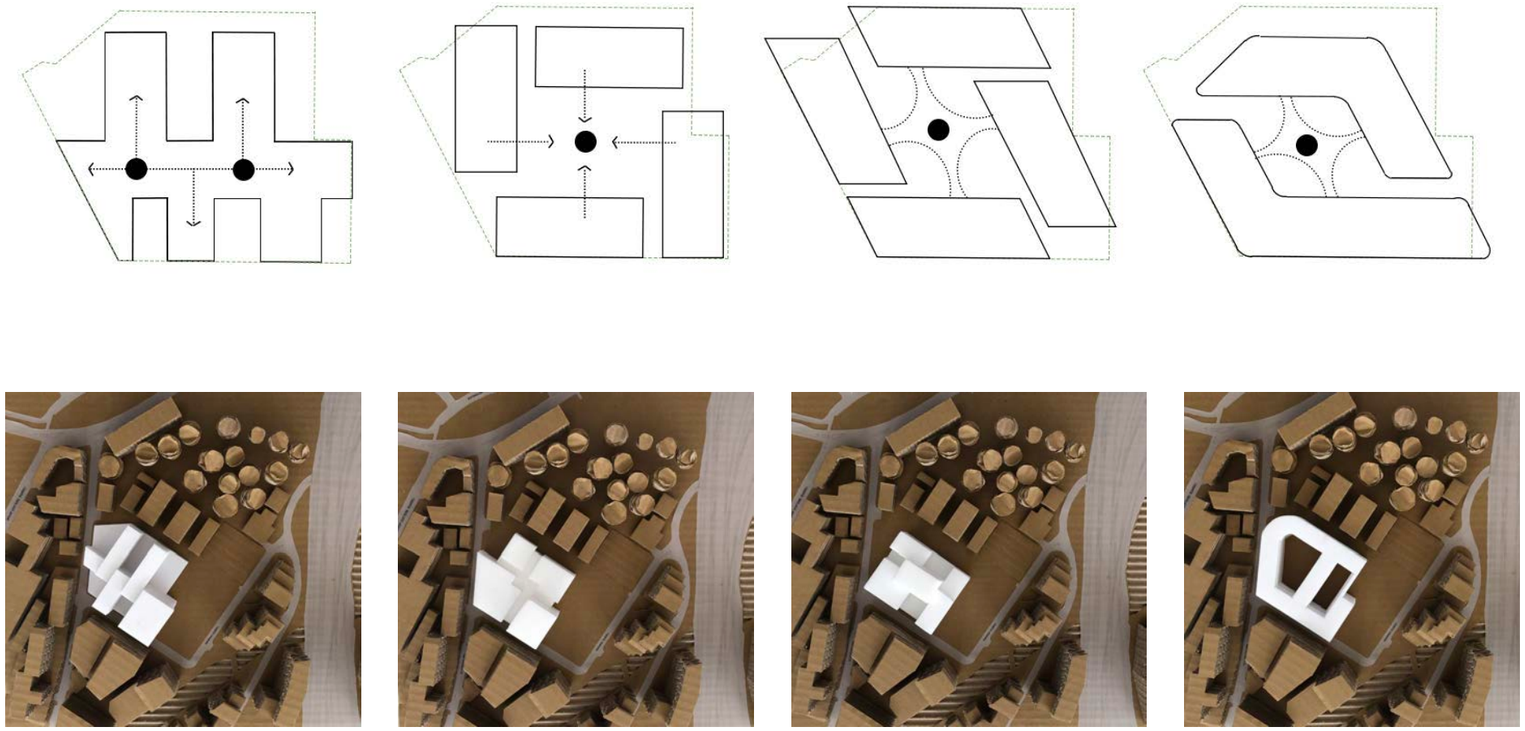
An adaptive building
With disruptive technologies changing the nature of healthcare, education and research buildings, Oriel is conceived as an adaptive building providing flexibility for the building to adapt into the future. Flexible floorplates, optimal floor-to-floor heights, and a strategic Mechanical & Electrical Public Health (MEPH) strategy enables the building to flex and adapt over time. This strategy ties in with the sustainability approach of the design which is not only to be lean, green and clean, but embody the circular economy design principles into its very fabric. The building is conceived as a series of layers, from the FF&E to the partitions to the cladding to the structure, each with their different replacement lifespans, the building can change and adapt as institutional, operational and even functional needs change over time.

Competition view across the canal and new square



Competition stacking section

Competition department plan layouts



Competition building options to test the form against the brief and context

LB Camden Planning Officers initial response to the competition proposals

In the first presentation to the planners on 26th February 2019, LB of Camden stated that this was a 'very exciting' and 'great opportunity' for Camden who were proud it was coming to the borough. It was acknowledged that the scheme would 'contribute to the knowledge quarter' in the area and would 'work well'.

However, the following key concerns were raised about the design:

— Clearer rationale needed for what was driving floor space requirement.

— Concerns about the potential insular and inward-looking nature of the building. Need to create an architecture that is appropriate to the character of the streets.

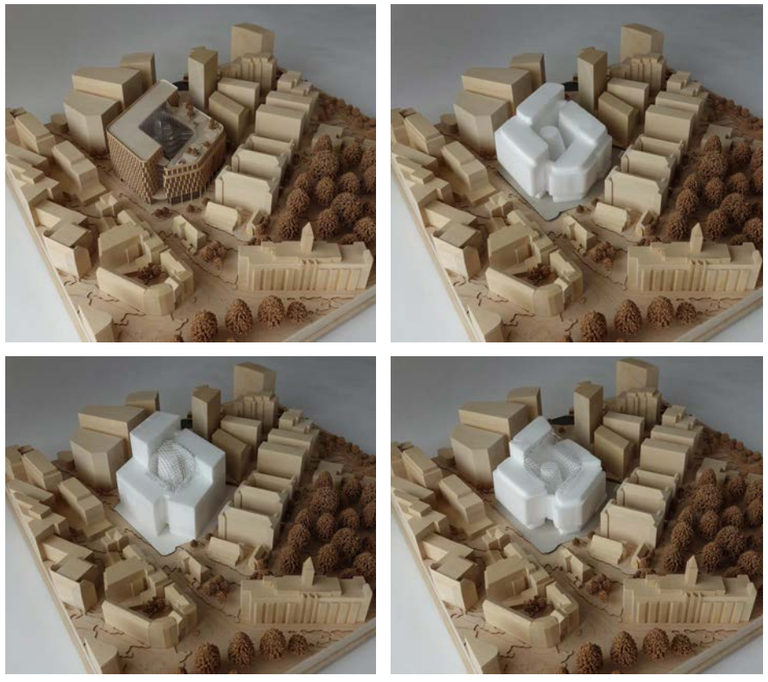
— Scale of the building against the existing buildings.

— Legibility of entrances in the gaps between the two 'boomerangs'.

— Routes and permeability do not accord with LBC's intention for the site.

Competition view of south entrance

Competition model



Exploration of massing during Stage 1

5.3 RIBA Stage 1 and 2 development

In the course of RIBA Workstages 1 and 2 a series of Pre-application Meetings were held, in accordance with a Planning Perfomance Agreement between LB Camden and Moorfields on behalf of the Oriel Partners.

The building use fitted within Camden's vision for the area. A key issue was the compatibility of the proposal with the 'St Pancras Hospital Issues and Option' report by LBC (March 2017) and its analysis of permeability, movement, grain and massing. If followed to the letter the report's preferred site strategy would make it impossible for Oriel to have the footprint required by the vision to create a unified facility that brings together the three organisations. The Design Team undertook extensive work revisiting the report's assumptions, for example about pedestrian desire lines and location of entrances. This work resulted in a proposal for movement that achieved LBC's aims, also shared by the Oriel Partners, while retaining approximately the footprint of the competition scheme.

Pre-app meeting No. 1: 25th April 2019

Key Issues discussed:

Land use

— Scale and quantum of development on the site, strategy for and benefits of relocating from Old Street. Justification for the proposed building (medical and research uses) and the quantum of development on the site.

Townscape and massing

— Justification for single building, analysis of the competition proposals from perspective of townscape analysis, scale and proportion of development along Granary street.

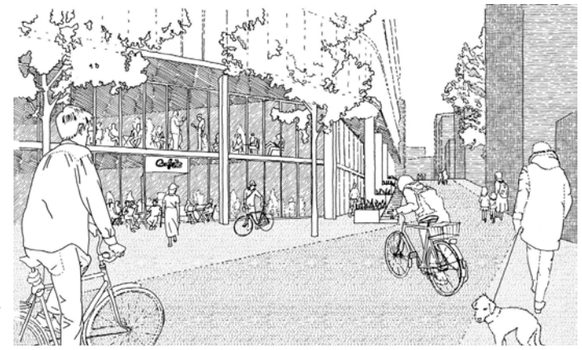
— The massing of the building was rigorously tested and refined.

Permeability of the site

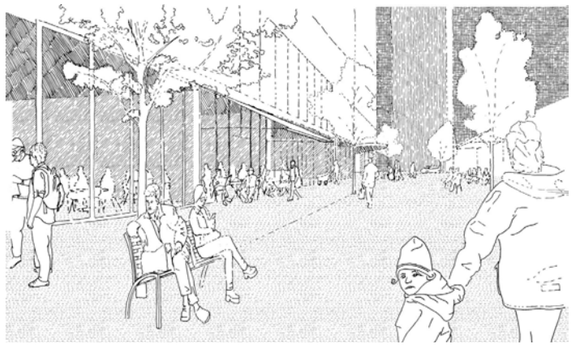
— Analysis of routes across site as envisaged in LBC's St Pancras Hospital report vis a vis competition proposals. The competition scheme was tested against LBC's strategy for permeability and routes as set out in various documents for the site. The principle of the north-south diagonal route and east route was established, with a secondary route through Oriel.

Building servicing

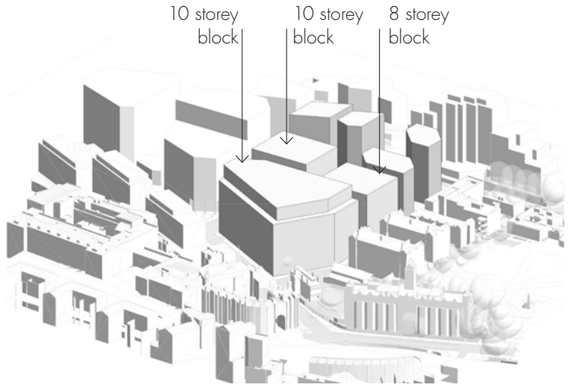
— Principle established for all vehicular servicing to take place within building off Granary Street.



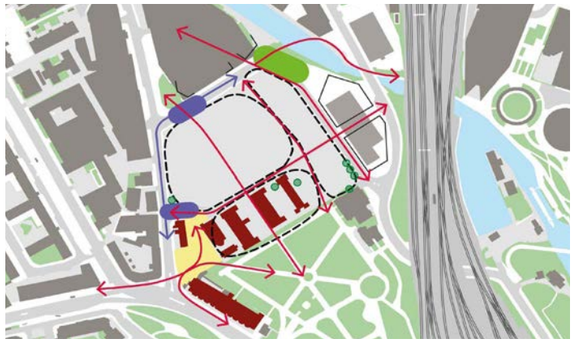
Active edges to public realm at south west entrance



Active edges to public realm along eastern flank



Massing proposed in LBC's St Pancras Hospital Options report, 2017

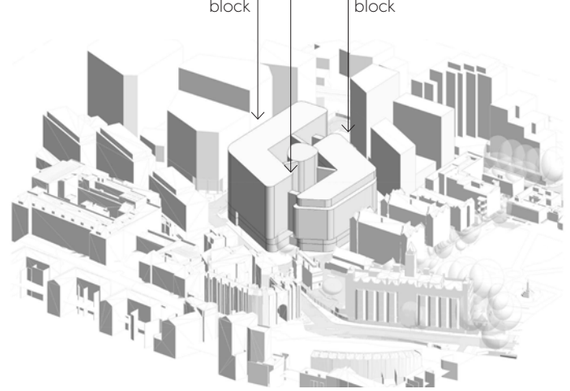


Permeability proposed in LBC's St Pancras Hospital Options report, 2017

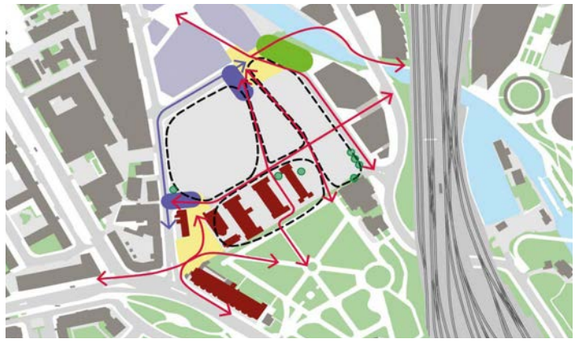
Lower main entrance

9 storey block

7 storey block



Massing of Oriel Competition Scheme



Permeability in Oriel Competition Scheme

Pre-app meeting No. 2: 22nd May 2019

Key issues discussed:

Movement and uses

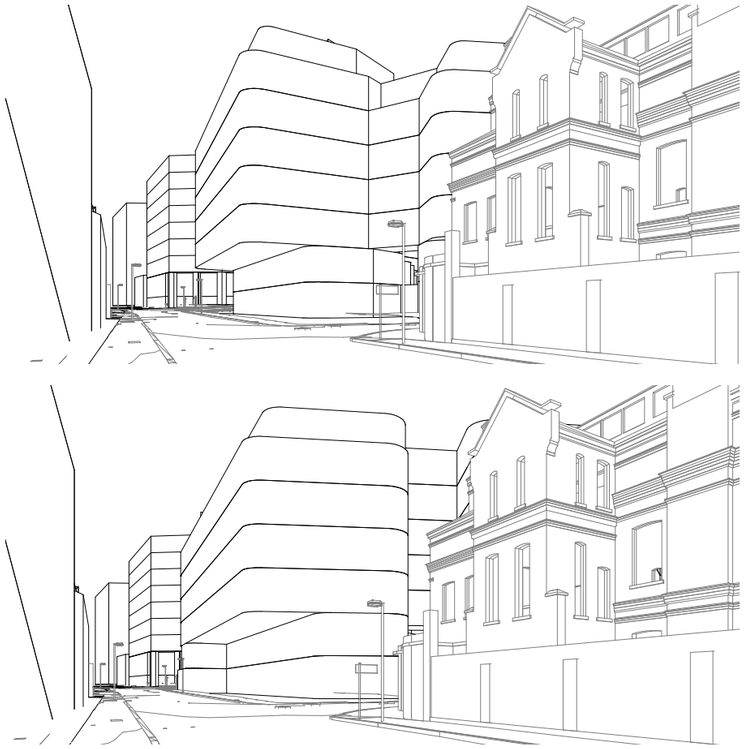
— Importance of active frontages.
— All vehicular movements to be on-site to minimise disruption to public highways.
— Review of alternative options for drop-off and servicing - requirement for all vehicular movements to be on site to minimise disruption to the public highways.
— Increased permeability from St Pancras Gardens is a prerequisite. Confirmation from Camden that proposed pedestrian routes acceptable.

Townscape and massing

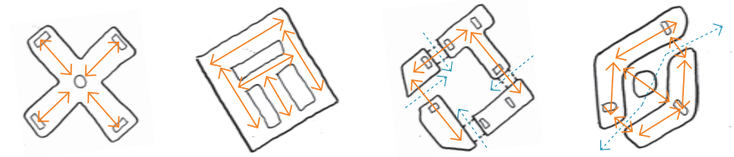
— Further explorations of massing, height, articulation and relationship to adjacent streets required.
— Local views of competition proposals tabled, giving some comfort to officers in terms of overall scale of development within the local, evolving context.

Typology assessment

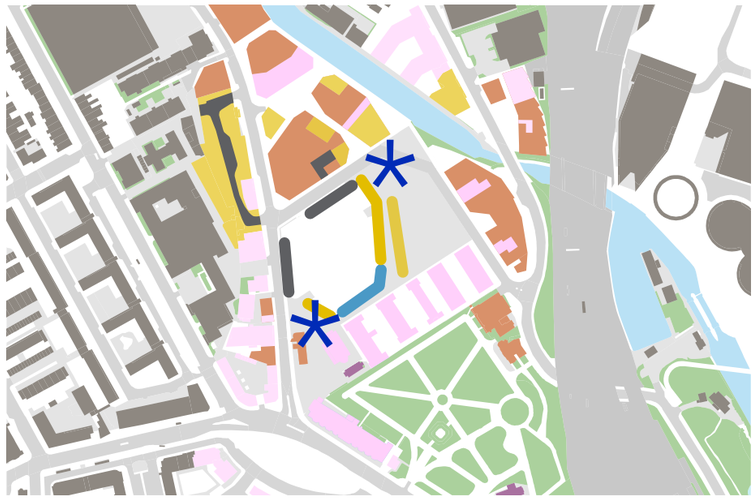
— Review of the competition proposals to demonstrate how the winning competition scheme most closely meets brief while responding positively to urban context.



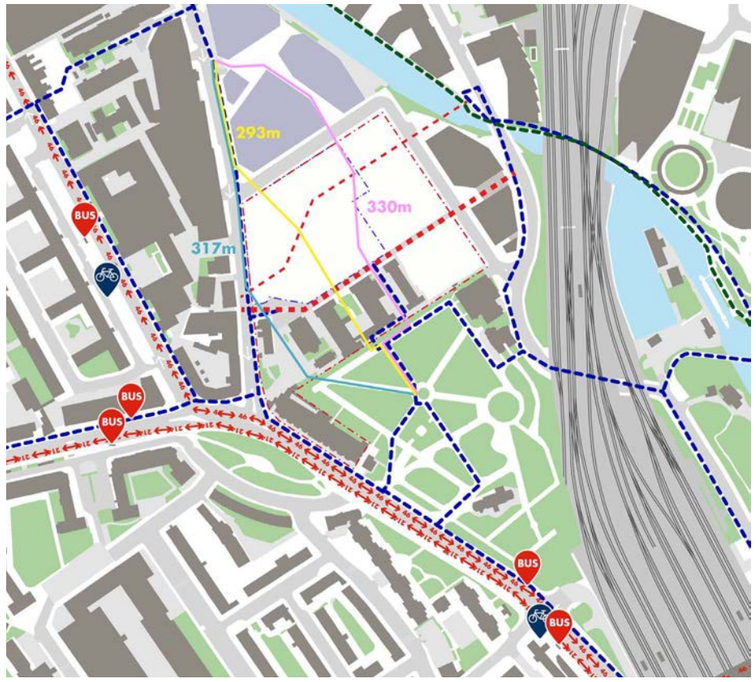
Street views testing massing options



Typology studies of competition entries show building organisation explored to match the brief - cruciform, block with lightwells, courtyard, atrium with Oriel



Proposed active frontages (yellow and blue + new squares - starred)



Walking distances to and across site

Pre-app meeting No. 3: 19th June 2019

Key issues discussed:

Brief

— Importance of remaining 'outwards facing' not only in the types of ground floor uses but through the architecture and its surrounding public realm.

Transport and servicing strategy

— Importance of 'last half-mile' of most patients' journey.
— Support for the approach to on-site deliveries without need for a vehicular turntable.

Vacuum Insulated Evaporator

— LBC expressed strong preference to avoid placing oxygen vessel in public realm to serve the building.

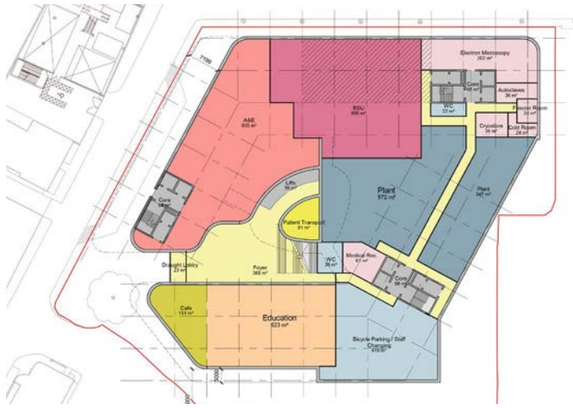
Typology assessment

— A building setback of at least 2m from the boundary line was recommended by Camden in order to provide relief and reduce the impact of the building on the streetscape of St Pancras Way.

Tree preservation orders

— Camden acknowledged that the TPO tree by the southwest entrance could be removed if required to enable development, with replacement tree planting conditioned.

Upper Ground Floor plan



Lower Ground Floor plan

Pre-app meeting No. 4: 3rd July 2019

By the end of RIBA Stage 1, the following design principles were established, on the basis of which Stage 2 would be developed:

Massing

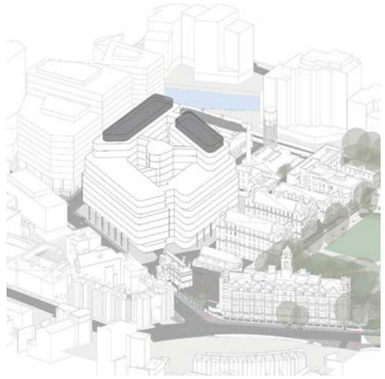
— Lower at the southwest corner to reflect lower scale of existing context, up to Level 5 (7 floors above lower ground level).
— Building to rise higher towards the northeast to reflect contemporary and future higher density developments.
— Entrance rotated around at the southwest to face new public space between chapels, gatehouse and St Pancras Gardens.

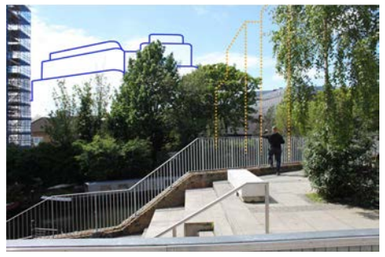
Building position

— Building position on site set back from St Pancras Way to allow for fully off-street patient vehicular drop off.
— A double height colonnade tp provides protection from the drop off to the entrance.

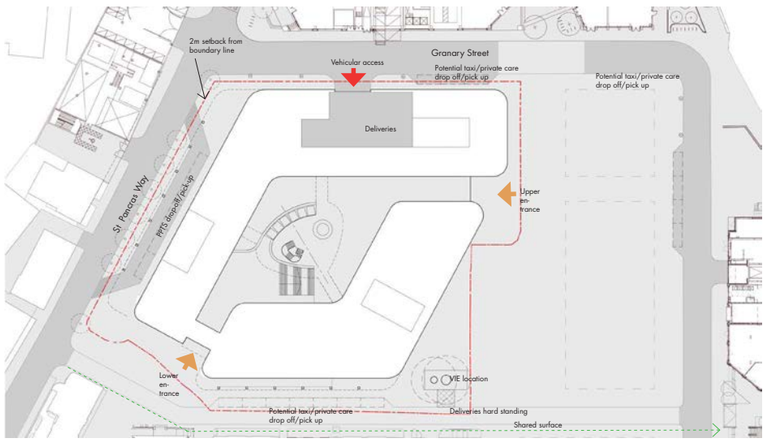
Vehicular servicing

— To take place to the north of the building along Granary Street.
— All vehicles to enter and leave delivery bay facing forwards.



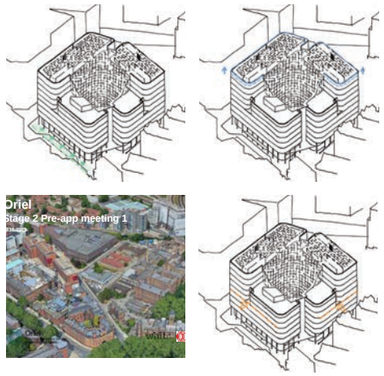


Massing at Pre-app 4



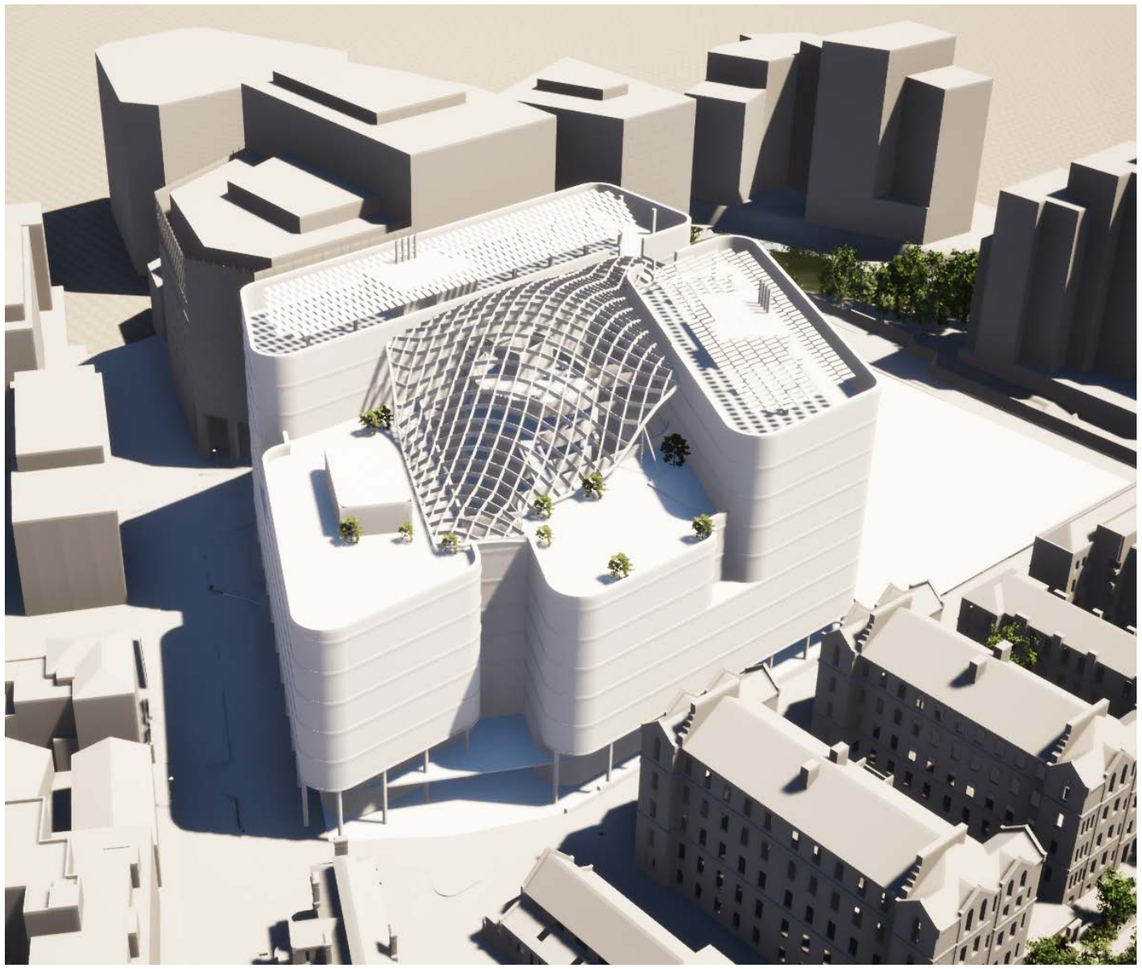
Site access strategy

RIBA Stage 2 : LBC Meeting: 9th October 2019



Massing changes during RIBA Stage 2

Verified views



Aerial view from southwest - mid RIBA Stage 2 massing study

A meeting additional to the routine pre-app meetings was held with LBC's planners halfway through RIBA Stage 2. The purpose of this meeting was to update the planners on developments since the RIBA Stage 1 and to discuss the process moving forward.

Feedback from the planners was positive with the following key comments:

— The emerging articulation is good to see, and the Planners would like to see more of it.
— It is a positive move to pivot entrance to face the square to the southwest and shift the massing so that this part of the building is lower.
— There is scope for further articulation on the longer elevations, perhaps using the cores.
— Could the internal plant adjacent to cores be used to create more expression on the façade?
— The roof needs to be coherent and unified, signifying a single institution.
— Explore integrating roof plant into roofscape, so all plant sits within a box and reads as part of the building (e.g. Duggan Morris' pink building in Kings Cross).
— Explore how the building is expressed as one approaches the building, e.g. canopies to the glazed links.

5.4 RIBA Stage 3 development

On selection of C&I's preferred development partner early in RIBA Stage 3, the Oriel design team engaged with the wider masterplanning team to ensure the Oriel proposals co-ordinated and integrated with the wider urban design. A series of joint breakout sessions comprising LB of Camden, the Oriel team and KCCLP, reviewed the urban realm, routes and public space within and around the site, and tested the massing of the RIBA Stage 2 Oriel design against the emerging masterplan proposals.

While the pre-app meetings with LB of Camden during RIBA Stage 3 covered a wide range of detail and topics (see section 3), for the purposes of brevity this section will outline four key areas of development:

— **Public realm and the masterplan**
— **Patient drop-off and vehicular movement**
— **Massing**
— **Façade**

Public realm and emerging masterplan

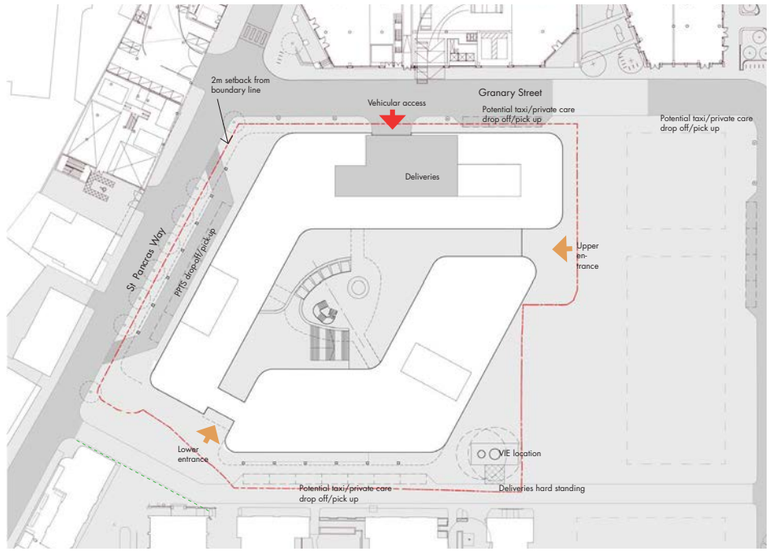
An early principle established by the masterplan team when brought on board by C&I in February was to maximise pedestrian-priority public realm within the site. As a means to achieving this, the Oriel team explored with KCCLP and LB of Camden the potential for the Oriel building to move 3m further west opening up space in the interior of the site. This potentially impacted on the ability of the design to accommodate on-site vehicular drop-off for patients, a stipulation by the planners during RIBA Stage 1. As a result, multiple studies were carried out both by the Oriel team and KCCLP to explore alternative options for the drop-off that could also ensure safety along St Pancras Way.

Key considerations in these studies:

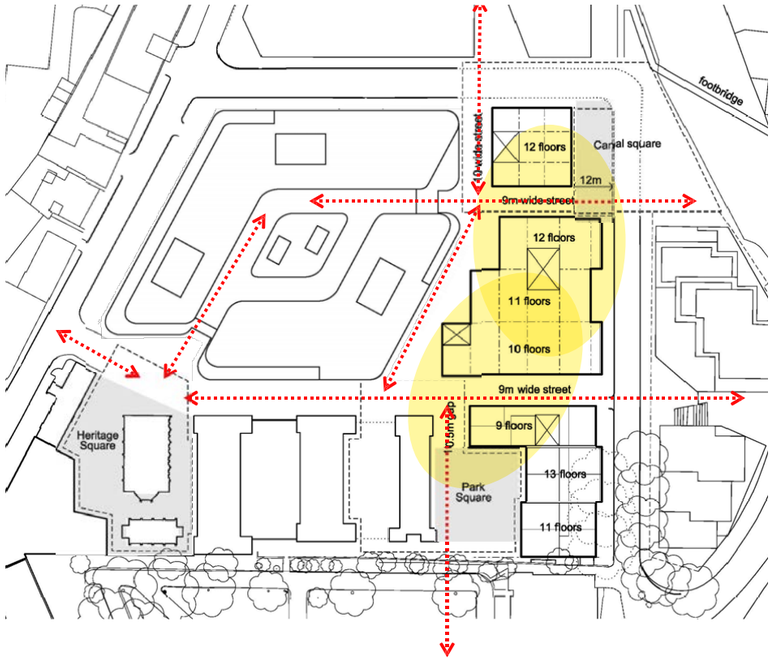
— Topography of site - sloping roads are inappropriate for frail and disabled patient drop off.
— Health and safety of patients, the wider Oriel community and public.
— Impact on the pedestrian nature of the public realm.
— Proximity of drop off to entrances.
— Numbers of vehicles that can be accommodated.

Finalising drop-off and the position of Oriel

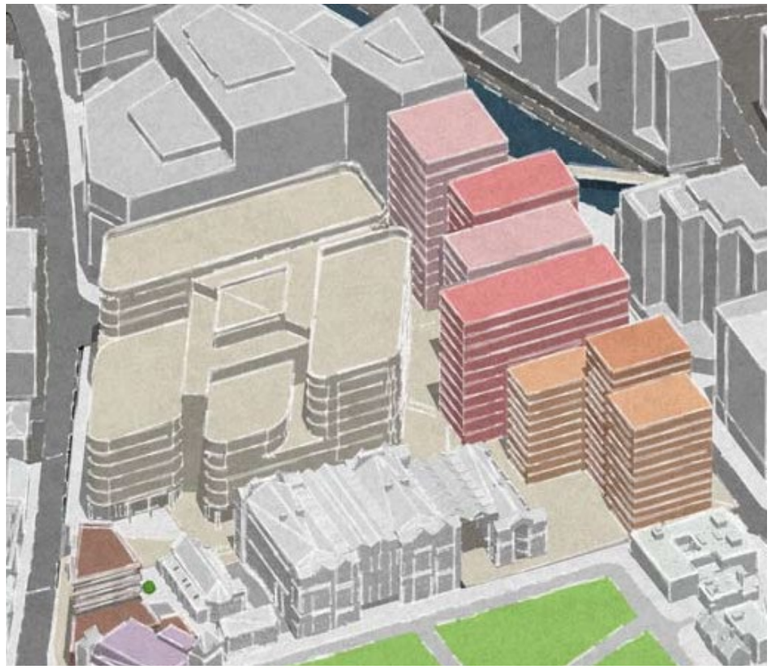
At a joint breakout meeting on 17th June 2020, KCCLP presented an option whereby St Pancras Way was reduced to a single lane street with a cycle lane running north to south on the east side of the road. This proposition enables the Oriel patient vehicular drop-off to still be off the main road while allowing the building to move 3m west. This strategy was agreed and has informed the final location of Oriel on the site.

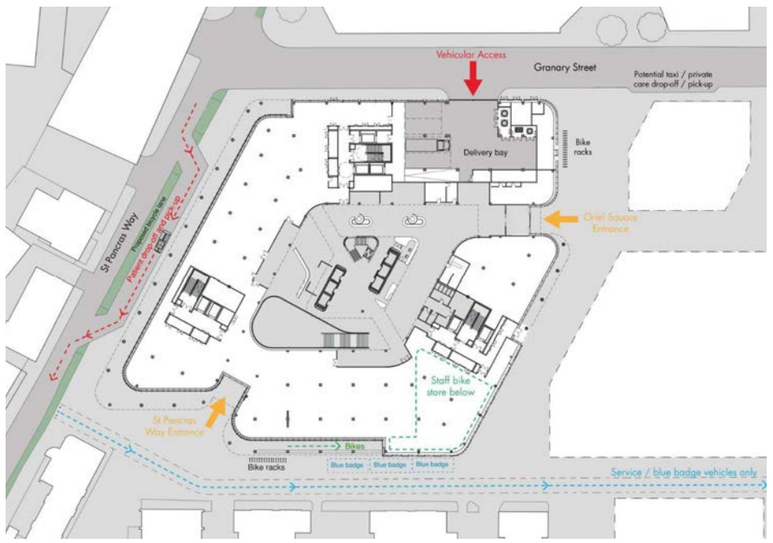


Vehicular drop off arrangement and building position as agreed at Stage 1

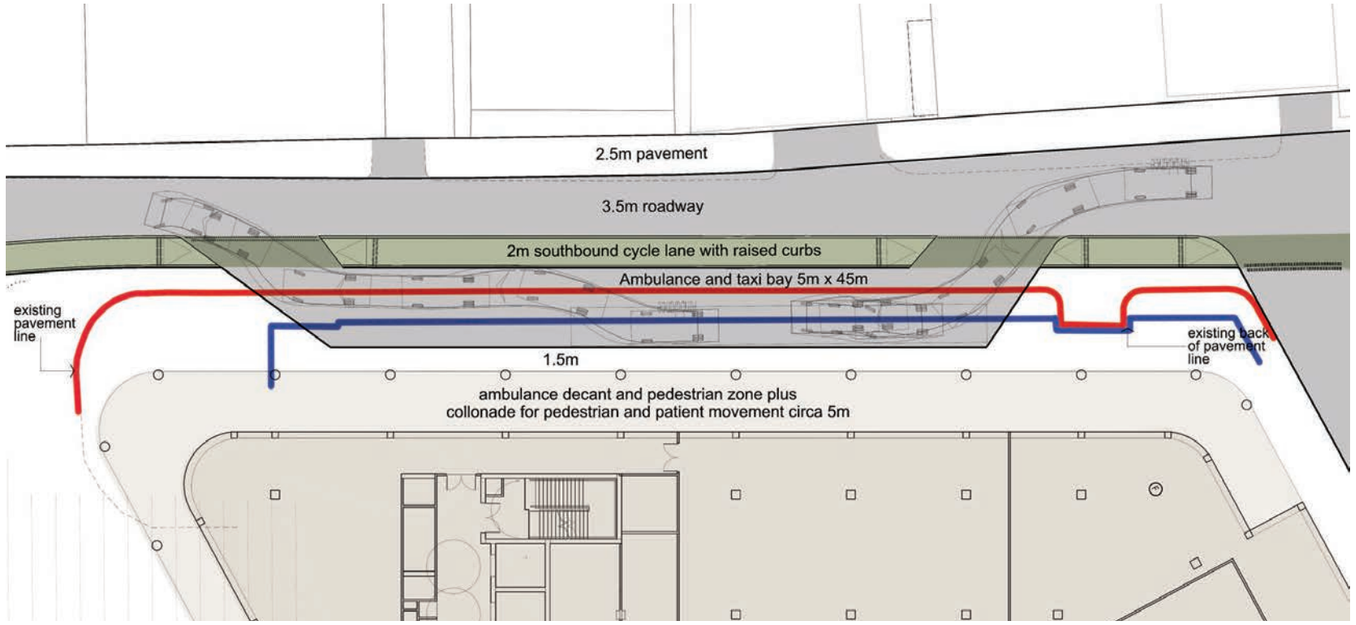


Initial masterplan ideas by KCCLP demonstrating routes and permeability

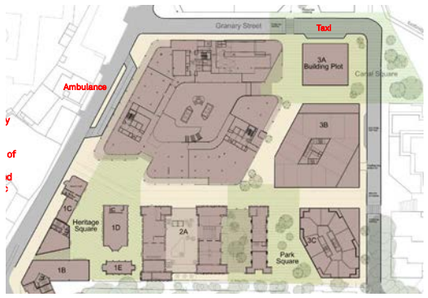




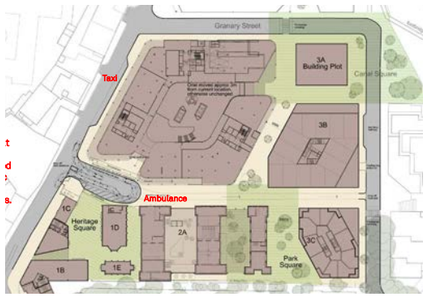
Final patient drop-off arrangement and building position



Agreed St Pancras Way layout as presented by KCCLP



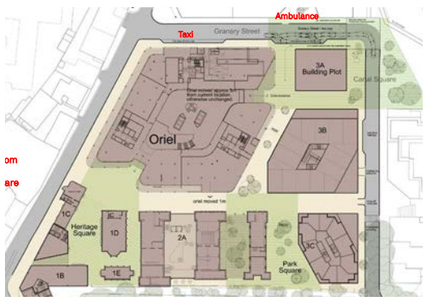
Previous building position and drop off



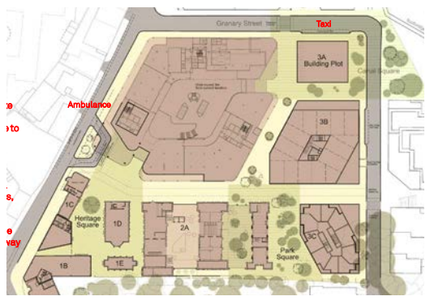
Drop-off loop to southwest

Drop-off along east-west route

Lay-by off St Pancras Way



Drop-off along Granary Street



St Pancras Way loop

Alternative drop-off positions developed by KCCLP

Development of the massing

At the end of RIBA Workstage 2 emerging requirements of Oriel and the possibility of co-location of other NHS and research space led to an increase in the GIA from 43,500m^2 to ca 48,000m^2 with a consequent impact on the massing.

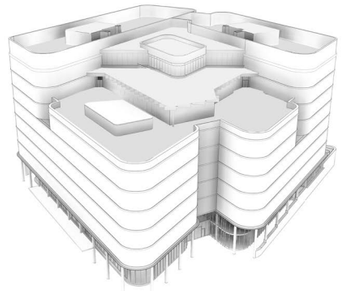
The massing has since developed through extensive consultation with LB Camden, KCCLP and two Design Review Panels. From the diagram agreed in principle at the end of RIBA Stage 1, the massing underwent a number of iterations, fine tuning the building to respond more to the Victorian buildings to the south, provide additional distance to the emerging buildings to the northeast of the masterplan and ameliorate the impact of the building along Granary Street. Please note the ensuing narrative on the pre-apps and DRPs is restricted to the comments about massing.

Phase 2 Pre-application meeting no. 1: 22nd January 2020

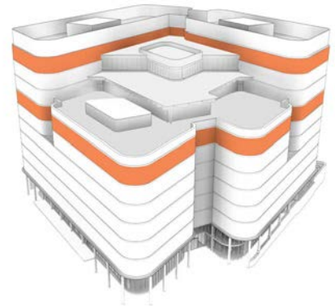
During Stage 2, in response to the developing client brief, a number of options were presented to the planners which explored the increase in massing. The additional area was created through the addition of one or one and a half floors.

LBC commented that:

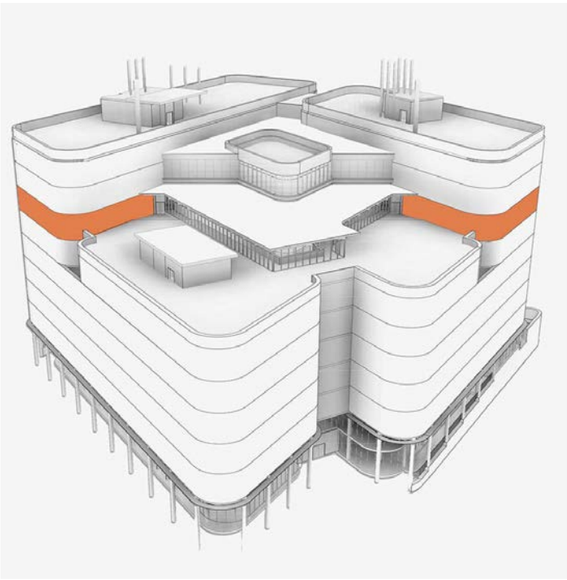
— that the density of building on the site seems high and needs to be tested.
— they had concerns about the building's height along Granary Street.
— they had concerns about height at the southeast corner relative to existing Victorian buildings.
— the impact on street level views needs to be tested.



Stage 2 option



Option 2 - addition of one and a half floors



Option 1 - addition of one new floor

Design Review Panel no. 1: 24th April 2020

The option presented to the DRP continued to explore the Option 1 presented to the planners on 22nd January. Further articulation was explored through 'cut-outs' in the south and west elevations as well as the facade while the overall height was reduced through setting back the rooftop plant screen.

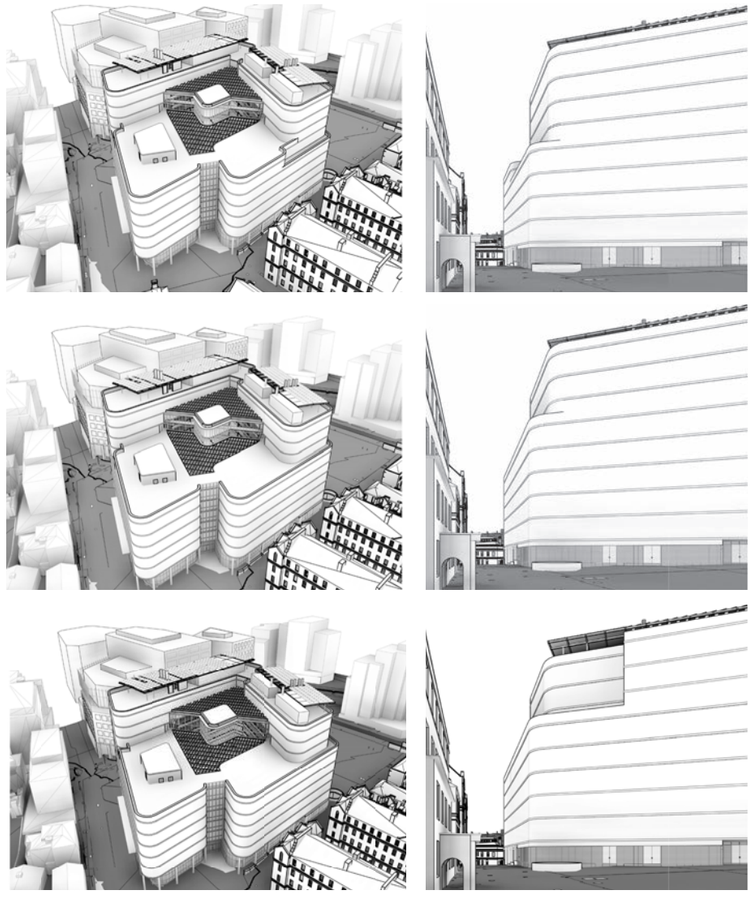
The DRP noted that the emerging proposals showed a commitment by all involved to delivering healthcare, research and education facilities of the highest quality. The panel urged the design team to focus on the urban design, public realm and townscape qualities of the proposals.

Specific DRP comments on the massing included:
— Volume of building is challenging in townscape terms.
— Concerns about impact of building along Granary Street.
— Current massing appears bulky and needs to sit more comfortably in the immediate context to the south and west.
— Explore removing plant screen on the roof.

Pre-app design meeting: 22nd May 2020

In response to the DRP's comments, a range of alternative options were presented to LB Camden which explored how to mitigate the impact of the building where it faces the retained workhouse buildings. These involved setting back the SE corner to reduce the impact at this point.

LBC comments on massing:
— Relationship to Victorian buildings still problematic.
— Continuous frontages to Granary Street and the east also need reviewing.
— More radical response to DRP and LBC planners comments needs to be provided in order to break up the visual bulk of the building.
— The introduction of a 'shoulder' to the southeast corner was a positive move but needed to be developed further.

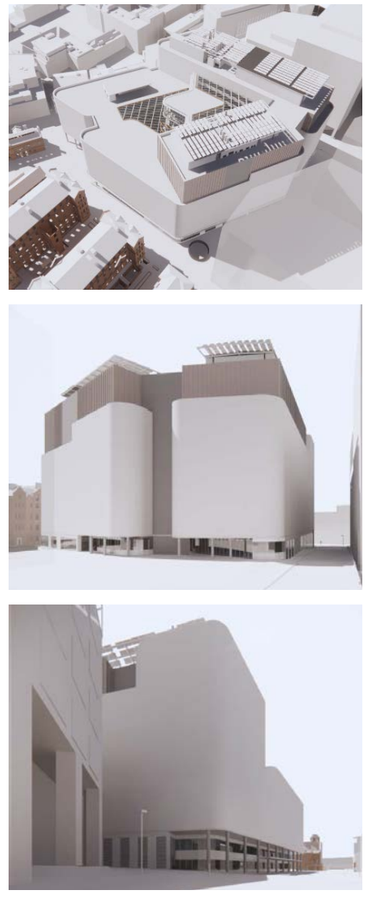


Adjustments to the massing to respond to the DRP and planners comments

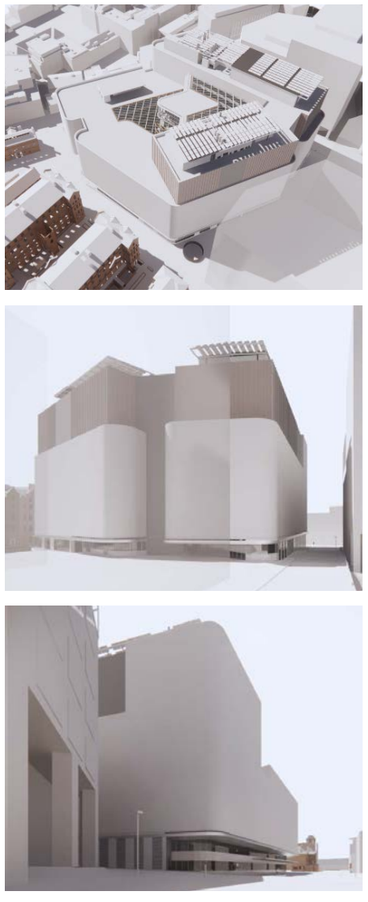
Pre-app design meeting: 17th June 2020

In response to the planners comments, more radical changes to the massing were presented in June. These involved creating a setback parapet around the south, east and north of the building. Parapets at fifth and sixth floors were explored. The design team felt that the proportions of the 'proposed massing' worked better. Loss of area due to set backs regained through extending building 'tail' to the southwest corner.

LBC comments on massing:
— Noted that this is a positive response to DRP and LBC comments but further work required in testing set backs, corners, and varying the 'crown' form and treatment in different ways.
— Strong preference for Option 1 (with a 5:3 ratio of base crown) though recognised the top-heavy proportions.
— Lower set back level will improve the experience for pedestrians, providing a greater feeling of space.
— Need to avoid the sense that the higher set-back element is an 'add on' like a loft extension. Should be a coherent design.



Proposed massing

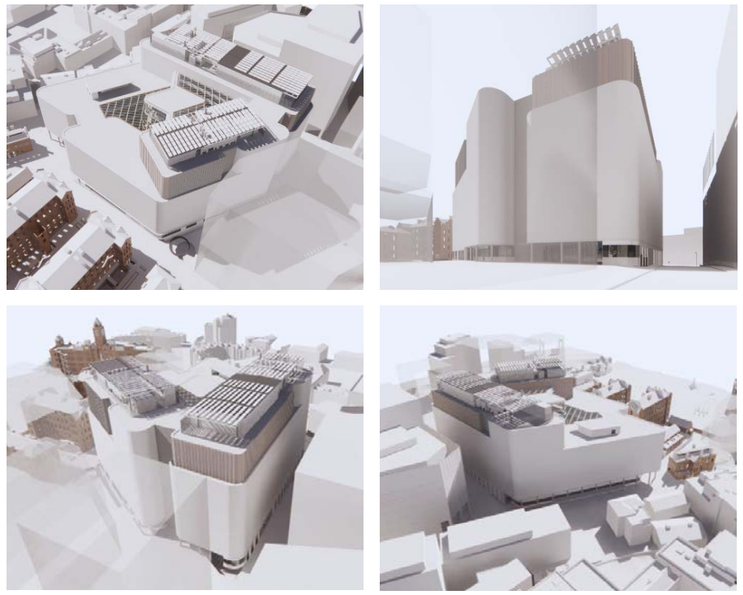


Option 1

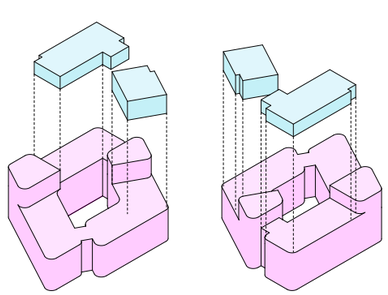
Pre-app design meeting: 2nd July 2020

In response to the planners comments, further explorations were carried out to improve the proportions of the massing and integrate the setback with the main body of the building. Two further options were explored (4a and 4b) whereby a small tower was created at the northeast entrance. This helped mediate between the fifth floor set back to the south wing and the sixth floor set back to the north wing. The use of rounded corners to the set back elements was also introduced.

LBC comments on massing:
— Curves to setbacks work well
— Vertical element to south boomerang marks the NE entrance well
— Proportions of 6 + 2 (setback) along Granary Street works well
— Explore different setback depths
— More vertical emphasis on corner of Granary Street and St Pancras Way is good but rather exploration and development required



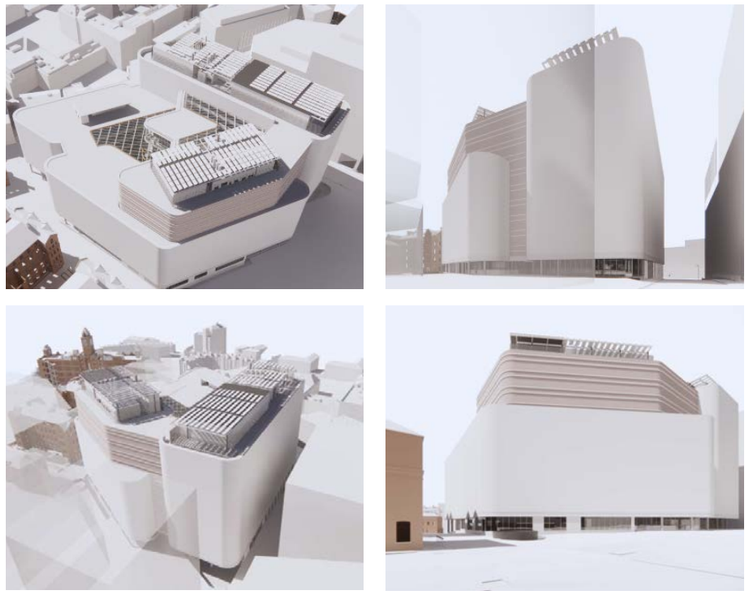
Option 4a presented to LBC 29th June 2020

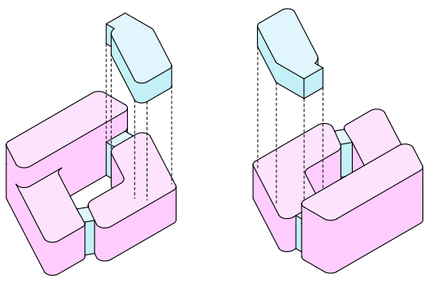


Joint breakout meeting no. 6: 15th July 2020

A further resolution of the form was presented to LBC planners as part of a joint breakout session with KCCLP:
— 3m set back at southeast corner.
— 1.2m setback to east.
— Pushing back northeast 'nose' by 2m to accommodate more generous public realm in front of KCCLP buildings.
— No set back to Granary Street to minimise internal area loss.

LBC comments on massing:
— The massing proposal is a good option overall and planners are positive given the balance of the overall masterplan.
— 'Tower' element on northeastern corner more successful as it demarcates the corner.
— Still need to address the enclosure of Granary Street, exacerbated through the omission of the set back.
— A great step forward since it unlocks the wider masterplan.
— Agreed that this is an 'in-principle' acceptable option providing Granary Street and southern corner comments are addressed.





Design Review Panel no 2: 21st August 2020

The massing proposal was the same as that presented to the planners on 15th July with additional development of the façade articulation along Granary Street.

DRP comments:
— Significant progress has been made, but further refinement required to ensure a civic, contextually sensitive building is created.
— DRP still has concerns about the scale and encourages further articulation of the façades, at the corner of Granary Street and St Pancras Way.
— Concerns that the canopies should differentiate rather than join the two wings. This could also help the somewhat 'squashed' feeling of the colonnade at the north east entrance compared to the two storey scale at south west.
— Explore different architectural articulation of the façade along Granary Street.

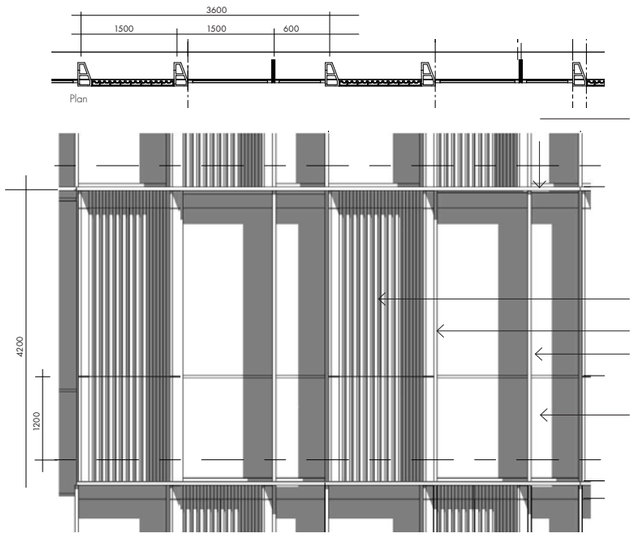
Evolution of the façade

The façade has been developed from the initial concept proposed at competition stage.

Competition proposals

The competition façade comprised a 7.2m wide bay subdivided into three equal parts to align with the wide variety of rooms behind the elevation. Each subdivision of bay had one solid panel and two glazed panels. Projecting fins provided solar shading.

Glazed ceramic was proposed as the material for both the solid panels and the fins. Like brick, it is made of earth and is equally durable. It also complements the brick of the Victorian buildings and the colour reflected the London stock bricks. The solid to glazed pattern created a diagonal rhythm across the façade.

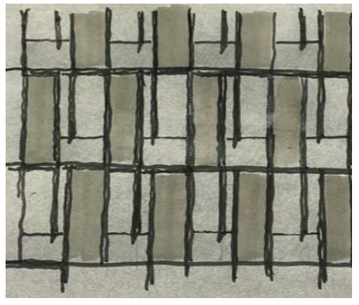


Bay subdivision

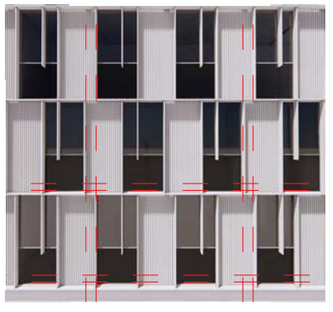
During the development of the façade it was adjusted to optimally size the units for transporting on standard 2.4m wide flat bed trucks.

Rhythm and pattern

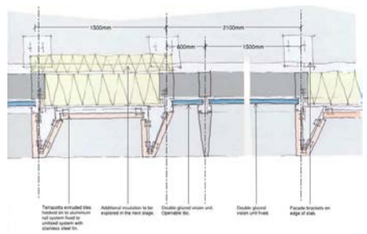
The rhythm of the façade has been developed to create an oscillating pattern across the elevation, while masking the structure behind. The checkerboard pattern of glazing and terracotta pattern is offset by the layer of lightweight aluminium fins that provide solar shading and a filigree screen.



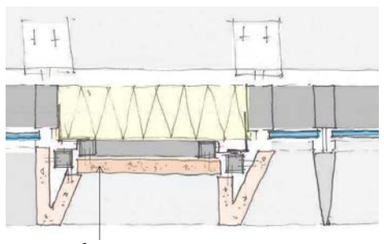
Concept sketch



Part elevation with solid panels staggered in front of the structure



Terracotta fins

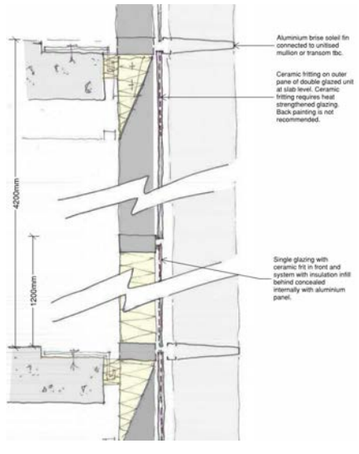


Precast fins

Materials

The use of ceramic fins would require a lot of hidden metalwork and fixings to hold together large assemblies of smaller terracotta units. This did not accord with the design philosophy of doing more with less. Aluminium lends itself more naturally to the construction of robust fins and louvres and therefore is used in the elevation. Terracotta is excellent as a hard and durable wall surface, and has therefore been retained for the solid infill panels within the curtain walling.

Aluminium



5.5 Development of the brief and test-to-fit layouts

During RIBA Stage 1 we explored test-to-fit layouts through initial user group discussions with Oriel's Clinical Oversight Group and leaders within each department. We explored typical layouts and test-to-fits for each department, focusing on outpatients, surgery and A&E. These were presented to the user groups for discussion.

The purpose of this process was to test and develop the brief as provided by the client and to demonstrate that it was possible to achieve the workable amount of functional content required for each department. The availability of the spatial and functional audit of the existing provision at City Road enabled the client groups to get a relative measure of what was on the drawings.

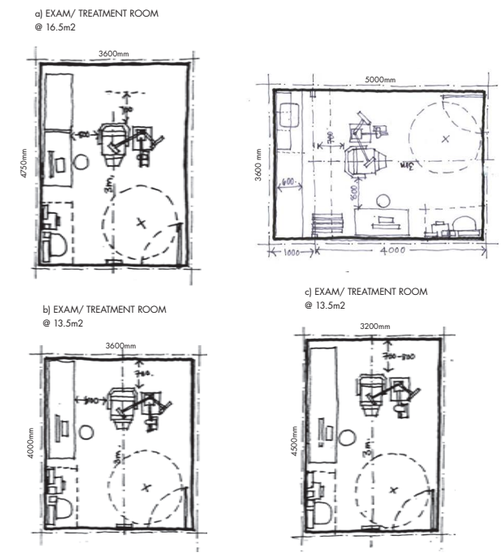
Outpatient department

The Outpatient Department (OPD) layout strategy initially addressed a range of Consult/Exam room sizes from the HBN standard C/E room of 16.5m^2 to 12m^2 room.

In parallel we explored with the client groups three layout principles for an OPD:

— The standard 'race track arrangement as shown in the competition design.
— The on-stage/off-stage arrangement that is becoming common in the USA and has recently been utilised at UCHL Phase 5.
— A hybrid version, which unlike on-stage/off-stage allows some C/E rooms to have external windows. The latter two incorporated waiting on the edge of the atrium with good natural light and views.

During RIBA Stage 1 Penoyre & Prasad also undertook several observation studies within the existing Moorfields at City Road facilities, mapping patient and staff flows and layouts of existing rooms and clinics. This information was used to develop outpatient layouts based on 13.5m^2 C/E rooms, the hybrid on-stage off-stage principle, and diagnostic centre clusters.



Sketches of template consult/exam room based on different sizes, configurations and activity to determine optimum layout

Initial diagrams exploring the organisation of clusters in the outpatients department

Surgical department

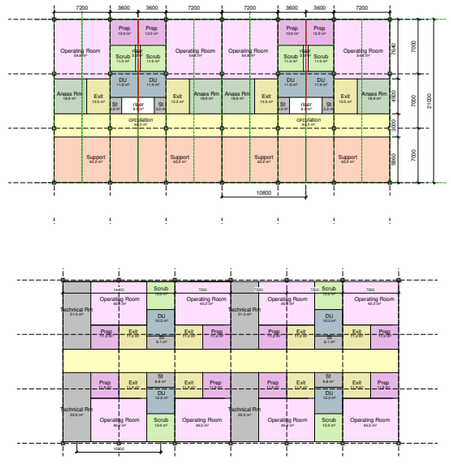
Through discussions with the Clinical Oversight Group and surgical chair we developed draft layouts for the operating suite and the surgical department as a whole.

Using a similar design approach as the Outpatients, we initially developed different configurations of the operating suite based on HBN 26 (2004) standard sizes of:

— operating room at 55m^2
— anaesthetic room at 19m^2
— preparation room at 12m^2
— scrub-gown room at 12m^2
— dirty utility room at 12m^2

This enabled the design team to determine the most efficient suite layout taking into account circulation and support factors and different corridor configurations to separate flow of movement.

The existing Moorfields Eye Hospital surgical department consists of standard octagonal shaped operating rooms sized at approximately 28m^2 for all types of ophthalmic surgery. Other studies indicate that for ophthalmological procedures the HBN guidance is very high. We therefore explored an operating room sized at 40m^2 to increase the number of suites and service output.



Explorations in the surgical floor layout

Accident and Emergency/ Urgent Care Department

A review of the existing A&E department was undertaken and preliminary discussions were had with the Clinical Oversight Group leads for A&E and Urgent Care Centre. The decision to locate the A&E department on the lower ground floor along St Pancras Way is based on a desire to locate it close to the southwest entrance, closer to the patient drop-off. This is a non-blue light A&E department.

Initial test-to-fit layouts were based on the same number of clinical rooms as currently provided in Moorfields with no growth provisions. The proposed layout consisted of four zones:

— entrance, waiting and triage zone for all patients.
— children's treatment and waiting zone.
— adult treatment zone.
— Urgent Care Centre.

The brief at the time assumed no growth in A&E activity and accordingly the ETL Schedule of accommodation assumed no growth in size.

Test-to-fit layout for the A&E department, located on the lower ground floor

Private patients unit
Visits were carried out to the PPU in order to understand the operation of the unit.

Our test-to-fit layout at RIBA Stage 1 located the PPU on the seventh floor, occupying the majority of the north wing. The unit consist of three sub-departments:

— PPU outpatients.
— PPU refractive laser suite.
— PPU inpatients.

Further discussions with the user groups would determine flows-pathways, number, size and types of rooms. The inpatient unit test-to-fit layouts show nine inpatient bedrooms with en suites at 21m^2 and nine inpatient chair rooms with WCs at 17m^2.

Education
Test-to-fit layouts were developed through discussions with the education user group heads. Our initial proposals located the education department on the ground and lower ground floors in order to make the teaching spaces and conference facilities accessible to the public after hours.

Maximising flexibility is key to the education spaces and we developed plans that allowed classrooms to open onto each other, offering a range of different sized teaching spaces to be configured.

Open plan gathering, informal presentation spaces are also accommodated. One key area discussed was the nature of the lecture theatre, with a range of different options considered from a Harvard-style lecture theatre for 60 people in a fixed furniture arrangement to a flexible flat floor arrangement that can accommodate 100 people. The RIBA Stage 1 test-to-fit layouts showed the former, with two of the larger classroom opening onto each other to create a larger flat-floored space for larger groups.

Fundamental research
During RIBA Stage 1 we continued our engagement with representatives from both the Institute of Ophthalmology (IoO) and the Clinical Research Facility (CRF).

Key issues raised were primarily to do with provision of write-up space and ratio of provision. We therefore undertook a study of how much research space we could accommodate within the research area, without undermining the overall UCL area. Our RIBA Stage 1 test-to-fit plans could accommodate around 328 workstations spaces in a combination of small offices for PIs, within the labs and in open plan office space. An additional 48 informal spaces workstations can be accommodated within the Oriel itself. These figures would be tested as the detailed planning of the fundamental research area develops.

Concerns were also raised about the number of tissue culture labs, indicating a need for twice as much tissue culture lab space than shown in the test-to-fits. These concerns would be addressed during RIBA Stage 2.

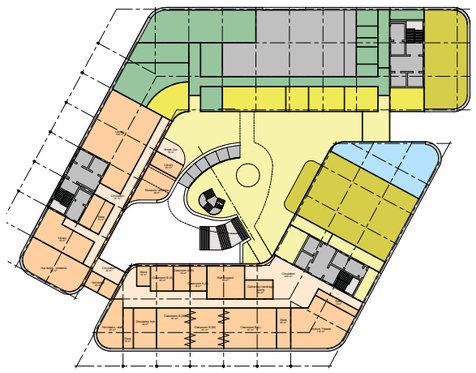
FM/ deliveries/ drop-off and pick-up
The design team met with Moorfields and UCL FM teams in a number of meetings, to understand firstly how the FM arrangement presently works and then to establish a provisional brief. The spaces developed in the test-to-fit layouts were based on these discussions as well as HBN/HTM guidance. They would be tested more thoroughly during RIBA Stage 2 and as joint operational policies emerge. Key issues included:

Deliveries
One key area to resolve was the delivery area. This had to be incorporated into the building so that all deliveries and waste pick-up takes place on-site and vehicles enter and exit the loading bay driving forwards.

Vehicular Transport drop-off and pick-up
Following discussions with LB Camden's planners, patient transport drop-off was confirmed to take place along St Pancras Way. This was to be wholly within the Oriel site and adjacent to a colonnade in front of the A&E department. Five pull in spaces are indicated, based on recommendations following a vehicular survey at the present site. This arrangement continues to be reviewed and developed through RIBA Stage 2 in consultation both with Moorfields and the planners. In addition taxi and private vehicle drop remained in discussion with the planners.

Medical Gases
A large Vacuum Insulated Evaporator has to be incorporated into the scheme. At RIBA Stage 1, this was indicated outside in the SE corner of the site, surrounded by a protective enclosure. This location was tested and reviewed during RIBA Stages 2 and 3.

Test-to-fit layout for the private patients unit. At RIBA Stage 1 it was located on the seventh floor.



Test-to-fit layout for the education department At RIBA Stage 1 it was located on the ground floor only.

Test-to-fit layout for a floor of research. At RIBA Stage 1 dry labs and wet labs were located on the same floor.

Development of the individual departments

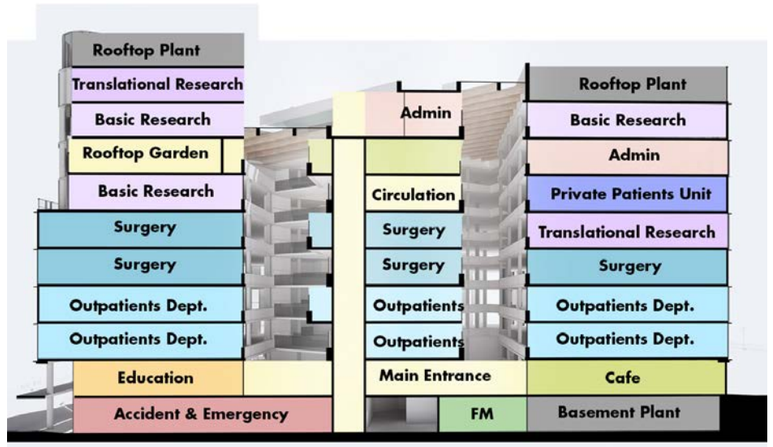
In January 2020, the design team began a comprehensive programme of engagement with the 20 different user groups within the building to develop the departmental and individual room layouts within the RIBA Stage 2 building design. This was to be a five month consultation period, with four workshops per user group. Due to the Covid-19 pandemic, only the first tranche of engagement sessions were able to take place. The test-to-fit layouts were developed, specific room layouts and sizes further tested and an overall building organisation was proposed. The layouts that were developed are largely reflected in the design proposals outlined in Section 6 of this report.

Oriel Integration Advisory Board

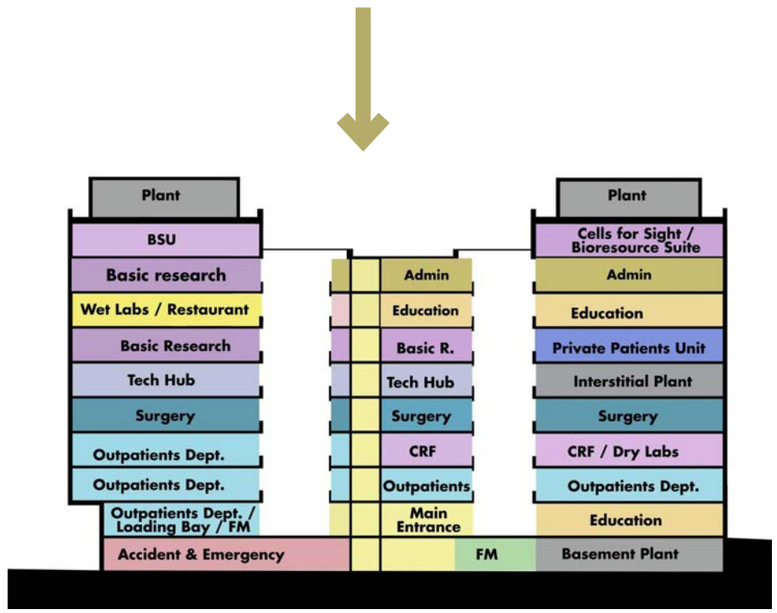
On March 3rd and 4th 2020, Oriel held a two day workshop with the Design Team and the Oriel Integration Advisory Group, a body comprising all the user group leads. The purpose of this workshop was to explore the nature of integration of the various Moorfields and UCL departments and functions that comprise Oriel.

During RIBA Stage 2, the design team had developed a stacking arrangement for the different functions within Oriel. The general principal was to cluster NHS clinical and surgical floors together, and research spaces together, with shared spaces distributed through the building. The OIAG workshop led to a re-imagining of the stacking such that the departments are more mixed up and integrated across the whole building. The design team was tasked to develop a new stacking arrangement based on the following premises:

— Zone 3 of outpatients has moved to ground floor, thus giving more of the ground floor mix and integration the OIAG was striving for.
— Education now split over two floors – ground and sixth.
— Staff-only café moved to sixth floor opening onto roof terrace (on the north boomerang to create a full wing of education to the south and ease servicing of the café).
— CRF/dry labs/EDD adjacent on the second floor opposite outpatients.
— BioResource suite, eyebank and Cells for Sight forming a suite of highly serviced clean rooms on the top floor of the south boomerang (displacing plant space).
— Interstitial plant floor has been consolidated and maximised, with tech hub and some admin space the only other functions on that floor.
— All departmental on-floor plant has been removed and put into the interstitial floor. This increases the efficiency of the departmental layouts (as tested so far). This will have the knock-on effect of a certain number of risers coming through the departments but we believe the benefit of removing the plant outweighs the impact of the risers.
— Surgery on third floor below interstitial plant floor, as agreed at the workshop.
— We have tried to maximse outward facing facilities (commercial/café) along the street edge at the northeast entrance in order to keep an 'active frontage' and animate the surrounding urban realm.



Stacking diagram at prior to the OIAG workshop



Current stacking diagram

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