5.2 Scale & Massing

Elevational Development

The Early elevation studies explored the building volume in context, responding to the existing composition of the urban fabric.

The design process was initiated by the idea of reclaiming the volume occupied by the pediment of the original church. Gradually a number of variations on both streets were drafted to test their appropriateness to their immediate context.

August 2023

August 2023

November 2023

November 2023

May 2024

May 2024

Elevation studies - Birkenhead Street

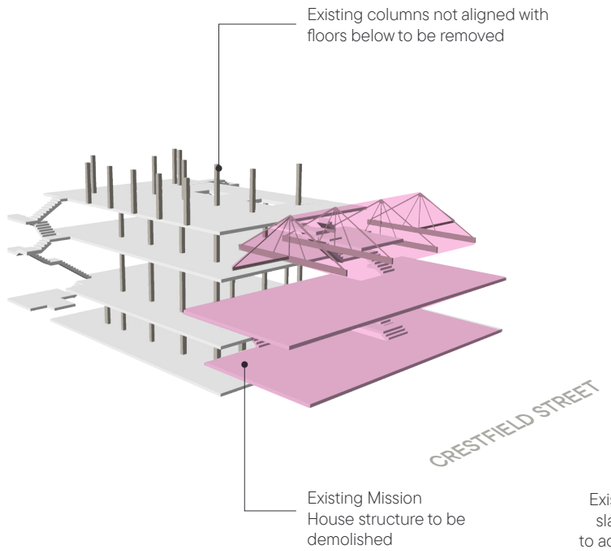
Elevation studies - Crestfield Street

5.3 Building Retrofit Principles

Retrofit of Existing Structure

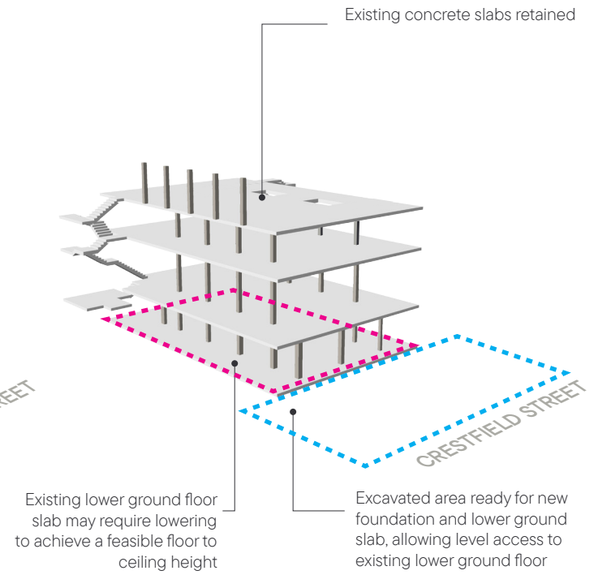
Retrofit of the existing building was preferred since the beginning of the project, due to environmental and heritage considerations. We adopted the following approaches to minimise the embodied carbon of the proposed structure:

- Based on existing drawing information available from the London Archives, the existing structure was remodelled in the mid 20th century and is predominantly formed of reinforced concrete.
- Based on approximate calculation, it is proposed that about **50%** of the existing structural columns and slabs can be retained.
- It is proposed that the existing structural frame of the main church can be retained from ground floor to the second floor slab level. The second floor columns do not align with columns underneath, hence it would sensible to provide new columns aligned to the lower floors. This also provides the opportunity to design a new roof slab supporting proposed services and communal roof terrace above.
- The existing lower ground floor slab would likely require lowering to allow for above slab insulation build-up, whilst maintaining a feasible floor to ceiling height.



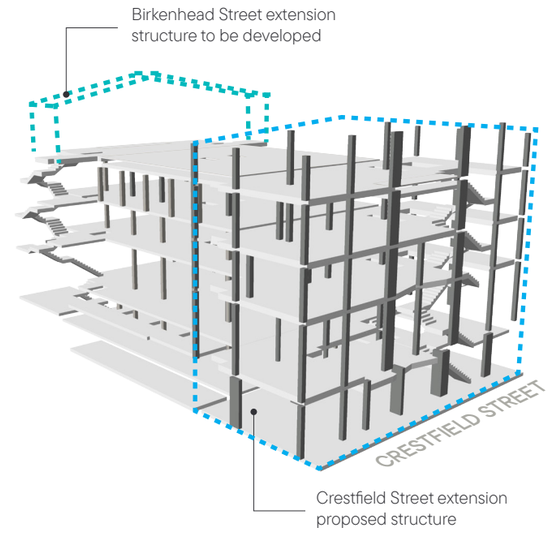
Existing Structure

Indicative 3D diagram showing existing structure before demolition



Retained Structure

Indicative 3D diagram showing retained structure



Proposed Structure

Indicative 3D diagram showing proposed structure

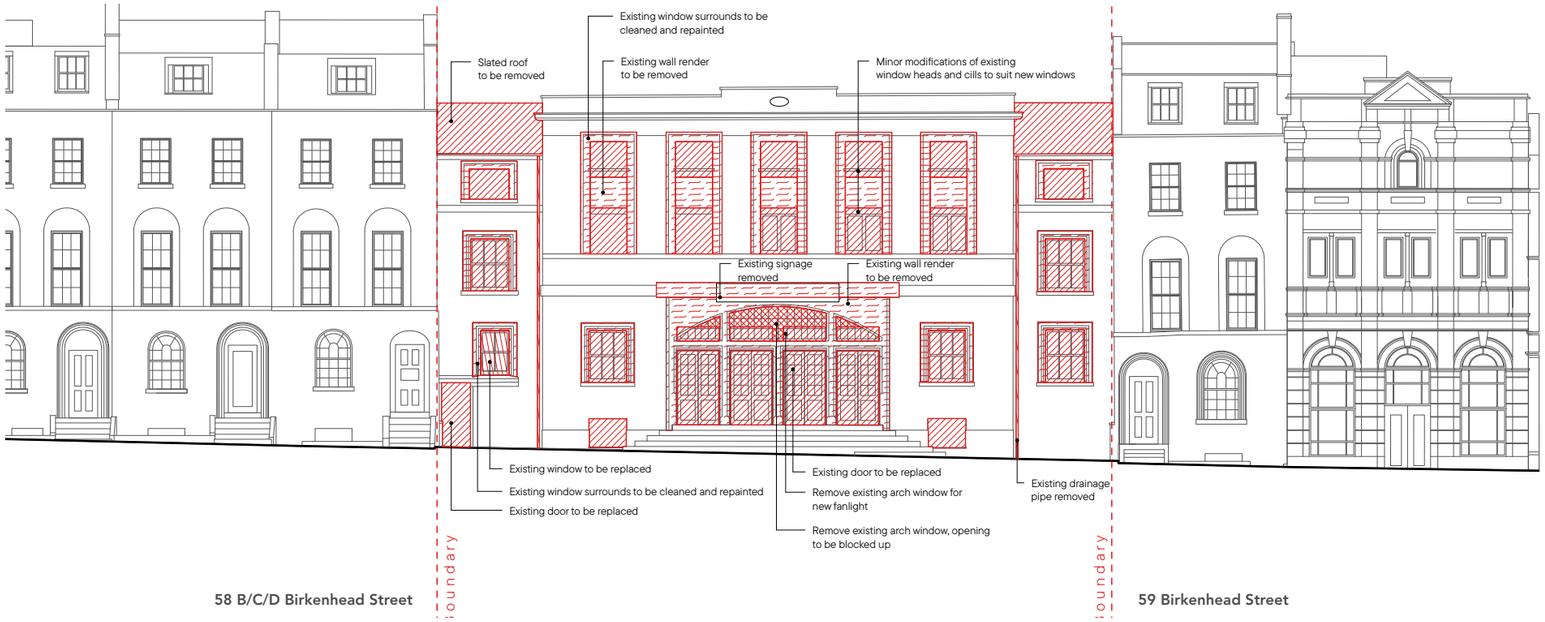
5.3 Building Retrofit Principles

Retrofit of Existing Wall Fabric

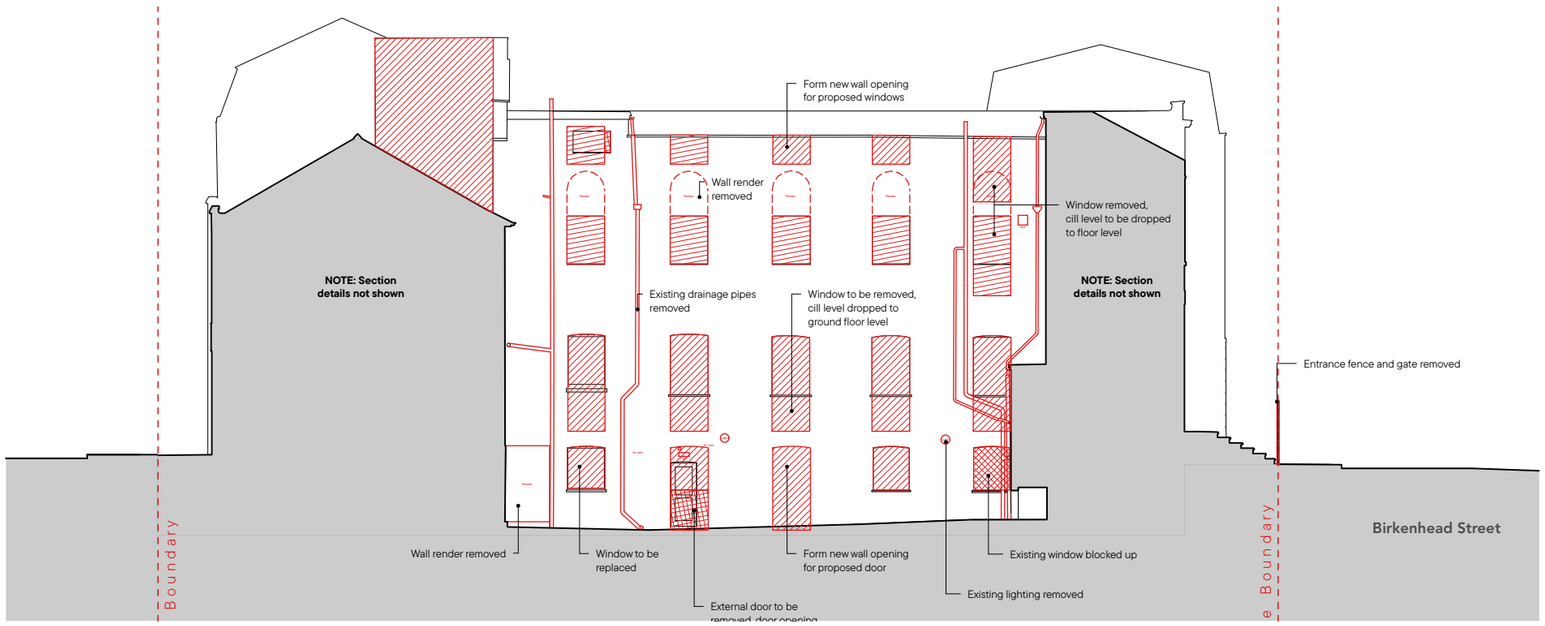
- The majority of existing facing church brickwork is to be retained, this includes not only the Birkenhead Street frontage but also brickwork from the north and south lightwell facing elevations. An insulation layer is introduced to the internal layer of these walls to improve their thermal performance, as well as preserving the character of the existing facades.
- Based on approximate calculation, it is proposed that about **55%** of the existing external wall fabric can be retained.
- Full replacement of existing windows and roofs will be required to significantly improve their thermal performance and airtightness.

Other Key Existing Features

- The existing internal reinforced concrete staircases of the church can be retained and re-used, for with slight modifications they can be compatible with the proposed layout.
- The external steps (susceptibly formed of re-constructed stones) can be largely retained and re-used. It is proposed that the north end of the steps can be modified locally to facilitate installation of a platform lift for level access.



Birkenhead Street Demolition Elevation showing extents of retained facades



South Lightwell Demolition Elevation showing extents of retained facades

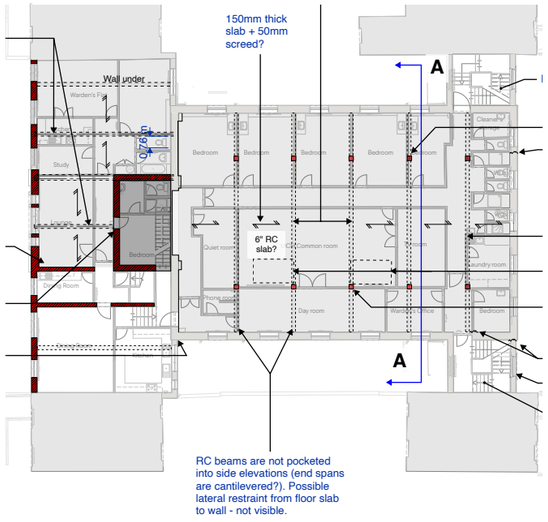
5.4 Structural Design

Price & Myers

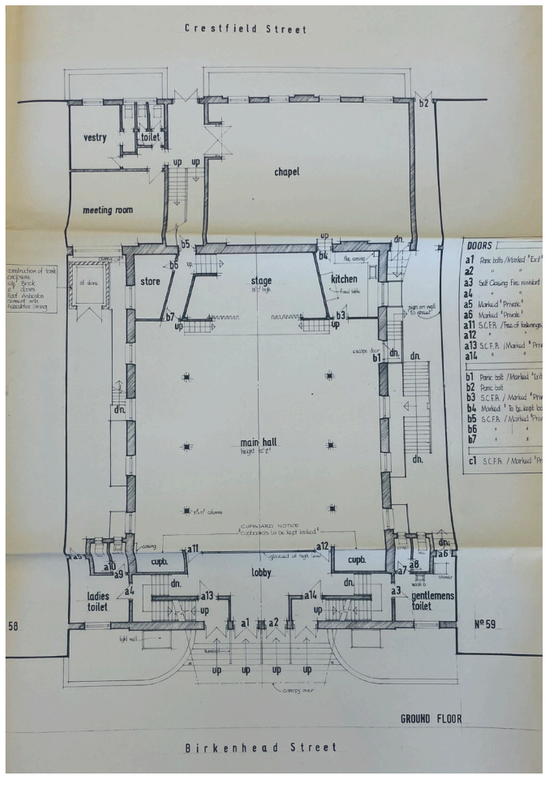
Existing Building

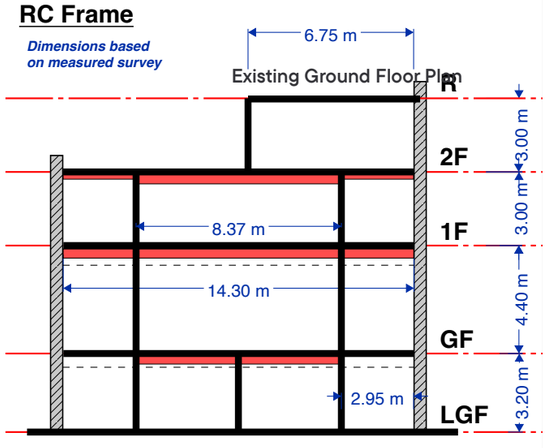
Price & Myers consulting engineers are appointed by WLM to carry out initial investigation of the existing building structure, as well as developing a structural design for the proposed scheme up to mid RIBA Stage 2.

By utilising information available from drawings from the London Archives, topographic survey and site visits, P&M produced a set of existing drawings that included approximate locational and dimensional information of the existing structural frame.



Existing First Floor Plan





Existing Section

Left: 1960s ground floor plan recovered from the London Archives

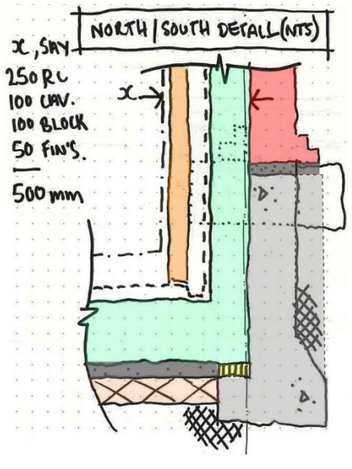
Above: Existing first floor structural plan with approximate dimensional information of structural members

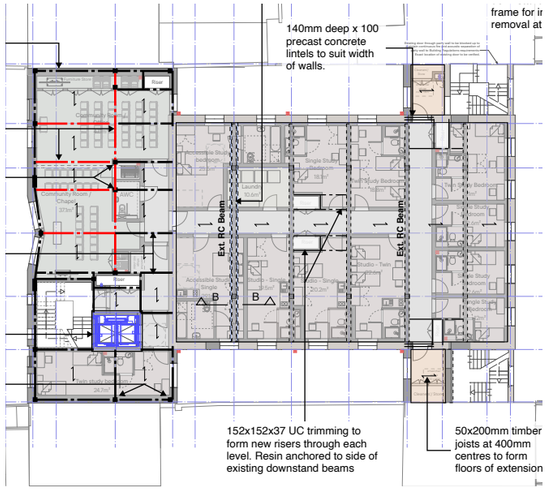
Below: Existing structural section with approximate dimensional information of existing main church reinforced concrete frame

Proposed Structure

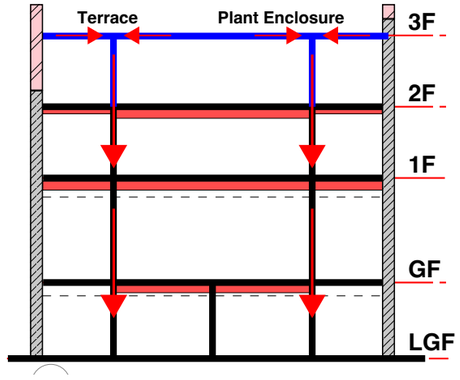
Taking the existing structural information into consideration, P&M designed a proposed structure that retained parts of the existing main church structural frame. and included an extension above to accommodate the proposed building uses. The key features are listed as follows:

- Some existing columns on lower ground and ground floor level will need to be removed to suit more open plan layouts, requiring strengthening works to the floor beams and nearby columns.
- Demolition of the existing main church roof is proposed, for it is not large or strong enough to support proposed plant equipment loads. A stacked steel and composite deck structure is proposed to realign the columns down to second floor level.
- The existing Mission House along Crestfield Street is proposed to be taken down and rebuilt on the same footprint but to include a new lower ground-floor level linked to that of the Main Church and a lift shaft to serve all levels, improving access throughout.





Proposed First Floor Plan



Proposed Section

Left: Proposed party wall underpinning sketch detail

Above: Proposed first floor structural plan

Below: Existing structural section showing new structural columns above 2nd floor level aligned to existing frame below

5.5 Sustainability

Sustainable Design

[Please refer to the Sustainability Report and Energy Statement for further details]

Throughout the design evolution, we are intent on maximising the sustainability credentials of the building, with aim to support Camden Council's ambitions to achieve net zero carbon by 2030 as outlined in its *2020-2025 Climate Action Plan*, as well as achieving *BREEAM 'Excellent'*. We have considered the following strategies:

Retrofit and Reuse

Retrofit of the existing building is the core sustainable design element of the project, as detailed in Section 5.3 of this report.

Layout and Openings

The following design considerations were adopted during the early design phases:

- Proposed church hall glazed doors with openable fanlights increases effectiveness of natural cross ventilation
- Windows at ground floor cafe and first floor multi-purpose rooms with integrated acoustic natural ventilation units
- Balance achieving acceptable levels of daylighting with minimising solar heat gain in the design of bedroom windows facing north and south lightwells.

Thermal Improvements

The adoptation of a 'fabric first' approach is vital to reduce energy demand:

- Enhancing the thermal performance of the existing facade and replacing all existing windows with highly energy efficient second glazing.
- Targeting u-values that exceed the minimum Part L requirements.
- Improving the airtightness of the existing fabric.

Energy

We aimed to reduce the operational energy of the building were possible:

- Maximise area available for photovoltaic (PV) array on roof.
- Use sustainable technologies where possible – ASHP, LED lighting and energy monitoring systems.

Ecology

- Urban greening maximised within the limited footprint of the site to improve biodiversity within this central location.

Reference images of sustainable building services technologies including:
Top left: Hybrid Variable Refrigerant Flow (VRF) heating and cooling units with heat recovery system
Top right: Photovoltaic panels integrated into seamed metal roofs
Bottom left: Air Source Heat Pump
Bottom Right: Highly efficient Air Handling Units

5.6 Proposed Elevation - Concept

Concept - Birkenhead Street Facade

Pediment of Original Church

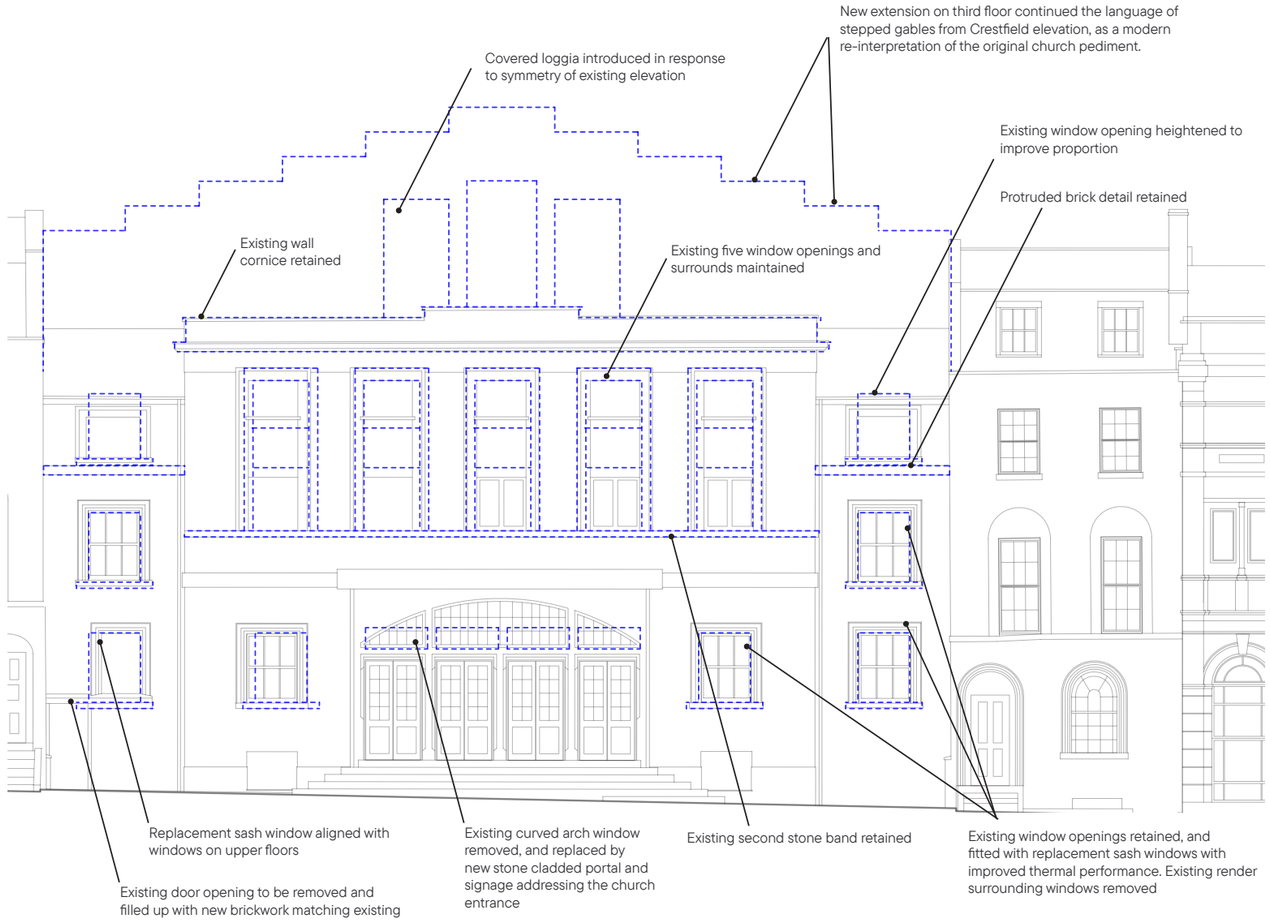
The intention for the proposal is to provide a modern re-interpretation of the original church pediment that responds to the increasing height of the Birkenhead streetscape. The detailing of the new elements aims to respect the heritage of the existing building, while responding to its current and future context.

A central bay of inset balconies provide private amenity space without compromising the heritage of the existing facade, and deliver a sense of privacy and enclosure for residents when using the balconies. The inset balconies also divert attention to the central line of facade, in alignment with the existing facade symmetry.

Introduction of Stepped Gables

The oldest examples of stepped gables in buildings can be found from the 12th century, and were wide spread in Central Europe, as well as Scotland since the 16th century.

Inspired by various contemporary precedents in Lübeck, Germany, it is proposed that the language of stepped gables can form a line of continuity between old and new architecture, whilst becoming a congruous, yet distinctive feature of the Birkenhead streetscape.



Concept diagram showing design development of Birkenhead Street facade

Above: Salzspeicher (salt storehouses), Lübeck, Germany - c. 1600-1800

Below: Anne Hangebruch Architects, Stadthaus Fischstraße 16, Lübeck, Germany - 2021

5.6 Proposed Elevation - Concept

Concept - Crestfield Street Facade

A Contemporary Facade True to Function

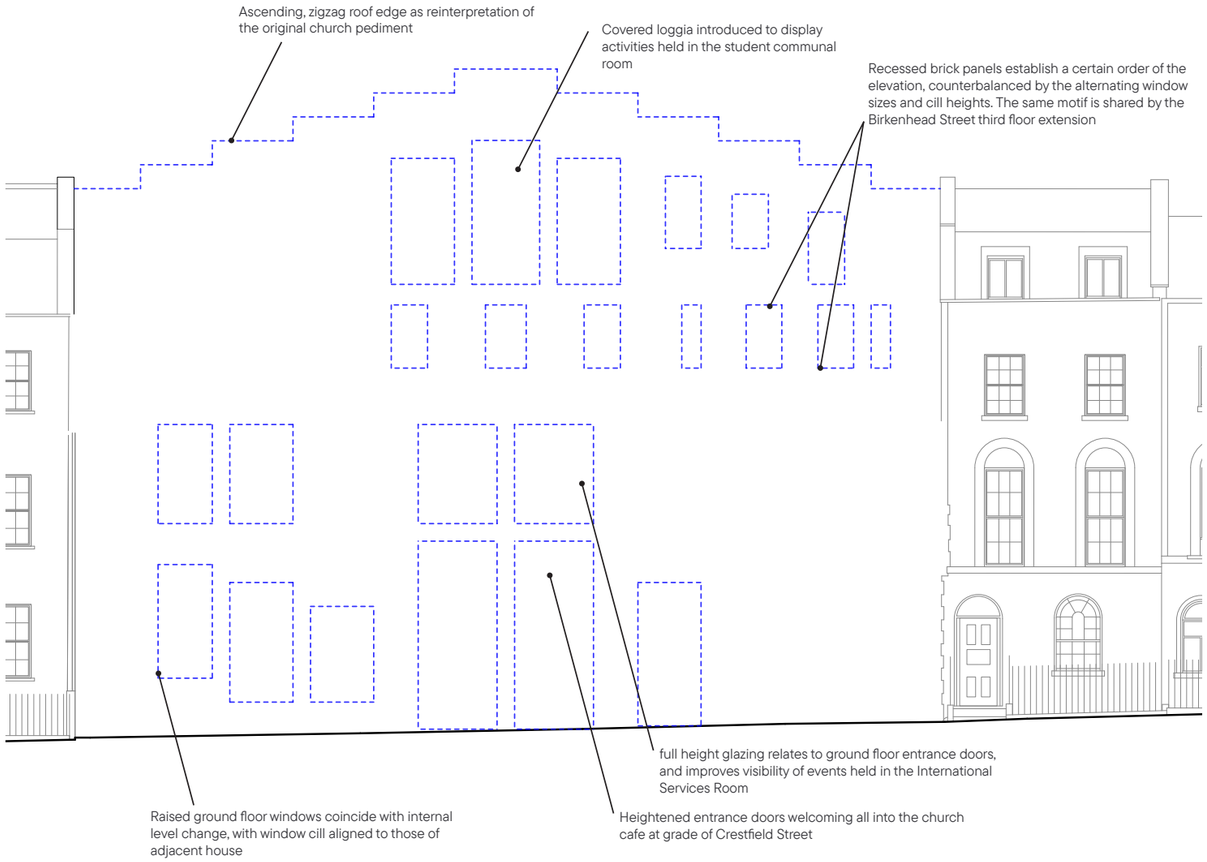
The proposed full demolition of the Mission House provided an opportunity to re-design the church's Crestfield Street facade that can be true to functional requirements of the proposed building. Tall, generous openings can be introduced on ground and first floor to facilitate and celebrate church and communal uses, whereas smaller windows respects the required privacy of student accommodation rooms. The inset balconies at the central bays on third floor echo with those on the Birkenhead Street facade, as well as addressing activities of the main student communal room.

A New, Welcoming Cafe Entrance between the Street and the Church

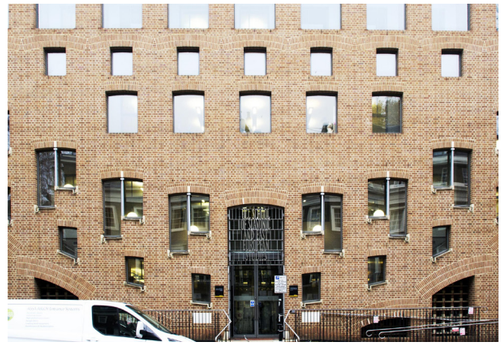
A 1.5 storey tall entrance incorporates a new church cafe and church reception that is at grade and welcoming all visitors. The rising windows at the cafe seating area relates to the stepped gable roof and adds playfulness to the facade composition. An appropriately scaled, dedicated student entrance is provide adjacent.

Interplay between Recessed Brick Panels, Windows and Juliet Balconies

The recessed brick panels resembling a checked pattern establishes a certain order, whilst the proposed juliet balconies and windows with varying widths and cill heights provide a fine counterbalance.



Concept diagram showing design development of Crestfield Street facade



Above: Albi Cathedral - 1282

Middle: Short and Associates, UCL School of Slavonic and East European Studies - 2005

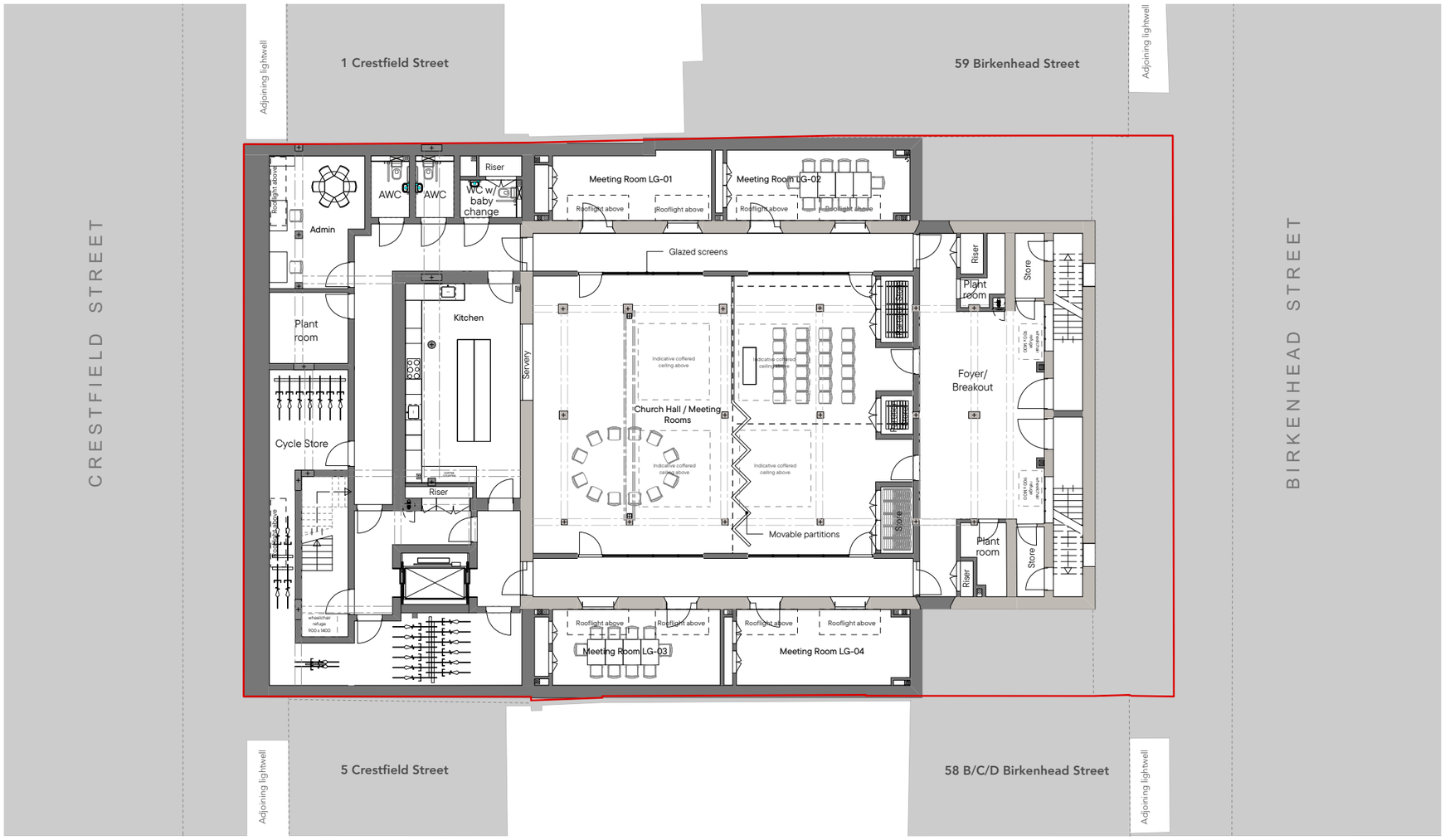
Below: Matthew Lloyd Architects, 60 Shoreditch Tabernacle Baptist Church - 2017

6 Final Design Proposal

6.1 Proposed Plans

Lower Ground Floor Plan

- The lower ground floor has extended areas towards Crestfield Street (where the Mission House is situated above and is proposed to be fully demolished), gaining essential spaces for a new kitchen, WCs and secure, long-stay cycle parking. A new cycle accommodating lift provides level access.
- The existing north and south light wells are cleared and converted into meeting rooms, with top lit daylight flowing into newly formed corridors.
- The de-clustered central space forms a large new multi-functional space with side glazing screens, equipped with generous storage rooms. Movable partitions allow for sub-division of the space into smaller rooms.



Key

- Site boundary
- Existing walls
- Proposed walls

Note: Furniture shown indicatively only