The Drill Hall, 57a Farringdon Road, EC10 3JB

Heritage Statement and Design & Access Report for Planning Submission

29-10-18

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1 Introduction

E2 Architecture + Interiors have been employed by our client , Max Barney Ltd, to submit for planning for a new roof to the Drill Hall, to replace the existing roof, which is failing, damaged and inefficient in several respects.

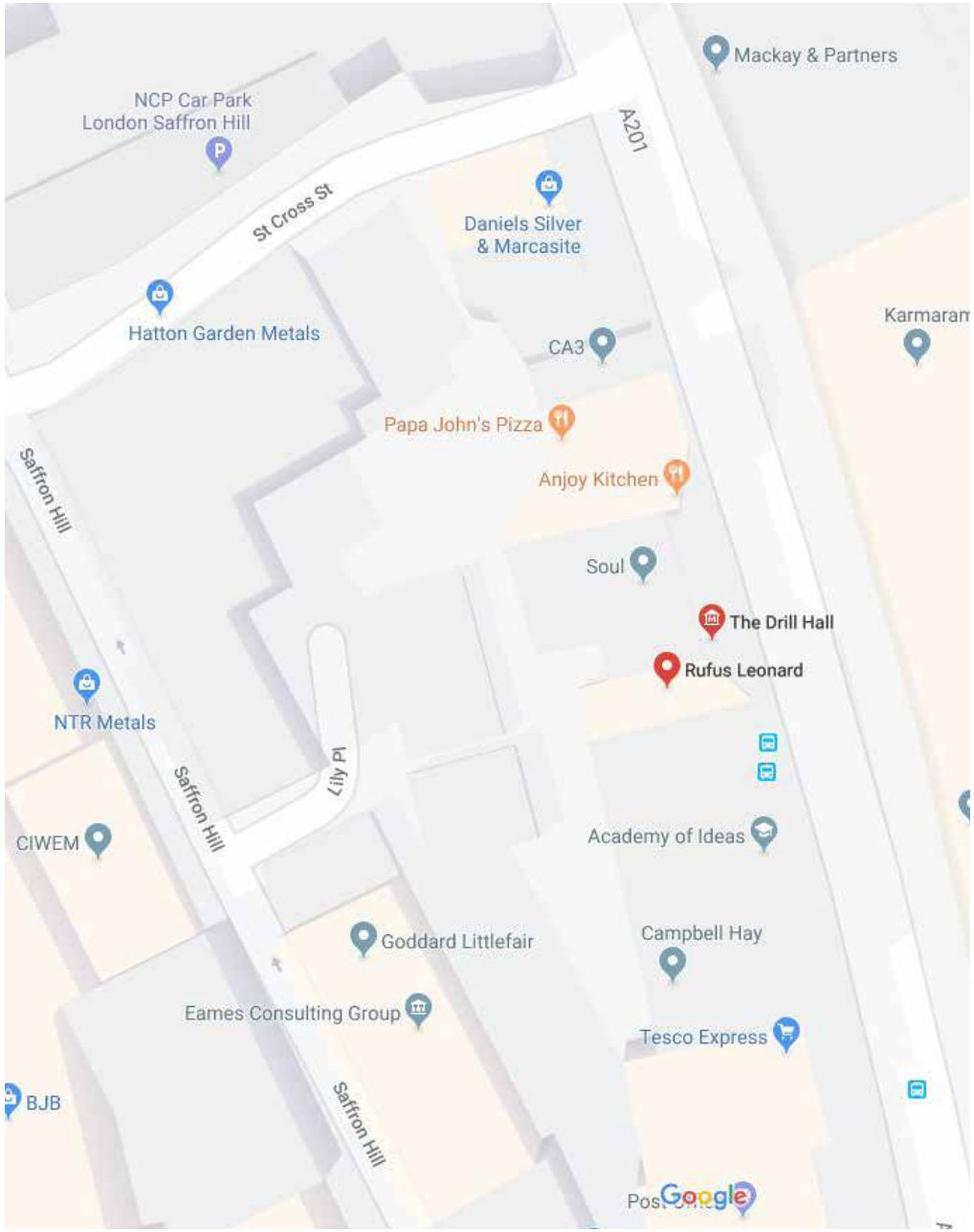
The proposal is to remove the existing historic Georgian wired panels of glass and sub frames from the roof and the gable, the existing interlocking concrete tiles and the flat roof felt and asphalt covered sections. The glazed roof areas will be clad with a more thermally efficient lightweight composite glazing system to reduce the solar gain and glare currently experienced internally. The glazing to the gable will be replaced by a new fire safe stud wall, with an aluminium rainscreen cladding that will replicate the trace of the existing glazing. The tiled areas will be clad with a smooth dark grey coloured synthetic slate roof tile with a dressed edge. Flat roof areas will be clad with a warm roof single ply membrane system.

This report forms the body of a planning application which follows.

1.1 Context

The Drill Hall is surrounded by taller buildings and has limited access through Lily Place off Saffron Hill and through an archway below 59-61 Farringdon Road. The immediate neighbourhood surrounding the building are commercial and residential premises. The building is situated to the west side of the A210 Farringdon Road in Farringdon, within the London Borough of Camden. The building is not listed but is located within the Hatton Gardens conservation area. The existing building was erected in 1888, most likely to infill a courtyard, a common feature of this period to the rear of buildings. There are references to a parade square to the building which has long since been built over.

Our proposal will improve the appearance and performance of the building. We will replace the unsightly and incongruent concrete interlocking roof tiling to the lower two facets of the roof and replace the unsafe and deteriorated historic Georgian wire glazing to the upper tier of pitch and the lantern to the top.



01. Location Map

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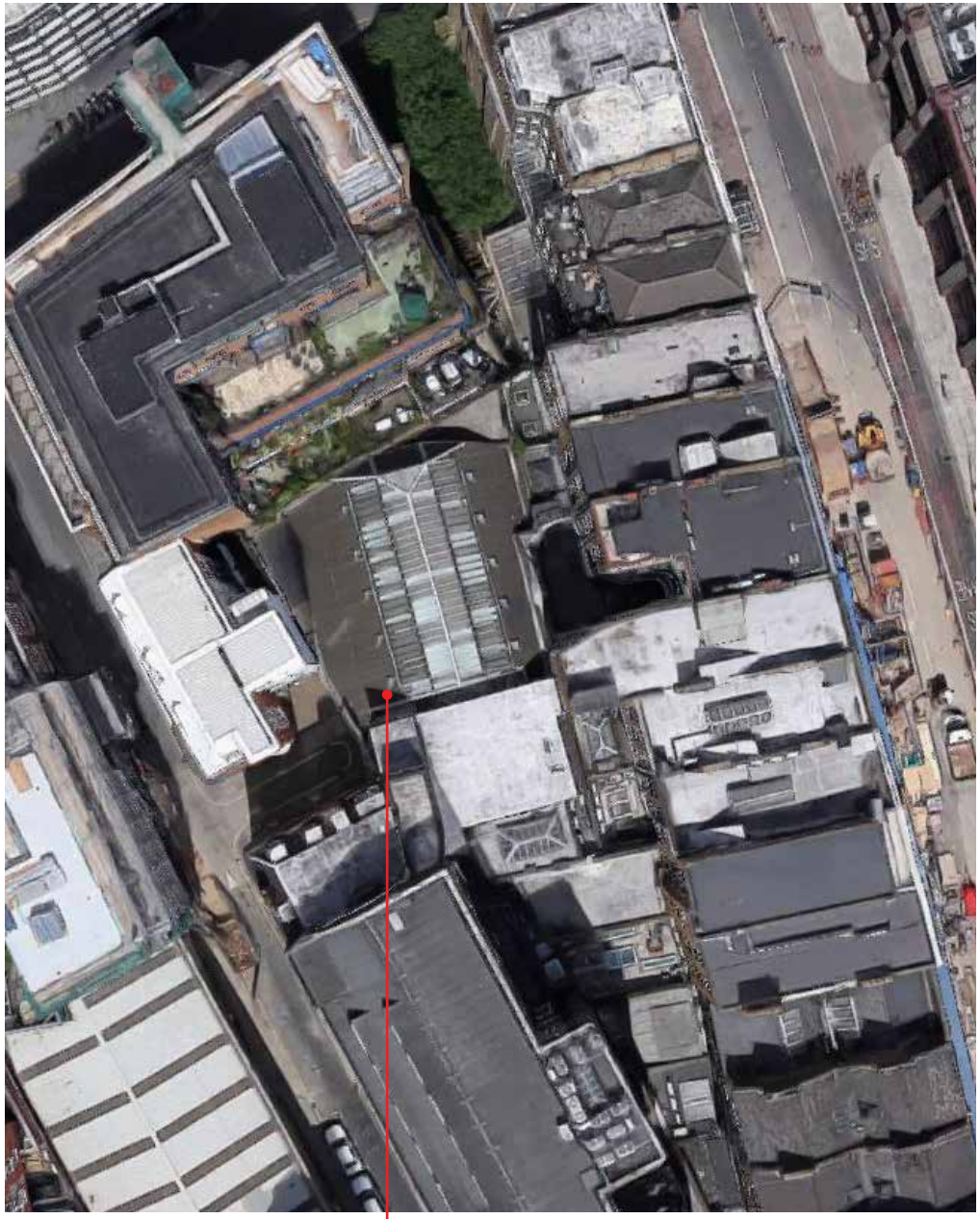
02. Bird's eye view looking north

04. Bird's eye view looking north



03. Aerial image north

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05. Birds eye view looking east

06. Birds eye view looking west

07. Entrance archway on Farringdon Road

08. Fire Exit onto Lily Place

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09. East elevation, accessed from Farringdon Road

10. West elevation on Lily Place, accessed from Saffron Hill

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2 Existing Building

The architectural style of the area is quite mixed as a result of buildings demolished by German bombs during the blitz. The buildings to the north and west of the Drill Hall are comparatively new structures with the building on St Cross Street of a 1950's post war style.

The buildings on Farringdon Road largely survived bomb damage and are good examples of Victorian terrace architecture.

The front of the building refers to the ornate entrance with a city of London crest set into a pedestal of masonry with a stucco arch. The entrance is accessed through the archway on Farringdon Road. Only a very limited view of the roof is visible from this position and this is restricted to the lower most glazed facet.

There is very little to see of the only other partial elevation off Saffron Hill. The new roof material treatment will be visible form the narrow access drive to the rear of the 1950's building on St Cross Street.

The following text is an excerpt from the Hatton Garden Conservation Area Appraisal and Management Strategy document:

> *"The character of the Area is varied, with no single period, style or use predominating. Yet, there is a conspicuously high proportion of Victorian former warehouses and twentieth-century commercial buildings, and a smattering of Georgian houses, all of which are the direct result of the history of the Area. Today there are a mix of uses, especially commercial and residential."*

11. Second World War German bomb impact locations

12. View of the ornate stucco arch with a city of London crest

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2.1 History

The Drill Hall on Farringdon Road has an interesting history. 1859 was the beginning of a period of national paranoia centred around an imminent invasion of Great Britain by the French and her allies. This gave rise to the raising of local volunteer regiments which were related to professions and artisans. The Drill Hall was built in 1888, in response to this and became the HQ of the 2nd City of London Rifle Volunteer Corps.

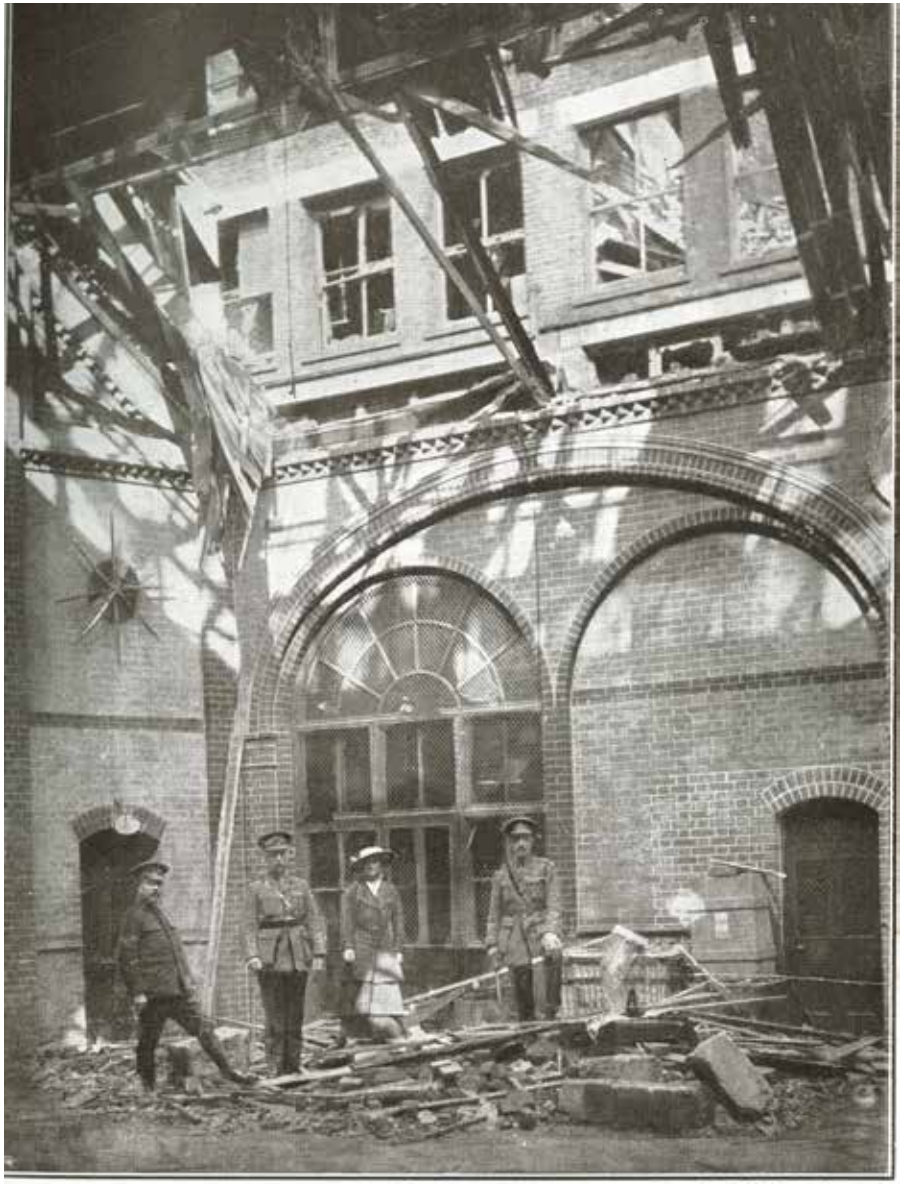
That unit became the 6th (City of London) Battalion The London Regiment (City of London Rifles) in 1908. The battalion was mobilised at the drill hall in August 1914 before being deployed to the Western Front. They were predominantly printers by profession.

On the night of 8 September 1915, Zeppelin L13 commanded by Kapitänleutnant Heinrich Mathy attacked London, and two of his bombs hit Messrs Frank Stadelman's warehouse at 59–61 Farringdon Road. Falling masonry from the building did considerable damage to the Drill Hall behind. The Drill Hall was repaired in 1917.

The London Regiment was broken up and the battalion moved out to Sutton in its new role as an anti-aircraft unit in the mid 1930s, the hall fell vacant.

In 1947 the Drill Hall became the home of 167 (City of London) Field Ambulance and 168 (City of London) Field Ambulance Royal Army Medical Corps (TA). The hall had fallen vacant again by 1967 when the field ambulances went through a re-organisation and a new unit (217 (London) General Hospital) was formed at the Braganza Street drill hall in Walworth.

The building is credited, in some online sources, to the architect Alfred J Hopkins. He was an American born on March 14th 1870 and with the drill hall recorded as being built between 1887 and 1888 it would seem unlikely that he was an architect at 16 or 17 years of age and therefore the designer.



By courtesy of C.S.Maj. R. Stenner

ON THE HOME FRONT: THE DRILL HALL AT 57A, FARRINGDON ROAD AFTER AN AIR-RAID

13. Archive photographic record of the WW1 bomb damage to the Drill Hall

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2.2 Bombings, Rebuild & Historic Alterations

The Drill Hall bears the evidence of several historic alterations, these are layered over elements of the building dating from its construction that still stand toady. It is possible to unpick the layers and reveal the story of the building.

As is evidenced in photo 9 on the previous page, the Drill Hall was targeted and damaged by the explosive device that was dropped on the neighbouring buildings in WW1. But what this photo clearly also reveals is that the original early example of a lightweight rolled steel roof truss structure remains, it is identical to the current roof structure. It is also apparent that, at least up until this bombing, the area of glazing to the roof was only to the top lantern, in the photo the area of roof above the damaged area can be seen as being solid. It is likely this resulted from a shortage of slate at the time. This tallies with the observation of redundant fixing holes in the steel structure (photo 10), which also further confirm that the structure is original, repurposed following the bomb damage.

Archive aerial RAF photography found at *britainfromabove.org.uk* shows the location of a church to the Drill Hall's northern boundary. These photos also appear to confirm that the extension over the southern end of the Drill Hall, part of 1 Lily Place, happened some time after WW1, perhaps as a result of rebuilding of the neighbouring buildings following damage incurred in WW2. Traces of the original footprint can still be seen from current day aerial photography, notably showing the extension of 1 Lily Place orientated in the same direction as the Drill Hall, and not 1 Lily Place.

Internally we can still see the original masonry walls at ground floor running under the extension to 1 Lily Place, to the full length of what we suspect was the original footprint of the Drill Hall. The brick arches are bisected by the glazed gable wall and the large wrought iron girder beneath the flank wall to the 1 Lily Place extension above.

This appears to suggest that originally the Drill Hall would have occupied the entire site, with its roof extending to the full length, and that the glazed gable and 1 Lily place were built over what was more than likely a mezzanine floor like the one in place at the northern end. Therefore the girder is an alteration dating from the build of the extension to 1 Lily Place, circa 1930-45, and is therefore not original.

14. Redundant holes in steel for timber purlins showing area of glazing was increased.

15. The orginal brick arches bisected by the glazed gable and wrought iron girder to 1 Lily Place

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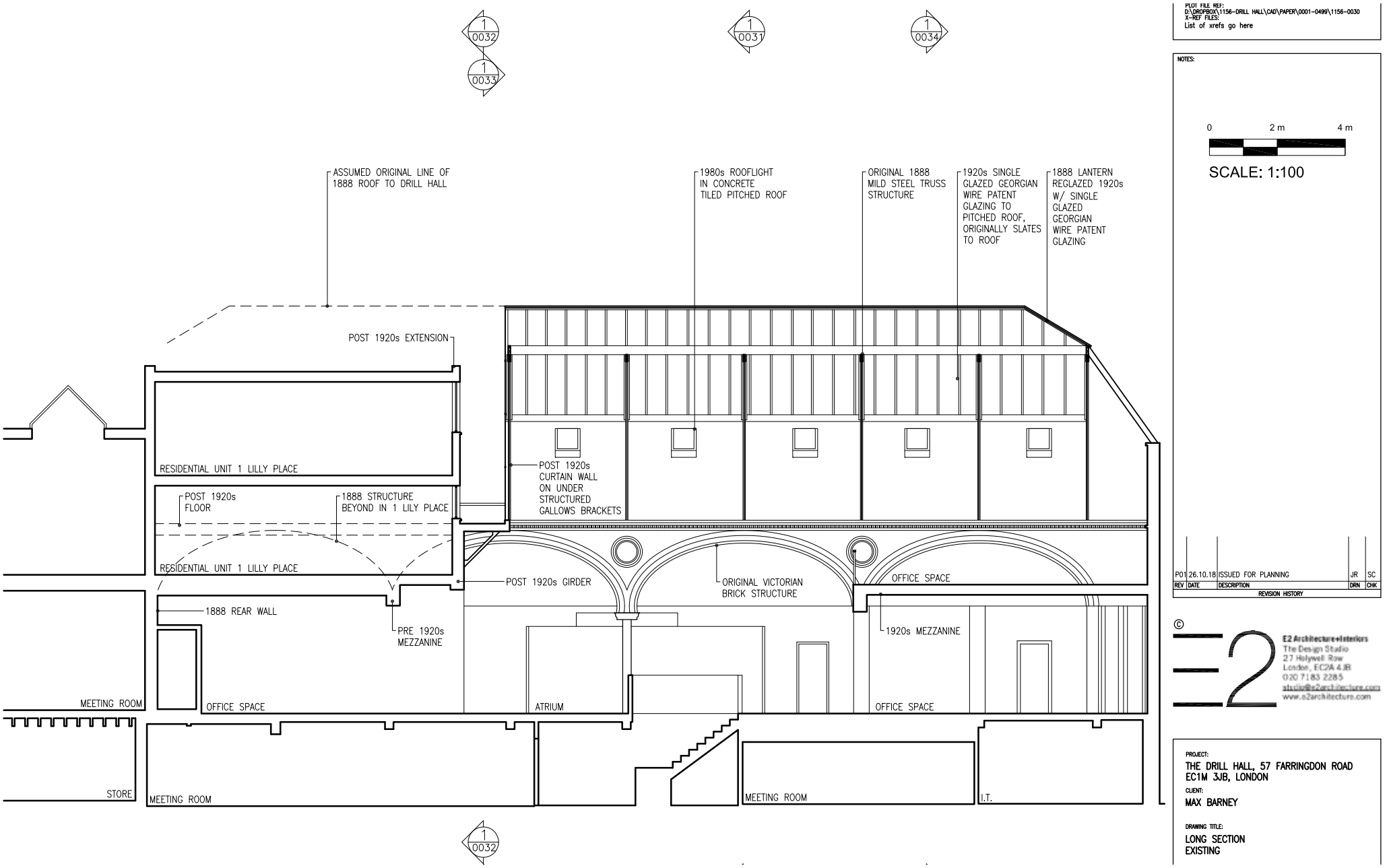

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REV	DATE	DESCRIPTION	DRN	CHK
P01	26.10.18	ISSUED FOR PLANNING	JR	SC

REVISION HISTORY

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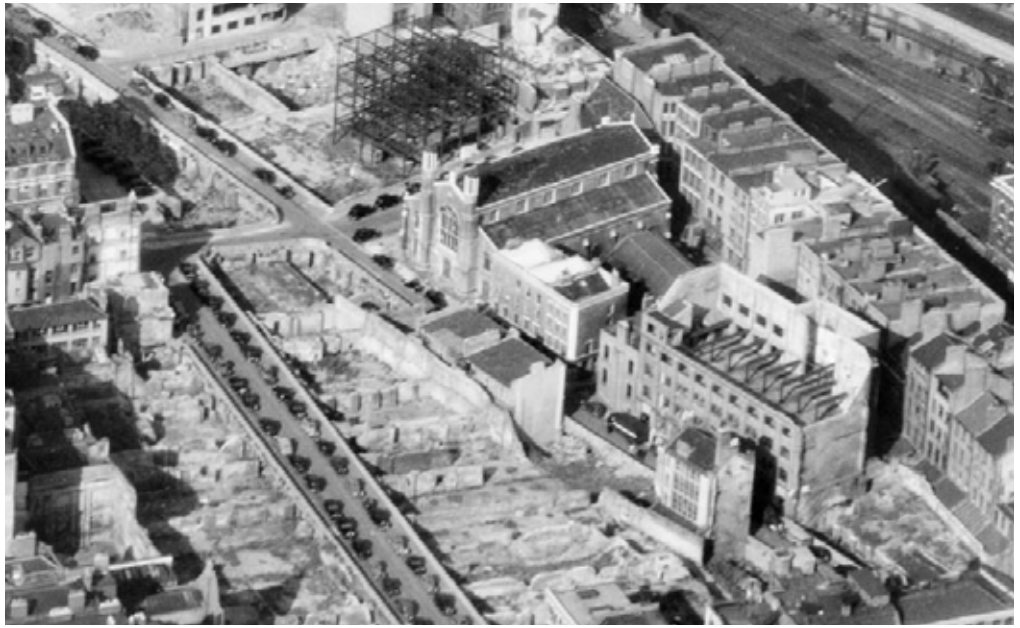
PROJECT:
THE DRILL HALL, 57 FARRINGDON ROAD
EC1M 3JB, LONDON

CLIENT:
MAX BARNEY

DRAWING TITLE:
LONG SECTION
EXISTING

16. Aerial view 1920 appears to show 1 Lily Place without its extension



17. Bird's eye view 1947, showing the church to the north boundary

18. Bird's eye view 1947, showing extension to 1 Lily Place and gable wall to the Drill Hall

19. Bird's eye view 1947, showing the church to the north boundary

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2.3 Significance of the Historic Fabric

The Drill Hall is a building of historic significance in terms of its previous use by the military. However, it is also constructed using techniques and materials that were cutting edge for their time, and therefore are in themselves significant too as existing historical representations.

The lightweight steel roof truss structure seen at the Drill Hall had only just been developed prior to its construction. It is an early example of this technique of roof construction. This sits on ornate masonry arch-infill perimeter walls with decorative brick cornicing and doorways.

The more recent patent glazing to the roof, with its lead encased mild steel glazing bars, is also historically significant, dating from the rebuild in 1917, at over one hundred years old. The glazing to the gable is a very early example of curtain wall glazing, dating from the same construction as the 1 Lily Place extension. These elements reach impressive spans of up to 3m on glazing bars that are only 40mm wide. This creates a very lightweight and elegant appearance with very fine sight lines. the

The steel girder beneath the extension flank wall represents a historic exemplar of the construction techniques of the time. The free span of the structure is impressive at over 16m.

20. Original lightweight steel truss roof structure

21. Patent glazing system to roof and early curtain wall glazing to gable with massive iron girder

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2.4 Current condition

The patent glazing system is failing due to the lead coating to the steel having perished and the steel beneath rusting. This causes the glazing bar to expand and open up the waterproofing lead capping. It is also the likely cause of many of the glass panels cracking. This can be clearly seen in the photographs and evidenced as a long standing problem by the amount of flash band tape on the glazing. Therefore there are many localised leaks in the glazing.

Due to the amount of glazing on the roof there is a significant over heating problem on sunny days at any time of the year. This is evidenced by the drapes the tenant has installed under the entire glazed area. It is also evidenced by the amount of planning applications submitted for additional air conditioning plant. this situation will get worse with climate change and summer of 2018 the office was closed for two weeks for this reason.

As the seals around the glazed units and at the primary junctions have failed there is a lot of air leakage. Couple with the amount of single glazing the space uses an unnecessary amount of energy to heat in the winter.

The lightweight steel roof truss structure offers a restrictive constraint in terms of its capacity to carry more load. This will therefore govern the weight loading of both the replacement glazing and the upgrades to the tiled areas to the roof.

The gable wall glazing represents a fire separation risk to 1 Lily Place as well as embodying acoustic and weather failures as a result of its design and deterioration.

The iron girder below 1 Lily Place, which supports the gable glazing with the gallows brackets and flat roof structure, has inherent structural issues to its construction that also imply a restrictive constraint in terms of its capacity to carry more load. The fire separation will need to be addressed to meet building regulations, whilst taking into consideration of the girder's capacity for carrying load.

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3 Heritage Statement

The site falls under character area Hatton Gardens in the Camden Conservation Area.

The following text is taken from Hatton Garden Conservation Area Appraisal and management Strategy document dated November 2016:

Buildings that make a positive contribution
6.3 The Area contains approx. 150 buildings which, though not listed, are identified by Camden as making a positive contribution to the character of the Conservation Area. They are notable because of their value as local landmarks, positive contribution to the townscape, or as good examples of their type. These are:

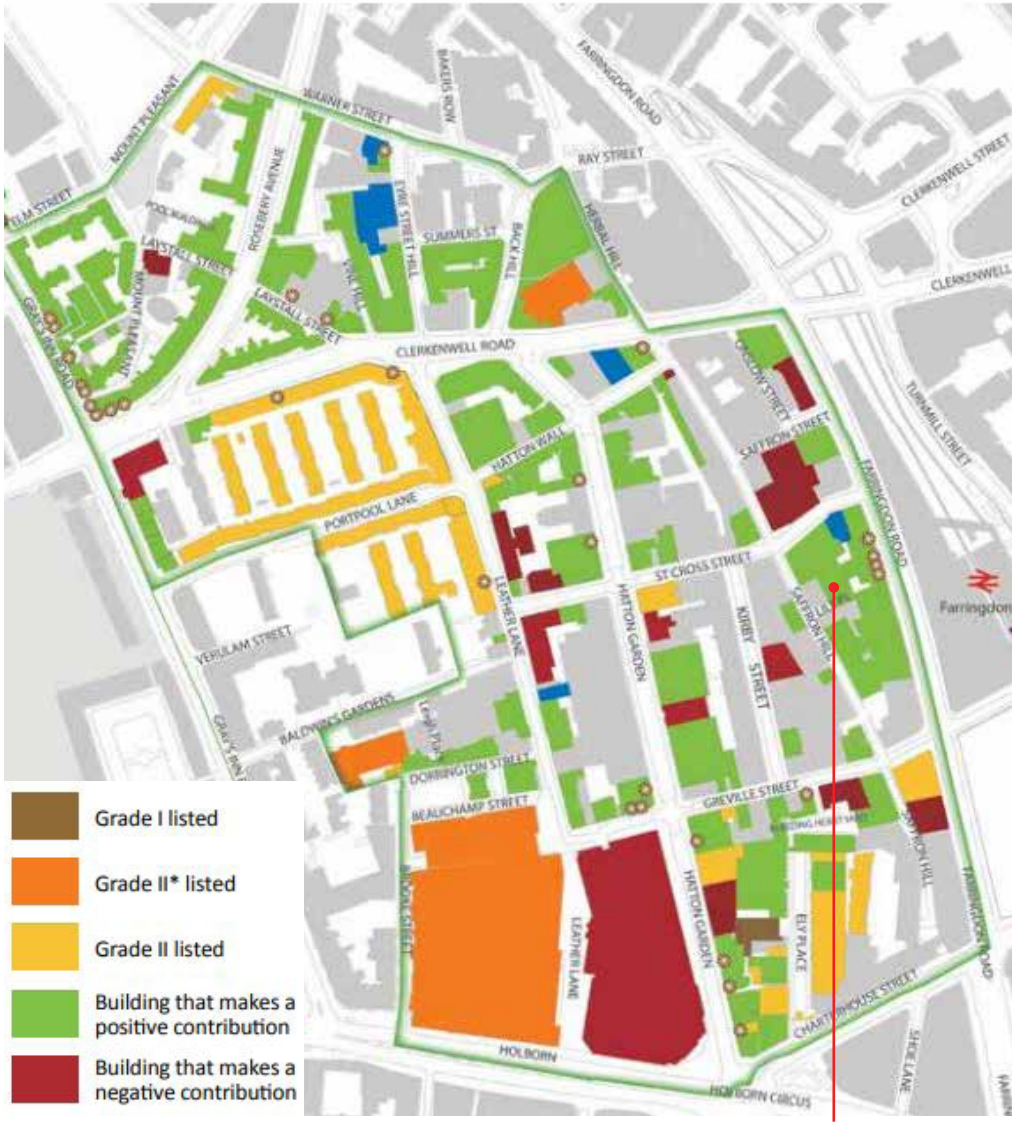
• Farringdon Road: 39-73 (odd), 57a (the Drill Hall), 77-79 (odd), 91-93 (odd)

As described above the building is significant in its historic representation of cultural, architectural and industrial development. The roof due to its size, span and use of materials is an important example of early use of steel in such a lightweight manner.

The glazing, although not original is again an early example of this type of mass produced patent glazing. It was innovative in the combination of rolled steel encased in lead. This enabled large spans on minimal sections. It has far outlived its expected life span and it is no longer fit for purpose.

The rest of the roof coverings are much later inappropriate materials.

The proposals described below preserve the historic structure and the external appearance of the roof at the same time as enhancing the internal comfort and environmental performance of the building.



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3.1 Conservation Brief

The primary steel roof structure should be kept and maintained, with localised removal of rust and new paint coatings.

A new glazing system should be selected to as closely as possible match the section profiles of the existing glazing bars to keep the fine sight lines and light weight appearance.

Replacement roof coverings should be of slate tiles.

Replacement roof lights should be of a conservation type.

Flasings to be lead style.

4 Proposal

4.1 Building Control and Safety Requirements

Removal and replacement of any external fabric elements requires the new or upgraded element to meet current building regulations, particularly in relation to energy efficiency and fire safety.

4.1.1 Thermal:

For thermal efficiency this would require triple glazing to all glazed elements due to the amount of area.

4.1.2 Fire protection

requires the gable, which is 1.2m from unprotected windows of the neighbouring residential units, to be 60 minutes fire integrity and insulation from both sides. To achieve this in glass would be very specialist and economically unviable.

4.1.3 Health & Safety

regulations require the glazing in the roof to be safety glass to protect the occupants. It also has to be rated for fragility against anyone falling on the glass. This requires a laminated glazing unit carried in a fully tested and certified framing system.

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4.2 Design

4.2.1 Structure

Opening up works have been carried out to confirm sizes of the primary structural elements and there connections. The historic structure was designed minimally and its efficacy will have diminished under stress over time. Therefore it is important not to overload Therefore the concept has been to keep the loading on the trusses as close to that as existing. This has meant the selection of glazing and roof covering by weight is critical. It has ruled out triple glazing.

The gable wall sits on the cantilevered gallow brackets off the girder. This presents a very eccentric load and due to later alterations to the configuration of loads on this element the load on the line of the gable over this span is critical. Therefore a new structural element is required at the base of the gable to accommodate extra loads implied by a fire rated construction above.

Due to the extra loading of the double glazing to the roof the new roof coverings on the lower pitches need to be lighter than the exisitng 36kg/m2.

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4.3 Glazing

Early engagement with glazing specialist sub contractors and manufacturers has been carried out to establish the best specification to fit the constraints of the conservation and design brief.

A casement system Vitral A74 has been selected as it can meet the safety and thermal requirements with thinner panes of glass and therefore less weight than all other systems reviewed. It also does this with very slim profiles which are the same 40mm width of the existing. The section protrudes above the glass pane by only 10mm and below by 30mm, again the slimest and closest to all systems reviewed. The casement is in aluminium which keeps the weight down.

The system can accommodate opening casements in the same profile so that there is not a frame within a frame and so the lightweight appearance and slim sight lines are maintained.

The frames and flashing of the system will be powder coated in a lead colour RAL9007

The glass has been selected as for the highest solar control and light transmittance without and silvering or bronzing or reflectance. This gives it a blue-grey tint, which from the outside will be indiscernible from normal glass.

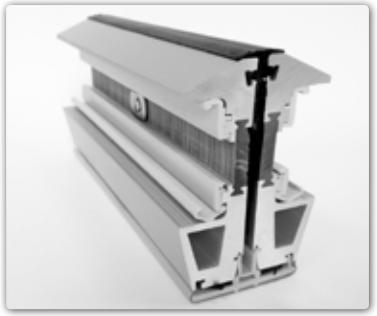
Vitral Roof glazing — bringing the outside in

Data | A74

Roof Lights

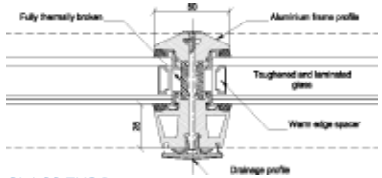
PRODUCT DESCRIPTION

VITRAL A74 is a panel based roof light system with profiles in aluminium. A74 is characterized by nice design and slim and low profiles. The A74 system does not have a carrier frame as with patent glazing and curtain walling. This means every panel is capable of opening without the need for extra framing, so maintaining low U-values, controlling costs and maximizing the amount of daylight through the system: thermally broken framed panel system for everyday buildings! VITRAL A74 roof lights are impact tested as standard to TN66/67 to protect those carrying out roof maintenance and cleaning.



MATERIAL

VITRAL A74 roof light system is constructed from glass, high quality aluminium, plastic and rubber. The frames are thermally broken with an integrated PUR core. All materials are recyclable.



GLASS TYPE

VITRAL A74 roof light system uses low 'e' insulated glass units with Argon fill and "warm edge" spacer. VITRAL A74 is also available with triple glazed low 'e' insulated glass units with Krypton fill and "warm edge" spacer. All panels use toughened over laminated safety units. A complete range of multi-coated solar control options are available to suit the project.

U-VALUE

Double glazed units:

- U-value for the A74 system overall is 1.6 W/m²K.*
- U-value for the glass is 1.1 W/m²K.

Triple glazed units:

- U-value for the A74 system overall is 1.0 W/m²K.*
- U-value for the glass is 0.7 W/m²K.

* U-values are calculated according to EN14351 (part of CE standard). Specific roof light U-value will be calculated individually for every case.

FINISH

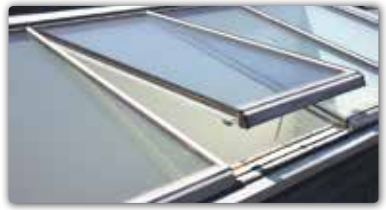
VITRAL A74 is available in natural anodised aluminium or PPC to any RAL colour. A wide variety of colours are available, please contact us for more information.

ASSEMBLY – READY TO INSTALL

VITRAL A74 is delivered in prefabricated modular panels for safer and quicker site installation. Fully framed panels provide support and edge protection for glass on all sides preventing breakages on site and reducing potential injuries.
Installation of the A74 system starts with pre-notched head profiles that carry the panels in exactly the correct position. Once in place each panel is connected to the profile and locked in place. A pre-determined space separates each panel and acts as a movement joint. Gaskets sit between panels and at junctions around the perimeter of the glazing providing a thermal and air tight seal. All perimeter junctions are double sealed.

VENTILATION

Uniquely, VITRAL offer invisible opening vents across their range. Other systems such as curtain walling or patent glazing require carrier frames which result in loss of thermal performance and air-tightness. VITRAL A74 seamlessly integrates opening vents without the need for extra frames providing natural and smoke ventilation without loss of performance.
Up to 50% of panels can be opening vents or easily turned into opening vents at a later date ensuring the space is cool and airy when required.



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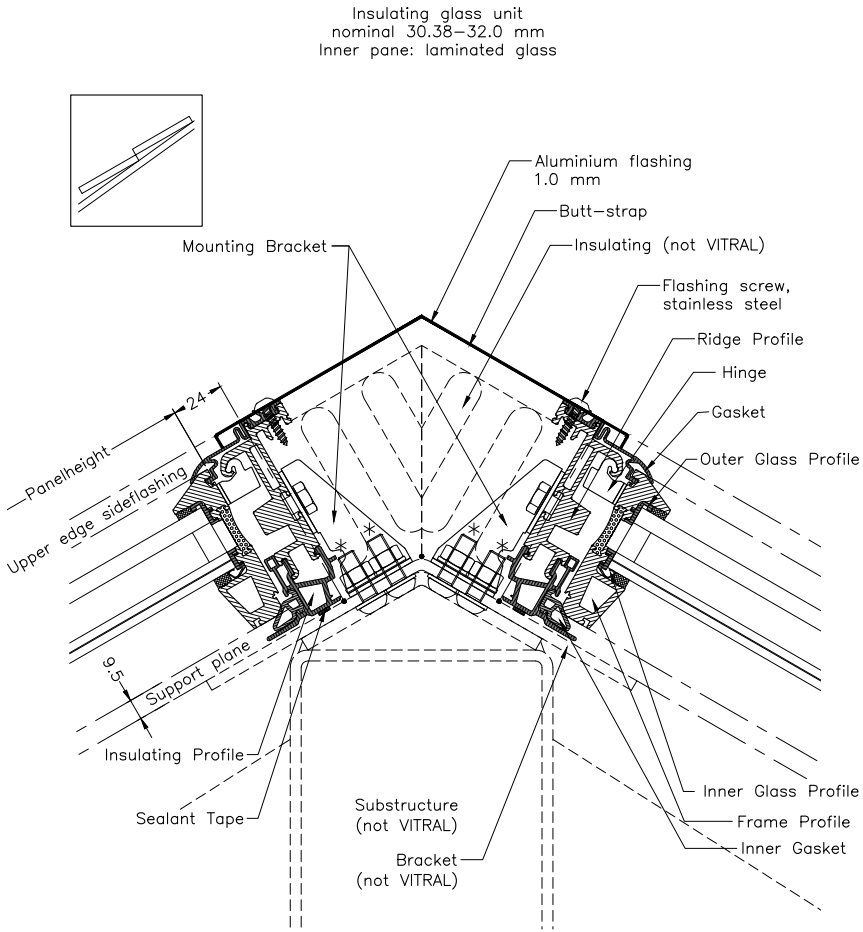

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4.4 Roof covering

Due to the weight restrictions natural slate cannot be specified as in its thinnest form it is, 36kg/m2 and the concrete is 30kg/m2. Therefore we have specified a man made slate that is 21kg/m2. This is the Marley Eternit Birkdale fibre cement slate.

22. Marley Eternit Birkdale fibre cement slate

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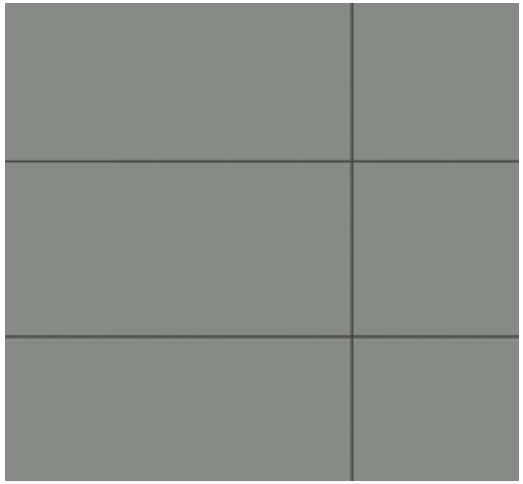
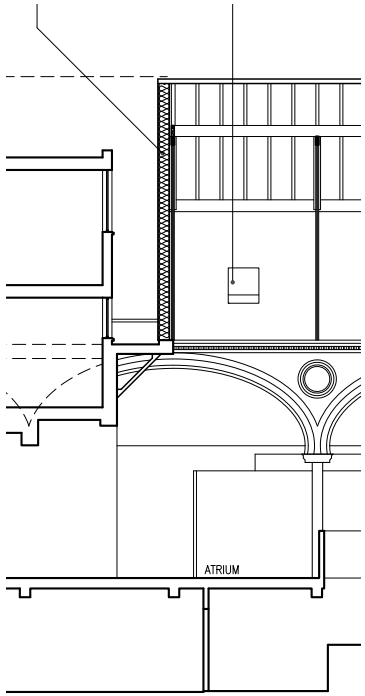
4.5 Gable Wall

Due to the fire rating requirements and the need to increase the capacity of the structure carry this wall it has been decided to make this out of lightweight metal frame with fire rated cladding/ This will be finished with aluminum panels with recessed seems which follow the pattern of the existing fenestration. In a conservation approach it will be fixed to the structure in a way which could be removed in the future. This will also improve the thermal rating and the acoustic



23. Proposed Aluminium Cladding

24. Gable wall - proposed elevation



25. Gable wall - proposed section

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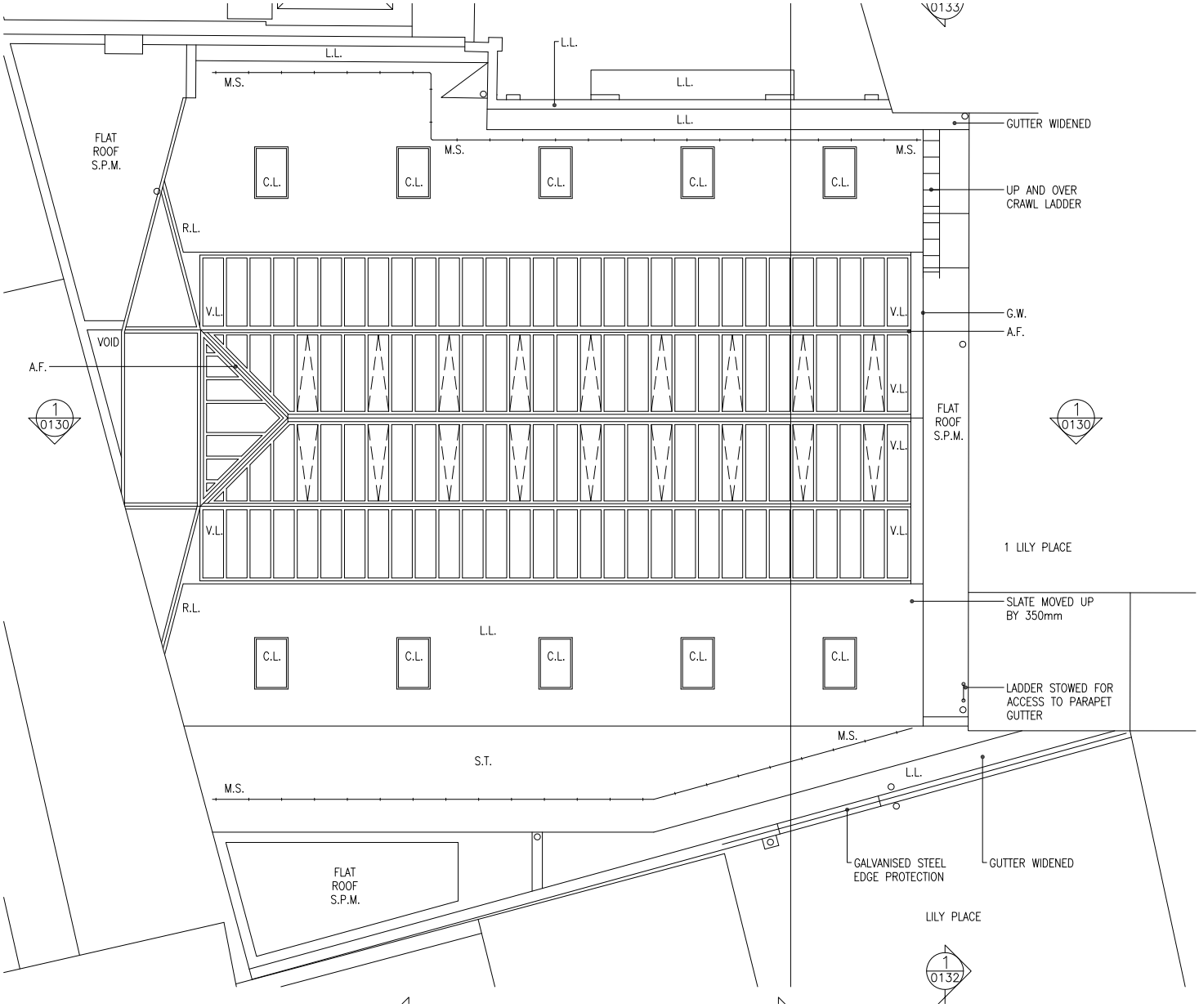
5 Proposed Drawings



26. Proposed roof plan - NTS

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NOTES:

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SCALE: 1:100

KEY:

C.L. – CONSERVATION ROOFLIGHT
V.L. – VITRAL PATENT GLAZING SYSTEM – RAL:9007
S.T. – MANMADE SLATE TILE
M.S. – MANSAFE SYSTEM
L.L. – LEAD LINED
R.L. – ROLLED LEAD FLASHING
S.P.M – SINGLE PLY MEMBRANE
A.F. – ALUMINIUM FLASHINGS – RAL: 9007
G.W. – GABLE WALL ALUMINIUM RAINSCREEN CLADDING – RAL: 9006

REV	DATE	DESCRIPTION	DRN	CHK
P01	26.10.18	ISSUED FOR PLANNING	JR	SC

REVISION HISTORY

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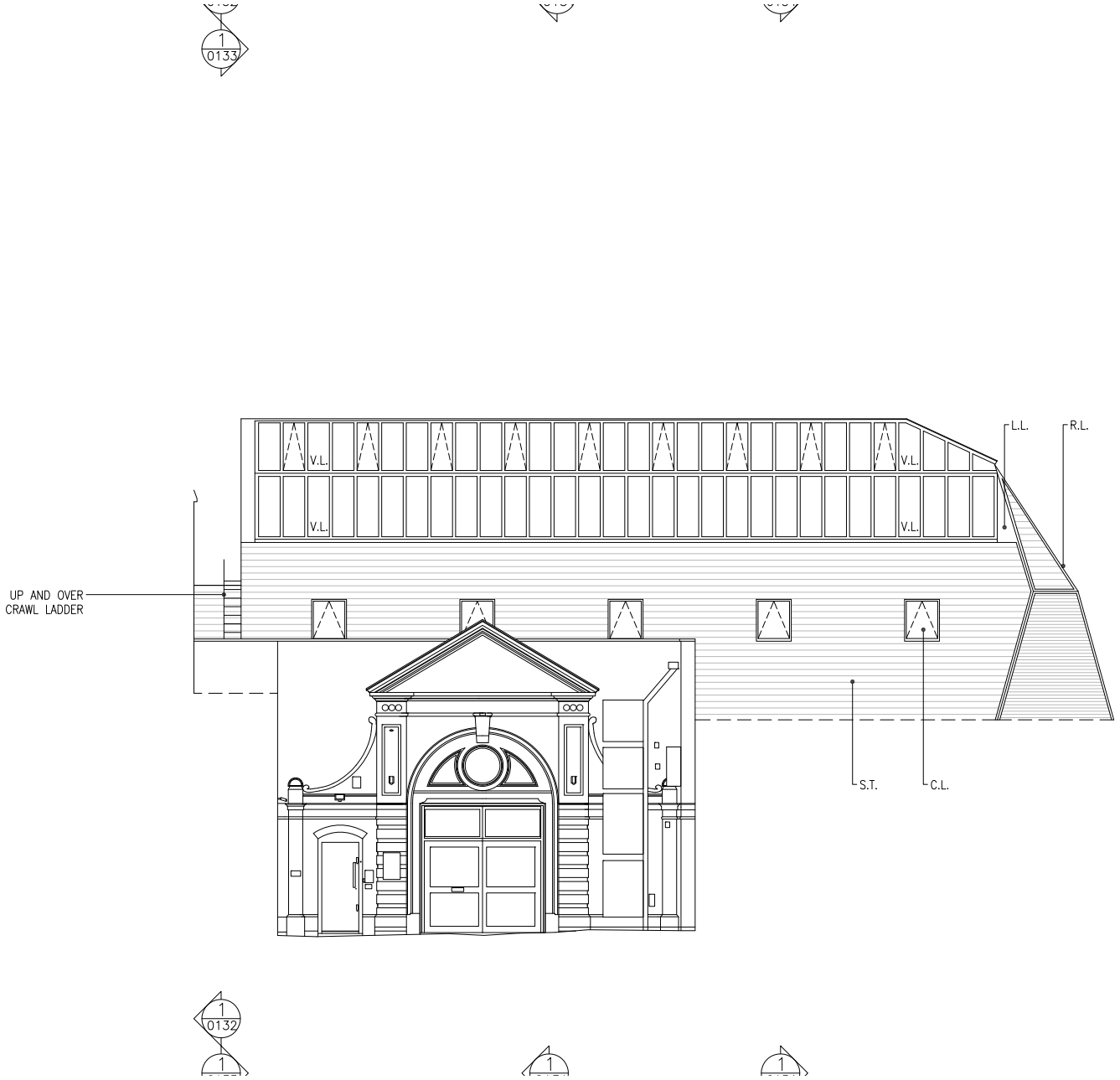
PROJECT:
THE DRILL HALL, 57 FARRINGDON ROAD EC1M 3JB, LONDON

CLIENT:
MAX BARNEY

DRAWING TITLE:
ROOF PLAN



DISCREPANCIES PRIOR TO CONSTRUCTION

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NOTES:

0 2 m 4 m

SCALE: 1:100

KEY:

C.L. – CONSERVATION ROOFLIGHT
V.L. – VITRAL PATENT GLAZING SYSTEM – RAL:9007
S.T. – MANMADE SLATE TILE
M.S. – MANSAFE SYSTEM
L.L. – LEAD LINED
R.L. – ROLLED LEAD FLASHING
S.P.M – SINGLE PLY MEMBRANE
A.F. – ALUMINIUM FLASHINGS – RAL: 9007
G.W. – GABLE WALL ALUMINIUM RAINSCREEN CLADDING – RAL: 9006

REV	DATE	DESCRIPTION	DRN	CHK
P01	26.10.18	ISSUED FOR PLANNING	JR	SC

REVISION HISTORY

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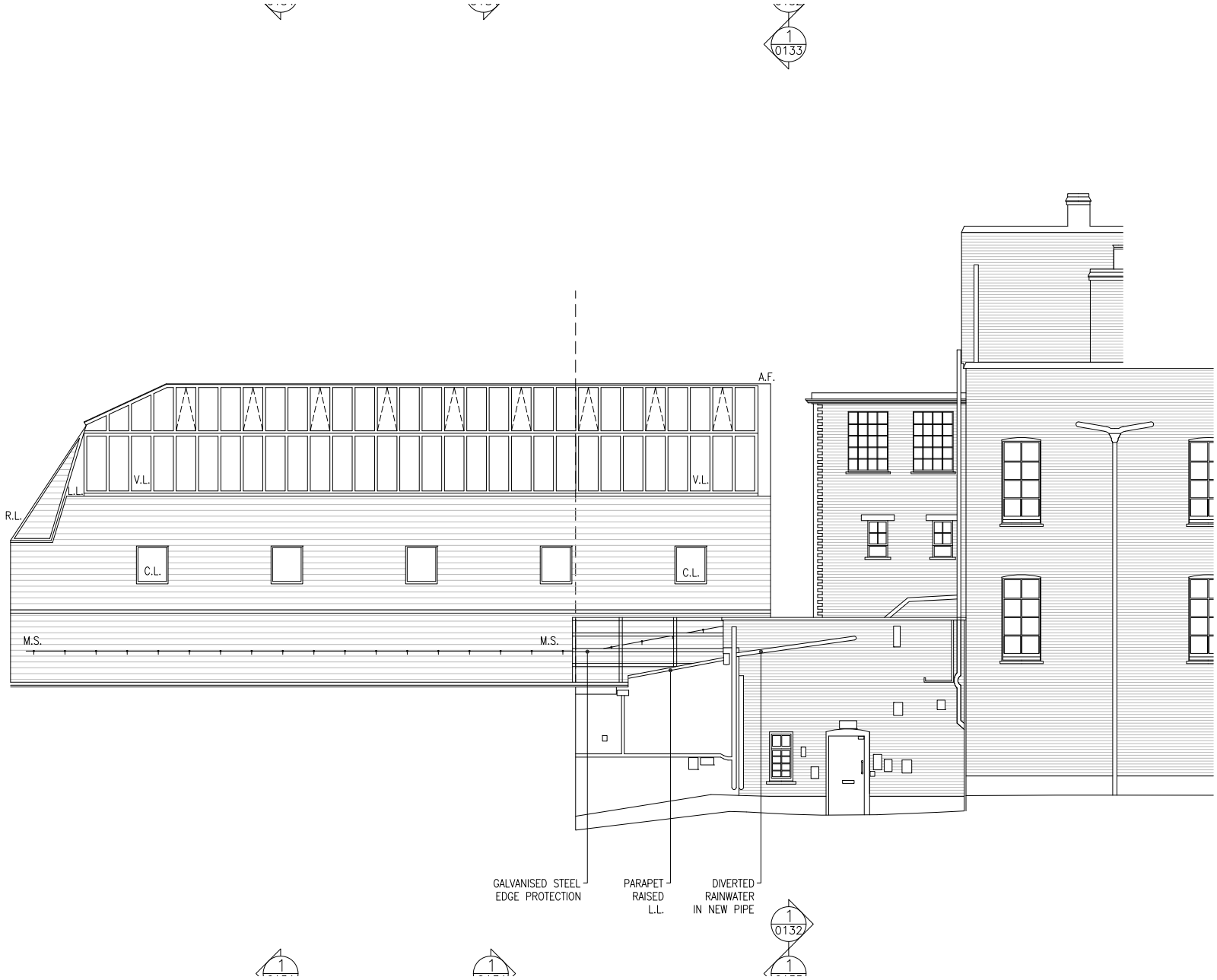
PROJECT:
THE DRILL HALL, 57 FARRINGDON ROAD EC1M 3JB, LONDON

CLIENT:
MAX BARNEY

DRAWING TITLE:

27. Proposed east elevation - NTS



INFORM THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION

PLOT SIZE: A3
PLOT FILE REF: D:\DROPBOX\1156-DRILL HALL\CAD\PAPER\0001-0499\1156-0121
X-REF FILES:
List of xrefs go here

NOTES:

0 2 m 4 m

SCALE: 1:100

KEY:

C.L. – CONSERVATION ROOFLIGHT
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PROJECT:
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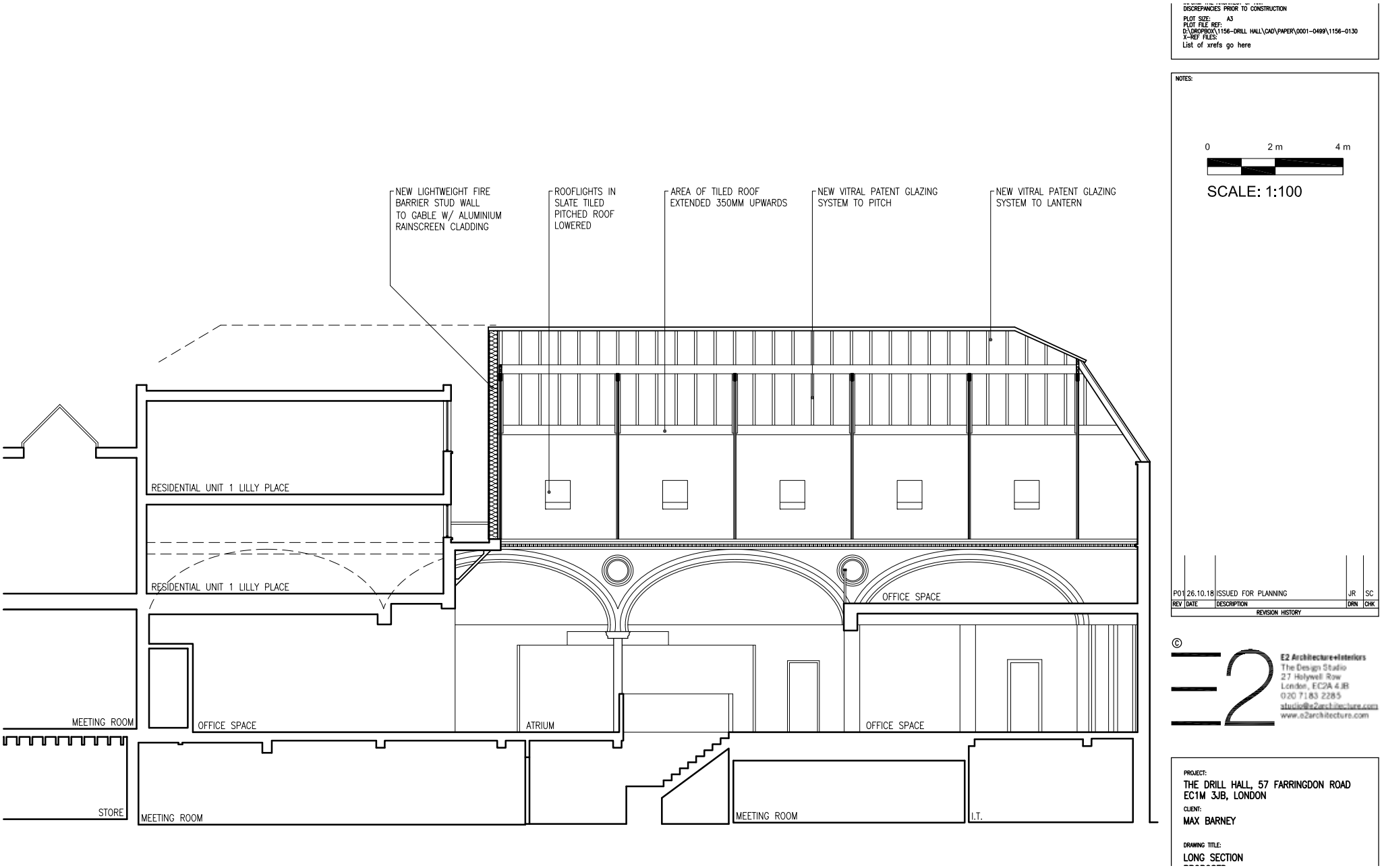
CLIENT:
MAX BARNEY

DRAWING TITLE:

28. Proposed west elevation - NTS



29. Proposed long section - NTS

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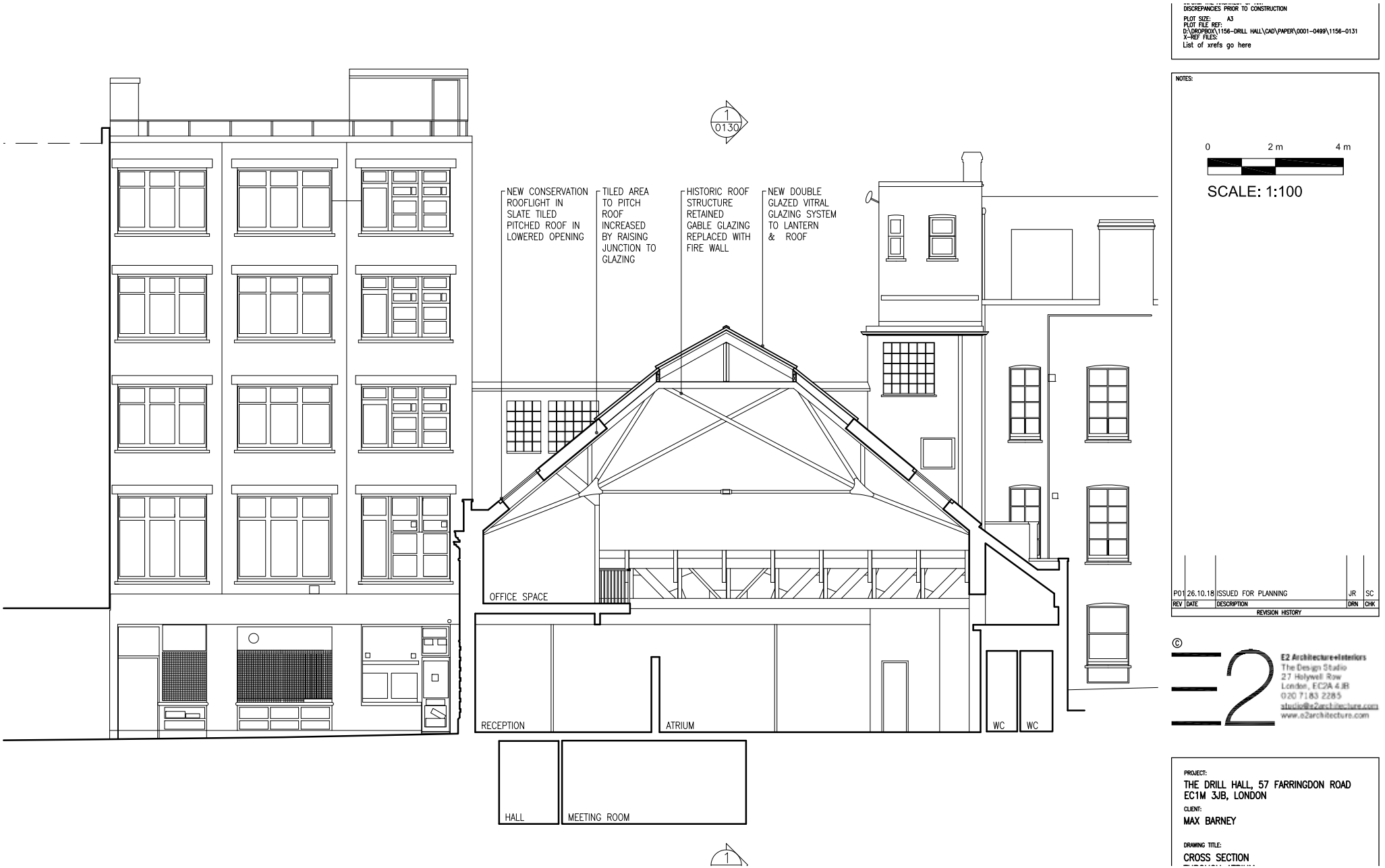

30. Proposed cross section 01 - NTS

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31. Proposed cross section 02 - NTS

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32. Proposed cross section 03 - NTS

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6 Conclusion

This building presents layers of historical significance in the architecture, technology and human activity that has taken place here. Therefore a conservation approach has been taken in developing concepts for how best to upgrade the fabric of the roof whilst preserving its architecture and character.

There has been a hierarchical approach taken to how this is done, taking the primary structure and glazing as the most significant elements. This has lead us to the specification of a very high quality glazing system which a close as possible matches the existing profiles whilst meeting modern demands of the current regulations and standards without overloading the primary trusses.

The introduction of opening vents and solar control glass to the roof will greatly reduce the energy demands on the comfort cooling systems in the building.

It has been unfortunate to lose the glazing to the gable wall. However this has helped us get closer to the thermal targets and enabled us to create an essential fire barrier to the neighbouring bedrooms. It is also barely visible to the conservation area from public or private views and therefore will not affect the character of the building or its contribution to the character of the conservation area.

It has been unfortunate that we cannot structurally justify the reintroduction of natural slate to the lower roof coverings. However the replacement of the concrete tiles with a fibre cement slate will greatly enhance the appearance of the roof when viewed from all possible angles.

The reinstatement of lead flashings and linings will enhance the building. Overall this project will enhance the appearance of the building and it contribution to the character of the conservation area whilst preserving the important historic structure below, which is currently being damaged by water ingress and uncomfortable internal environmental conditions. It will also greatly reduce the energy consumption from cooling. Heating and lighting. Therefore this proposal is sustainable and represents a high quality refurbishment which is long overdue.

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