24 John Street

Design, Access, and Heritage Statement

24 John Street
Bloomsbury
London
WC1N 2BH

London Borough of Camden
March 2024

REVISION C

06.03.23 - REV A – Issued to Camden
15.03.24 - REV B – Dropped ceiling to LGF to allow for MVHR duct, FCU and associated pipework indicated. Replacement of LGF external rear doors, double glazing to LGF sash window, new rooflight in rear extension
17.06.24 - REV C - Removal of blinds to rear windows. ASHP condenser in valley roof.

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Executive Summary

This statement has been prepared by Hugh Cullum Architects in support of an application for householder planning permission and listed building consent for energy efficiency improvements, and incidental works to the Grade II listed Georgian townhouse at 24 John Street, WC1N 2BL.

The purpose of this document is to set out in simple terms the work that is proposed and to offer justification and evidence for those works, without going into unnecessary detail. The proposals are mostly simple in nature, closely following the relevant Historic England guidance and similar precedents approved by the LPA over the past five years.

A separate document 'Summary of Works' has been submitted which simply lists the works proposed for the avoidance of doubt.

The property is Grade II listed and therefore of special historic and architectural interest. The site also falls within the Bloomsbury Conservation Area. In following paragraph 194 of the NPPF 2021, this statement *'describes the significance of the heritage assets affected [...] the level of detail being proportionate to the assets' significance, and no more than is sufficient to understand the potential impact of the proposal on their significance.'*

In recognition of the sensitivity of a Grade II listed site, we have closely followed the Historic England guidance entitled 'Energy Efficiency and Historic Buildings', a set of twenty documents setting out best practice. This guidance strongly advocates a 'whole building approach', which considers the fabric of the building, its use patterns, and its signficance taken as a whole in assessing and proposing interventions.

As a result, we have formulated a package of alterations which we believe strikes the balance between sustaining significance and increasing energy efficiency as far as possible, while remaining within budgetary contraints.

We can be contacted directly for any clarifications or queries via telephone, email, or in person on the details below.

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0.1 - Summary

24 John Street is a Grade II listed Georgian terraced townhouse situated in the eastern range of the Bloomsbury Conservation Area. It falls within the area first designated as a conservation area in 1968, making it part of one of the oldest conservation area designations in England.

It is listed under Historic England listing reference 1379157, which dates the terrace to 1800-1819, listed in 1951.

In very simple terms, the significance of the building is considered to mainly derive from its state of good preservation as a late Georgian terraced building, and its setting within an array of long, planned Georgian streets, all of which retain the majority of their original Georgian houses in a good or excellent state of preservation.

Preserving and safeguarding the historic appearance and fabric of the building should therefore be at the core of any approach to modification or repair of this heritage asset. In simple terms, this means identifying what is historic or original to the building, and retaining or repairing that where possible. It also means recognising ways in which the building has been unsympathetically altered, and seeking to undo those harmful changes.

This 'common sense approach' to conservation has been a guiding principle for the alterations proposed as part of this application, and is considered proportionate given the minimal level of intervention proposed.

It is expected that local authority planning and conservation officers will be very experienced in dealing with these kinds of buildings, and that if necessary, further reports or statements can be provided in respect of works proposed.

1. Policy Background

1.1 NPPF

Paragraph 7 of the NPPF 2021 states:

'The purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.'

This is a definition adopted by the UN Commission on Environment and Development in the 'Brundtland Report' of 1987. As a member of the UN, the UK has committed to pursue the 17 'Global Goals for Sustainable Development' in the period to 2030.

The goals of sustainable development and sustainability in general are at the heart of the planning system and increasingly at the heart of policy and decision-making at a national and local level across all sectors. Sustainable development is commonly accepted to have three 'branches': economic, social, and environmental. Paragraph 8 of the NPPF explains these as:

[Economic] – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;

[Social] – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and

[Environmental]–to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

On a more granular level, the aims of sustainable development are achieved through the preparation of an appropriate local plan and decision-making in accordance with that local plan. Nevertheless, the 'presumption in favour of sustainable development' is described as a 'golden thread' which runs through the planning system as a whole, including plan-making and decision-taking.

The important point to recognise is that sustainability does not lie solely in improving energy efficiency. The NPPF defines environmental sustainability as expressly including protection of the built and historic environment, in conjunction with mitigation and adaptation to climate change. It is important, therefore, to strike a balance between preserving and enhacing built heritage, while also improving energy efficiency as far as is consistent with that preservation. This should properly be seen as contributing towards the aims of sustainable development, and is the approach which we have followed in this application.

1.2 Camden Local Plan 2017

Paragraph 8.1 of the Camden Local Plan 2017 (the 'Local Plan') states:

'The Council aims to tackle the causes of climate change in the borough by ensuring developments use less energy and assess the feasibility of decentralised energy and renewable energy technologies.'

On a practical level, Paragraph 8.7 states :

'The energy hierarchy is a sequence of steps that minimise the energy consumption of a building. Buildings designed in line with the energy hierarchy prioritise lower cost passive design measures, such as improved fabric performance over higher cost active systems such as renewable energy technologies. The following diagram shows a simplified schematic of the energy hierarchy, which is explained further in supplementary planning document Camden Planning Guidance on sustainability.'

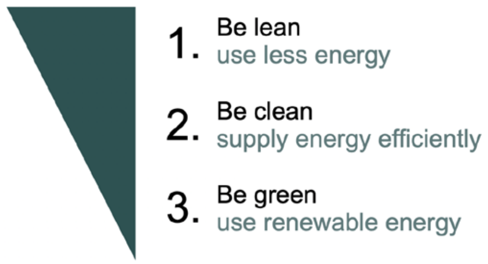


Figure 1
The 'Energy Hierarchy'

Through Policies CC1 through CC5, the Local Plan makes it clear that development in the borough should aim to use less energy, and where possible to use renewable energy sources. In formulating a strategy to improve energy efficiency for existing and new development sites, the 'Energy Hierarchy' (figure 1) should be followed. This widely adopted methodology, also present in the London Plan, prioritises using less energy of any kind before exploring the use of renewable energy to meet the required energy demand.

Paragraph 8.6 also acknowledges that pursuing energy improvements in listed buildings and conservation areas is challenging, and 'innovative solutions' may be required.

1.3 Historic England Guidance

Over a third of the housing stock in the UK predates 1945 and can therefore be described as 'historic'. Most of those buildings will be recognised as heritage assets, either designated or undesignated, and therefore deserving of conservation.

The conservation of historic fabric and significance in general is often a major challenge in planning and executing works to improve energy efficiency in historic buildings. At the same time, historic buildings are often the most poorly performing of all properties, with insulation of any kind only becoming common after 1945.

In recognising these challenges, Historic England has published a set of twenty statutory guidance documents entitled 'Energy Efficiency and Historic Buildings'.

The overarching document 'How to Improve Energy Efficiency' sets out Historic England's recommended approach for improving energy efficiency in historic buildings. At a high level, it advises in the introduction that:

'Getting the balance right (and avoiding unintended consequences) is best done with a holistic approach that uses an understanding of a building, its context, its significance, and all the factors affecting energy use as the starting point for devising an energy-efficiency strategy. This 'whole building approach' ensures that energy-efficiency measures are suitable, robust, well integrated, properly coordinated and sustainable. In addition, this approach provides an effective framework for communication and understanding between the various parties involved in the process. These include assessors, designers, installers and the people who occupy and manage the building.'

It is this 'whole building approach' that we have chosen to adopt as a strategy for improving energy efficiency at this site, along with the more detailed guidance documents included as part of the Historic England energy efficiency series.

Historic England goes on to explain that:

'A true 'whole building approach' is one that uses an understanding of a building in its context to find balanced solutions that save energy, sustain heritage significance, and maintain a comfortable and healthy indoor environment. A whole building approach also takes into account wider environmental, cultural, community and economic issues, including energy supply. It ensures improvements are suitable, proportionate, timely, well integrated, properly coordinated, effective and sustainable, and helps to highlight and resolve uncertainties, reconcile conflicting aims, and manage the risks of unintended consequences.

'Most of all, it deals with specific situations as opposed to generalities. Opportunities and constraints can vary widely depending on context. The optimum solution in one case might be quite different in another, even if buildings appear similar. Therefore, a site-specific approach is needed: one that considers the interrelationship between building fabric, engineering services, and people.'

2.1 Whole Building Assessment

Historic England recommends an initial assessment of the building, considering the interrelationship between building fabric, engineering services, and people.

'A good assessment will consider the context and current situation of the building, identify constraints, and potential opportunities for improvements. This is done by gathering information about the building and the behaviours and needs of its occupants, as well as current modes and levels of energy consumption, and factors affecting the feasibility of improvements.'

As a starting point we have considered the building fabric, and in line with the first aim of the Energy Hierarchy ('be lean - use less energy'), considered their contribution towards overall heat loss and associated energy wastage. We have concurrently considered the significance of these different elements, the potential options there are for improvement, and whether any options preserve or even enhance significance. Where options are considered too invasive or impact too greatly upon significance, these have been immediately ruled out.

The sections on the following page (figures 2 and 3) identify all elements of the building fabric, colour coded according to thermal performance. They are listed below with approximate thermal performance.

- Solid Brick Walls - Historic. Assessing the true thermal performance of solid brick walls is challenging, with a recent BRE publication highlighting how modern EPC and the rdSAP methodology often underestimate performance by as much as a factor of 2. The same report records an observed U-value of 1.4 W/m²K for a one brick thick wall with lime plaster internally, leading to a value of 0.7 W/m²K for a similar two brick thick wall. Our M&E consultant has given a more conservative estimate of 1.8 W/m²K for a single brick thick wall, and 1.2 W/m²K for a two brick thick wall.
- Historic Sash Windows. Historic single-glazed sash windows typically perform with a U-value of approximately 4.5W/m²K.
- Roof - Mineral Wool Between Joists. This performs at about 0.5 W/m²K.
- Ground Slab, Uninsulated. 400mm of concrete performs at approximately 0.8 W/m²K.
- Rear Extension. The rear extension was built in the early 2000s and has been rated at the required U-values of the building regulations at that time.

The above and following analysis should be treated as a relatively crude measure of assessing performance, as it does not take into account losses through convection and radiation, or variations in thermal performance due to moisture saturation or cold-bridging. Nevertheless, it acts as a useful guide to assigning energy efficiency priorities as part of the 'whole building approach'.

Figure 2
Heat Loss Diagram - Front of House

The section below is coloured according to approximate U-values, and helps to identify which energy-efficiency measures should be afforded priority. Blue indicates poor performance while red indicates comparatively good performance.

The full drawing can be found as En300 in the drawing set.

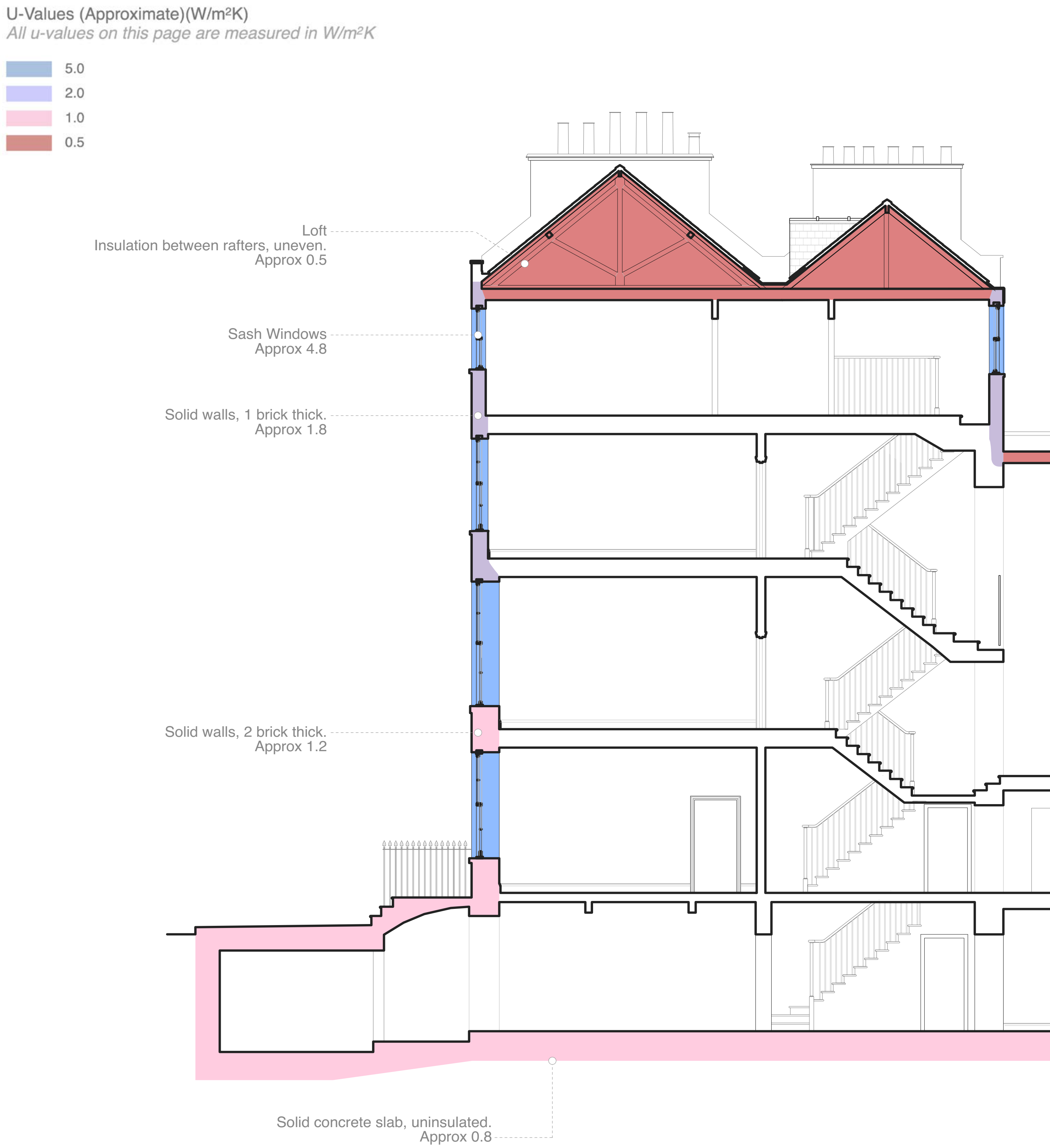
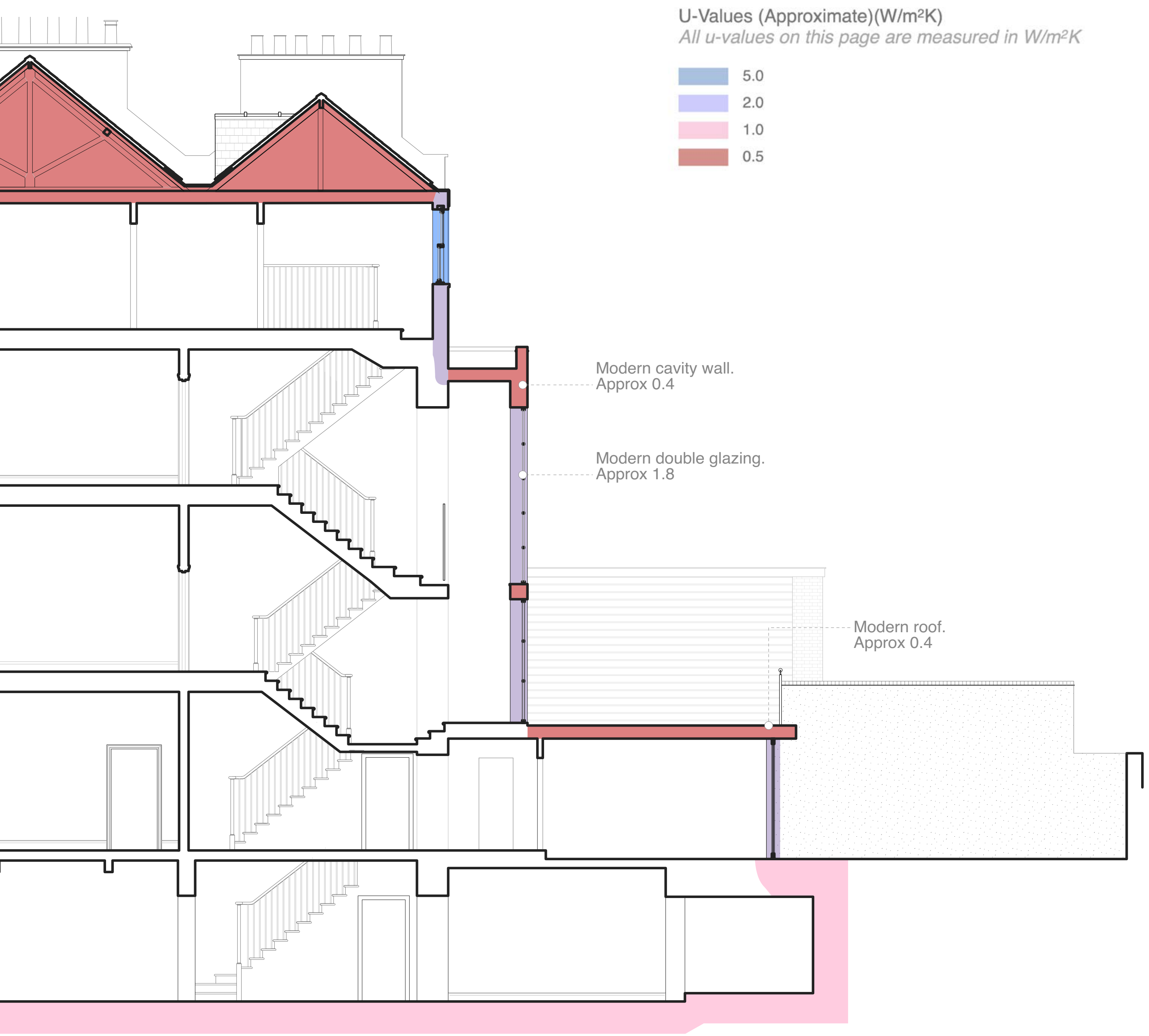


Figure 3
Heat Loss Diagram - Rear of House

The drawing below shows the modern rear extension, built c.2000. The difference in performance with the historic building is noticeable.

The full drawing can be found as En300 in the drawing set.



2.2 Summary - Building Fabric

The section shown on the previous pages is particularly useful as part of the 'whole building approach' in recognising which elements of the building fabric would benefit most from thermal improvement. Some results are obvious and follow common sense intuition - such as the single glazed windows contributing significantly towards heat loss. Other results are somewhat more surprising. The solid brick walls, especially at lower levels, perform far better than expected, although as the walls decrease in thickness towards the top of the house, performance decreases accordingly.

The modern rear extension performs fairly well in retaining heat in winter, although in summer, this can be particularly problematic as its south-facing aspect and large expanse of glazing contributes towards solar gain and uncomfortably hot temperatures.

As a result of the above analysis, we have considered the following interventions.

Walls

The walls and associated finishes are recognised as being of very high significance. Any alterations to improve thermal performance would need to be internal, and would interfere with historic lime plasters, paints, mouldings, cornices, and skirting boards. In short, the works would be extremely invasive and damaging to significance, while bringing somewhat less benefit than expected. As such, any works to the walls have been ruled out.

Windows

The single-glazed sash windows contribute significantly towards heat loss. There are a number of potential options to improve efficiency of windows, ranging from total replacement, to secondary glazing, or draught-stripping.

For this application, we are proposing that all windows are to be reweighted and draught-stripped to prevent heat loss through convection. Two 'historic-style' modern doors on the lower ground floor are proposed to be replaced with a more appropriate style and double glazed units. The LGF sash window between the main building and vault (overlooking the front lightwell) is to have double glazing installed within the existing sashes.

Loft

The loft insulation is to be upgraded further, as this is a relatively cost-effective intervention.

Ground Slab

The ground slab performs better than expected, and works particularly well in providing passive cooling during the summer months, being in direct contact with the ground at a maximum of 10 degrees centigrade. As such, no alterations are proposed to the slab.

2.2 Summary - Building Fabric

Rear Extension

The rear extension is of modern construction and is relatively well insulated, although still falls short of modern standards. The main issue which has been identified is overheating of the rear of the house due to the large 'Critall' windows which are south-west facing. There are blinds installed internally to the building which can be drawn on sunny days, but these do not prevent internal heating of the house.

~~As such it is proposed to install external roller blinds to the modern extension to prevent excessive solar gain. This would reduce the need for mechnical cooling in the summer, and therefore reduce energy demand ('be lean - use less energy'). In addition to the blinds,~~ (REV C - blinds removed).

An openable roof window is proposed to the rear extension to further aid in passively removing rising hot air.

Given that the extension is manifestly of modern appearance, and that the ~~blinds and~~ roof window would be totally hidden on most days on the year, this is considered to have very little impact upon the significance of the building and wider conservation area.

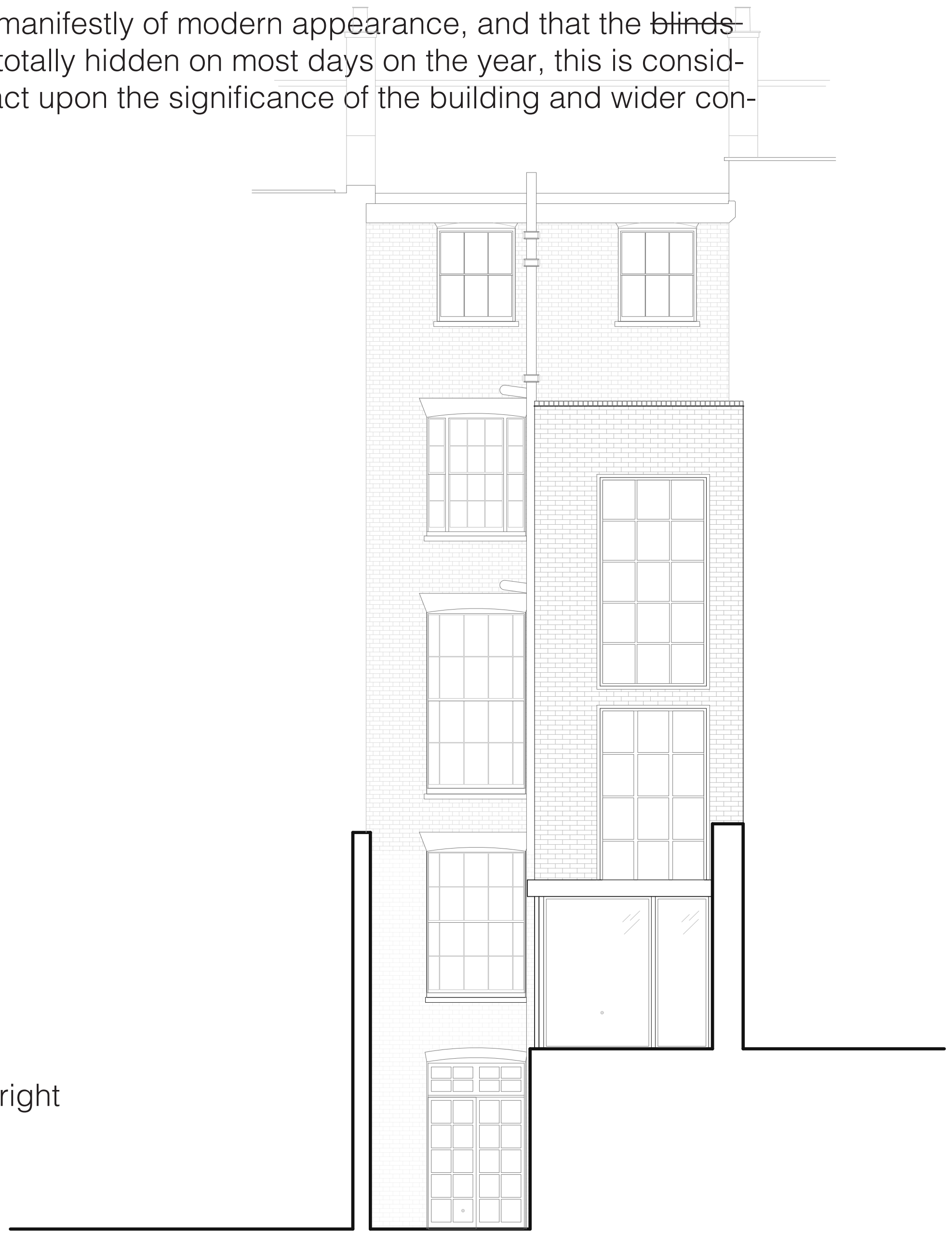


Figure 4
Rear elevation
Modern extension shown right
Three storeys

2.3 Summary - Energy Generation

Following the third element of the 'Energy Hierarchy', we have also considered means of on-site renewable energy generation, where such interventions would not unacceptably impact upon heritage values. We have also sought to minimise impact as far as possible through appropriate design choices, following the guidance set out by Historic England in their 'Energy Efficiency' series.

Air Source Heat Pump ('ASHP')

Installation of at least one air source heat pump has become increasingly common in the local area, both at listed buildings and on undesignated sites. Historic England's guidance states: *'Heat pumps are generally well-suited to historic buildings as they work efficiently when run on a constant low temperature, a method suited to buildings with thick masonry walls that are able to retain heat and release it slowly. This is referred to as having thermal mass.'*

We are proposing to install one external condenser in the valley of the main roof, where it will be almost invisible from private and public viewpoints, and connect directly to an existing service run. The external condenser will provide heat for most of the year, then run on reverse to provide cooling in the summer as required.

Photovoltaic Array ('PV Array')

Consideration has been given as to whether a PV array could be installed on site. The main house has an historic 'M-roof' which benefits from an internal valley, invisible from all typical public and private viewpoints. Installation in this location is largely consistent with Historic England's guidance on installation of PV panels, and recent approvals on this street.

Mechanical Ventilation and Heat Recovery ('MVHR')

Consideration was given as to whether installation of an MVHR would benefit the energy efficiency of the building. Preliminary calculations suggested heat demand could be reduced by 25%, but installation would necessitate introducing ducts of at least 150mm into all rooms, cutting through most historic floor joists and potentially requiring structural reinforcement.

As such this is considered to be too invasive an intervention on the upper floors but can be more easily accommodated on the lower ground floor where it also performs a critical role in mitigating the damp problem.

2.4 Summary - Incidental

Exterior Joinery Colours

Any work to listed buildings should consider ways in which significance might be enhanced or better revealed, consistent with the statutory duty under Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990.

The only proposed works to the visible fabric of the building entail alterations to the sash windows. As part of these works, all windows and doors will be repaired, eased, and repainted.

In the process, it is proposed to repaint the doors, windows, and exterior window reveals in a heritage colour scheme. The colours proposed have not yet been decided although there are many good examples at neighbouring buildings on the same street (e.g. 56-60 consec. Doughty Street).

Historic joinery and particularly sash windows were often painted in darker colours to hide the glazing bars, which far from being a conscious design choice were only introduced by necessity; before the introduction of plate glass in the 1830s, only small panes of crown glass were economical. The building dates from 1800-1819 and therefore predates the introduction of larger plate glass panels. Interestingly however, there is evidence that the original glazing bars in the house were subsequently demolished to make way for these larger panes of glass, with the glazing bars then 'restored' in the early twentieth century.

Page 19 of Historic England's guidance 'Traditional Windows: Their Care, Repair, and Upgrading' explains the history of common colour schemes applied to sash and casement windows, explaining that although light colours were the only economical choice at the outset of the Georgian period in 1714, by 1820 even modest homes were experimenting with grey, green, brown, and grained finishes. John Soane's London home, within the Bloomsbury Conservation Area and contemporaneous with the development site (1820) used black.

The painting of the sashes in a traditional, darker colour would therefore act to better reveal the significance of the building as a late Georgian, modest family home, drawing attention to the unusual colouring of the building as compared to its brilliant white neighbours. This would enhance the significance of the building and indeed the conservation area.

It is anticipated that the colour scheme would be secured by condition.

Heating/Cooling Outlets

In conjunction with the installation of an external condenser it is proposed to install wall mounted units concealed in joinery units in the upper floor bedrooms for heating and cooling. A vertical fan coil unit concealed in joinery is proposed for the study on the first.

2.5 Windows - Significance

The existing windows are all typical timber sash windows, overall of Georgian appearance, although unusually very few of the windows are of the same appearance and detailing. Each floor exhibits a different glazing bar profile, and many of the windows' glazing bar profiles do not match the profile present on the stiles and rails of the sashes themselves.

The glass present in the windows does not appear to be historic in any location. It appears to be typical modern float glass, with no discernible bubbles, wrinkles, stipples, or any other kind of imperfection usually present in historic glass. Measurements of windows with precision calipers also imply the glass to be of 4-6mm thickness, consistent with tempered or laminated safety glass, perhaps specified as part of an earlier commercial refurbishment. Historic crown glass would typically be 2-3mm in thickness. The replacement of the glass with heavier non-original glass is also evidenced by the fact that many of the sashes are not balanced properly, with the windows falling due to their increased weight.

One profile appears throughout the house, either on the stiles and rails of the sashes themselves, or rarely as a retained glazing bar, and matches that found throughout the Dickens Museum on the same street. This is assumed to be the profile original to the construction of the house, and is found throughout the Georgian properties in the area and specifically at the neighbouring house. This is shown below in figure 5.

Based on the observed evidence, it appears that most of the original windows have followed a set pattern of historic development.

1. **c.1820.** Original sash windows installed.
2. **1820-1920.** Original glazing bars demolished to most windows to make way for larger Victorian glass panes, although some windows have the original profile retained.
3. **c.1920.** Glazing bars reinstated in some windows. These are of typical ovolo profile, matching nearby pre-war mansion blocks.
4. **1945-2000.** Select windows replaced with modern equivalents. All glazing replaced with thicker tempered glass.

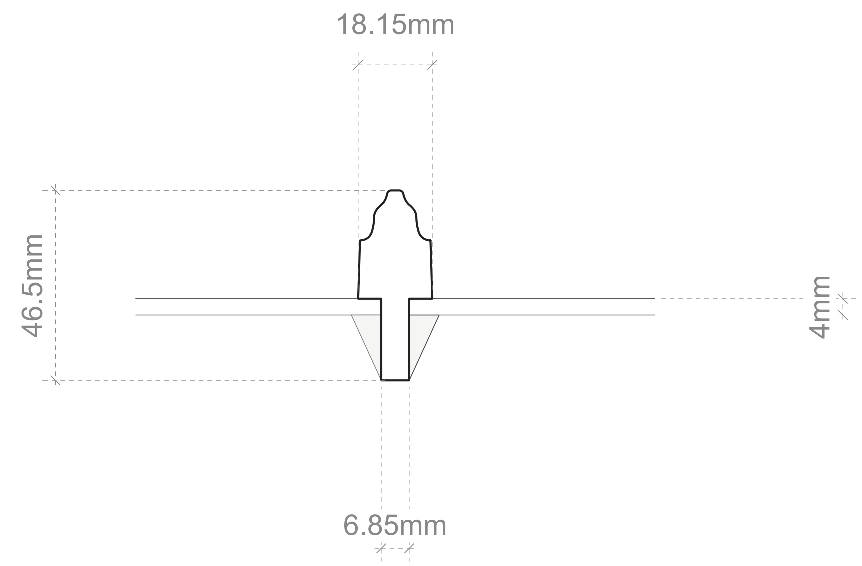


Figure 5
Astragal glazing bar
Assumed original

2.6 Windows - Proposals

Integrated Glazing Units

There are two modern 'historic-style' external doors at the lower ground level. It is proposed to replace these doors with new double glazed doors with profiles more appropriate to the style of the building.

2.7 Air Source Heat Pump

Installation of an air source heat pump has been seen as key to reducing dependence upon externally generated energy, and follows the third step in the 'Energy Hierarchy' ('be green').

It is the government's ambition to reduce and eventually eliminate dependence upon fossil fuels for heating domestic properties, and for the country to be carbon-neutral by 2050. By 2025, it is anticipated that no gas boilers will be installed in domestic new-build properties.

It is considered that the principle of installing an external condenser for an ASHP on the site is acceptable subject to appropriate siting, design, and servicing strategy. This is due to the precedent set by the number of similar applications approved in the surrounding area, including at listed sites.

During the summer the ASHP will run on reverse to provide cooling to the house on the hottest days of the year.

Following detailed calculations by our M&E consultant, it has been found that running a typical hot water and heating system using only an ASHP is not viable, as the flow temperature would not be high enough to meet the peak heat load of the house. Heating will instead be provided via a hybrid system using both the ASHP and existing gas boiler system. Hot air will be provided to rooms as required from the ASHP, with the gas boiler remaining to heat the radiators.

2.7 Air Source Heat Pump

We consider the ideal location for the installation of the ASHP to be in the existing valley roof. The sloped roofs provide passive attenuation which allows for installation without any unsightly acoustic enclosures. It also has the advantage of being invisible from public viewpoints and almost completely invisible from private viewpoints.

Given its very low visibility and lack of interaction with the historic fabric of the listed building, this is consdered to have negligible impact upon the significance of the heritage asset.

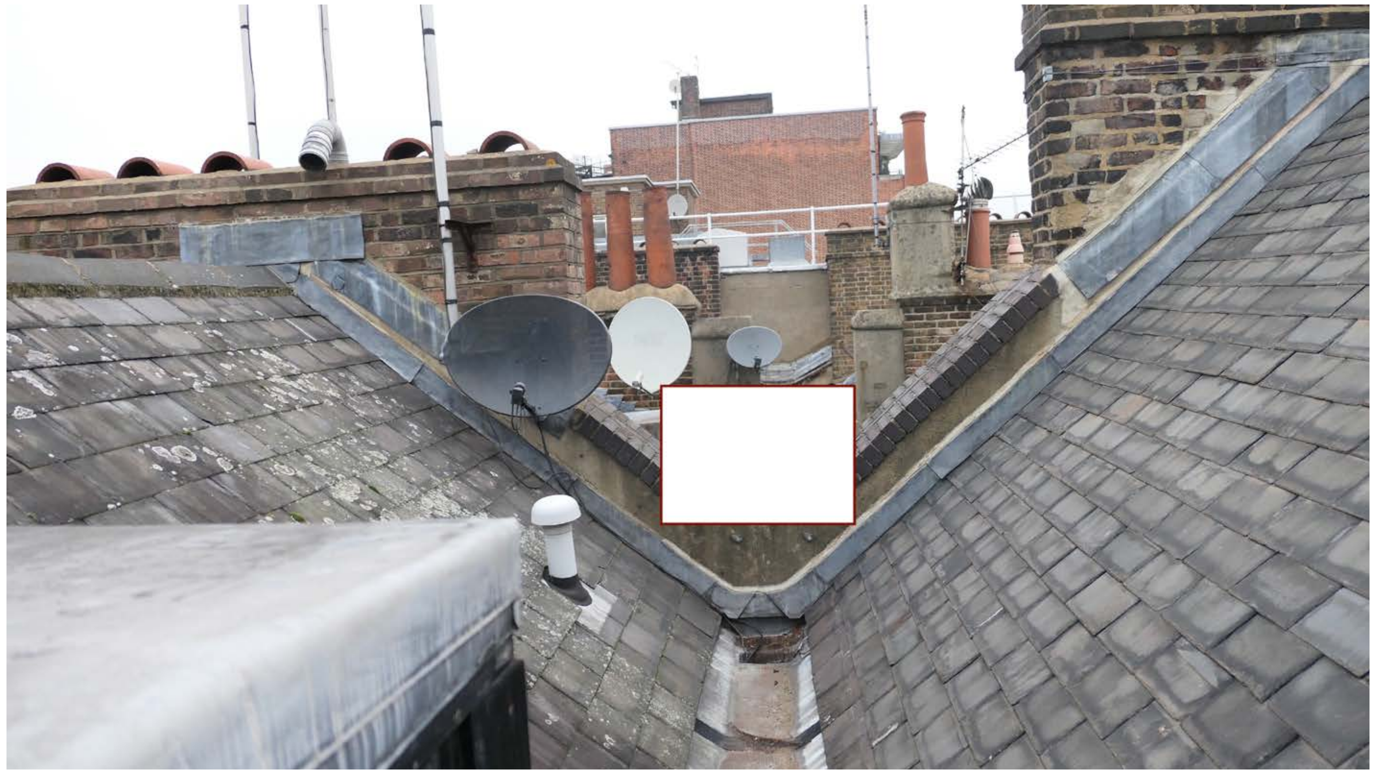


Figure 6
Proposed external condenser location.
No attenuation required.

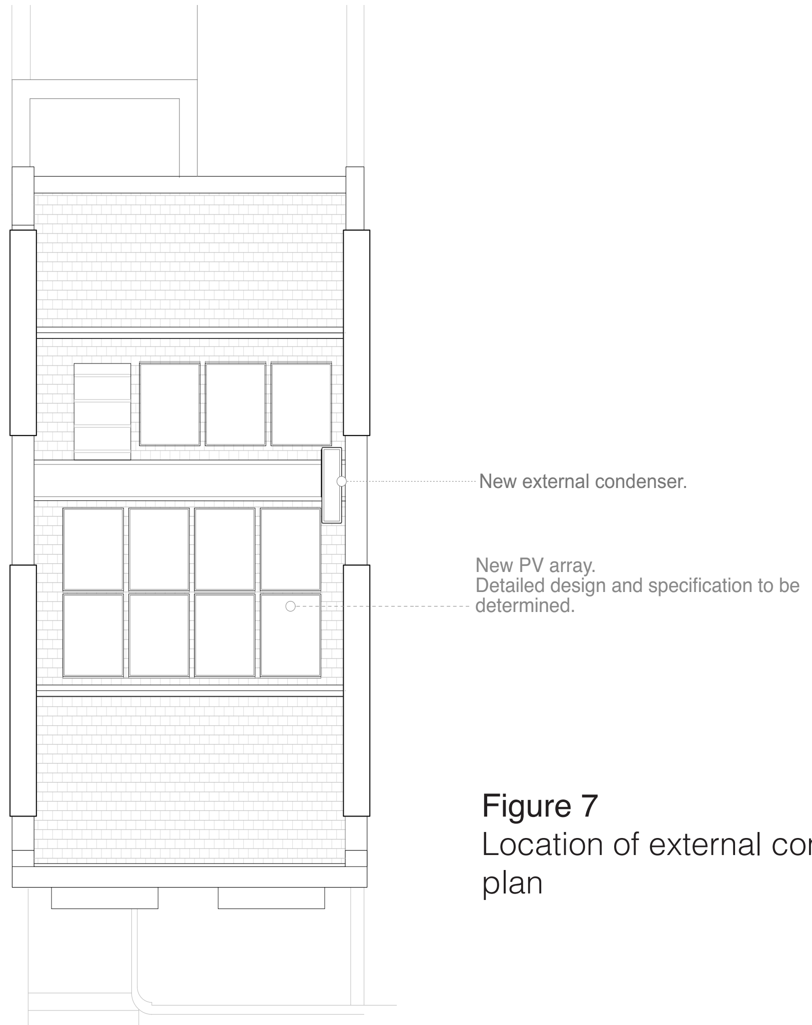


Figure 7
Location of external condenser and PV array in plan

2.8 Photovoltaic Array

To reduce external electricity demand, it is proposed to install a small PV array within the valley of the M-roof, where they will be invisible from any typical public or private vantage points. In conjunction with improvements to insulation, this follows the third step in the 'Energy Hierarchy' ('be green').

Especial consideration has been given to the resulting impact upon significance, both to the listed building and wider conservation area, and to the precedent set by recent approvals, refusals, and revisions to applications made in the local area.

Historic England's guidance document Solar Electrics (Photovoltaics) states: *'For historic buildings a balance needs to be achieved between generating your own energy and avoiding damage both to the significance of the building and its fabric.'*

Historic England goes on to set out a number of assessment points when considering the installation of PV panels (Section 3.2 'Impact on Historic Fabric').

- Reversibility. A PV array is guaranteed for approximately 25 years at which point it is expected to be replaced due to reduced efficiency and advancements in technology. Installation should be reversible or reusable to avoid cumulative damage to historic fabric.
- Tiles & Slate Replacements. Roof coverings will need to be altered, and as such a careful assessment of the significance of those roof coverings should be carried out, and feasibility of replacement of individual tiles should be considered.
- Significance. Location and visibility is an important aspect of design.
- Setting. Impact upon significance is often assessed in terms of views of the heritage asset where the PV array would be most visible. Shallow pitched roofs behind parapets, or hidden valley roofs, can more easily accomodate PV arrays.

2.8 Photovoltaic Array

The only location feasible for installation of a PV array was quickly identified as being in the valley of the 'M-roof', due to its invisibility from all typical public and private viewpoints. It is only visible to users of adjacent properties when accessing the roof for maintenance purposes or otherwise.

In simple terms, the key issues are considered to be:

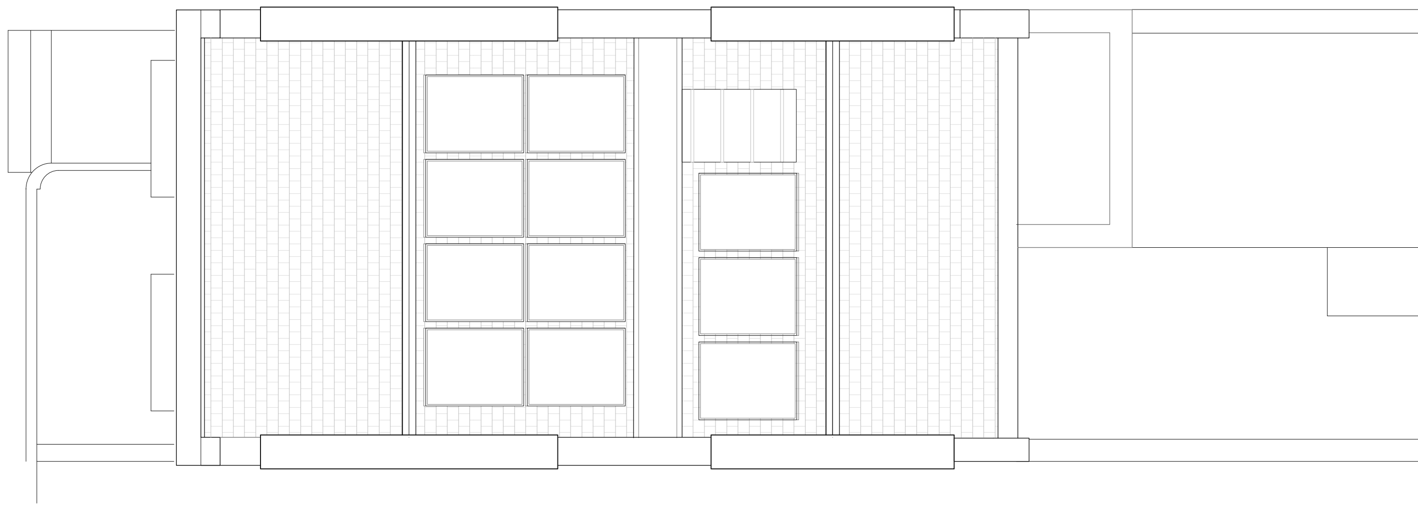
- Damage to and loss of historic fabric through the use of brackets, fixings, etc attached to the subdeck of the roof below.
- Impact upon views and significance through the presence of an unsightly 'modern' PV array.

Impact upon significance due to visibility is considered to be of a very minimal nature. The valley of the M-roof (shown in photos on the following pages) is not visible in any views from the conservation area, or from gardens or windows in adjacent listed properties. We therefore consider this should be afforded very limited weight.

Impact upon historic fabric, through method of fixing and increased load upon the roofs, is considered to be an important consideration. At this stage, details have not been fully considered and it is expected that details of fixings, the particular solar panel model, and any other alterations to the roof would be secured by condition.

It has also been noted that the applicant for a similar listed building consent application nearby was requested to supply an engineering report to demonstrate loading would be within acceptable limits. This is also anticipated to be secured by condition if necessary.

Figure 8
Location of the proposed PV array in plan.



2.9 Miscellaneous

INCIDENTAL ALTERATIONS

There are a number of incidental alterations that are proposed, which should be interpreted as amendments to the listed building consent 2022/5356/L granted 20th September 2022.

- Amendments to joinery design and location. The joinery to the first floor living area has been removed, and the design of the joinery to the study has been amended.
- Section of lowered ceiling in lower ground floor living room to accommodate MVHR without unduly disturbing historic fabric.

SUGGESTED CONDITIONS

Rather than submit detailed design drawings at this stage, it is suggested that the following are secured by condition, if considered necessary by the case officer.

- Design of joinery to first floor (already controlled by condition attached to 2022/5356/L).
- Schedule of alterations to each external door and window.
- Schedule of colours for painting of external doors and windows.
- Specification for external blind.

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