Design & Access Statement

University College London

Queen Square House – AHU, Gantry, External Alterations

Our project ref: 6773

Full application for the installation of :

- New AHU unit and associated support gantry
- Secondary glazing adjacent
- Two new external doorsets
- Removal and external insulated wall infill of existing roller shutter doors with new insulated walls
- New external handrail

Revision Information

Rev.	Detail	Date	Prepared
P01	Planning issue	2021-10-25	sg
P02	Planning issue with comments inc.	2021-11-04	sg

Contents

01 Introduction

a) Objective

This application, relating to the UCL Queen Square House ground floor refurbishment works, intends to set out in general terms aspects of the proposals that will require planning consent, with a view to obtaining full planning permission for the works. Please refer to the attached drawings for full detail of the proposed works – this statement should be read in contingency with this information.

b) Building History and Existing Condition

The existing Queen Square House is a concrete frame building constructed in the 1970s, comprising 10 storeys originally designed for laboratory research functions. Its footprint at ground floor is approximately 1100m^2. The building is not listed by Historic England.

Please refer to the accompanying existing Ground Floor plan ***L(1-)10***. The ground floor can be characterised by the following:

- Lift, stair and riser cores at the north and south ends of the building connected by a main corridor
- The structural grid is 3.6m wide (east-west) by approximately 7.0m (north-south)
- A regular grid of structural concrete walls / service riser ducts is provided at each grid intersection point providing 22 riser ducts to the building perimeter and 24 ducts internally.

The building riser ducts connect with the roof plant-room and are designated for vertical distribution of plumbing/drainage, ventilation and electrical services to each floor.

A standardised – typical - floor layout above ground floor is replicated on every level with some variance in partition layout and room sizes; each has the same structural and services characteristics.

External photos of the building in its current state:

Front entrance from Queen Anne's Walk

View of Queen Anne's Walk, entrance left

Corner approach junction Guildford St. – Queen Anne's Walk

Guildford St. Elevation

Views to the existing plant/freezer store in the East service yard

Existing roof plant space – looking East

Existing roof plant space – looking West

c) Previous Planning Applications

The following approved relevant and similar planning applications have been made to the Queen Square House building and flanks:

- Application no. 207/1937/P [Approved]: *Erection of block wall and metal louvers enclosure at ground level adjoining the service yard access off Guilford Street to accommodate new plant associated with a new Functional Magnetic Resonance Scanner located at basement level.*
- Application no. 2009/4974/P [Approved]: *Erection of plant to flat roof on the north east corner of hospital building (Class C2) fronting Guilford Street.*

Those above relate to plant-related modifications. Two other applications have been made for building however were lodged in the 1960s are not of similar nature to the works proposed.

d) Purpose of Application

The main drive for the project is to provide new clinical trials accommodation, and to refurbish a series of shared building spaces – namely the existing building reception area and WCs.

In overview, to enable the functionality of new departmental space and other general building improvements is a requirement for:

- New air handling plant to serve the existing lecture theatre, the proposed infusion suite and other areas in the suite. The existing plant is not performing sufficiently.
- In association with new air handling plant, a metal gantry support, access ladder and works to secondary glaze windows adjacent the new AHU (to First floor lab spaces) to provide fire resistance and acoustic attenuation from the new AHU unit.
- New fire escape corridor which will require a new external door set
- Removal of existing plant space roller shutter doors, to be infilled with new insulated walls
- New fire escape door for clinical suite into the service yard off Guildford street

02 Design Statement

a) Overview, General Design Principles

In all instances, the style and aesthetic of new alterations to the existing building will match the existing condition adjacent as closely as possible. This extends from materiality to setting out where applicable to fenestrations and new masonry.

Specifications for new elements will be for robust products that are hard-wearing, have a long design life and are sustainable in nature. Accessibility improvements are of paramount importance: the introduction of a non-thermally-conductive coated handrail to the ramped entrance will allow greater ease of entry to unambulant and wheelchair users.

The designs will comply with building regulations and shall be subject to building control full plans approvals prior to any works commencing. Reviews with client stakeholders have been undertaken – of particular importance, the proposals have been agreed with the UCL fire and Health and Safety officers.

b) Proposed Plans

Please refer to the accompanying drawings:

- ***L(00)20*** – Site and Location Plans
- ***L(1-)20*** – Proposed Ground Floor GA
- ***A(22)11*** – First Floor Proposed AHU Location

c) Proposed AHU Location, Specifications

A new Air Handling Unit (AHU) is required to serve the existing and retained lecture theatre, as well as the new spaces proposed in the refurbishment. This will be located externally and directly above the existing lecture theatre. Please refer to drawing ***A(22)11 – First Floor Proposed AHU Location***, which demonstrates the proposals in 1:50 plan and enlarged elevations.

It can be seen that this location is within a well formed between three buildings (Queen Square House and two wings of the NHNN building), and so will not be directly visible from the main aspects from the main West elevation from Queen Street, nor from the North side of the building along Guildford Street.

Satellite images showing indicative new AHU location

A supporting gantry structure will be needed to prop the new AHU above existing condenser units on the lecture theatre roof. The AHU cannot be located on the empty roof space adjacent to these due to building ownership in that location and the size of the unit needed. As such a support structure is required to create a secondary level allowing the unit to sit above existing condenser units, as photo illustration below:

figure indicating approximate location of new AHU gantry platform in red dashed line

The support structure will be a raw metal finish, and as small in size as possible given the required AHU size and filter changing area that is needed immediately next to the unit, however will need to allow sufficient head height below the deck to service the existing condenser units. The same applies to ductwork out of the AHU unit; an enlargement of an existing structural penetration is required to draw ductwork into the clinical spaces below – new waterproofing details will be compatibility with the existing roofing systems and match the materiality and colour.

The structural members for the support gantry have been designed to be as slender as possible given the weight of the AHU unit, please refer to structural engineer's sketch accompanied. A push-up cat ladder will be provided to the gantry in order that operatives can access existing services beyond the AHU (and within a dead-end condition) if greater access width is needed. The materials for the AHU gantry are to be galvanised steel, with a chequer plate (or similar) industrial platform and kee-klamp railings affixed to 150x90PFC channels to the perimeter of the deck. Access around the structure is considered so as to allow access to condenser units closest to the Queen Square house external wall.

There are narrow voids into the space which span four storeys to the Queen Square fronting, and six when viewed from Guildford street; given the shadows resulting from the height and slenderness of this void space, the proposed AHU would not in normal circumstances be visible from head height when viewing from either Queen Square nor Guildford street.

The photo illustration below illustrates this with the approximate proposed location (behind) dotted on for clarity:

The AHU and gantry may be apparent from that viewpoint at a very specific angle; the below photo shows this situation, noting that the dotted line indicates the 'hidden' location of the AHU, behind the NHNN building and within the well:

However given how obscure the view is into the 'well', whilst the plant may technically be visible, it would not be obvious nor prominent. It should be noted that existing AHU plant, ductwork and AC condensers are adjacent the AHU proposed and these do not adversely impact on the primary view towards the red brick NHNN building from Queen Square.

The proposed AHU unit specifications are accompanied as product data sheets. Attenuation is being provided at the breakout of the AHU unit - in place of plant screening - as the unit is obscured from public view and therefore screening would not be needed. This approach will also minimise the bulk of massing of the installations. A background noise survey was produced in March 2020, this is attached for reference and it should be noted that the contractor will be required to undertaken post-completion noise surveys to verify the below:

- The plant noise has been designed to be 10dB less than the current noise emitted from the plant in that lightwell. This effectively means that the current plant noise emissions from that area will not change in any way.
- The calculated noise from the new AHU alone at the closest residential façade is only 18dBA and is likely to be inaudible.
- Noise affecting our own facades will also be generally relatively low. The AHU design incorporates duct attenuators and acoustic cladding so that sound pressure levels at the windows adjacent are only 1dB higher than existing condition. The introduction of new secondary glazing will mean that this is not felt within the internal spaces, and the overall attenuation to the labs is in fact improved.

Looking onto the proposed AHU location from Guildford Street, it is not possible to obtain a direct view from the public highway. Even within the service yard, the viewing angle from any location is such that the AHU cannot be visible from Ground floor level. The oblique closing angle between the silver-clad NHNN building and Queen Square house is such that it will not be visible from above Ground floor either;

Figure indicates the AHU unit location behind Queen Square House and within the well: note, no part would be visible from Guildford Street

d) Secondary Glazing Adjacent

Please refer again to drawing A(22)11 – First Floor Proposed AHU Location, which also sets out the location and sizes of the existing glazing adjacent the proposed AHU location.

Following review of the proposals with the UCL Fire Officer, it was determined that all glazing within 1.8m of new plant should be fire-rated to protect the building inhabitants from what effectively forms an external plant room. The glazing that is adjacent to the proposed AHU unit is non-opening fenestration to internal laboratory and fire stair areas; it has been agreed that the fire performance required is 60minutes resistance, providing integrity only as this will allow safe escape for users, and given the areas next to the windows do not form part of a protected fire escape route, the same insulation FR rating is not required. The secondary glazing is to have frosted manifestation, which would allow sunlight into the spaces but blur the AHU outlines outside.

It should be noted that the current condition is such that the lab users look out on two no. existing AHU units and stacked ductwork (photo below) and so is not deemed to be a worsening condition of views out.

With new AHU in place, it will not be possible to retain the existing level of daylight due to the constraints of the site; it should be noted however that the lab accommodation that is affected is not daylight-critical and has in place lighting controls that allow corrections to the levels within the spaces. The labs are not inhabited for long periods of time, and do not incorporate any form of residential accommodation.

existing AHU units adjacent new unit proposed location

On review of feasibility, it was determined most practical to provide secondary glazing to the existing units rather (than to replace the window sets outright) sin order to avoid incurring disruption to the building users. The secondary glazing will be non-opening, and introduce significant thermal and acoustic benefits over the existing condition in any case: acoustic ratings will be specified as suitable to attenuate noise outputs from the AHU adjacent. As within accompanying datasheets, the AHU will incorporate attenuators within the design in order to reduce noise outputs. It should be noted that the materiality of the new glazing framing will closely match the existing sets which are anodised silver; frame widths will also be required to closely match the existing primary glazing. The window reveals which will become the voids between the two window glazed panels will be prepared and painted light grey to closely match the glazing frames.

Photo of existing glazing to receive secondary panes

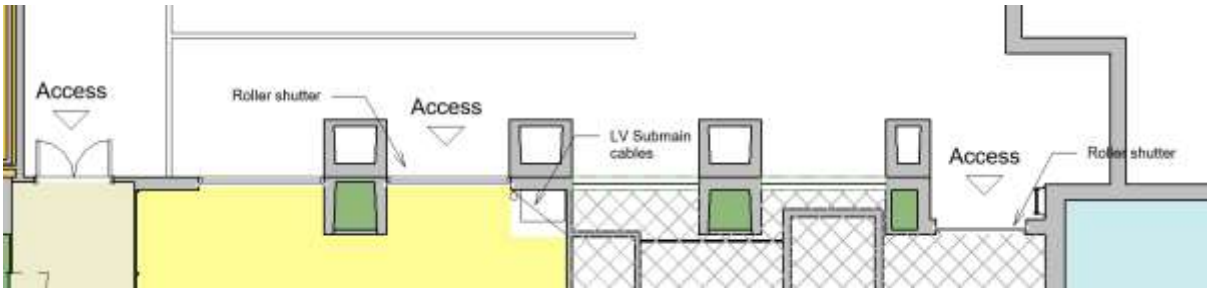
e) Removal of Roller Shutters, Wall Infill

External walls to the North of the site adjacent the goods yard are uninsulated as plant and stores only are currently within this area. The wall build-up in this area appears to have minimal waterproofing measures.

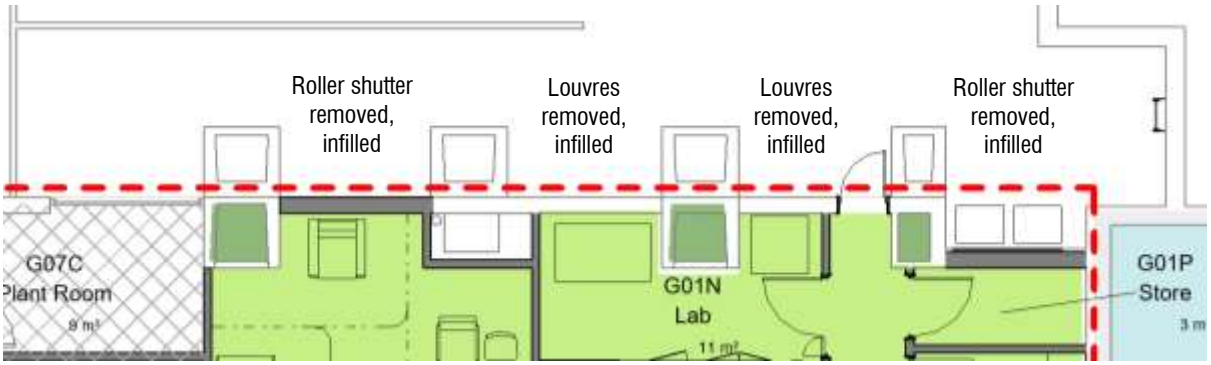
The external wall construction to the service yard elevation is not thermally efficient, with a significant proportion of the elevation being broken up by roller shutters and doors. The proposed infill wall construction will require insulation and waterproofing/ventilation; construction details proposed ensure that damp and cold-bridging is avoided. Proposed plans denote the existing roller shutters that will be removed in favour of insulated external wall fabric with a dark grey hatch.

Photo extract of existing roller shutter door

Existing condition (NTS):



Proposed layout (NTS):



The existing blockwork has been measured on site and the fair-faced block sizes are a non-standard size of 390w x 95d x 185h (mm) – photos below. The specification requires that the contractor is to match existing sizes, finish and setting out so as to provide visual continuity between the new and existing masonry.



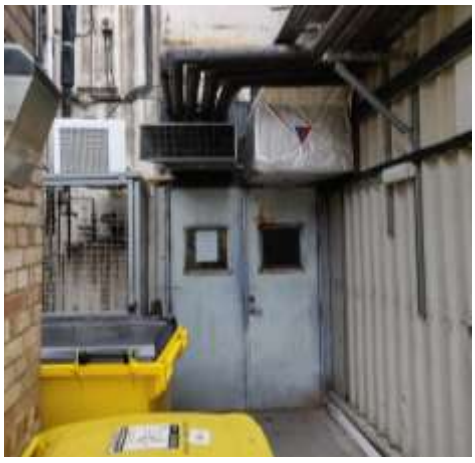
existing blockwork sizes

f) Proposed Doorsets

It should be noted that both new doorsets proposed are for fire escape purposes only and as such do not provide a means of access to the building.

Service Yard of Guildford Street – Fire Escape Door

As can be seen in the above proposal extract, a new fire escape door is required from the clinical area circulation corridor (ref DE-01K2 in the accompanying proposed GA plan ***L-(1-)20***). The existing external doorset to that area is of steel construction (photo below); the intention is to match this door as a precedent to provide visual continuity to the back-of-house areas. This would include the proportions of the vision panel, which in the case of the new door will need to be fire-rated.



existing door to goods yard fire escape corridor G07A

An existing air conditioning condenser is located in the location where the new door is proposed. This will be re-located to a suitable position near where it is currently and so as not to become visible from any public aspect; this is the case with all existing air conditioning units to the rear which are shielded from view by a bounding wall which contains gas cylinders.

Location of condensers and new fire escape door when viewed from Guildford Street, and obscured from view due to outbuilding and gas cylinder bounding walls

Building Front Elevation and Approach – Fire Escape Door

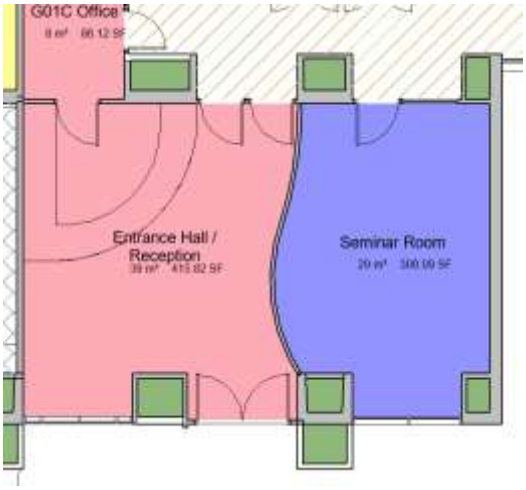
Please refer to:

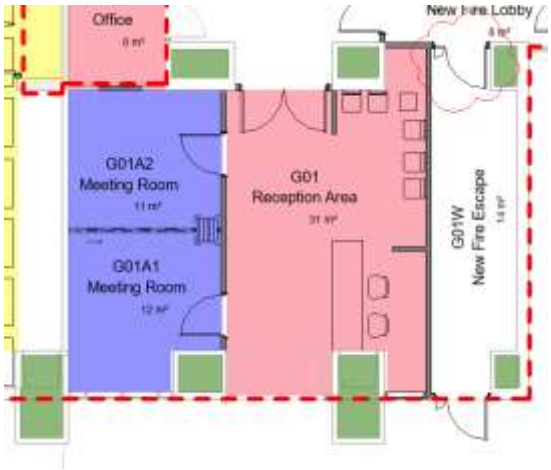
- ***A(2-)22*** – Entrance Modifications - Planning

Justification for the new fire escape is set out as such: '*The Building Regulations recommend an increased final exit width to account for merging flows within the building (Approved Document B2 (2010); section 3.23, diagram 15), which requires further consideration during the next RIBA Stages. It is noted however, that the exit strategy is compromised by the existing staircase constraints as outlined above, so in effect the max. exit width is determined by existing stair doors*.' Due to the configuration of the existing reception area, the existing doors cannot provide the exit widths required.

Following discussions with the UCL fire officer, it was agreed that a new dedicated fire escape corridor would be the best way to provide the escape widths required, as well as to offer an alternative route of escape from the stairs. The existing glazed screen will need to be replaced with a new leaf and a half door.

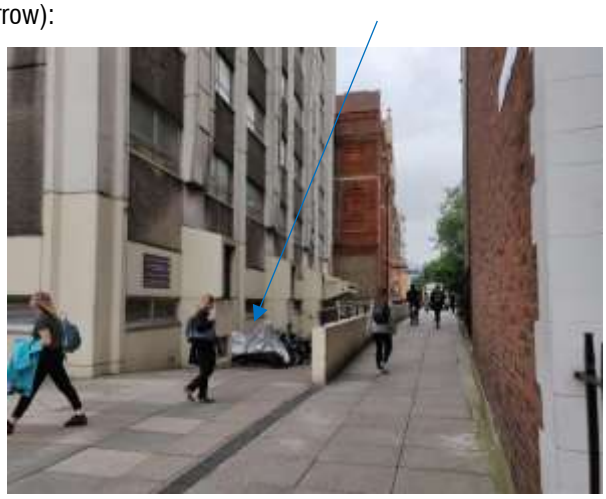
Existing condition (left), vs. the proposals (right) below (not to scale):





The location of the new fire escape door is indicated below (red arrow):

view from Queen Anne's Walk towards main entrance door



view towards Queen Anne's Walk from Guildford St.

As set out within drawing A(2-)22, the materials and glazing bar setting out is to closely match existing. Manifestations will be applied to the glazing to comply with building control AD K, and also to the adjacent curtain walling which will back the security/reception area, as required for data protection and security.

In order to introduce this new door and fire escape route, four no. existing bike hoops will need to be relocated further 'up' the ramp, and nearer Guildford Street (as blue arrow above, and indicated in drawings ***A(2-)22*** and ***L(1-)25***), it should be noted that in the area proposed for these, building users and potentially the general public are presently parking motorcycles ad-hoc in non-defined parking spaces; designated bike parking spaces would prevent this happening to the extent seen at current.

New concrete ramps will be formed outside new fire escape doors to allow for level and flush escape routes for wheelchair users.

g) New Handrail

In its current guise, the main entrance ramp does not have a handrail and so is difficult for non-ambulant users to access – image below:

View towards main entrance from top of ramp near Guildford St.

To improve upon this, a lit handrail is being proposed to the entrance ramp. Whilst ideally, a two opposing handrails would be provided either side of a walkway, the existing cycle hoops are located directly outside the building entrance and to install a freestanding handrail midway on the ramp would not allow cyclist access to the hoops. It should be noted that the 19 no. hoops are heavily utilised.

A temperature-resistant coating is included in the specification to prevent burns (hot/sunny days) and skin damage (frost/icy days) in line with approved document K. We propose that the materials for the handrail used are metal and of durable nature, fixings into the existing concrete retaining wall would be discreet and not to damage or structurally weaken the existing wall. The ramp is longer than 12m without a break; unfortunately we are not feasibly able to improve on the existing condition and it may still be the case that a vast proportion of wheelchair users will require assistance to access the building even with a handrail in place, however it may enable unassisted access for some. The handrail will undoubtedly be beneficial for non-ambulant users that do not use a wheelchair. No trip hazards are identified between the main ramp and the reception area, and none will be present where the new fire escape doors are to have new concrete ramps, providing level escape for wheelchair users.

Indicative image of downlit handrail

03 Access Statement

a) Access Statement

AHU Access

The new AHU plant will be accessed via the existing accessway to roof level via a cat-ladder stair from Ground floor external areas. It will not be possible to carry and install the AHU via this route and the unit (whether flatpack or pre-assembled) and gantry components will need to be craned to this roof level. An access route is outlined in drawing ***A(22)11***, however this would not be demarcated by paint or otherwise in literal terms: the route shown is indicative. As noted earlier, a push-up cat ladder is proposed to serve the AHU gantry to allow for greater access to existing plant beyond.

Doorsets – Access and Accessibility

As noted above, the new doorsets provide fire escape only and do not adversely impact on access to the building.

Handrail – Accessibility Upgrades

The new handrail will significantly ease access to the building for users who have difficulty walking: it should be noted that there are existing clinical facilities at Ground floor which are used frequently by less ambulant users, and as such the introduction of a handrail would offer a significant upgrade in accessibility to the building.

b) Maintenance Statement

AHU and associated plant/duct maintenance

Noted as above, current access arrangements to the existing plant are via a cat ladder to the Gilliatt lecture theatre roof. The project scope does not extend to improving upon this and given the site constraints it is unlikely that there are alternative means to provide access. Given this existing scenario, the secondary ladder up to the AHU will be similar in nature, and requiring efficiencies in use of space at roof level around other existing plant.

Such as it is, AHU filters will need to be hoisted up to roof level via pulley or similar as per current building arrangements: these will require replacing every 3-6 months (depending on climactic conditions). The AHU manufacturer cites a minimum of 600mm clearance at the side of the AHU however this is typically not sufficient for ease of access, and as such we are allocating 800mm as outlined in drawing ***A(22)11***.

New fans may be required in the event that the AHU unit fails; these are particularly heavy (c. 250kg) and in this case, a crane would be required for replacement. Crane opportunities with the site constraints are limited, however it is possible that a crane is placed at Queen Square and equipment lifted over the lower NHNN building roof; this would require a lifting height of approximately 44m (red dashed lines in extract diagram below, not to scale). It should be noted that fan replacement is not routine maintenance and would only be needed in the event of unit malfunction. Ductwork will incorporate inspection/maintenance hatches at bends for visual inspections and access. The push-up ladder and associated mechanisms will require visual inspections at intervals under typical client protocols (often, annually).

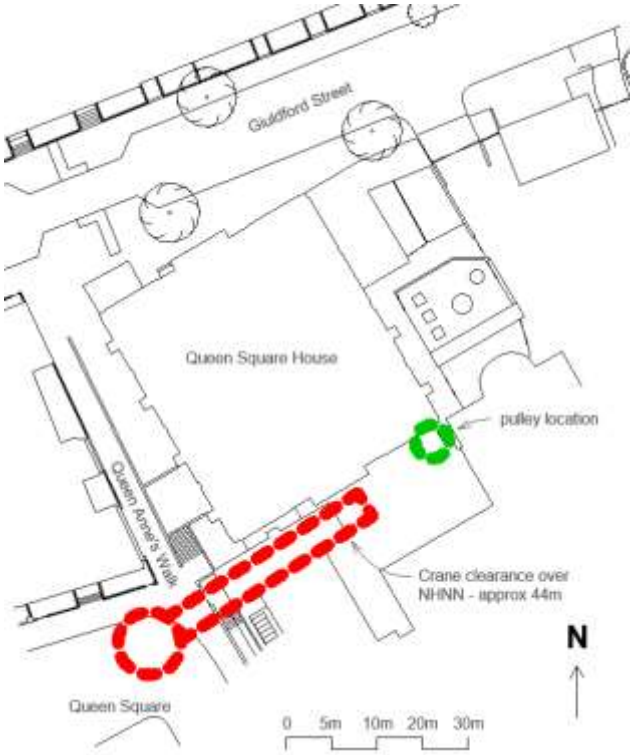


figure indicating suggested site/temporary crane and pulley locations

Glazed Element Maintenance

The new glazed external elements are no taller than 3metres and as such can be reached by stepladder or water-fed pole for cleaning.

Handrail Maintenance

The handrail will be of durable nature and as such should not require routine maintenance. Cleaning will be via sprays and wiped. The system specified will allow for replacement of faulty electrical elements and fixings, which can be undertaken from ground floor level.

c) Health & Safety Statement

Safety is always of paramount importance when considering the access and maintenance strategy of new proposals. Where this report identifies some outline safe methods of working and installation, review of Risk Assessment and Mitigation Strategies will be required for any works that present a risk to health and safety throughout the project to ensure the appropriate installation and maintenance strategies are in place prior to starting any works. UCL employ stringent H&S review processes throughout the project lifecycle and regular meetings include agenda items to review H&S elements.

CDM reviews have been undertaken by the UCL Estates Health and Safety Manager at every RIBA stage as part of the client stage gate signoff processes, and will continue to take place once the chosen contractor is appointed to ensure that risk is designed out of any design work they undertaken, and that safe methods for delivery and installation are proposed and that safe working on site is closely monitored.

During installation, suitable arrangements will be made for the installation of the AHU and framing with a crane and scaffold (or similar appropriate proposal), and so as to prevent any likelihood of falling, or dropping of components. It will be required that any works at roof level are in accordance with HSE guidance HSG33 'Health and Safety in Roof Work'.

04 Sustainability

a) Mini-SKA Tracker

UCL requires in all its projects that sustainable design is implemented with a view to utilising environmentally-friendly systems and materials in the installations. Due to the size of this project, a 'mini' (rather than full) SKA tracker is utilised to demonstrate that sustainability is considered across several facets of the design. This has been reviewed by the university sustainability officers who have provided comment and are now satisfied that the proposals are in line with their sustainability criteria.

It should be noted that lab areas are proposed, which are viewed in separate measure to more commonplace accommodation (offices, teaching spaces etc.) where lab spaces are more demanding particularly from a building service viewpoint.

b) Efficiency Upgrades

As in its existing state, the roller shutters and louvres to the rear service yard open into a freezer store space, which has as its perimeter (and thermal barrier) a single block width masonry lining. This wall abuts the main Ground floor corridor, and is not insulated which presents a massive cold bridge between the two spaces – the corridor heated, freezer store unheated. This will be addressed where the new external infill blockwork walling will be an insulated cavity wall, and louvres infilled. As such the new thermal barrier will be located on the external wall (rather than corridor internal wall) and with no louvres or roller shutters that act as weak points, presents a huge upgrade in terms of heat retention and efficiencies in heating between the main corridor and new clinical spaces. The external envelope will be lined on the internal face with independent wall lining systems which will provide also a level of air-tight skin that prevents ingress of cold (or hot, during warm summer days) air.

The new roof plant will be modern and therefore more efficient than older systems in driving energy savings and reducing running costs. It should be noted

05 Summary

Given the justification of the proposals above, we are optimistic that in overall terms the proposals are minor in nature, and would result in no conditions adverse to the appearance of the building and local surrounding areas. The benefits that can be realised by the installations are significant and would allow the installation of new clinical areas, communal space and important fire safety upgrades. The proposed materials are to be of high quality, and closely matching existing precedents in appearance.

The ultimate aspiration is to continue to utilise existing building fabric and capitalise on existing space available within an established building, and to introduce new exciting facilities that will continue to promote cutting edge medical research.