

Fabric Repair & Downtaking

Fabric Repairs

It is proposed to undertake a series of fabric repairs to the existing structure this is summarised as follows:

1.0 Stone & Brickwork

A series of remedial works are proposed to the existing brickwork and stonework - this includes:

- Cleaning brickwork and stonework as required
- Repair of brickwork and stonework as required
- Replacement of mortar beds as required
- Removal of redundant services etc.

2.0 Roof

- Reinststate the full ring of ribbon roof-lights
- Install thermal insulation
- Rationalise and standardised all service penetrations

3.0 Cupola / Lantern

- Introduce new cupola/lantern

4.0 Domed Roof Structure

- Reveal the 'decorative' dome structure
- Repair as required

5.0 Lead-work

- Replacing all lead-work, introduce new lead-work

6.0 Windows

- All existing windows in the Rotunda are to be replaced on a like-for-like basis, with modern double glazed units to increase the thermal performance of the building.

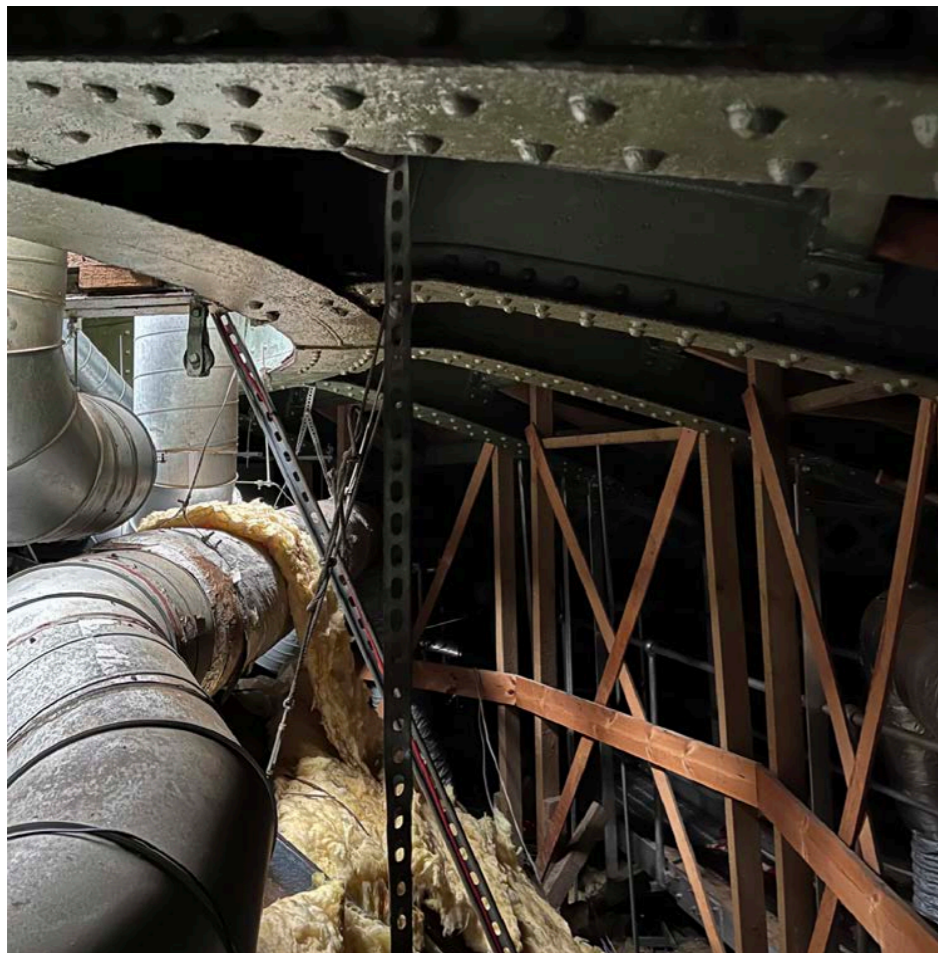


Image top left:
existing cupola
Image top right:
existing roof slates
Image bottom left:
existing roof structure
Image bottom right:
existing brickwork &
stonework

Fabric Repairs

1.0 Stone & Brickwork

To address essential repairs to the external walls, the proposals include the following remedial works:

- Carry out a non-abrasive cleaning of the external brick and stonework to remove all moss, algae, and vegetation as required.
- Existing stone bands at dado level, eaves and cope level will receive a de-scale to remove all loose and friable stonework back to a sound base and will then be finished with a light carborundum rub to remove all possible water traps to the de-scaled areas.
- Existing brickwork will be assessed and where deemed necessary all defective beds and joints will be raked out and then re-pointed in a sympathetically gauged lime mortar, in colour to match existing.
- Potential structural movement damage (two previously repaired cracks are visible in bay 2 and bay 9 – refer to drawings) to be assessed and repaired if required.
- Remove all redundant services (including but not limited to alarm boxes, light fittings etc.), repair and make good brickwork where necessary
- Remove all redundant signage, repair and make good brickwork where necessary

Stone elements around the perimeter of the building to be assessed and if required; defective areas of stone to be removed and matching stone (type tbc) to be indented, dressed and finished to match the original stone features and profiles. This includes the following areas:

- 16.no Curved Stone window cills (approx. 1800 x 350 x 250mm).
- 2no. Keystones to entrance doorways at ground level; (approx. 250 x 300 x 500mm).
- Splayed dado course at ground level; (approx.. 220 x 250mm).



Image top left:
example of vegetation growth and redundant services

Image top middle:
example of weathering damage to stonework and brickwork

Image top right:
general condition of brickwork and stone details

Image bottom left:
example of vegetation growth and previous brickwork repairs

Image bottom right: example of historic structural joint and subsequent weathering damage

Fabric Repairs

2.0 Roof

It is the intention to restore the historic characteristics of the roof which would once again mirror the features of the Southern Rotunda. To this end we broadly propose the following:

- Strip-off existing slate
- Remove all redundant service/ventilation items
- Remove existing glazed rooflight, framing and leadwork
- Remove existing glazed cupola/lantern, wind-vane and framing
- Form new opening for ribbon rooflight
- Sarking to be assessed and retained in place with localised repairs if required (will be visible as internal finish)
- Install new roof membrane to sarking
- Install flexible Class O thermal insulation and associated framing.
- Install new slate, specification to be agreed (Cupa H3 or similar)
- Install new ribbon rooflights, framing, substrate and leadwork flashings
- Install new service outlet/inlet terminations at low edge of roof**
- Install low profile ladder over rooflight for cleaning and access
- Install pitched roof anchor point for maintenance access

** The new service outlet/inlet terminations are located at the lowest edge of roof behind the brick/stone parapet. Visually they will be coloured to match the slate to minimise their visual impact as much as possible. The number of grill required will be confirmed following further technical design.

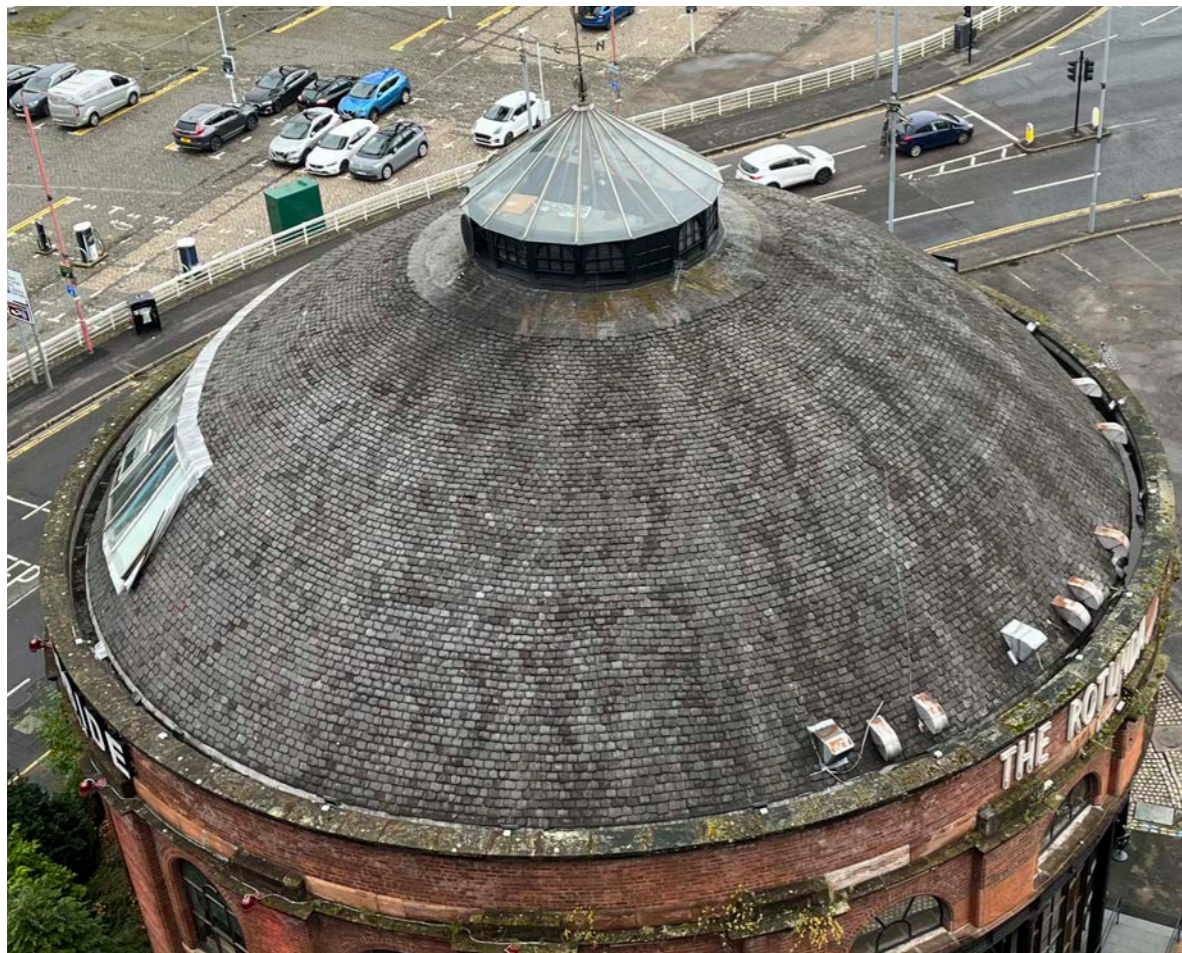


Image top left: aerial view of existing roof
Image top right: existing service penetrations and standing water in gutters
Image bottom left: general condition of existing roof
Image bottom right: existing weathervane (assumed not original)

Fabric Repairs



3.0 Cupola / Lantern

The replacement cupola is proposed to be entirely new (existing windvane to be assessed). complete with new leadwork pitched roof. It is proposed to incorporate high level automatic ventilators within the cupola.

4.0 Domed Roof Structure

It is proposed to retain in place the historic dome structure. This is to be cleaned (removal of existing paint finish), repaired (where required) and re-painted (colour tbc) so it can be exposed internally. The extent of repair to the dome structure will be assessed once strip-out of internal finishes has been carried out.



Image top left: aerial view of existing cupola
Image top right: internal view of existing cupola
Image bottom left: existing roof structure and sarking
Image bottom right: general condition of existing roof structure

Fabric Repairs



5.0 Leadwork

There are a number of areas that are currently unprotected from standing water and by extension, possible water damage. It is proposed to undertake the following works:

- Gutters will be stripped, substrate reviewed and replaced as required, insulated and relined with lead, dressed up and under the slate edge
- Install lead flashing to the stone cope at the wall head. It is our proposal that the gutter lead lining be dressed up and over the coping.
- The projecting stone ledge at stone corbel level will receive leadwork flashing
- Leadwork flashing to be installed below the stone cornice and above the curved cast-iron beam above the historical vehicle entrances
- Other stone ledges to be assessed on-site for leadwork flashing requirement
- Any service penetrations that exist, will be suitably dressed with lead flashings as needed, in a traditional detail.

To mitigate any further fabric damage, the installation of new telltale/overflows are proposed to perimeter.

6.0 Windows

All existing windows (including the two former pedestrian tunnel access doors) are to be replaced on a like-for-like basis with modern double glazed windows which match the existing fenestration pattern.

The large glazed screen (located at the historic vehicle entrance) is to be removed and replaced with a new design (refer to proposed elevations).

Image top left: former pedestrian access doors.

Image top right: stonework requiring flashing protection

Image bottom left: former vehicle entrance glazed screen

Image bottom right: typical existing window

Downtaking

1.0 Third Floor

It is proposed to completely remove the existing third floor slab and supporting structure (from second floor to underside of third floor). This is to create a space which fully encompasses the historic rotunda dome.

2.0 External Works

It is proposed to remove the external decorative street furniture that was related to the 1990's redevelopment. This includes on-site lamp-posts and bollards (and chains). These features are not original and are not deemed to be of historic value.

The round brick structure which houses the buildings gas meter is also proposed to be removed.

3.0 Internal Downtaking

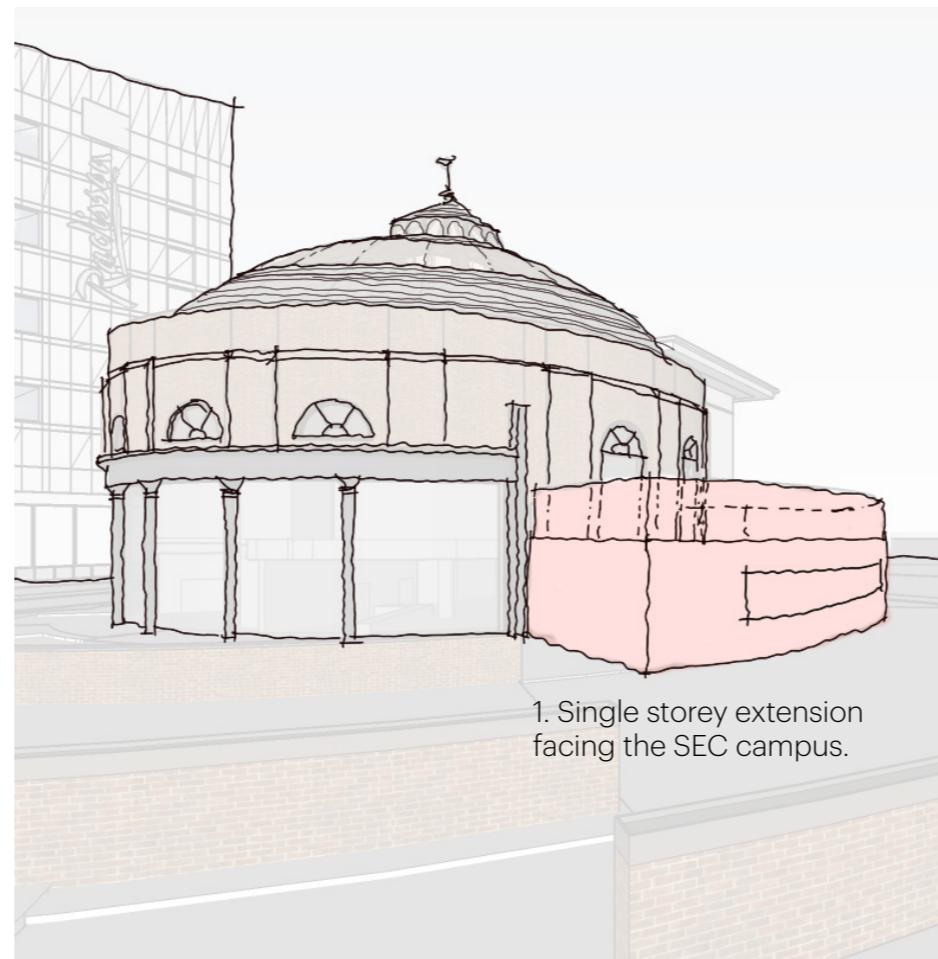
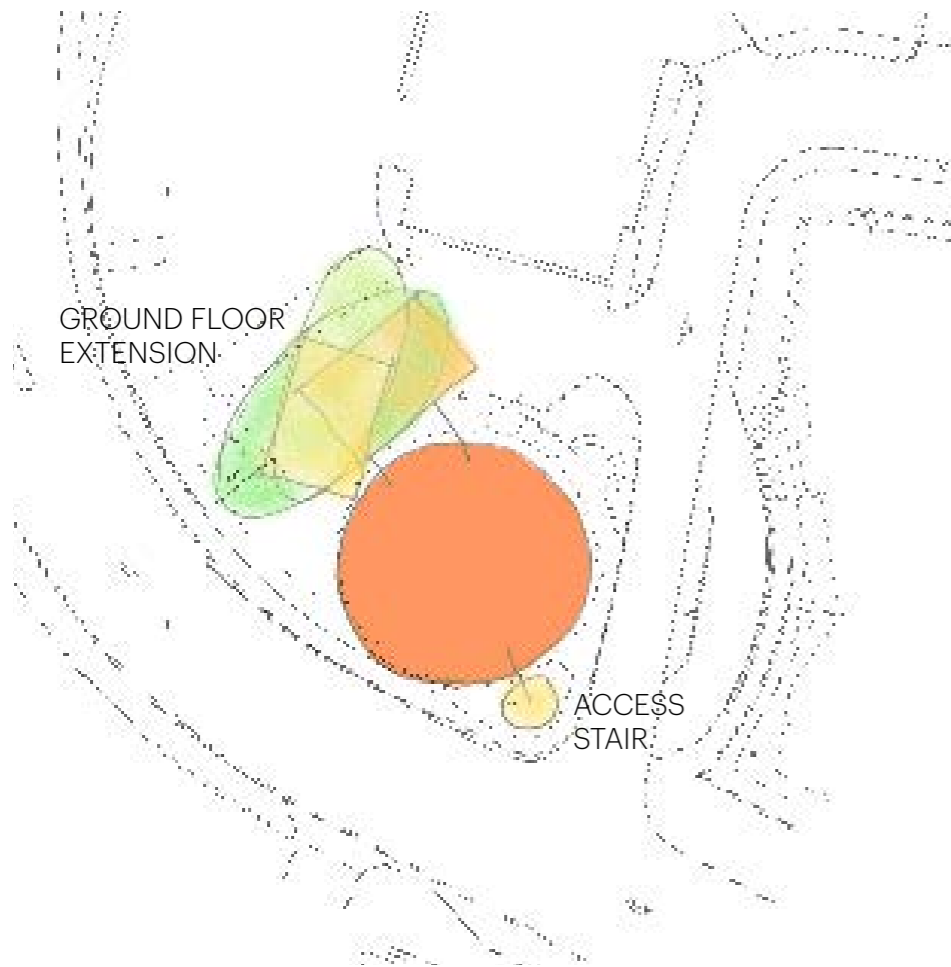
All interior finishes and existing stairs are to be fully removed back to the historic fabric of the drum of the brick rotunda. The existing structure and floor slabs are to be retained (with the exception of the third floor - see above). This downtaking also includes all ceilings and mechanical/electrical plant equipment.



Image top left:
existing third floor
structure interface
with historic fabric
Image top right:
currently concealed
dome structure
Image bottom left:
existing brick gas
meter house
Image bottom right:
existing decorative
street furniture

Concept Design

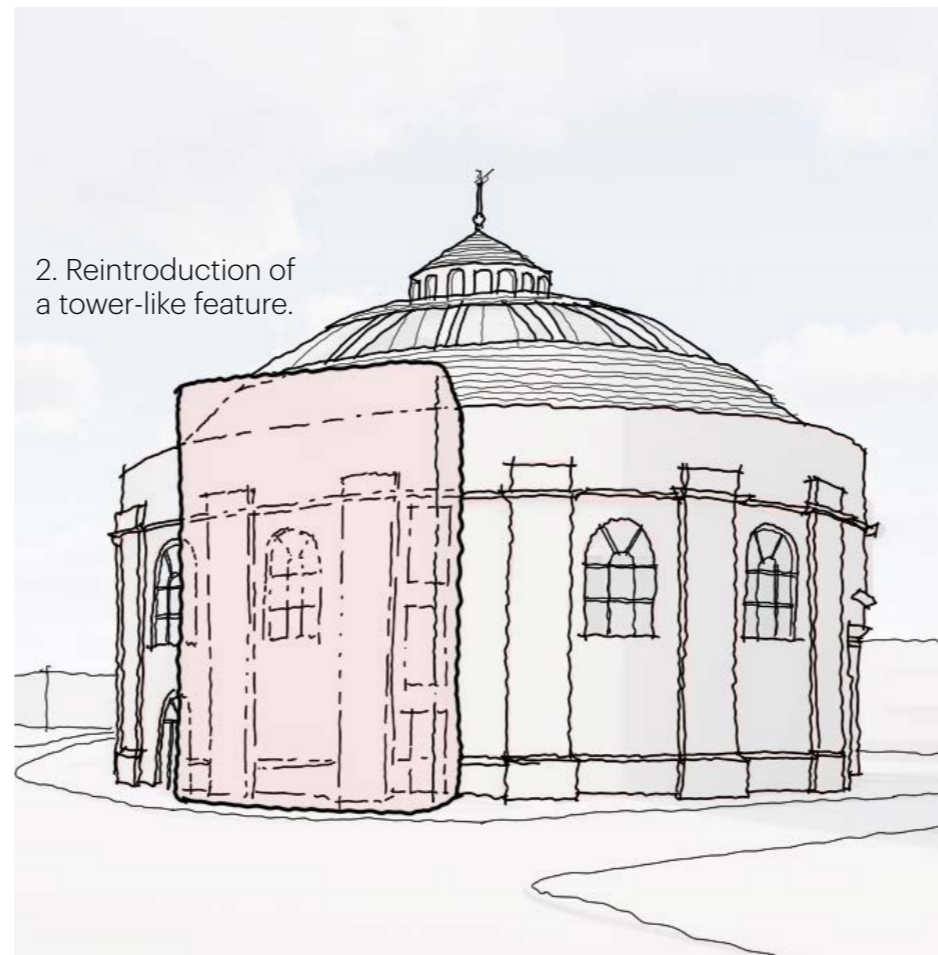
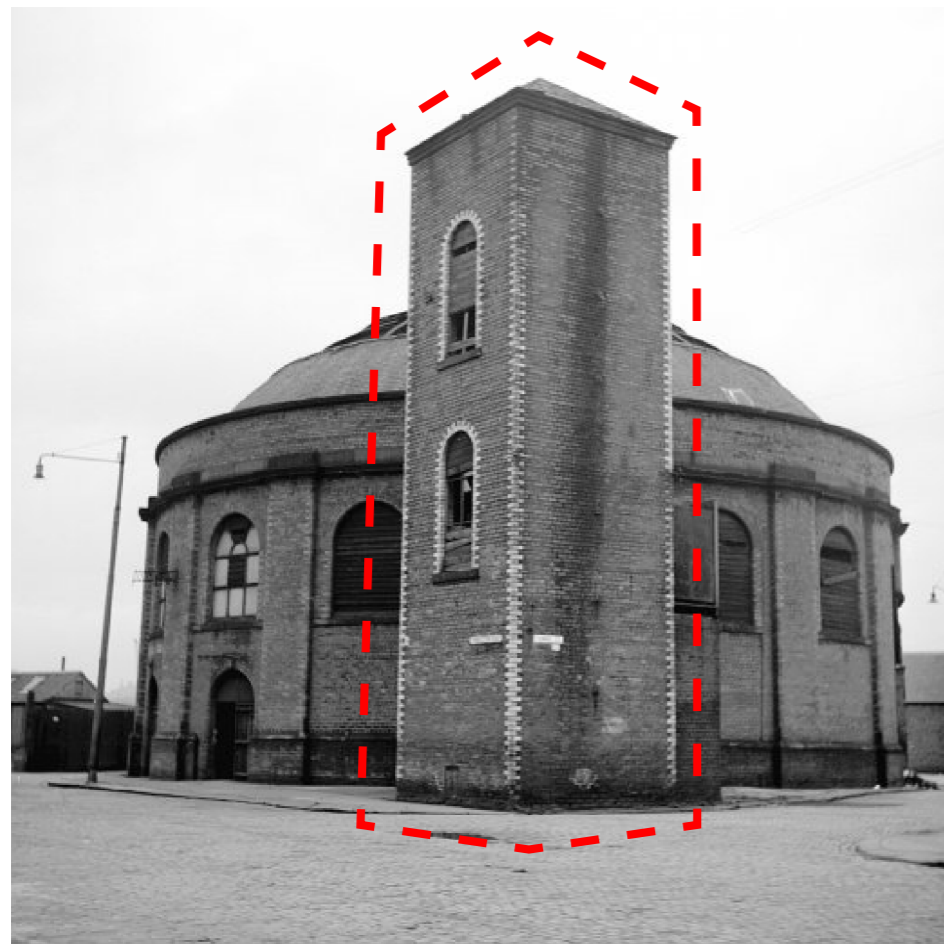
Concept Design



Initial Concept Ideas

Following a series of client workshops and working with the commercial requirements of the redevelopment, our initial concept ideas revolve around three key moves:

1. A single storey extension (and roof terrace) facing the SEC campus.
2. Reintroduction of a tower-like feature containing the access stair.
3. Internal refurbishment - prioritising exposing the original fabric and bringing the steel-framed dome back into prominence.



Images top: Sketch Concept Diagrams
Image bottom left: Rotunda (1967) showing now demolished Lifting Tower.
Image bottom right: Sketch of new 'tower-like' feature



*...our concept invokes the spirit of
the decorative ironwork created by
the Saracen Foundry and others.*

Concept Design

Concept Sketches

Our initial concept envisaged the two new elements as industrial extensions of the existing rotunda - utilising the radial geometry to create rounded complimentary forms which invoke the spirit of Glasgow's rich history of decorative ironwork.

The curved form of these two new elements is emphasised with a series of vertical fins and panels - which also allow faceted glass to be used without comprising the curved form. This strategy is the same as the existing rotunda windows which are flat planes of glazing in the curved wall.

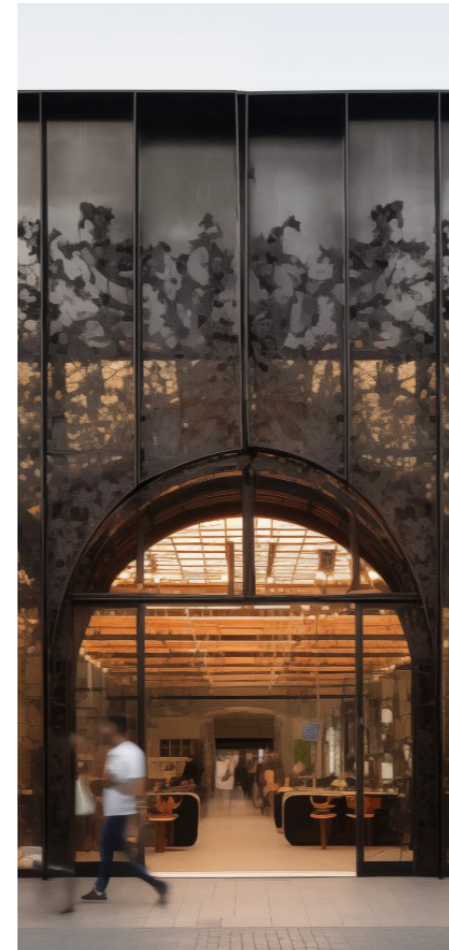
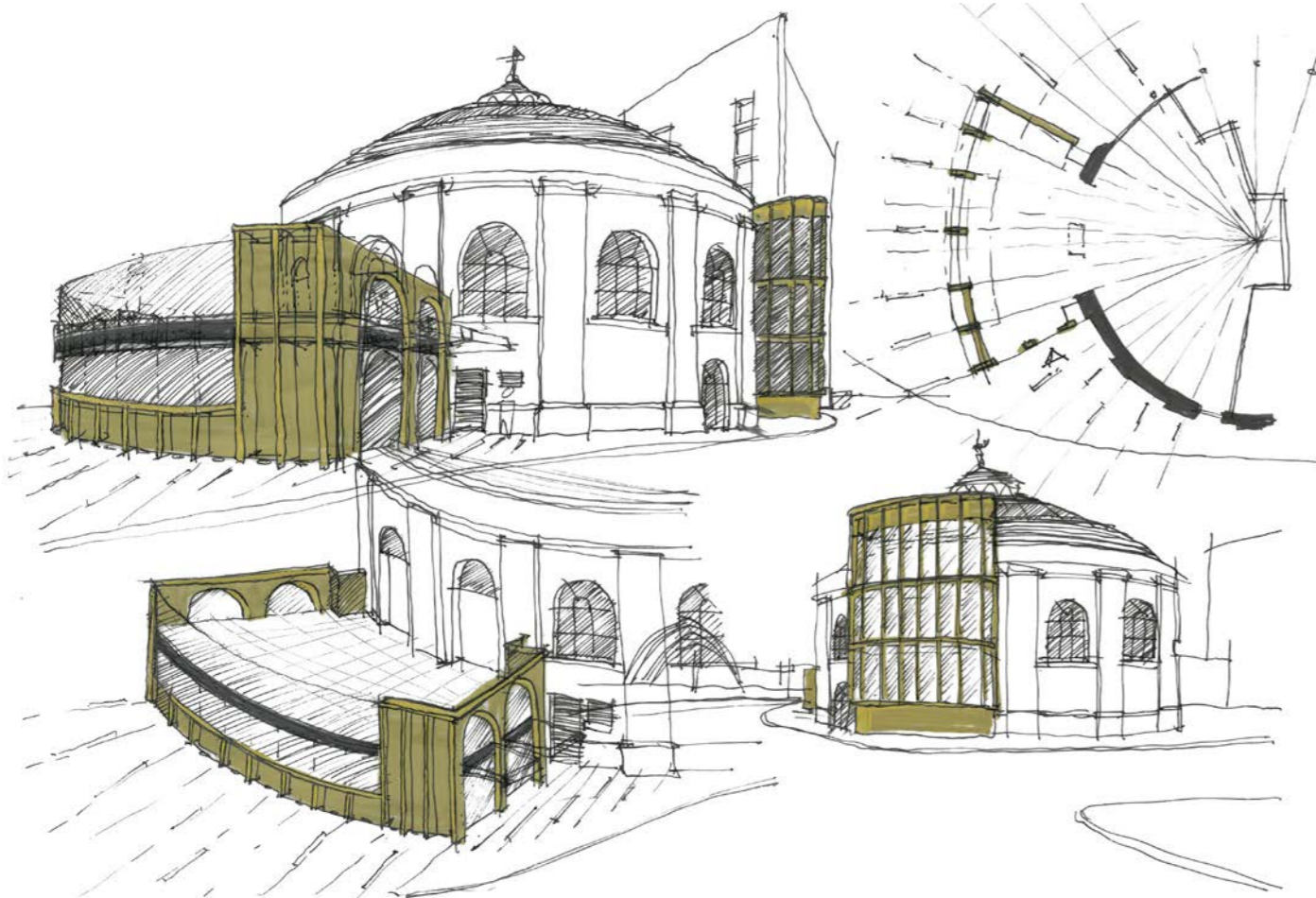
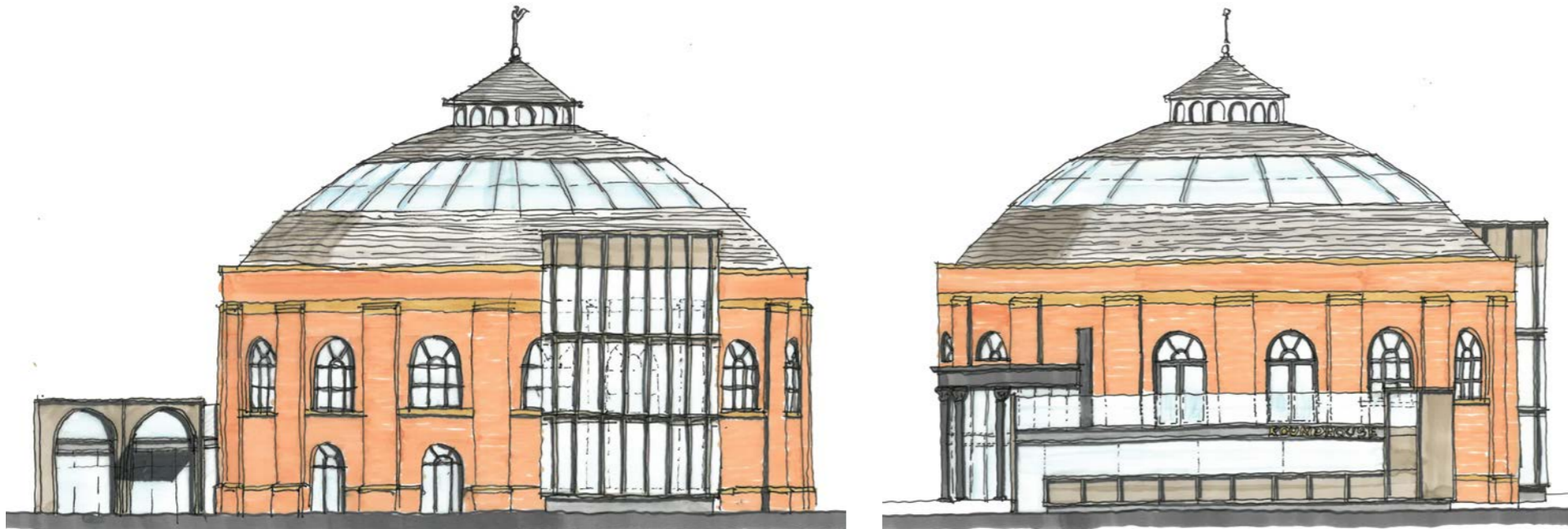
The new stair tower crests above the parapet level of the rotunda and facilitate access to all levels - this is seen as an echo of the (demolished) historic hydraulic lifting tower.

The curved single storey extension allows for a panoramic slot window which looks out towards an external terrace as well as the iconic buildings of the SEC campus.

Historic Fabric

Our strategy is to strip away as much of the 1980's internal refurbishment as possible to reveal the original fabric of the Rotunda (specifically the internal face of the brick drum and associated stone details).

Historically the Rotunda was 'unfinished' internally with exposed brick walls and stone detailing as well as the exposed cast-iron structure of the domed roof and lift-mechanisms. We propose to reveal and celebrate as much of this original fabric as possible.



Images top: Sketch Elevations
Images bottom left: Concept Sketches
Image bottom right: Concept visual / precedent

Concept Design

Materials

The existing Rotunda is predominantly made from brick (in a common bond - with headers every 4th course) with sandstone details to the cills and cornices. The former vehicle entrance is split into 6 openings - all framed with cast iron Corinthian columns, topped with a decorative cast iron beam which supports the brickwork above.

To visually enhance the connection between the existing rotunda and the new build elements, it is proposed to explore an industrial aesthetic which utilises metal cladding as the primary finish.

We have explored a number of options which include:

- cast iron
- corten
- nickel-coated metal panels
- bronze

We wish to utilise a material which not only gives a 'heavy' industrial feel but also provides a contemporary crisp level of detailing which compliments the existing ironwork without competing with it.



Image top left: Cast Iron
Image top right: Bronze
Image bottom left: Nickel-Coated Metal
Image bottom right: Corten

Concept Design

Sustainability / Energy Statement

As a key industrial heritage asset for Glasgow, the proposals seek to bring this neglected historic building back into sustainable and productive use, preserving its unique character, architectural and historic nature, whilst supporting the transition to net zero and ensuring resilience to current and future impacts of climate change.

The proposals help address the global climate emergency and nature crisis through the active re-use of the building minimising life cycle greenhouse gas emissions.

Carbon Reduction

The proposals will remove the buildings reliance on gas, using no direct emission heating and fully electric kitchen. 100% of the Scope 2 emissions will be zero carbon, achieved by operating the building using only 100% grid generated renewable electricity. The National Planning Framework 4: Policy 19 aims to encourage, promote, and facilitate development that supports decarbonised solutions to meet the heat and cool demand and to ensure adaptation to more extreme temperatures.

The proposals support this policy by following the Energy Hierarchy and taking a fabric first approach to the building design that prioritises passive measures such as ultra-high fabric efficiency to reduce demand that results in an annual demand for useful energy for space heating.

The proposal for Heating, Cooling and Domestic Hot Water utilises Heat Recovery Heat Pumps providing an efficient means of heat generation without the need for fossil fuels / direct emission fuel types such as Natural Gas and benefitting from 100% grid generated renewable electricity.

This approach is fully aligned with the UK Green Building Councils definition of Net Zero Carbon – operational energy without the need to offset any operational carbon.

As the proposals are a conversion and the extension is less than 25% of the area of the existing building, it is not subject to Scottish Building Standards 6.1: Energy demand and carbon dioxide emissions.

Measures are however being adopted in the design to improve the building performance and to align with current Planning Policy (NPF 4) and Scotland's Heat in Buildings Strategy, and where reasonably practical within the constraints of the existing building structure and Historic Environment Scotland requirements minimum standards for Energy will be met. Event venues similar to the proposals are typically high energy users, and as a result of the energy cost crisis, all these types of venues have seen their energy costs increase significantly. Demand reduction is therefore a key focus for the proposals, not only in relation to carbon reduction but also in terms of operational cost.

