

HITCHIN TOWN HALL

DESIGN AND ACCESS STATEMENT

DECARBONISATION



ISSUE HISTORY

REV	DATE	DESCRIPTION	CHK.	AUTH.
P01	31/07/26	Planning Submission	KP	BH

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1.0 INTRODUCTION

Saunders Boston Architects have been appointed on behalf of North Hertfordshire District Council to provide architectural design services for improvements to Hitchin Town Hall, with particular emphasis on the reduction of energy and carbon use in its operation. Funding for the de-carbonisation works is being provided via the SALIX Public Sector Decarbonisation Grant Scheme to support the NHDC commitment to Net Zero carbon target by 2040.

The works to be undertaken include the provision of secondary glazing to existing windows, the provision of insulation to the roof void above the main hall as well as the replacement of mechanical plant including the removal of gas boilers and the addition of Photovoltaic (PV) panels and an Air Source Heat Pump (ASHP). Special attention is being paid to ensure that the fabric and appearance of the original, listed building is maintained in the conclusion of the works.

2.0 SCHEME SUMMARY

In order to provide improvements in the energy use of the building, the following works are proposed to reduce the expenditure of energy to heat the building, better management of the heating and ventilation of spaces and for the energy expenditure to be derived from less carbon intensive processes.

The works will include:

- Installation of new secondary glazing within the window reveals of existing windows
- Installation of insulation within the roof void above the Main Hall of the Town Hall
- Installation of new PV panels on the main roof of the Museum building
- Installation of New PV panels to the eastern face of the roof of the Education room of the Museum (the Workmen's Hall)
- Replace the existing gas fired boiler plant with air source heat pump technology & modify existing heating systems accordingly
- Replacement of existing Air Handling equipment within the Town Hall building
- Addition of cooling units to provide climate control to office and classroom spaces within the Museum as well as the Lucas room and office room in the Town Hall

3.0 THE SITE

3.1 Site Description

The Town Hall sits on the corner of Brand Street and Grammar School Walk within the High Street, Bancroft South and Brand Street Conservation Area in central Hitchin. The primary aspect of the building is South East facing with the built forms on site consisting of the main Town Hall building completed in 1901 and an extension that houses the North Hertfordshire Museum.

The street frontage includes the Town Hall, Museum entrance and two commercial properties (numbers 16 and 17 Brand Street) that do not form part of the application although the Museum continues behind the shops. A vehicular access road runs behind the application site that allows access to the Brand Street Car Park, a multi-storey parking facility that sits immediately next to the application property



3.2 Historic Context

The Town Hall is categorised as a Grade II Listed Building (1394494). In particular the listing notes the Architectural Interest in the Neo-Georgian façade, Arts and Crafts style rear hall (Mountford Hall), the intactness of the exterior and interior of the building and the decorative plasterwork in the Lucas Room (in the front part of the building at first floor level)

The North Hertfordshire Museum which forms a proportion of the application site is not on the National Heritage List but alongside the Town Hall it is within the confines of the Hitchin Conversation Area Town Centre (specifically the High Street, Bancroft South and Brand Street).



Of particular note within the Conservation Area Statement importance is placed on maintaining pitched tiled roofs and chimneys, the pleasantly domestic scale and the lively and varied streetscape.

Particular Views that are of importance include:

- View 3: View in a westerly direction up Brand Street, taking in the listed Old Town Hall on the left with longer views to the trees around the modern Quaker Meeting House
- View 5: View in an easterly direction towards Brand Street taking in the grade II listed later Hitchin Town Hall on the left



View 3 Mid Brand Street



View 3 Western Brand Street



View 5 North side of Brand Street



View 5 South side of Brand Street

4.0 PROPOSED ARCHITECTURAL CHANGES

4.1 Use

The Town Hall encompasses a number of community spaces with a large hall including a proscenium arched stage and dance floor, a number of meeting rooms, some office space and associated facilities including food and beverage preparation areas and storage areas for the stage use. The rest of the application site includes the North Hertfordshire Museum which includes exhibition spaces, learning spaces, a café and shop area and associated offices, storage and plant areas. There is no intent to alter any of the uses of spaces on site.

The main objective of the proposed works on site are to reduce the energy and carbon used within the building in future, by both improving thermal performance and by using less carbon intense energy methods on site.

The main method of improvement of the thermal performance of the building is in the increasing of the insulation of the space through the installation of insulation material at high level in the Mountford Hall and with the improvement of the thermal insulative properties of the windows with the installation of secondary glazing units. This reduces the amount of energy needed to heat the space in winter and cool the building in summer. Alongside the improvement in thermal insulation, recovering heat from extract warm air from the main Mountford Hall space can reduce the energy input to warm the space in winter which is to be done with the use of an air handling unit that recovers warm exhaust air and filters it ready to be re-supplied into the spaces.

Lowering the use of carbon intense energy is through the removal of gas boilers for hot water and space heating and the replacement of this provision with the use of Air Source Heat Pump technology with power supplied by photovoltaics for on site power generation or the use of grid power - which is generally of less carbon intense generation processes and lowering all the time as more renewable energy systems are used for general power generation

4.2 Amount

The building footprint is 1360m². The Town Hall has a floor area of 775m² spread over two floors, the North Hertfordshire Museum has a floor area of 1440m² spread over three floors.

The works proposed to be undertaken are as follows:

- Installation of new secondary glazing within the window reveals of existing windows on the front elevation of the Town Hall as well as the clear semi-circular (Diocletian) windows on the western and eastern elevations of the Mountford Hall
- Installation of insulation within the roof void above the vaulted ceiling of Mountford Hall in the Town Hall building
- Installation of new PV panels on the main roof of the Museum building and to the eastern face of the roof of the Education room of the Museum (the Workmen's Hall Roof)
- Replace the existing gas fired boiler plant with air source heat pump technology & modify existing heating systems accordingly. This will involve replacement of plant equipment within the existing plant areas of the building and the addition of a new Air Source Heat Pump unit in the parking bays to the rear of the Town Hall
- Replacement of existing Air Handling equipment within the Town Hall building. This will involve the replacement of ducting, pipework and services. This may involve the provision of new suspended ceilings within the circulation areas of the Town Hall, allowing the protection of the original building fabric while allowing non-destructive methods to undertake inspections of it to at regular intervals
- Addition of cooling units to provide climate control to office and classroom spaces within the Museum as well as the Lucas room and Office room within the Town Hall. This will introduce a degree of plant equipment to the central roof of the Museum as well as cooling units within the interiors of the rooms in question

4.3 Plant Equipment Location

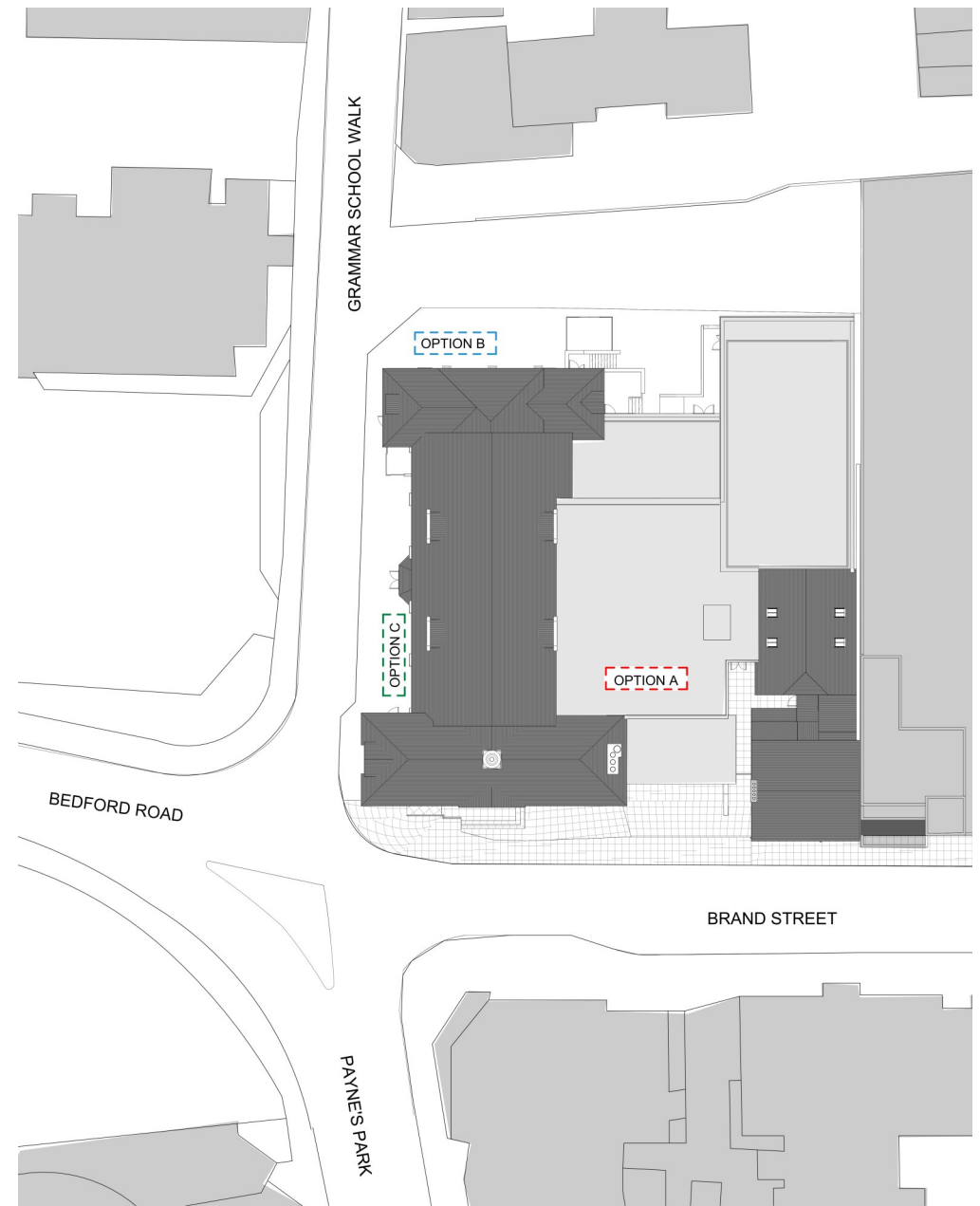
The most significant visual and physical intervention that is being proposed within these works is the inclusion of an Air Source Heat Pump Unit and the necessary supply and extract ductwork, Air Handling Plant equipment and the associated electrical conduits that would need to be installed in order for this unit to function. These are items that are visually not in keeping with the aesthetic of the original building, produce noise and vibration in their operation, require proximity to sources of power and the parts of the building they need to supply and have a size and weight to them that dictate where within the proposal site they can be hosted.

Early engagement has been undertaken with manufacturers and installation specialists to provide a design for the plant equipment that best suits the particular needs of the building. This has meant we have been able to assess the maintenance access needs, weights, potential for vibration, access to fresh air, noise output and physical size of the unit that is looking to be installed. Using this information we have assessed a number of locations within the site boundary that the unit could potentially be placed and have judged what best suits the needs of the building, it's occupants, it's neighbours and the general public.

Please refer to the diagram which sets out the options considered and we will summarise the pro's and con's of each location:

Option A

Option A sets the location of the ASHP on the central roof of the site. This is a location that already contains some plant equipment that services the Museum, it has access to fresh air and power supply, is close to the areas it needs to service, is away from site boundaries and is visually obscured from the main thoroughfares of Brand Street and Grammar School Walk. However, the weight of the unit alongside the vibration of it in operation is significant enough that hosting it on the roof here would require extensive strengthening works to the primary structure of the museum building, a process that would be disruptive for significant periods of time to the entire building's operations and would need to be undertaken in such a way as to not cause structural disruption to the Town Hall building. The routing and sizing of supply pipework through the Town Hall building would also be a significant matter to resolve, requiring opening up and routing works to get to the plant areas the equipment needs to supply



Options for ASHP Location

Option B

Option B sets the location of the ASHP at the northern corner at the rear of the building adjacent to the access road from Grammar School Walk and over the staff car parking spaces. This location has access to fresh air, can be mounted on the ground (alleviating weight and vibration concerns) and is visually obscured from the main thoroughfare on Brand Street. However, the ASHP unit would also be directly facing the residential properties at Croft Court on Grammar School Walk within 18m of the site. The noise of the units in operation would need to be acceptable to environmental health standards on residential properties, potentially via the use of attenuation and enclosure works. Connecting the ASHP to the plant equipment in the building will require conduit and ductwork to be passed across the face of the building or be routed through the historic Town Hall or Museum to supply the existing plant areas. It would also replace all staff parking from site except for the two disabled bays on Grammar School Walk.

Option C

Option C sets the location of the ASHP adjacent to Mountford Hall on the site of a disabled parking bay and adjacent to Grammar School Walk. This location has access to fresh air, can be mounted on the ground (alleviating weight and vibration concerns), is close to the areas on site the unit needs to supply while being routed and could be visually obscured from the main thoroughfare on Brand Street though it would remain prominent on Grammar School Walk. The location is close to the site boundary (opposite the Car Park for Centenary House, an NHS Clinic) as well as the main thoroughfare of Brand Street. However from a noise generation point of view, the closest neighbouring property is non-residential and is further away making it simpler to meet the Environmental Health requirements on noise generation. The ASHP units would remove the use of a disabled parking bay close to the main entrance of the building and would also impact on the ability of this space to be used for the loading or unloading of equipment for the Hall.

Of the Options explored, the designers elected to proceed with Option B on the basis that it would be the least disruptive to the operation of the existing buildings as well as it being less visually disruptive to the prominent elevations of the building. By routing the services through less historically sensitive areas such as the Museum building and acoustically treating the unit, it can match the needs of the building and the surrounding properties while also remaining accessible for maintenance.

4.4 Layout

The primary entrances for the Town Hall and Museum are south facing on Brand Street. Staff parking and service access (including bin collection) occurs at the rear of the buildings accessed from a vehicular access road from Grammar School Walk.

The Town Hall building has a reception lobby accessed from the main entrance from which the main hall (Mountford Hall) can be entered. There is also a circulation corridor allowing access to a staff room and food preparation area, a staircase and a disabled access lift. At first floor level there is an office space, a meeting room (the Lucas Room) and a mezzanine balcony allowing views into Mountford Hall as well as access into the Museum at first floor level. Mountford Hall itself is a large space with a timber sprung floor, a bar area and a proscenium arched stage at the north end of the hall. Access to back of house areas for the stage are available adjacent to the stage. There are escape doors that exit out onto Grammar School Walk as well as a set of doors that allow access into the Museum.

The North Hertfordshire Museum is accessed from Brand Street, with access being into the café and shop area alongside ancillary facilities for the café (a kitchen as well as toilets). A door accessing Mountford Hall is to the west, to the east is the stair and lift core allowing access to the other levels of the museum as well as an exhibition space to the rear with archives, reading rooms and stores to the east side of the site. At first floor level the Museum includes exhibition galleries including a rear terrace, administrative offices and toilet facilities and at second floor there is an education space.

Service access to ancillary facilities such as storage areas behind the stage of the Mountford Hall and the café kitchen come from doorways on the north side of the site, via a vehicular access road from Grammar School Walk. This vehicular access is shared with the Brand Street Multi-storey Car Park.

The street frontage of the application site includes no. 16 and 17 Brand Street which are shops but these units do not form part of the application and no interventions that are proposed affect their appearance, amenity or access arrangements.

No changes are proposed to the internal layout of spaces in the proposed works. The external ASHP compound would be accessed from the road north of the site off Grammar School Walk.

4.5 Scale

The majority of both the Town Hall and Museum buildings are two storeys. The Town Hall contains a basement at the rear as well as a small area in the front portion of the building while the south eastern portion of the Museum around the Workmen's Hall has three storeys. The floor level of the highest floor (in the Education room of the Museum) is 5.4m from ground level. The ridge of the highest roof of the building is of the Mountford Hall which is 12.7m from ground level. The highest point of the building overall is the top of the cupola on the front elevation of the Town Hall which is 16m from ground level.

The extents of the application site are 41m from front to rear, 44m from side to side. In terms of new built elements on site, the extent of the external ASHP and its enclosing wall are 4m across, 14m in length and around 2.3m in height for the ASHP unit, 2.8m in height for the chiller unit and with the new ASHP enclosure fencing being set at 1.8m high. Other interventions to the building occur within the envelope of the existing building, within existing areas that are screened off from public view such as the existing plant enclosure on the rear eastern museum roof or lie against the surface such as the PV panels to be installed on the central and Education Room Roof and the Air Handling Units on the central museum roof.

4.6 Landscaping / Biodiversity

There is no existing area given over to soft landscaping on site. As such there is no natural biodiversity to risk losing as it applies for requirements of biodiversity net gain. As the footprint of the building on site makes up the vast majority of space on site and the building is both within a conservation area and listed, any provision of additional space in order to provide an area of biodiversity can not be readily accommodated on site without compromising existing built fabric, the building's appearance or the requirements for pedestrian and vehicular access.

An analysis has been undertaken to ensure that any proposed works (especially to roof areas) does not disturb any rare species such as bats. An Emerging Bat Survey (EBS) has been included within this application to show that at the time of application the likelihood of bats being present on site is minimal

The site is entirely built on or has hard landscaping in the form of either asphalt road surface or brick and concrete pavers. A new external Air Source Heat Pump will be placed on an area of asphalted ground which is currently marked for parking bays. A new enclosure fence is to be installed around the ASHP to provide security and visual screening of the unit from the public.

4.7 Appearance

The Town Hall portion of the application site is a combination of a Neo-Georgian and Arts and Crafts style building as described within the building's listing. The front façade in particular is a well preserved example of the Neo-Georgian style including within it's decorative stonework and fenestration. The centre of the pitched clay tile roof of the front building houses a decorative roof lantern. The rear portion of the building (including Mountford Hall) is notable for its vaulted ceiling, sprung floor, proscenium arched stage and semi-circular (Diocleatian) windows. The Museum is a more contemporary style infill, being composed of a combination of brickwork, stonework and glazed curtain walling. The exhibition spaces to the rear of the museum are clad in metal cladding panels at first floor level with red brick at ground floor to match the original town hall building. The museum's central roof is a single ply flat roof subservient in height to the Town Hall and with a contemporary slate pitched roof for the Education room roof.

It is proposed that internally visible amendments to the Town Hall are kept to a minimum, any additional insulation for Mountford Hall being laid above the barrel vaulted roof, the specification of which will be made to ensure that there is no adverse effect on the roof over time by the inclusion of this insulation, whether that is from any additional weight applied with the new material, lack of airflow that could encourage mould growth or from the development of interstitial condensation. Upgrades to the air handling methodology would integrate with previously made interventions within the hall to accommodate air handling and distribution, including the replacement of air vents and the provision of new vents on already formed openings, specifically the previously blocked up windows on the eastern elevation of Mountford Hall at high level.

In order to improve the thermal performance of the window openings and as a way of avoiding the need to replace historic fabric that has remained in good condition, the proposal is to provide secondary glazing units behind the existing windows. The proposal is for these units to be of low profile aluminium framing with complementary mullion and transom setting and opening actions to the windows they are to be installed behind in order to be unseen externally and be of low impact as possible both visually and operationally from the inside for users of the building.

To upgrade existing services and to minimise the creation of new openings, some equipment will need to be added to existing dropped ceilings. In order to allow for insulation and service size increases, some non-original ceiling bulkheads in the corridor and circulation areas in the front portion of the Town Hall building are being enlarged to accommodate these services, with any decorative moulding replicated on the new ceiling bulkheads

The new ASHP will be installed at ground floor level to the north of the Town Hall facing Croft Court. The ASHP unit is to be acoustically treated and within a louvred metal fenced enclosure to match the style of the roof plant enclosure of the Museum. The ASHP enclosure provides physical security to and from the public as well as a degree of visual and acoustic screening for the unit. The choice of the enclosure fence has been informed by the need to maintain air flow for the operation of the unit, the need to minimise the footprint and prominence of the enclosure on the site and the provision of the ability to remove or repair elements of the ASHP in the future via the removal of individual panels so that the ASHP units can be accessed by large machinery or be lifted out and replaced entirely in future with minimal risk to damaging existing built elements.

Externally, the provision of new equipment for the ASHP, improved ventilation for the Town Hall, climate control for the Museum and the PV panels on the roof will require certain visible items of conduit, pipework and necessary equipment to be installed on the walls or roof areas of the building. Predominately this will be on the central flat roof of the Museum. This portion of roof is at high level and sandwiched between the roofline of the Town Hall and the eastern wing of the Museum while also already containing a large amount of mechanical plant and so it is judged that adding to this already established precedence of use should mean that the additional equipment here including new PV panels here will not be a visually distinct and oppressive addition to be observed on site. New PV panels are proposed on the eastern slope of the Education room roof of the Museum (the Workmen Hall). This location is only readily visible from the top level of the multi-storey Brand Street Car Park, the shops at no. 16 and 17 Brand Street blocking views of it from the streetscape.



Existing view of the rear of the Town Hall - Parking area



Proposed view of the rear of the Town Hall - ASHP Enclosure

4.8 Protection of Heritage Features

The general design principle adhered to in the project proposal is the preservation of the original fabric and features of the Town Hall building. Where modifications are being made in order to improve the thermal performance of the building, these are calibrated to fit within the existing fabric of the building and where that is not possible, the priority has been to minimise any disruption to historic features.

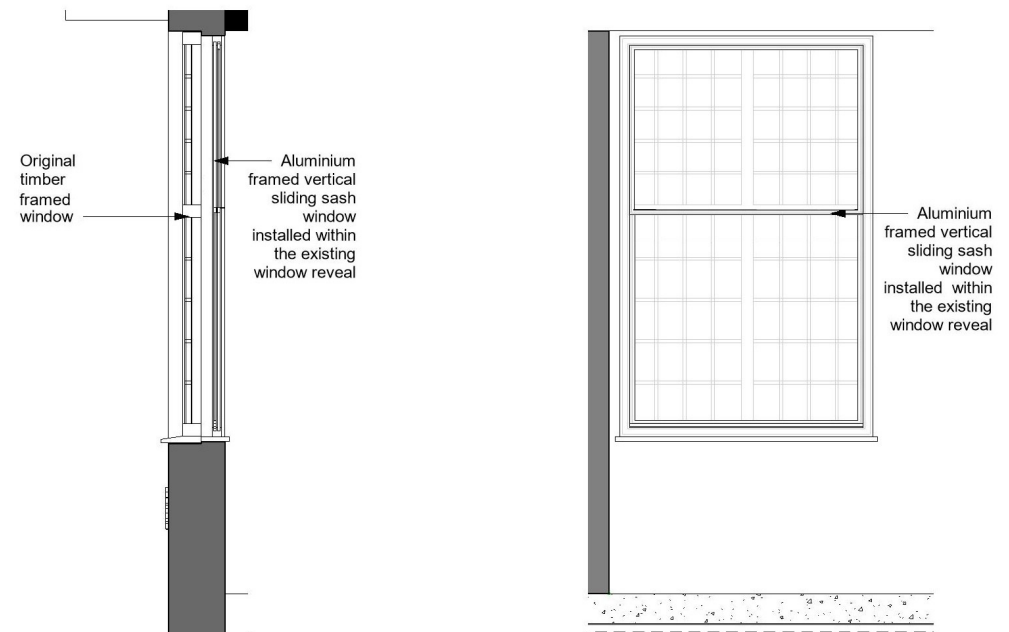
Secondary Glazing:

At present, many of the windows on site are original to the building's construction although some may have been re-glazed at some point in their history. They are a variety of fixed lights, casements, sliding sash and combinations of opening styles. They are also single glazed and timber framed. This style of window performs comparatively poorly in thermal performance standards, with modern buildings often using different materials and double or triple glazed units to reduce heat loss through the frames and glass surfaces.

In order to mitigate the poor thermal performance of the existing windows without disrupting either their glazing or framing elements, it is proposed that a low profile secondary glazing system installed within the window reveals is provided to supplement the existing windows. This is a long established method of providing thermal improvements within a building without interfering with established window units. It is proposed that any opening windows have their secondary glazed units open in a similar manner (casement to casement, vertical sliding sash with vertical sliding sash) to retain the ability of these units to be opened in the same manner as they currently do. Each element of secondary glazing will be matched to specific openings, with any mullions and transoms aligned to those on the existing windows with framing scribed to any features or non-conformities in the event that any element is off "true" - ensuring that visual and fabric continuity of the window openings is maintained. Specification of the glass within the new frames will be set to suit the requirements of thermal insulation, control of solar thermal gain and strength and toughness to protect building occupants safety



Typical Examples of the proposed Secondary Glazing (not on site)

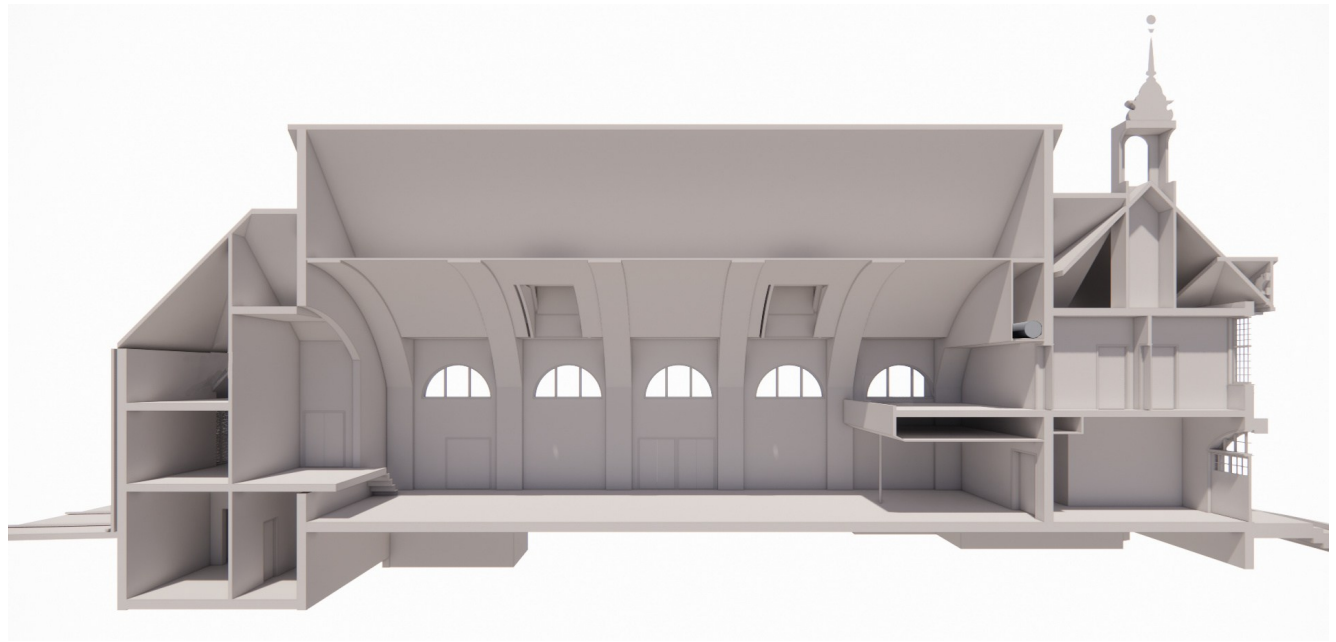


Details of proposed Secondary Glazing

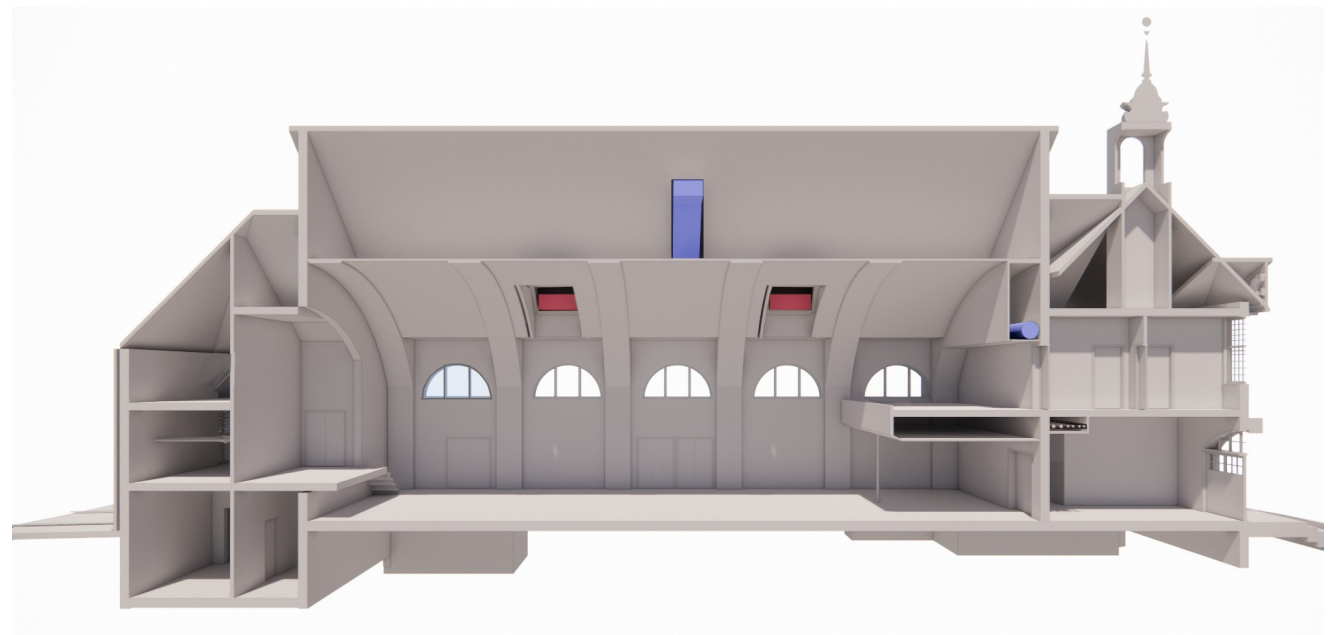
Replaced Windows

It is proposed that two original window openings within Mountford Hall are to be utilised to provide air extraction from the room. This proposal has been reached as a result of considering the available options to provide extraction within the Hall as follows.

In order to provide adequate air extraction for the size of the room and the anticipated temperature the room will reach when fully occupied at summer peak temperatures, an area of around 4m² of opening space located at high level is required. The two window dormers provide this although this can alternatively be supplied by a larger number of smaller openings in order to provide enough volume of air changes within the scale of the space. The trade off comes due to the fact that multiple smaller openings would have higher power use, require faster extraction speed and would produce a 'jetting effect' of noise and vibration from the ventilation fittings' smaller apertures. In order to avoid the creation of multiple new openings within the original barrel vault or extensive false walling above the stage, the least invasive to the room's layout and structure would be to utilise two openings that are currently internally sealed in the high level window dormers. This would replicate their original function of providing high level ventilation though they would not be able to be seen through. However, the original window frames and glazing that remain within the openings would not be able to be retained in the proposal.



Existing Hall - Original dormers internally sealed

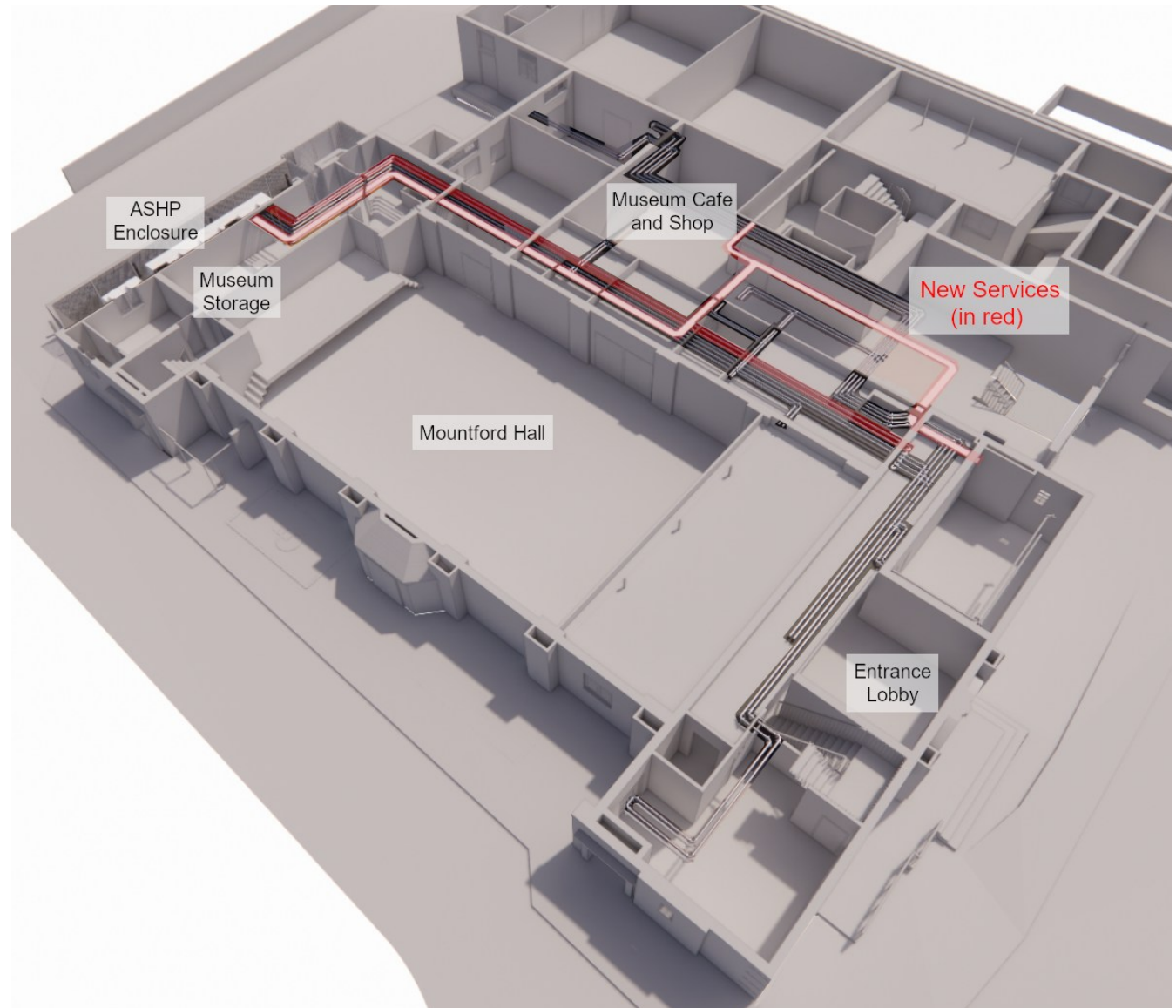


Proposed Hall - Louvre openings within Original dormers

Ceilings

The routing of the pipework from the ASHP units to the existing plant equipment areas on site requires the passing of services through the building. This has been limited to the area at the rear of the building, passing pipework and conduit at low level into the back of house areas behind the main body of Mountford Hall and then routing them up to high level and passing them out into the Museum, passing through the spaces at soffit level on the ground floor and so concealed by suspended ceilings where possible in the main museum space. As the pipework returns into the Town Hall building towards the front of the building, it becomes routed within existing suspended ceiling areas.

In order to ensure that there is adequate clearance around the existing service pipework once new pipework is installed, it is also proposed that an area with a non-original dropped ceiling within the entrance lobby of the building is expanded to allow for the installation of new pipework. An extension of the existing bulkhead to align to the corridor width at the northern end of the lobby is proposed, with the non-original moulded plasterwork detailing currently on site replicated on the new facing of the bulkhead



Cut Through View of Services Run from ASHP through ceilings - Proposed

Air Conditioning Units

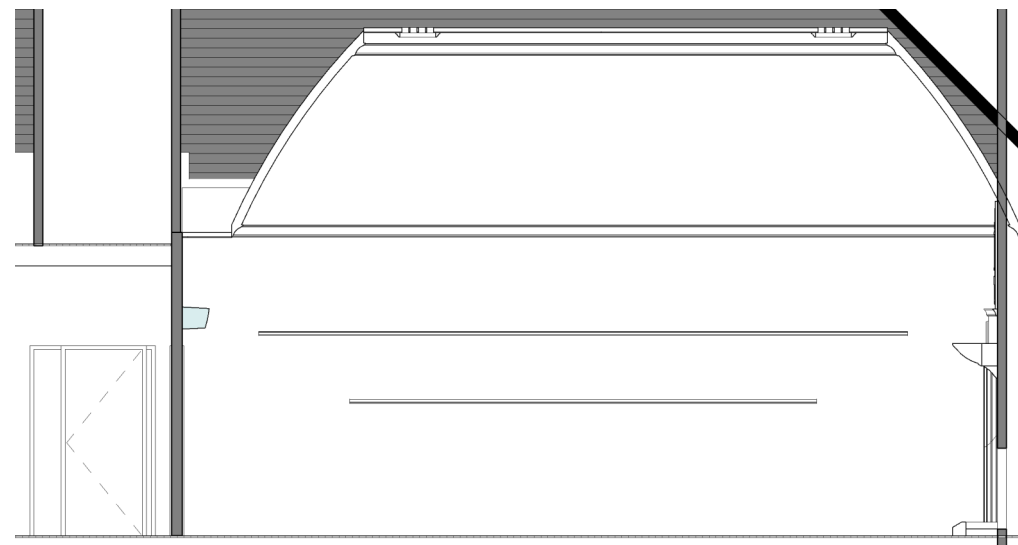
With average summer weather temperatures increasing due to global climate trends, there is an identified need to provide additional cooling in the publicly occupied spaces and working areas within the building to allow for these areas to be used year round in a safe and comfortable manner. To this end, the proposal includes for chiller units within the Air Handling equipment as well as the provision of air conditioning fan coil units in parts of the building that include historically significant elements.

The majority of these elements are to be installed at roof level on the Museum flat roof areas - within the plant enclosure on the east side of the building or on the central roof adjacent to the Town Hall building.

There are also elements that are set to be installed within the rooms being serviced. An area that is of particular note due to the potential impact on heritage elements is the Lucas Room at first floor level at the front of the Town Hall building. Care has been taken in selecting the position of the unit to avoid contact with the decorative plasterwork on the ceiling, walls and over the prominent fireplace that is specifically highlighted within the building's listing as significant.

The proposal is for the fan coil unit to be mounted on the western wall of the Lucas Room so as to allow minimal disruption to these features. This also minimises any conduit and pipework serving the unit from being visible or chased into the wall within the Lucas Room itself, by allowing the supply pipework and conduit to the unit to be placed on the rear of it at high level on the first floor stair landing.

Other rooms with Fan Coil Units are handled in similar ways, with services surface mounted in discreet areas to reduce disruption to original building fabric and elements



Proposed Section of the Lucas Room with Fan Coil Unit Highlighted



Proposed view of the west of the Lucas Room with Fan Coil Unit Highlighted

4.9 Inclusive Access

The existing step free pedestrian access for the Town Hall and Museum from Brand Street is being retained without any modification alongside existing accessible parking bays, accessible WC facilities and lift access within the Town Hall and Museum.

4.10 Vehicular and Transport Links

The proposed ASHP unit will be installed in the location currently being used for staff parking. This has meant that the current provision of 5 no. Car Parking spaces and 2 no. Disabled access spaces will become 2 no. Disabled Access Spaces.

The SPD from the local authority sets for *maximum* parking bays provided on site for a D1 class Non-Residential Institution (miscellaneous cultural building) as 2 spaces plus 1 per 30m² of public floor space (which for the whole site would be 1,355m²). This would set a maximum parking allocation of 48 spaces on site

No other changes are proposed to the road layouts or anticipated visitor or staff numbers of the building and so no anticipated changes are expected to current public transport or visitor arrangements to the site. Local visitor parking facilities are located in close proximity to the site including Brand Street Car Park and Christchurch Car Park

5.0 MECHANICAL AND ELECTRICAL SERVICES

The proposed development places a strong emphasis on improving energy efficiency, reducing carbon emissions, and enhancing long-term operational sustainability across both buildings. The works replace existing fossil fuel-based systems with low- and zero-carbon technologies, alongside passive and active measures to improve thermal comfort and building performance.

5.1 Mechanical Plant

The existing gas boiler system will be removed and replaced with a high-temperature heat pump system. This system will provide space heating and domestic hot water, significantly reducing reliance on fossil fuels and lowering operational carbon emissions. The use of a high-temperature system allows compatibility with the existing heat distribution infrastructure, minimising the need for extensive works to the existing heating distribution systems while still achieving substantial efficiency improvements. Electrifying the heating and hot water systems means that as the carbon emissions of the building will fall to zero once the electrical grid is fully decarbonised with renewable energy sources

The existing supply-only air handling unit (AHU) will be replaced with a modern supply and extract AHU incorporating heat recovery. This enables the reuse of heat from extracted air, improving overall energy efficiency and reducing heating demand during colder periods. In addition, the balanced ventilation system will improve internal air quality and provide greater control during summer months or periods of high occupancy, helping to mitigate overheating and enhance occupant comfort.

5.2 Electrical Services

Photovoltaic (PV) panels will be installed on the central and entrance area roofs of the North Herts Museum and the roof of the Learning Centre. These will generate renewable electricity on-site, offsetting electrical demand associated with the heat pump system and other building services. The PV installation contributes to reduced grid dependency and supports long-term operational cost savings.

5.3 Sustainability Benefits

Overall, the proposed measures will:

- Remove reliance on gas-fired heating systems
- Significantly reduce operational carbon emissions
- Improve energy efficiency and system performance
- Increase resilience to future energy and carbon regulation changes
- Enhance thermal comfort and internal environmental quality for users

The coordinated approach to passive design improvements, efficient mechanical services, and on-site renewable energy generation ensures the development demonstrates a clear commitment to sustainable design and responsible long-term operation.

6.0 OPTION EVALUATION

When working to reduce energy and carbon use within the context of a heritage asset, it is recommended by Historic England to evaluate the options that would cause the least harm to the asset while still being feasible and suitable to the specific context of the site and building. As part of the design process to reach the proposed application, the following methods of providing lowered carbon use on site were considered:

Photovoltaics

By electing to use the main flat roofs of the Museum and the Worker's Hall roof, there has been a suitable area for the setup of photovoltaic panels (PVs) that can be accessed for maintenance, have good exposure to year round sunlight and the ability to be connected to existing plant areas within the building. The main roofs of the Town Hall (front portion and Mountford Hall) were left without PV panels in order to preserve the historic fabric of this portion of the building, ensuring minimum loading strain was placed upon it from physical weight or any effect of wind uplift from the PV panels on the tiles

Air source heat pump

The use of an Air Source Heat Pump (ASHP) unit or array of units provides a non-invasive and stand-alone piece of equipment that draws its cooling from external air. The output of space heating and domestic hot water heating from units placed within the available space matches the needs of the existing building in a manner that is more efficient than the use of electrical immersion boilers. This is also a less carbon intensive method of hot water provision, the power provided from the PV array or the mains supply generates less carbon than the use of the existing or a new gas boiler.

Decentralised air source heat pumps

The lack of free space on site and the limited scope for sharing the output from any ASHP on site with local buildings has meant that hosting a decentralised heat pump is not a sensible option. Similarly, there are no local sources that can be tapped into to provide heating or hot water from their heat pump. This option is therefore not feasible within the context of this application

Solar thermal

Although Solar Thermal panels could be incorporated into the array of solar panels being proposed, the amount of hot water needing to be provided for the building is limited when the main heating source is provided by the air handling unit and air source heat pump. Any domestic hot water for items such as sinks and hand wash basins is more efficiently and reliably served with an electric system such as an ASHP or electric boiler

Biofuels

The use of biofuel to provide energy for heating of the building is generally less carbon efficient long term when compared to other methods such as the use of solar panels. There is not significant gas related infrastructure to replace and so lower carbon electrical equipment is more simple to replace what is present.

Ground-source heat pump

The main methodology of provision of a Ground Source Heat Pump involves significant ground works - either be the laying of pipework over a large area or the provision of a deep borehole for pipework coils to be placed within. The limited areas of site that is not built on, alongside the potential disruption caused to the structure of the building or any ground bearing beneath it by the installation of such significant ground works means that the provision of such an item is impractical to implement in such a way that the existing building remains safe.

Wind Turbine

Although there is the potential for electrical energy to be gathered from a domestic scale wind turbine on site, it is not as efficient a method of energy provision as the photovoltaics while also being more prominently visible - a potential issue within the conservation area the building is sited in.

Conclusion

After assessment of the available option the decision was taken to proceed with a combination of solar photovoltaics panels and an Air Source Heat Pump.

7.0 PUBLIC BENEFIT ANALYSIS

The National Planning Policy Framework states that if alterations are being made to a designated heritage asset, any potential harms to the asset need to be balanced against the public benefits of the proposal. A detailed Heritage Assessment has been conducted into the significance of the proposed alterations to the heritage value of the asset which has been submitted as part of this application under separate cover.

The case for the public benefit of the proposal is laid out below:

Maintenance of a Historic Asset

As a result of maintenance works and the bringing up of the elements of the building to current building standards, the preservation of existing heritage features can be preserved for future use. The fact that there is no change of use and no proposed changes to internal layouts keeps the continuity of use and occupation as well as access for users and visitors of the building the same going forward. The provision of elements that improve the thermal performance of the building will also improve issues around matters such as interstitial condensation and damp, better preserving heritage elements.

Long Term Usability of a Public Asset

At present, the heating, ventilation and internal climate control within Mountford Hall in particular and the Town Hall building in general is not suited for the current environment and usage it is experiencing. A serious consideration for the usage of the building in the future is adaptation to climate change, with the need to manage the airflow into the space to prevent overheating and provide adequate ventilation for building users. As an events space, the numbers of people occupying a space generate their own heat on top of any that is provided by external weather conditions. Without adequate methods of reducing any buildup of heat, the usability of the space becomes limited at times of the year when the weather becomes too hot - either requiring temporary carbon intensive measures to manage (such as temporary or permanent air conditioning cooling units) or reducing the occupancy or use of the space at certain times of the year.

This is also a consideration for colder months, mechanical heat recovery in the ventilation system alongside the increased insulative value of the windows and ceiling contributing to a more thermally comfortable space that is heated more efficiently by the systems set to be installed. By addressing this issue by provision of effective methods of ventilation control, the usability of this space to its intended purpose is allowed to continue into the future.

Carbon Reduction and Reduced Energy Use

The impetus behind the proposal in general is the need set by the Local Authority to reduce the carbon and energy use of the buildings that are under their purview in an effort to contribute to their carbon reduction targets. The need for replacement of more carbon producing methodologies of energy use alongside an overall reduction in energy use contribute to a lower carbon footprint for an organisation that is working for the greater public benefit. It is a public benefit to reduce the amount of carbon produced by a building as it contributes to our overall carbon usage, it is of increased public benefit to do so with a public building such as this one - for the benefit of the building users and as an example to the public of the need for everyone to do their part.

Running Costs of a Public Asset

Linked to reduced energy costs, the energy use by a building contributes to the financial cost of running that building in terms of power supply payments. By implementing measures to reduce energy use in winter by using less energy to warm the space, the associated energy costs are also reduced over the long term. With this building under the purview of the Local Authority, this energy cost is paid for from public finances and so by reducing this requirement, it reduces this burden on public expenditure.