



CORSTORPHINE
+WRIGHT
ARCHITECTS



HEXAGON TOWER, MANCHESTER

RESPONSE TO URBAN DESIGN COMMENTS

20186 - 8001 - 00 | MAY 2021





REVISION	DATE	NOTES
00	May 2021	ISSUED for review



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1.0 INTRODUCTION

1.1 Summary of Brief

The external façade of the Hexagon Tower is deteriorating in a progressive manner leading to expanses of the mini-mosaic tiling that covers the entirety of the solid portions of the façade to delaminate.

It is understood from works previously undertaken that it has also not been possible to secure the existing mosaic tiles in some areas. This means that a solution focusing on their retention and exposure is no longer viable. Furthermore, it is understood that difficulties sourcing replacement tiles make this option not possible. With that said the proposals seek to overclad the building whilst retaining and securing the existing mosaics beneath.

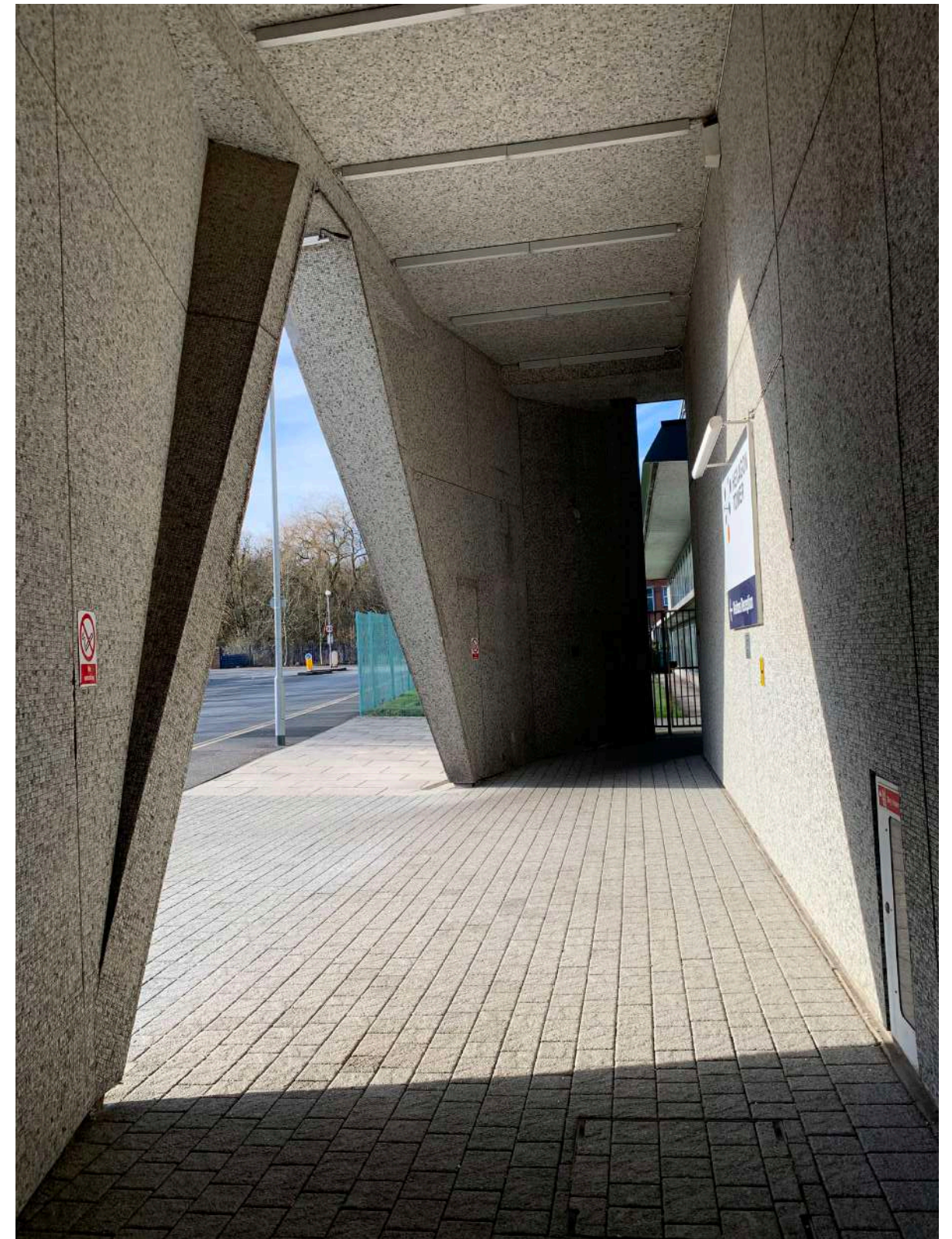
The glazing to the building is the original, single glazing and subsequently performs poorly.

Trinity IM seek commercially and technically appropriate proposals for the over-cladding of the mosaic-clad panels and the replacement of the glazing.

Proposals are to be sympathetic to the original design to assist in achieving the approval of the local planning authority (Manchester City Council).

Proposals are to be compliant with Building Regulations.

Against the background of the current climate emergency Trinity IM are also keen to improve the building's poor sustainability and energy performance with a benchmark EPC rating of 'D' or above to be achieved.



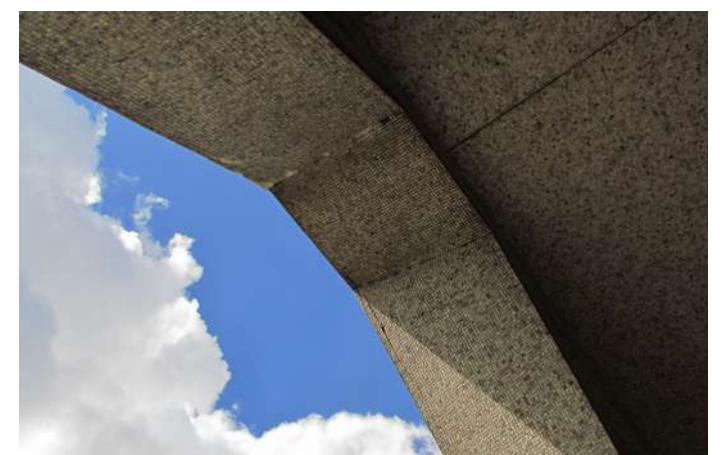
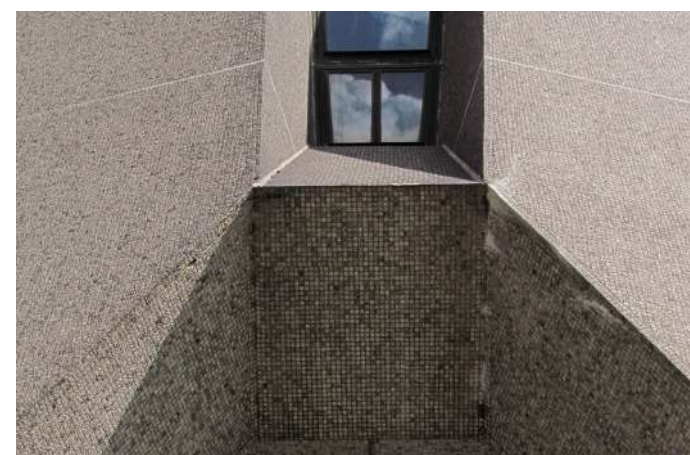
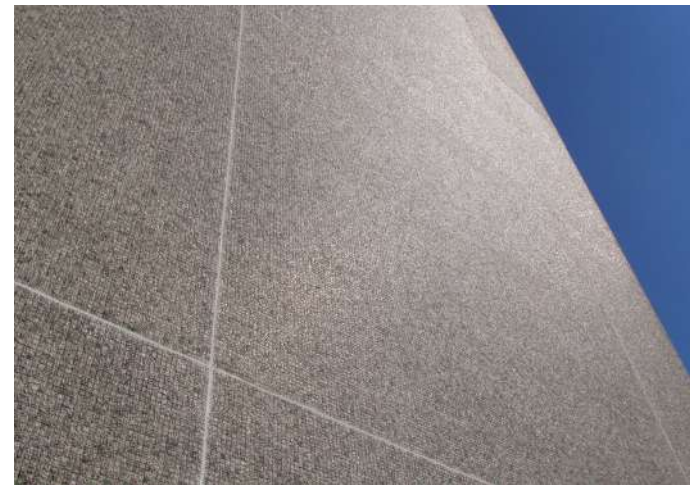
View of existing soffit at ground level to entrance on South elevation

2.0 MOSAIC RETENTION

2.1 Facade Condition Photographs - 2012

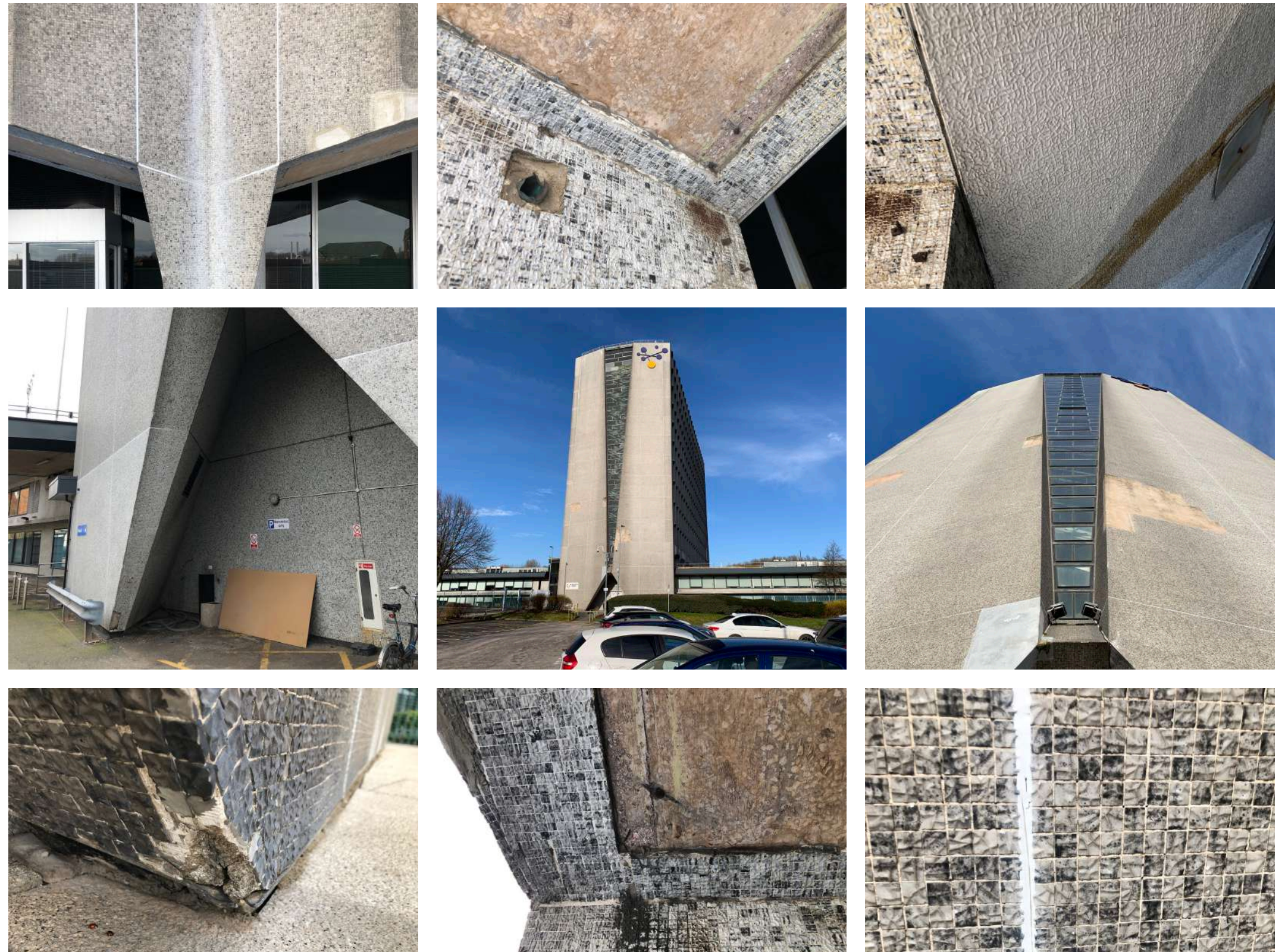
2012 Deterioration of the Facade

During 2012 a member of the Corstorphine + Wright team visited Hexagon Tower to photograph it out of personal interest in the building. When viewing these photos and comparing them to the photographs recorded this month (overleaf) it is apparent that the façade is deteriorating in a progressive manner, qualifying the statement made in the IF Building Consultancy report.



2.2 Facade Condition Photographs - 2020

2020 Deterioration of the Facade



2.3 Mosaics | Refurbishment Vs Replacement

Historical analysis of the condition of the cladding has taken place. This includes monitoring the deterioration of the mosaic tiles to the external cladding which highlighted the potential for sections to fall from height. During testing between 2014 and 2019 it was also recorded that deterioration had occurred progressively, as opposed to isolated, anomalous events.

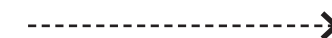
A vacuum repair method in a test area was carried out by Balvac Ltd in 2018, however as it was hard to quantify the volume of resin required and it could only be utilised in areas with an existing void behind the cladding panel, it became clear this would not be a suitable long term solution. This would also require the need to carry out hammer test surveys on the rest of the structure to identify emerging risks. The lack of certainty in this method means that it cannot be guaranteed that it will safely secure the tiles in place.

Corstorphine + Wright's understanding is that Hexagon Tower is not unique in this issue and that other mosaic-clad buildings where alternative means of cladding the facade have had to be sought - **Sussex heights by Seifert is known to have suffered from the same issues.**

Refer to Mott Macdonald's Pre-planning Report for detailed analysis on remedial techniques.



Original grey coloured movement joint between precast panels.



Non-original white coloured movement joint.



Replacement tiles and white movement joints disrupt the facade uniformity.

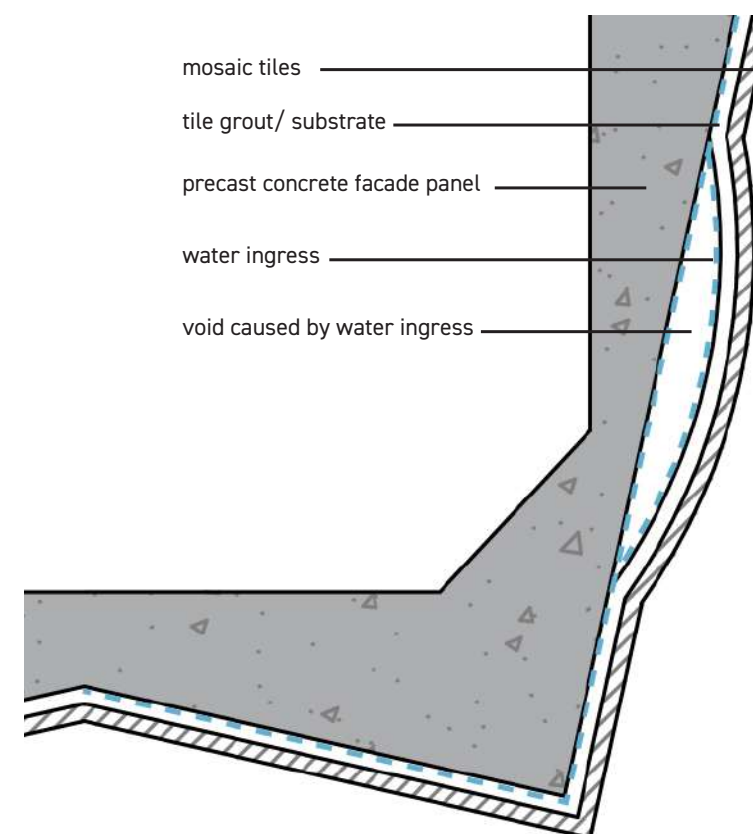


Diagram: indicative plan detail showing the cause of delamination.



Overcladding in sheet metal (test) on site to 1 window: not a long term solution or cost effective sepcification / installaion method for the entire building



Replacement cladding panels to area of delamination



'Bookend' elevation where new tiles and white joints are apparent.

2.4 Mosaic Retention

Planning Submission

The proposals initially set out to retain the tiles within the lobby areas at ground level where the intricacies of the mosaics could be appreciated at eye level whilst paying homage to the heritage of the building.

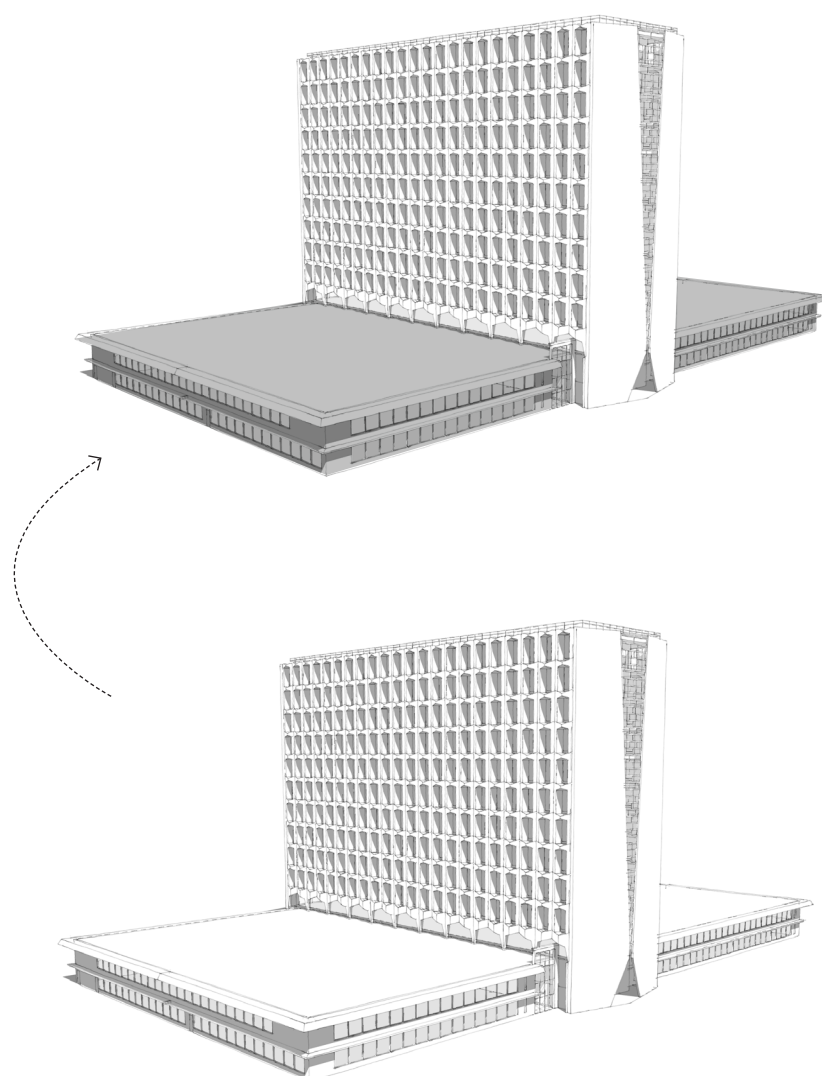
Proposed Amendment

The areas of mosaic to the lower machine halls are in better condition than the tower element of the building.

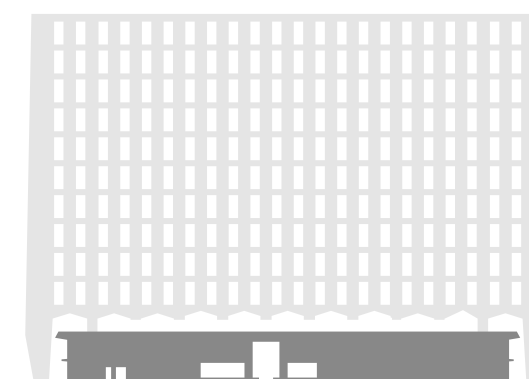
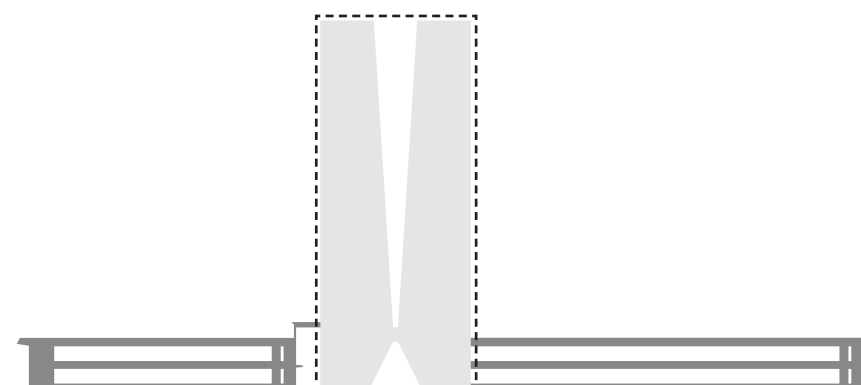
Originally, the tiles provided a holistic aesthetic to the building and the current proposals sought to achieve the same effect by cladding over the entire building.

The alternative to this would be to retain the mosaic tiles to the ground and first floor levels of the machine halls as well as within

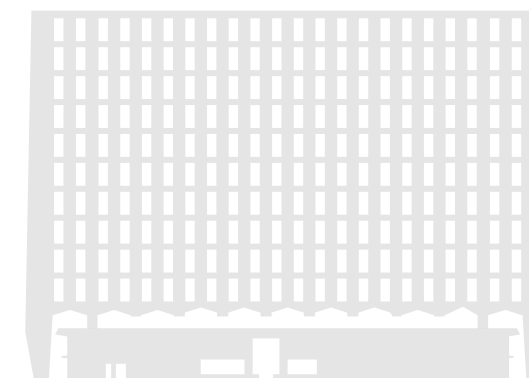
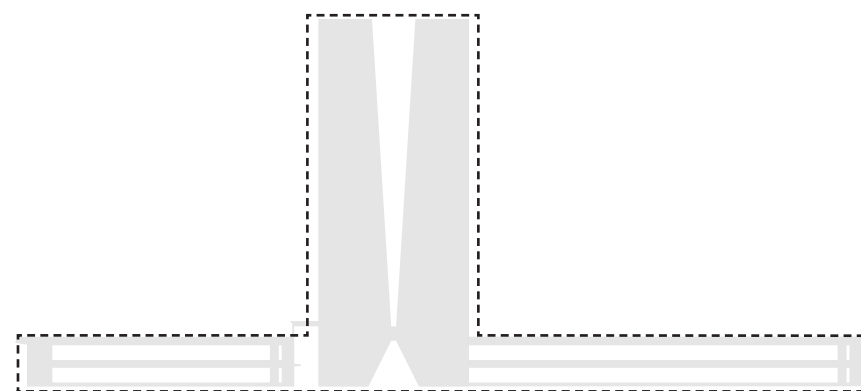
the lobby areas. The tower element of the building sits over the lower machine halls and so there is an obvious hierarchy of material choice and location here.



A l t e r n a t i v e



P l a n n i n g
S u b m i s s i o n



3.0 PROPOSED MATERIALITY

3.1 Anodised Aluminium

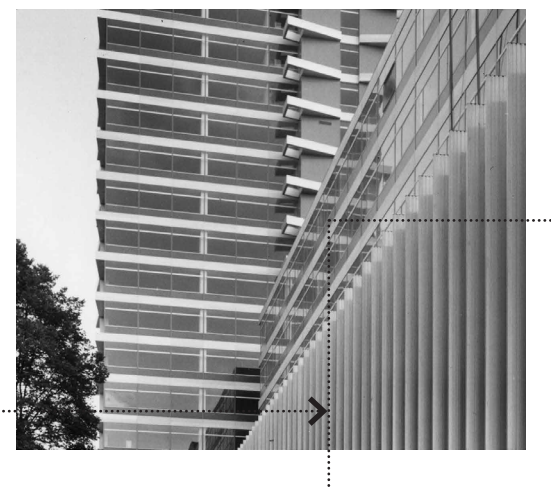
Material Choice - Anvil Metal Cladding System

Alternative products and finishes have been considered during the design development however they have been discounted on the basis of fire integrity and buildability.

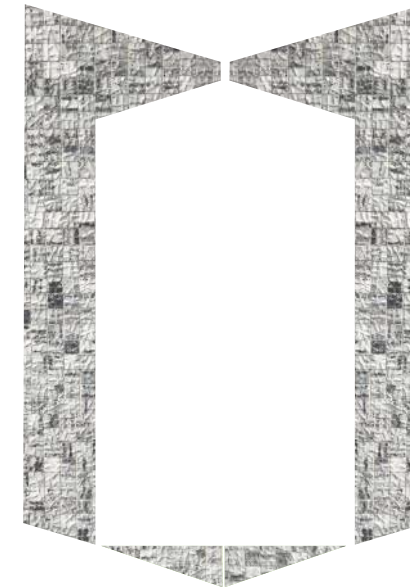
- Existing tiles can no longer be maintained.
- Tolworth Tower has experienced similar issues with it's original mosaic tiling.
- Proposed materiality to respect the original colour scheme and texture of the mosaics.
- Existing tiles form a key component and characteristic of the original building and will remain intact, with the proposals over cladding the building.
- Existing tiles at ground level in and around lobby to be retained (subject to condition) revealing buildings original heritage.
- Tones of proposed material taken from existing silver / grey tones found within the mini mosaic tiles.
- Anodised aluminium has been used on another notable Seifert building (Tolworth Tower - see image below) and forms part of the original materiality.
- Non-perforated option for maintenance purposes.

Benefits of Natural Anodised Aluminium:

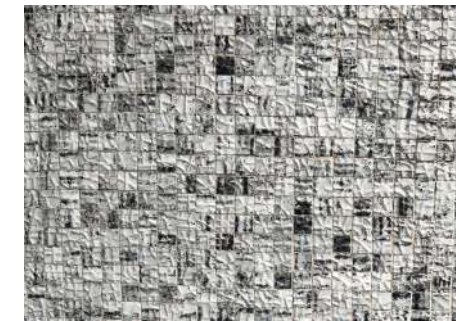
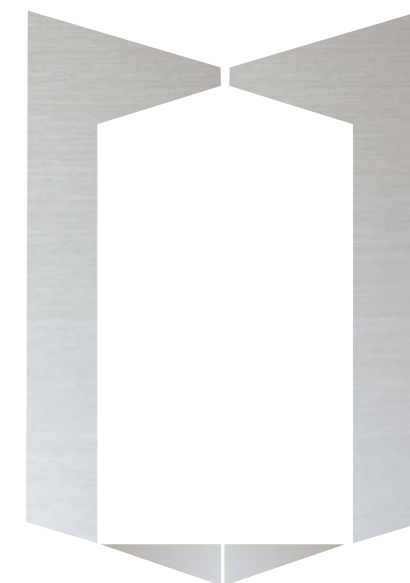
- **Euroclass A1 fire rating which is non-combustible (limited products achieve this rating)**
- Aluminium powder coated products are A2 rated and have limited combustibility
- Corrosion resistance
- no risk of surface finish fading
- 40 years plus on-site durability
- Authentic metallic sheen / lustre
- Abrasion resistance
- uniform surface finish for all metal shapes and textures
- 100% recyclable
- long term guarantees



Tolworth Tower
Existing anodised aluminium fins



- Visual Interest
- Varying texture (brushed)
- Light reflectance
- Overall effect of the tiles at a distance gives a sense of uniformity



Existing Mosaics



Natural Anodised
Aluminium



PROPOSED MATERIAL



3.2 Cladding Form to Tower

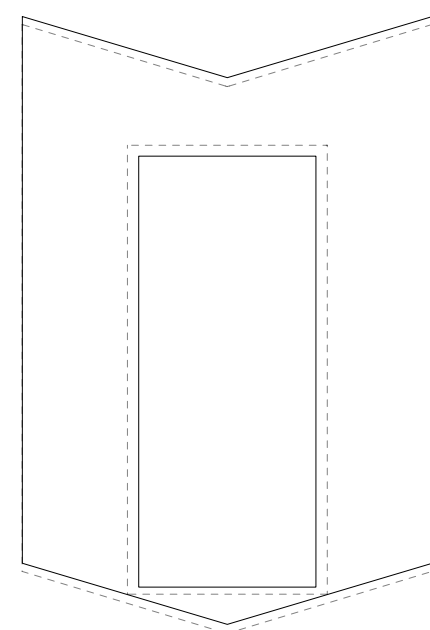
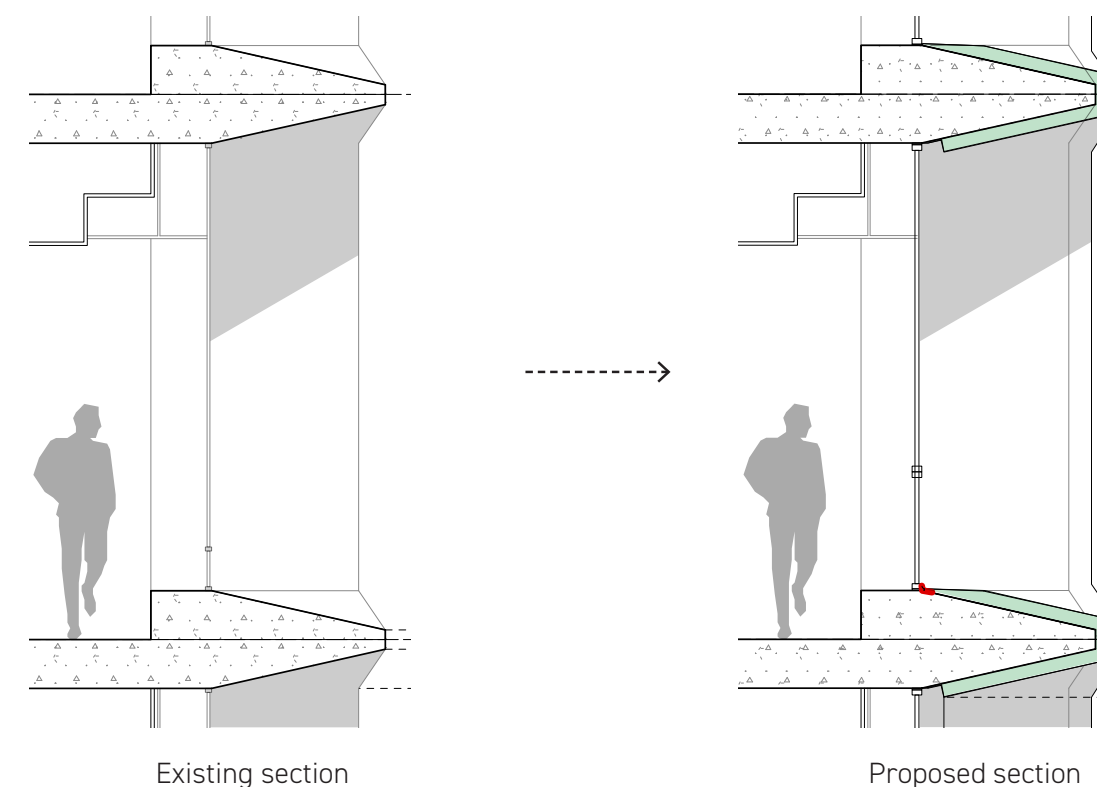
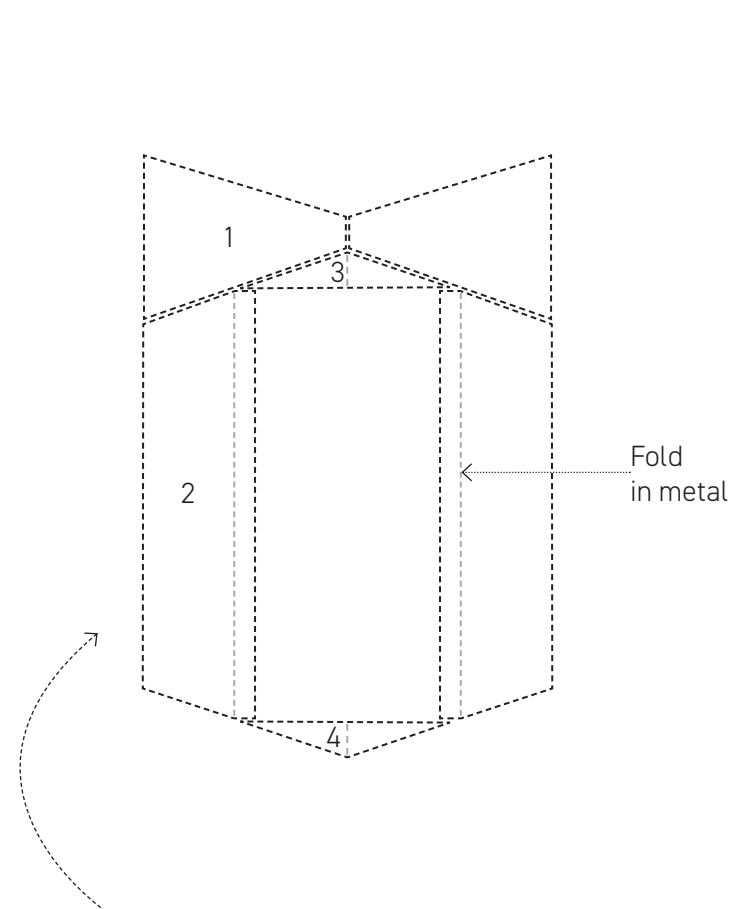
Proposed Panels

The mini mosaic tiles are fixed to the existing facade in larger scale panels, the joints of which are visible and reflective of the structural grid of the building.

The visible lines will be reflected within the proposed panels where possible. The proposed cladding will be a natural anodised aluminium panel and as **the anodisation process has limitations on panel size** along with ease of installation, an additional joint line is being proposed on the principal facades as per the diagrams opposite.

The north and south elevations will be made up of a standard panel size with accentuated joint lines close to the existing joint lines within the mosaics (see existing and proposed elevations).

See page 12 for further detail on finishes.



Overlay of facade aperture showing impact of cladding depth on existing window aperture

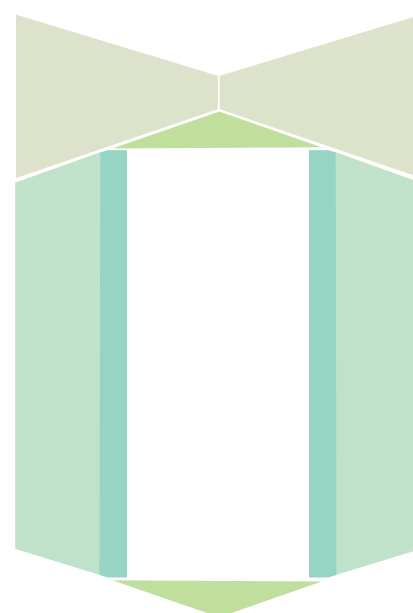
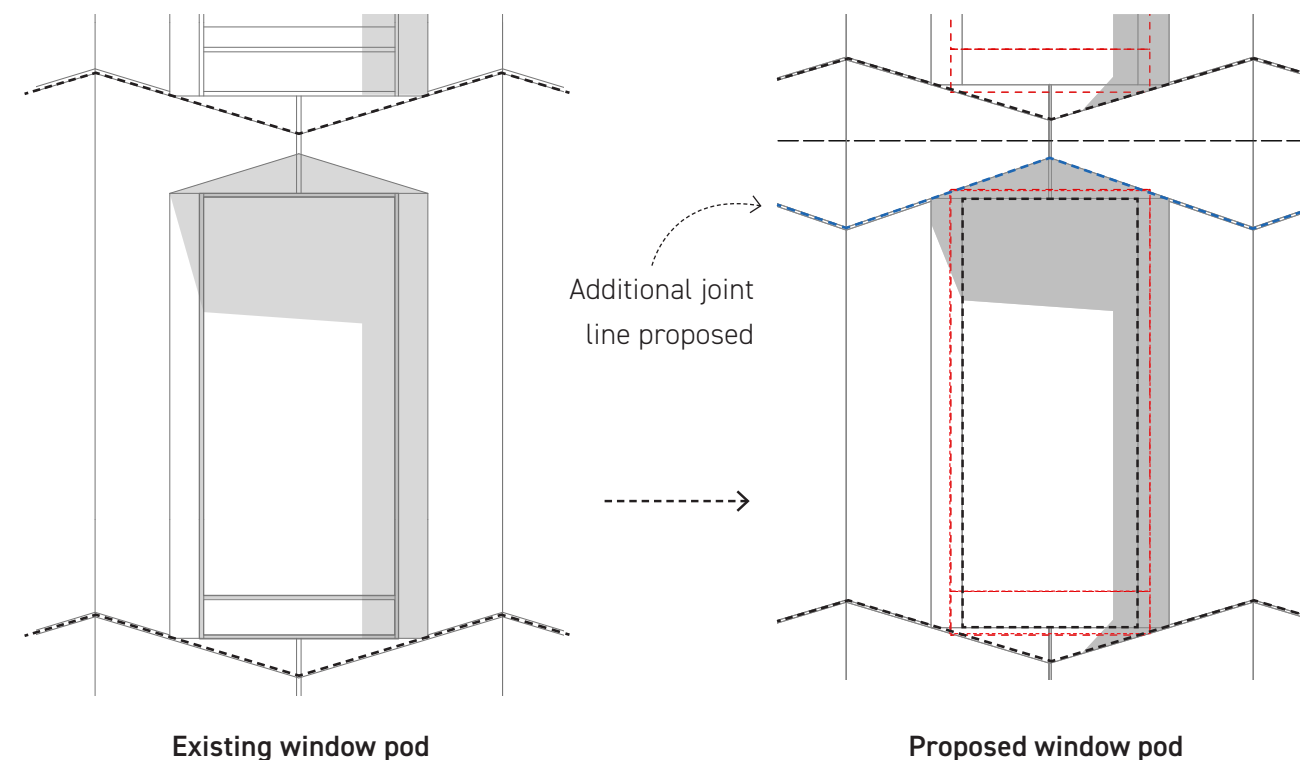


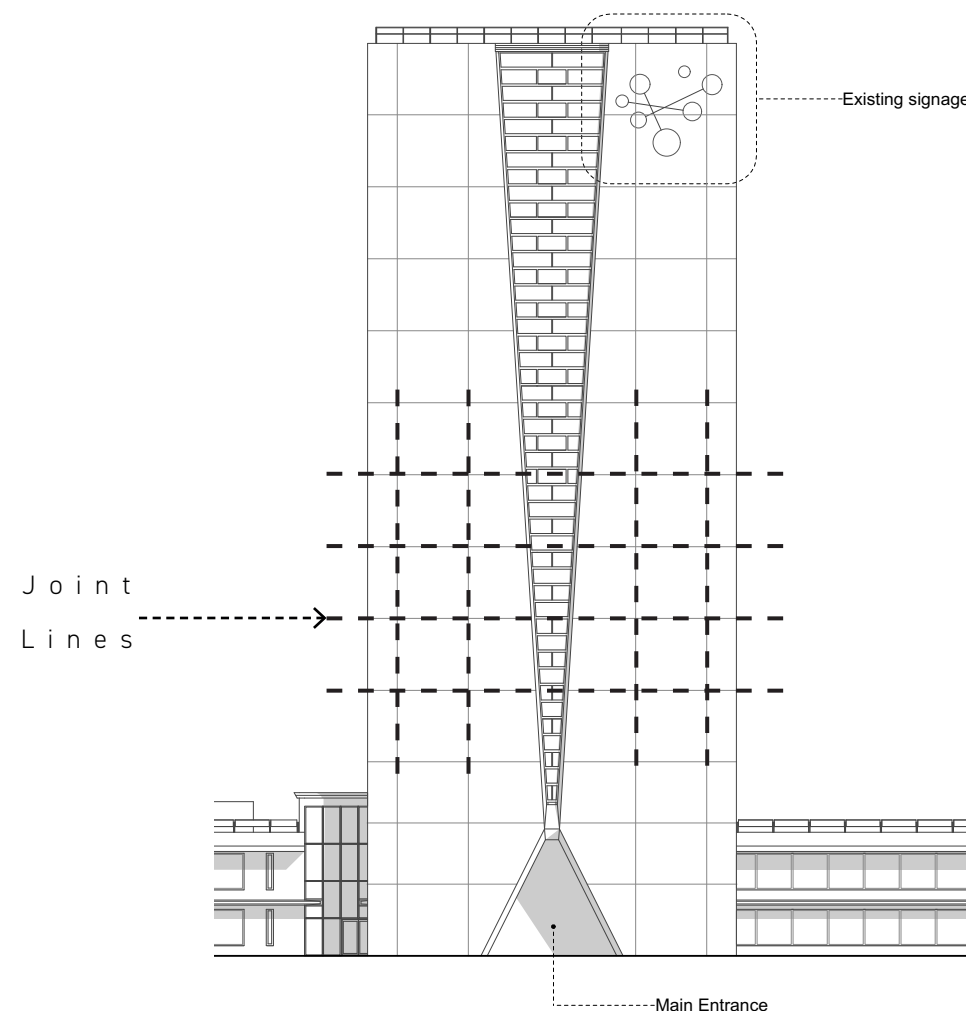
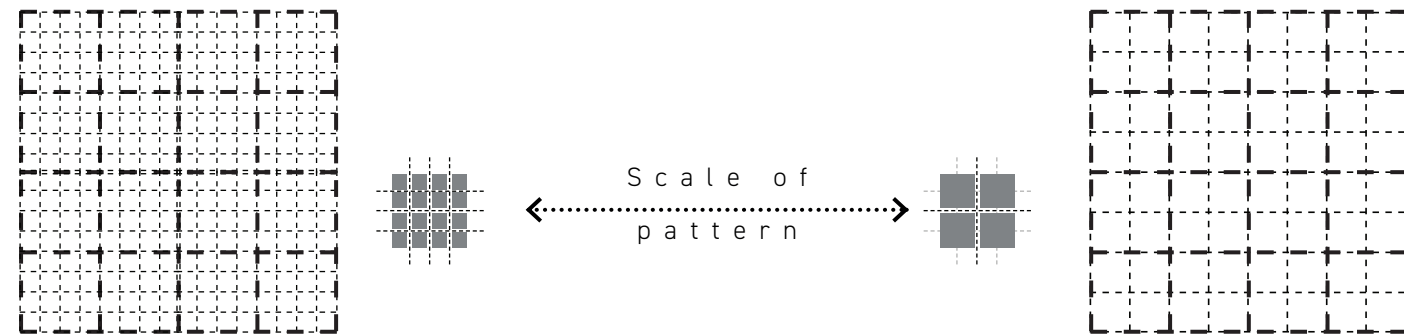
Illustration of proposed panel components



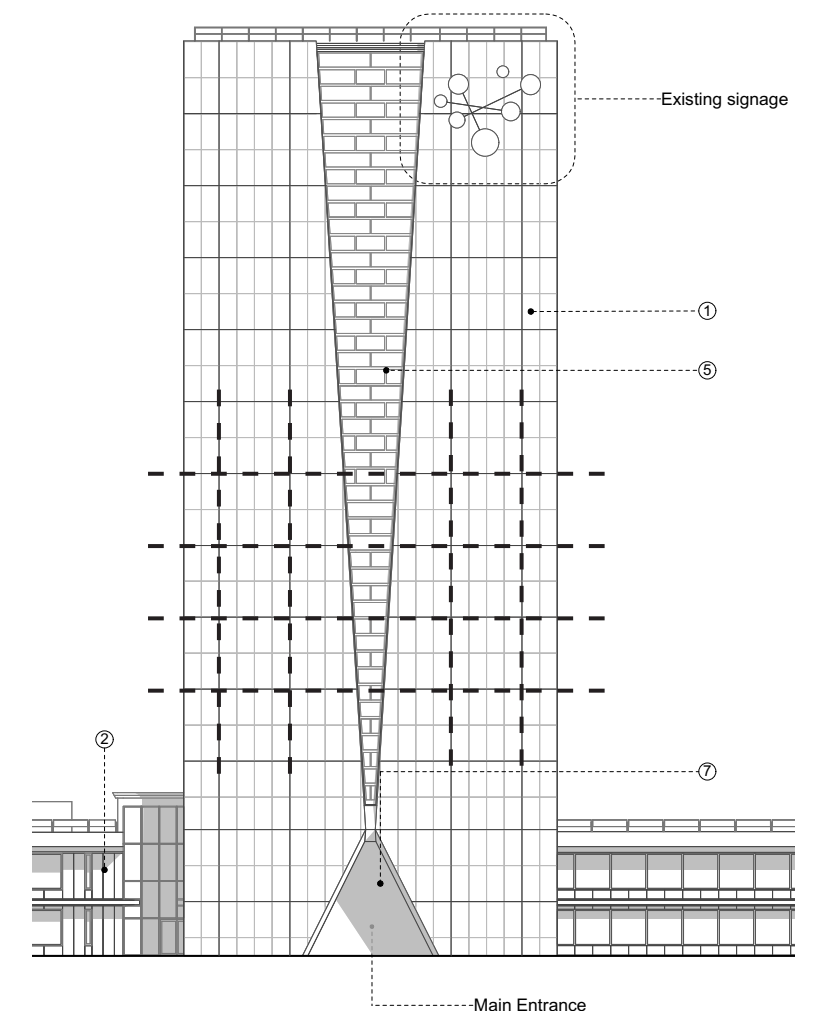
3.3 Cladding Form to remainder of building

Proposed Cladding

- Original joint lines kept the same to reflect existing mosaic tile panels.
- Scale of 'squares' is increased from the small, original tiles to larger, cladding panels but within the same joint line proportions.
- Reference to existing building construction through the retention of the original joint lines.
- Recessed joint fixed panels to the north and south elevations of the Tower (machine halls now omitted).
- Exaggerated joint lines to mimic the existing joint lines of the mosaic panels which in turn reference the existing structural setting out.



Existing South Elevation



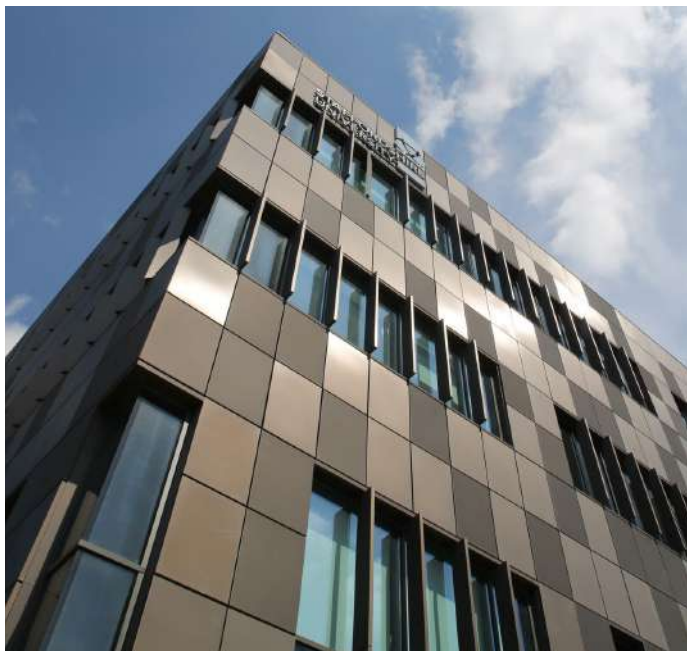
Proposed South Elevation

3.4 Finishes

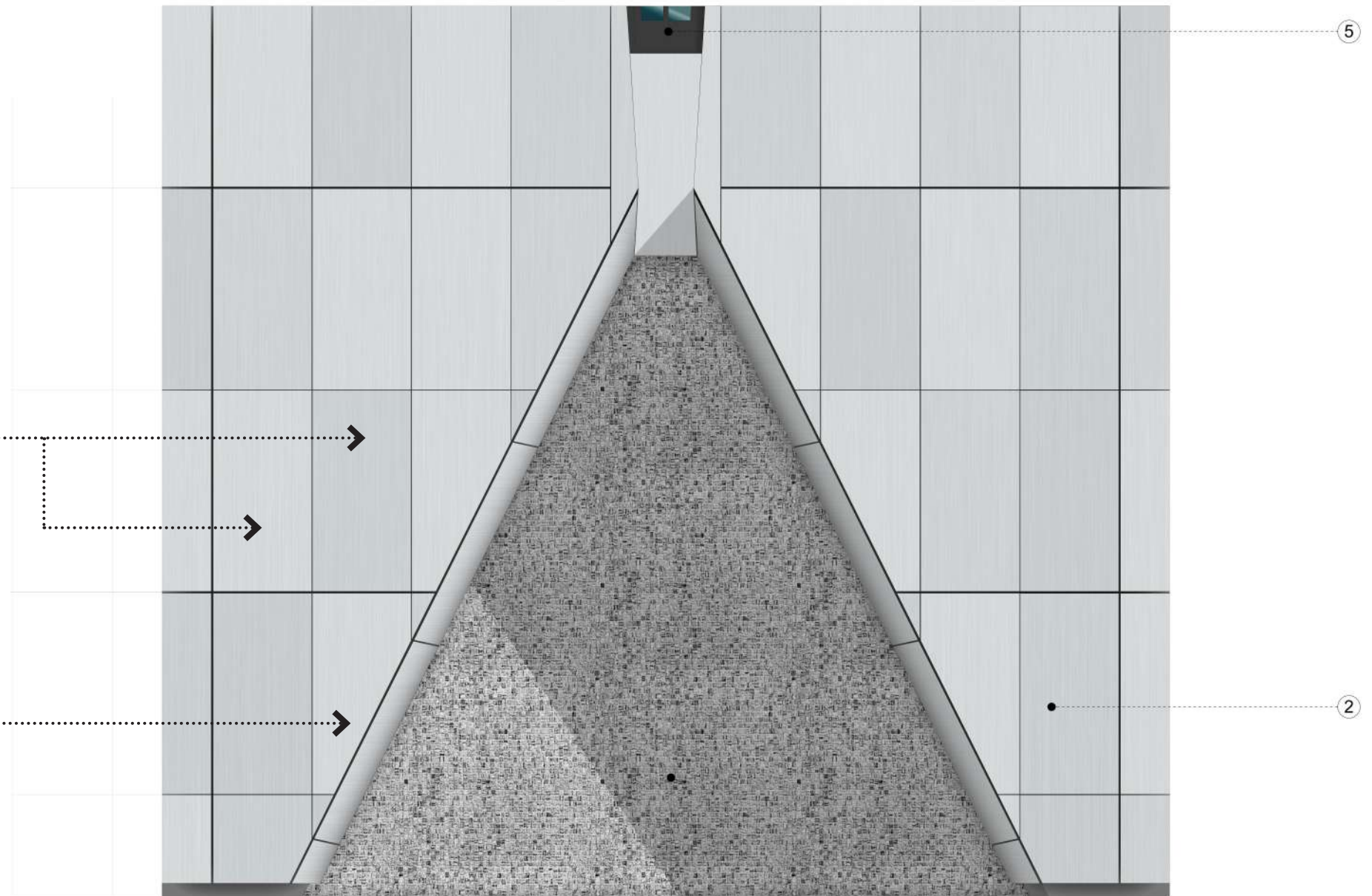
Variance in Tone

- Brushed anodised Aluminium provides a natural variance across the cladding and a proportion of panels with this finish will provide the variance that the mini mosaics do already but on a larger scale.
- A pre coated system that meets A1 rating can be obtained using a standardised panel size however these are limited in size and therefore would not be suitable on the geometric form of the main tower. To achieve a clean, holistic aesthetic with as few components as possible, a bespoke system is required for this area.

NATURAL VARIANCE ACROSS
PANELS WITH BRUSHED
EFFECT



Precedent (above): Staffordshire University
with Anodised Aluminium



"...the principle of flexibility permits. ... positive quality or beauty in the International Style depends upon technically perfect use of materials whether metal, wood, glass or concrete; upon the fineness of proportions in units such as doors and windows and in the relationships between these units and the whole design."

(Hitchcock & Johnson, 'Modern Architecture: International
Exhibition', New York: MoMA, 1932)

3.5 Fire Integrity

The proposed over cladding of the existing façade will be fully compliant with the Building Regulations and current best practice; the proposal will be assessed in accordance with Approved Document B of the Building Regulations and be fully compliant with Regulation 7 of the Building Regulations.

The Building Regulations specifically note that the;

'The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building'

Based on the scale and mass of the building taking into account the proximity of the building to its boundaries the regulations specifically state the cladding should have a performance no worse than A2-s1, d0.

The proposals are to use an aluminium based cladding product and based on the European Commission Decision Establishing the lists of products belonging to Class A 'No Contribution to Fire' as cited in Approved Document B aluminium is classified as A1 including when coated with an inorganic layer; this is in excess of the required A2 classification as noted in Approved Document B to the Building Regulations.

Cavity barriers will be provided to maintain all compartmentation and be positioned to additionally seal all openings and at a maximum of 20m centres. All products used in the recladding will be a minimum of A1 and tested and certified for the application intended and as proposed.

There will be no additional insulation included in the recladding system and the system backs onto a concrete panelised system, on that basis there is zero additional risk from any insulating layer.



4.0 WINDOW PROPORTIONS

3.6 Facade Concept | Existing Windows



Existing Windows

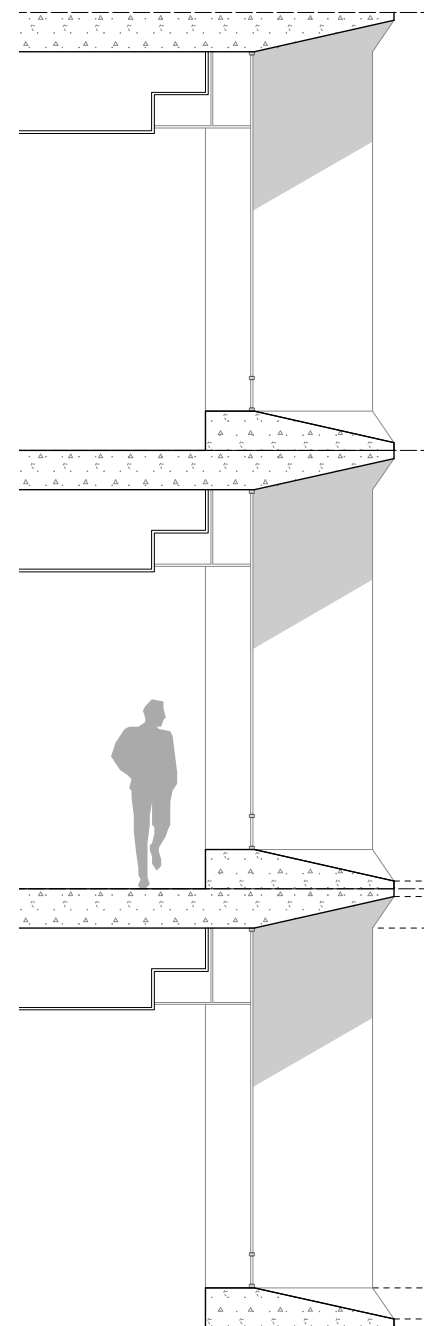
The existing Crittal windows are original to the building and due to age can no longer be replaced like for like. Replacing the glass within the existing Crittal windows is not viable as this will damage the integrity of the crittal frame and therefore compromise the window.

The inclusion of this transom suggests there may have been historic issues manufacturing and transporting single glazed window units. The top pane is 3m in height suggesting a maximum height for the window system with an additional 300mm pane at the bottom.

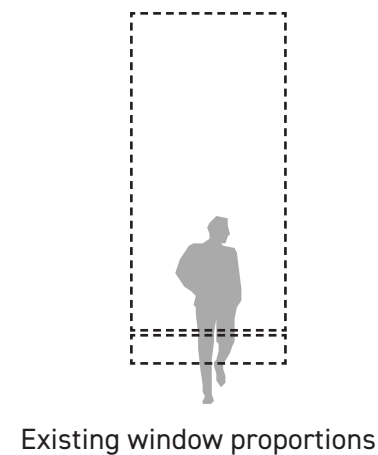
The existing glazing is also slightly tinted. This tinting has been replicated on replacement windows with the application of an applied film which presents issues in achieving consistency across glazing as well as issues with the use of film as a principle.



Existing crittal window detail - 30-40mm profile



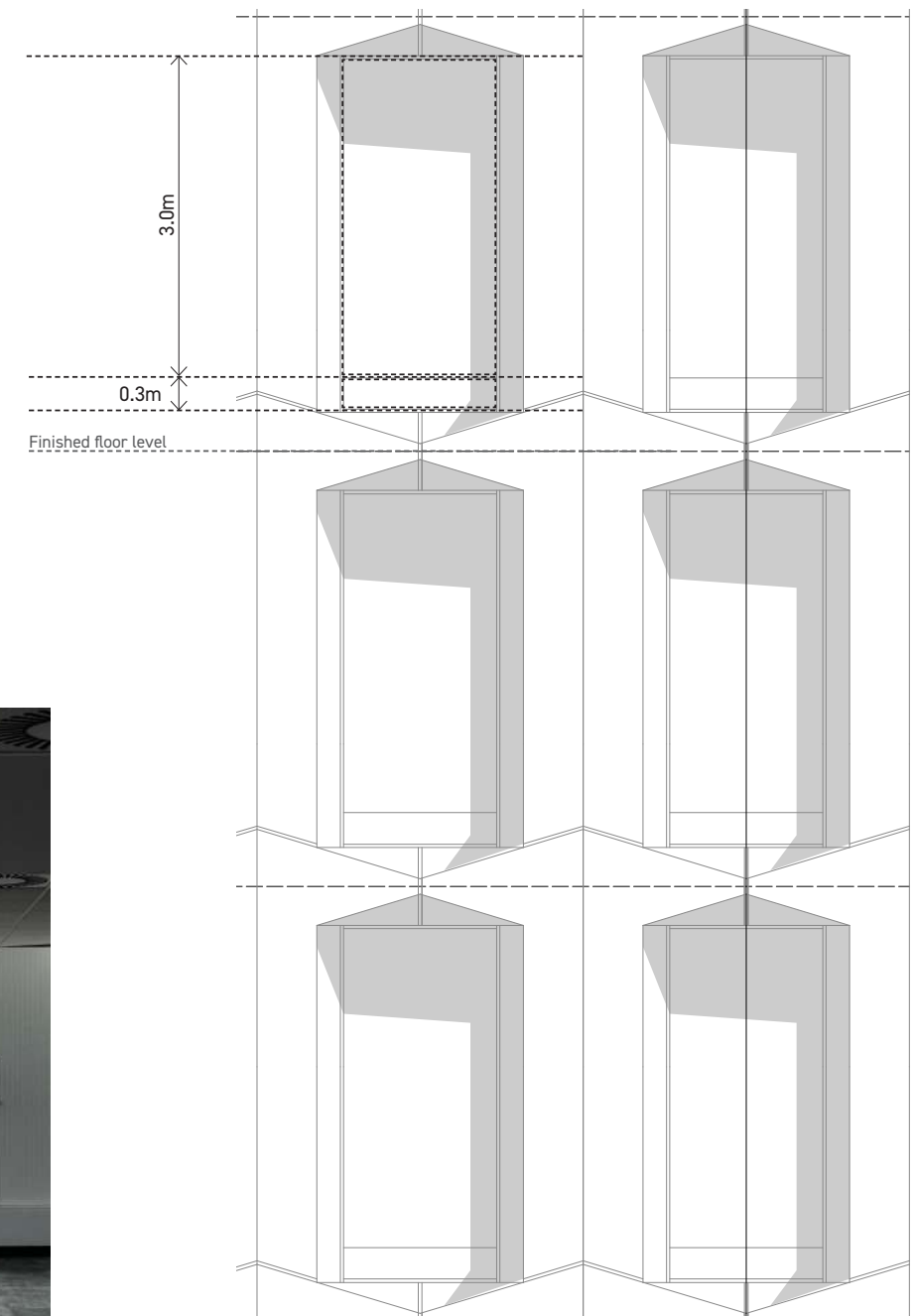
Existing bay section



Existing window proportions



Existing suspended ceiling



Existing bay elevation

4.1 Facade Concept | Proposed Windows

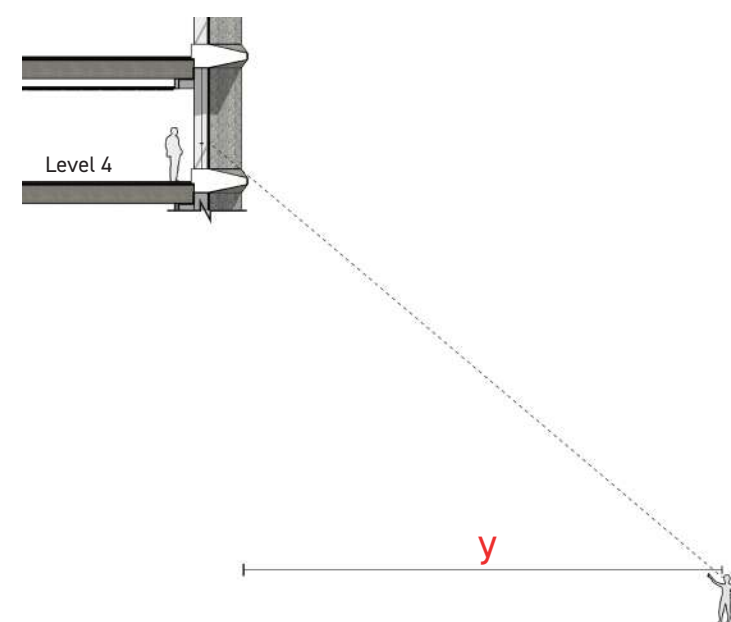
Manufacturing and Logistical limitations

Due to the practical issues of installing full height windows internally, the window design has been reviewed to include an appropriate height for a new transom. **The replacement windows will need to be transported into and up the building via the existing goods lift, allowing for a maximum pane size of 2.4m in height.**

Any future replacement windows will also need to be replaced internally. By raising the existing transom height to circa 900mm from finished floor level, this will allow for 2 no. coupled windows or glazed panels to be transported and installed internally.

The diagrammatic section (below) shows that at this height of transom a person would have to be circa. 17.3m (y) away for it to be visible. This distance would increase for the glazed units above. The highest glazing is at level 11. The value of 'y' at this level is 50.8m.

These values demonstrate that for people approaching the building a transom raised to this height would have minimal visual impact.



Original window setting out based on maximising view out and daylight in, with thin window frames from a 'frameless' look.

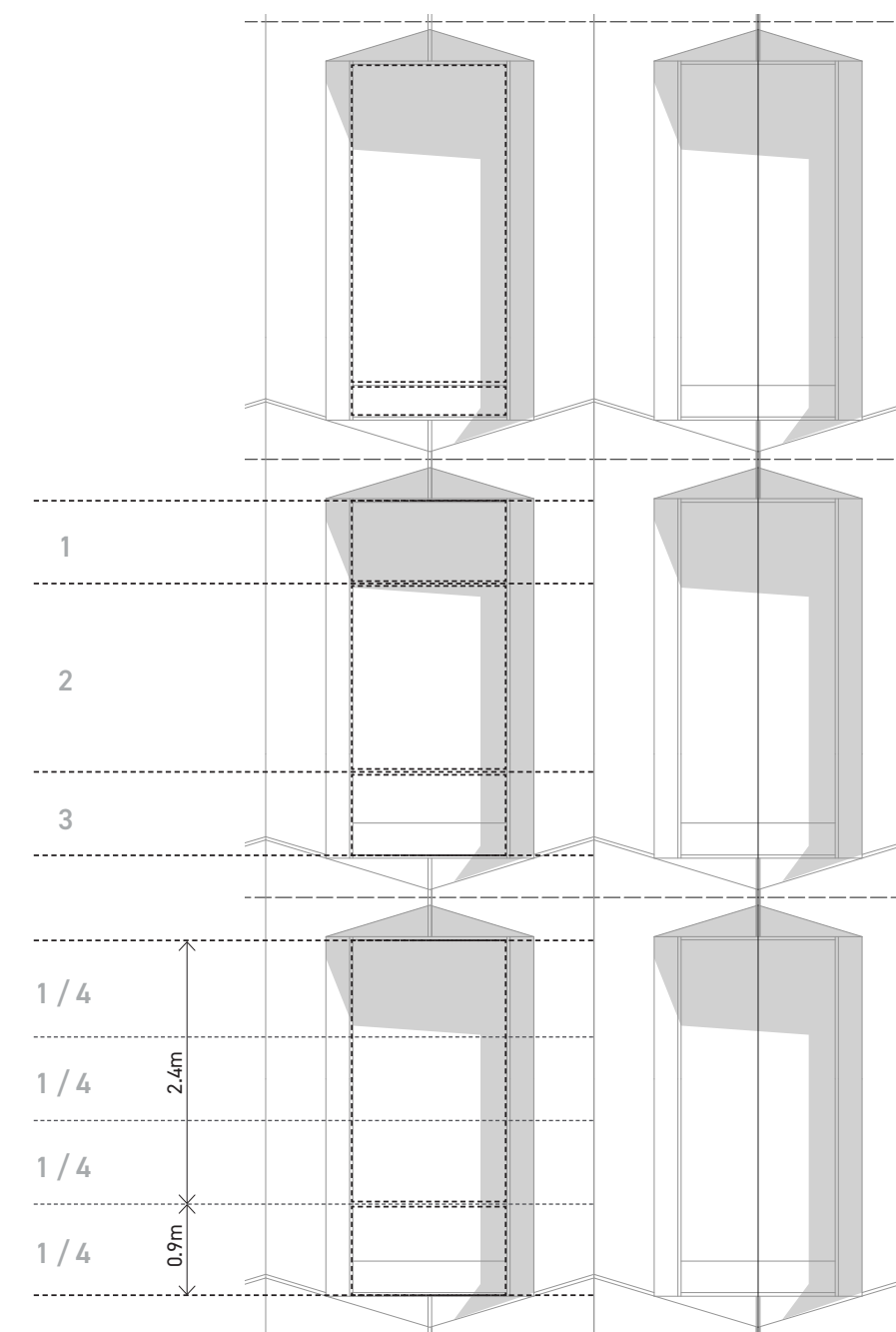
Inspiration taken from other notable Seifert buildings to split panes into 3.

Top transom aligns with existing (but not original) suspended ceiling.

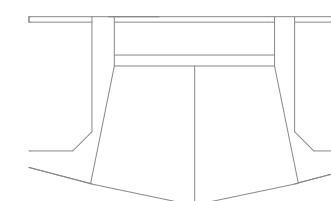
Maximum pane size 2.4m in height due to logistical constraints within the existing building.

The proposed window transom must be able to take the weight of the double glazed window unit above and therefore has been sized as much as practically possible.

Original
Option 1
Option 2



Window Study



4.1 Facade Concept | Proposed Windows

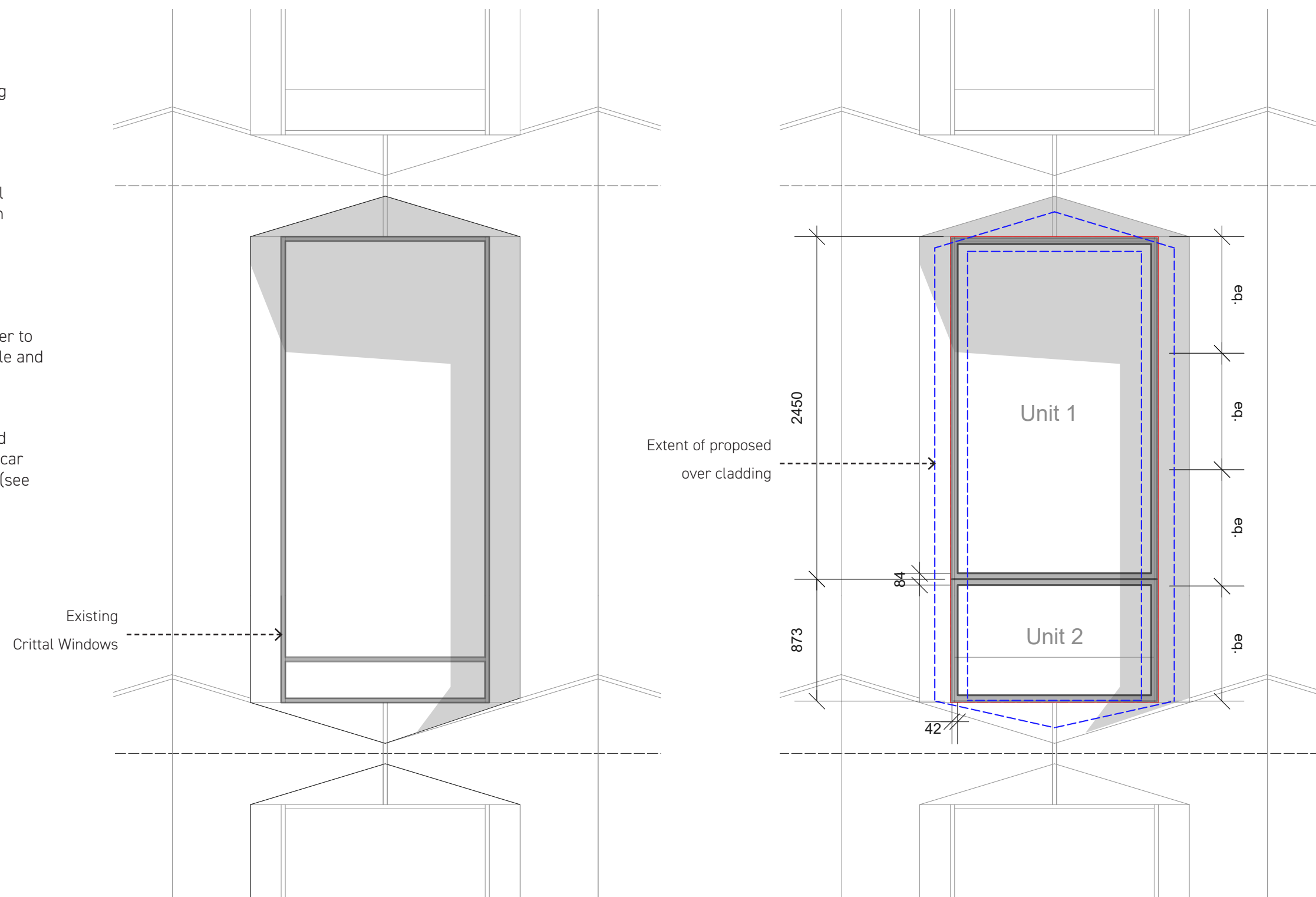
Crittall Window versus Double Glazed units

See bay studies opposite comparing the existing crittall windows to the proposed double glazed window units.

It is important to note that the overcladding will reduce the aperture of the windows in elevation slightly and therefore the site light of the outer frame will not be visible.

The overall transom width will be 84mm - this accounts for 2 no. window units coupled together to form one window. The windows are not openable and are fixed.

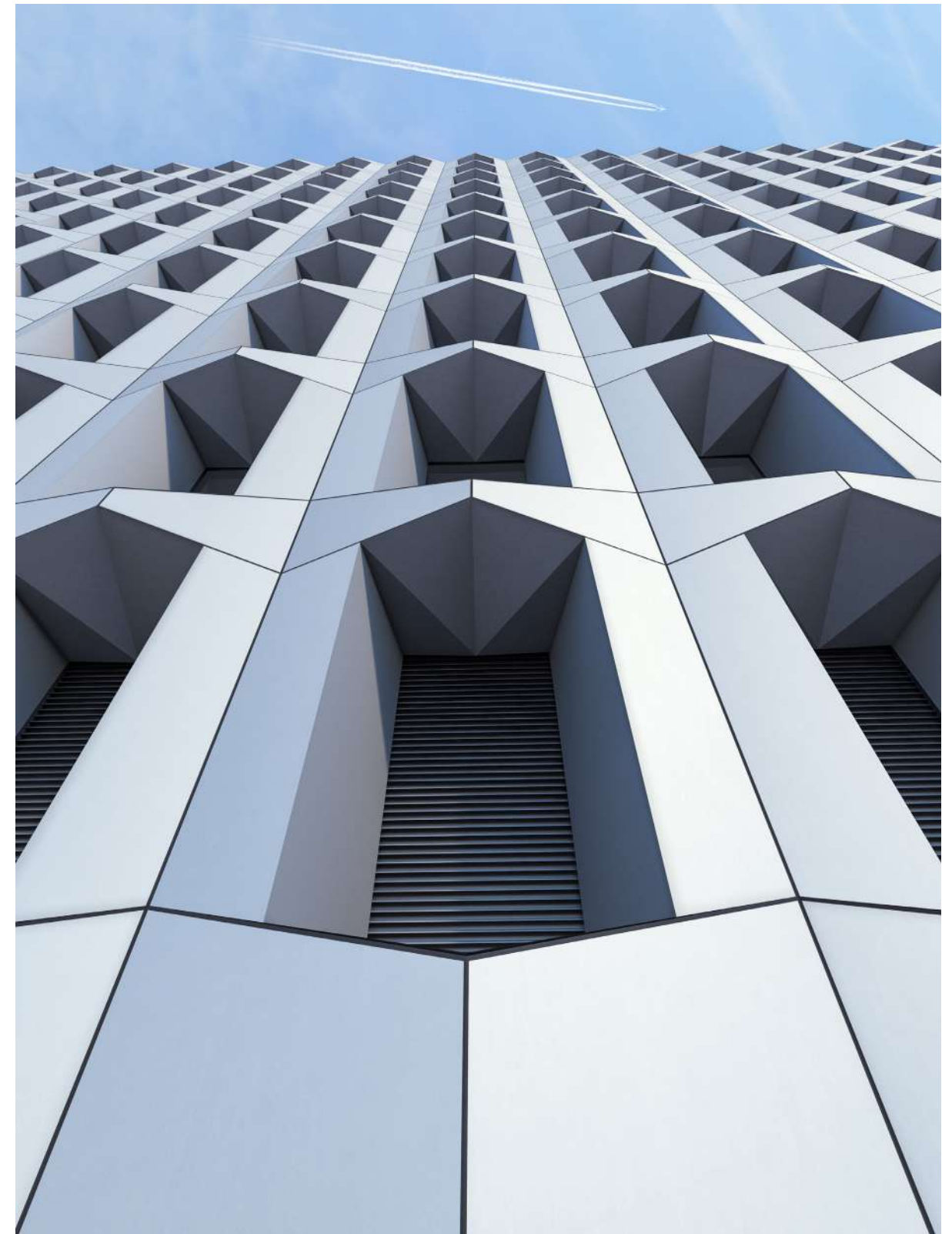
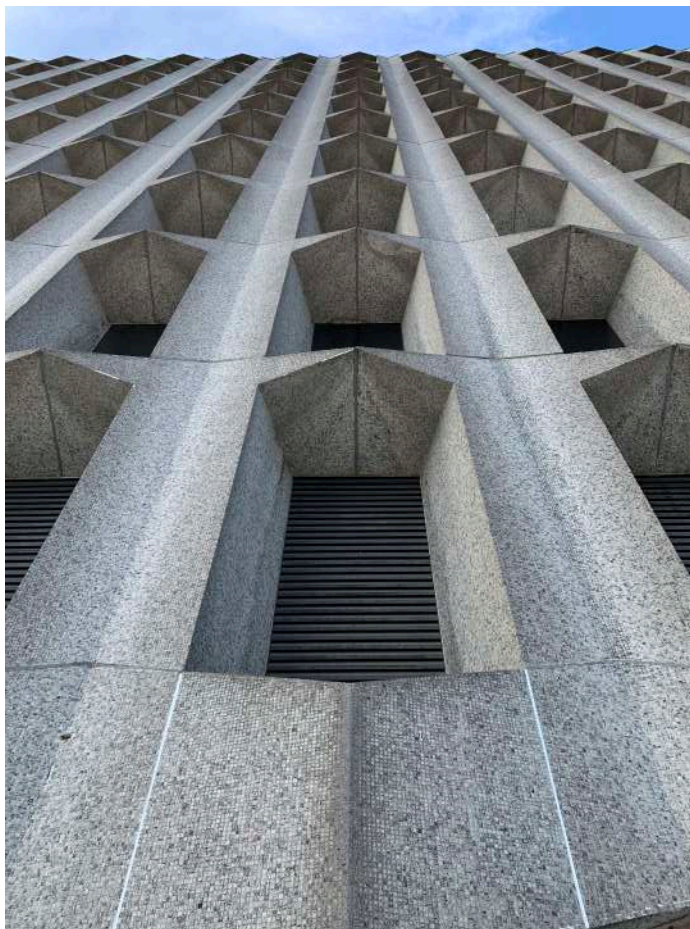
The size of Unit 1 opposite has been determined by the maximum internal dimensions of the lift car within the existing goods lift in Hexagon Tower (see page 14).



4.2 Proposed View - CGI

Opposite: View looking up principal tower facade

Below: Existing view



4.3 Proposed View - CGI

Opposite: View looking south-west from Mill Brow

Below: Existing view



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