4.0 Proposed Facade & External Envelope Design

4.0 Proposed Facade Concept Strategy

4.1 Vision - Design Drivers

Designing two new facilities for the Begbroke Science Park provides a great opportunity to set up a “common language” for the future development and to create a connection with the exiting development, particularly with the Farm House Building.

The intention for these buildings is to appear as part of the same complex, using the same architectural elements, and creating a new “sense of place”.

For this purpose the proposal shows the repetition of some architectural elements and the adoption of a common module to inform the composition of the façades.

At the same time, within this common language, there is the aim for each building to have its own identity, reflecting their specific functionality.

This will result in varying some of the external envelope elements, utilising different textures in the facade treatment and different finishes/colours in details.

Design precedents

Design precedents

Design precedents

Existing Begbroke Science Park aerial photography

4.2 Context

The other driver for the project is fitting into the context: at the scale of the adjacent buildings as well as at a wider scale, utilising materials and textures to help the new buildings belong to the existing community.

4.0 Proposed Facade Concept Strategy

4.1 Existing Campus - Materiality

The campus today has evolved over time based on research and expansion needs but without a clear masterplan or design principles.

As a result the overall aesthetic of the campus is a mismatch of different styles, proportions and materials.

The lack of coherent design principles creates a strong opportunity to establish a common design language for the future developments of the campus.








4.0 Proposed Facade Concept Strategy

The facade design development is based on environmental analysis of the two zones, in conjunction with the requirements of the uses within the building.

Initial environmental studies of the building orientation and the sun irradiance on the facades and the roof highlighted the need to ensure the facades receive adequate shading as well as well considered glazing to opaque ratio to ensure solar gain is minimised for spaces within.

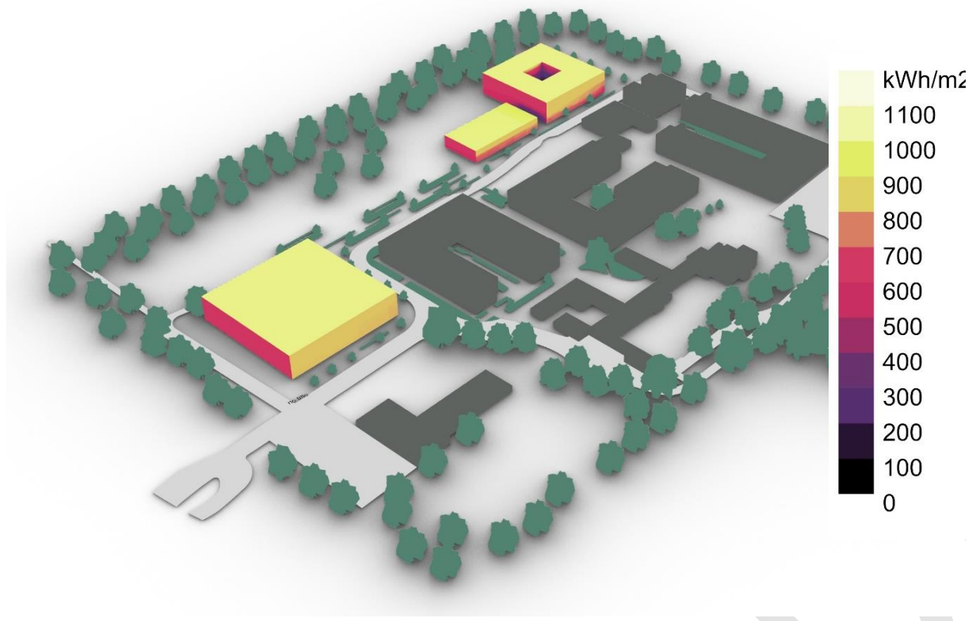
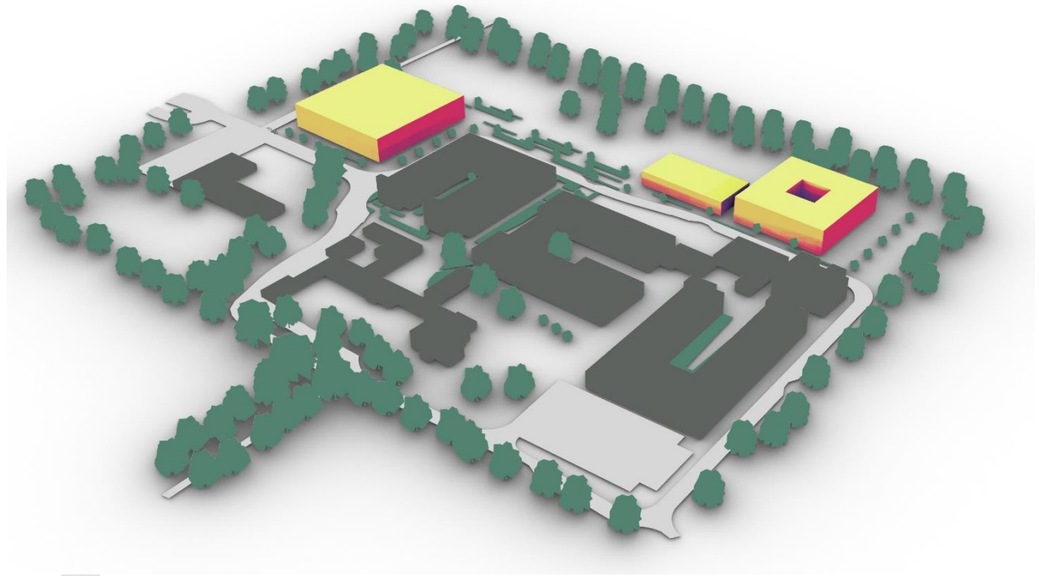


Figure 8: South-east view with colour mapping based on the incident solar radiation. The existing buildings are shown in grey.



igure 9: South-west view with colour mapping based on the incident solar radiation. The existing buildings are shown in grey.

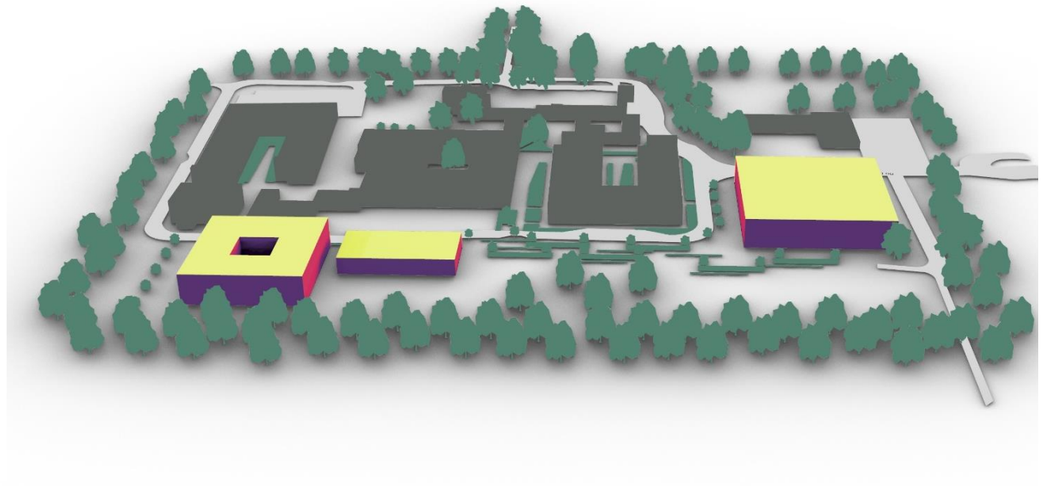


Figure 10: North view with colour mapping based on the incident solar radiation. The existing buildings are shown in grey.

4.0 Proposed Facade Concept Strategy

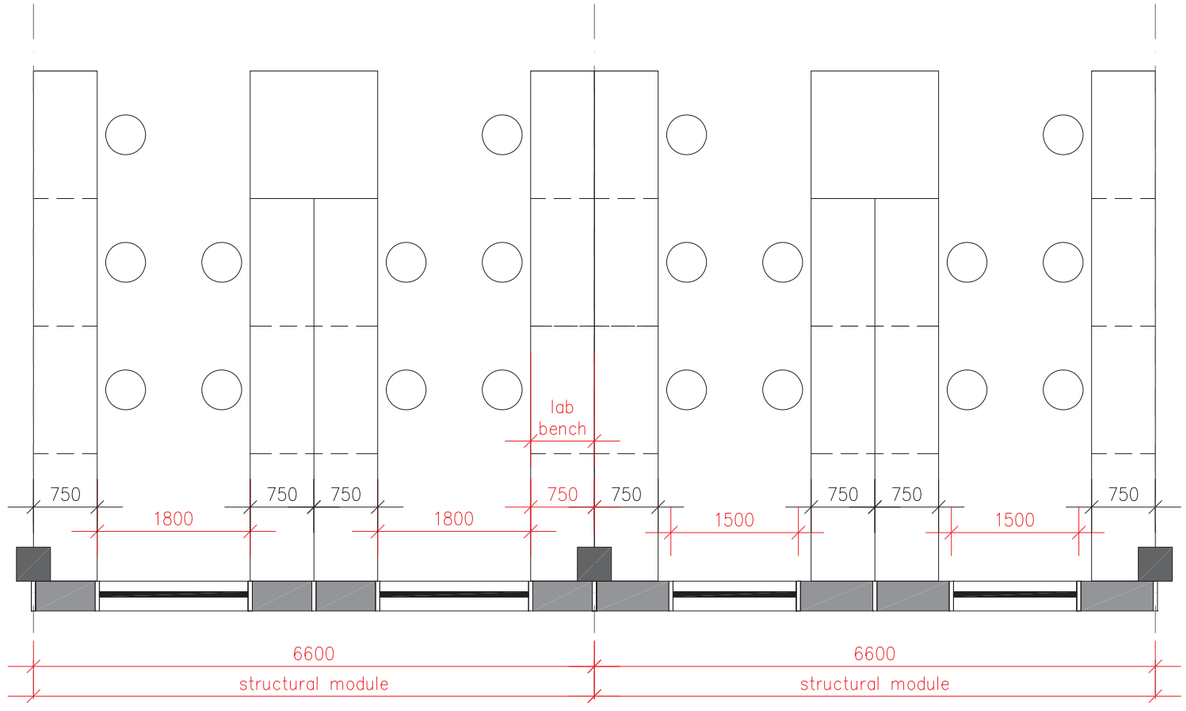
4.3 Typology

The overall facade design approach starts from the very basic functional needs of these buildings: the laboratory space.

This typical layout of the lab benches is the basis for positioning of the window openings in the facade to ensure maximum flexibility is provided for the spaces within the building.

This results in a module based on the typical structural bay (6600mm), which would allow for highly flexible laboratory planning.

Typical Bay
Lab Benches - Window Position



4.0 Proposed Facade Concept Strategy

Further analysis and building modelling highlighted the need to develop two different facade modules for the overall envelope design.

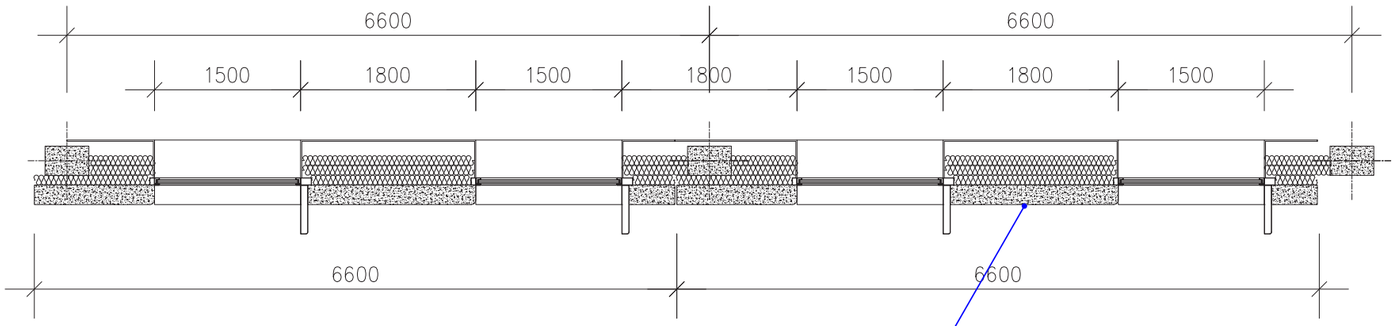
On the East and West elevations vertical fins will provide shading, reducing glaring and heat gain, whilst South elevations would benefit from more horizontal shading.

South Facade

East/West Facade

4.0 Proposed Facade Concept Strategy

Plans and Section of a typical structural bay
showing proposed materials.



Opaque Panel:
brick slips mounted onto pre-cast concrete panels

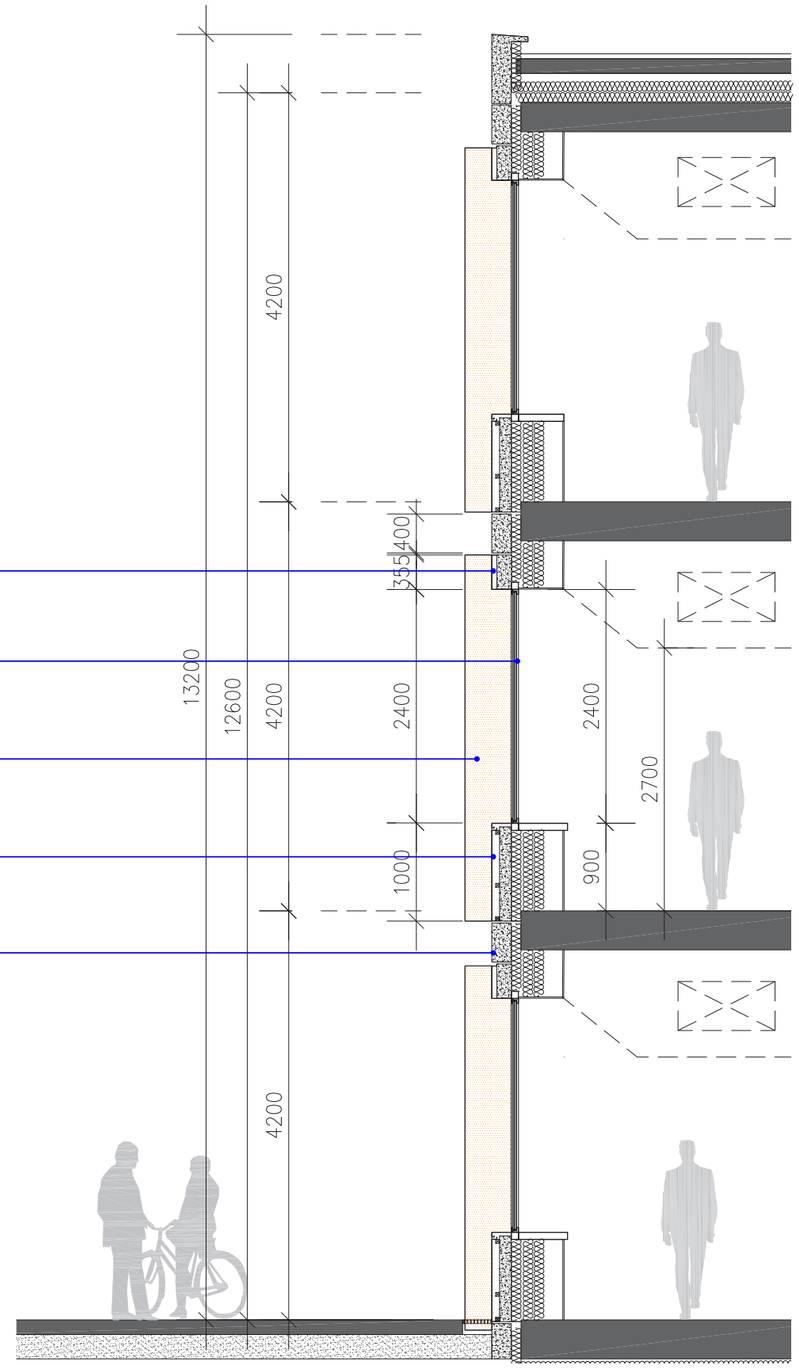
Top Spandrel:
dark grey PPC aluminum + insulation

Vision panel:
clear glass

Shading Fins:
Perforated anodised/PPC aluminium

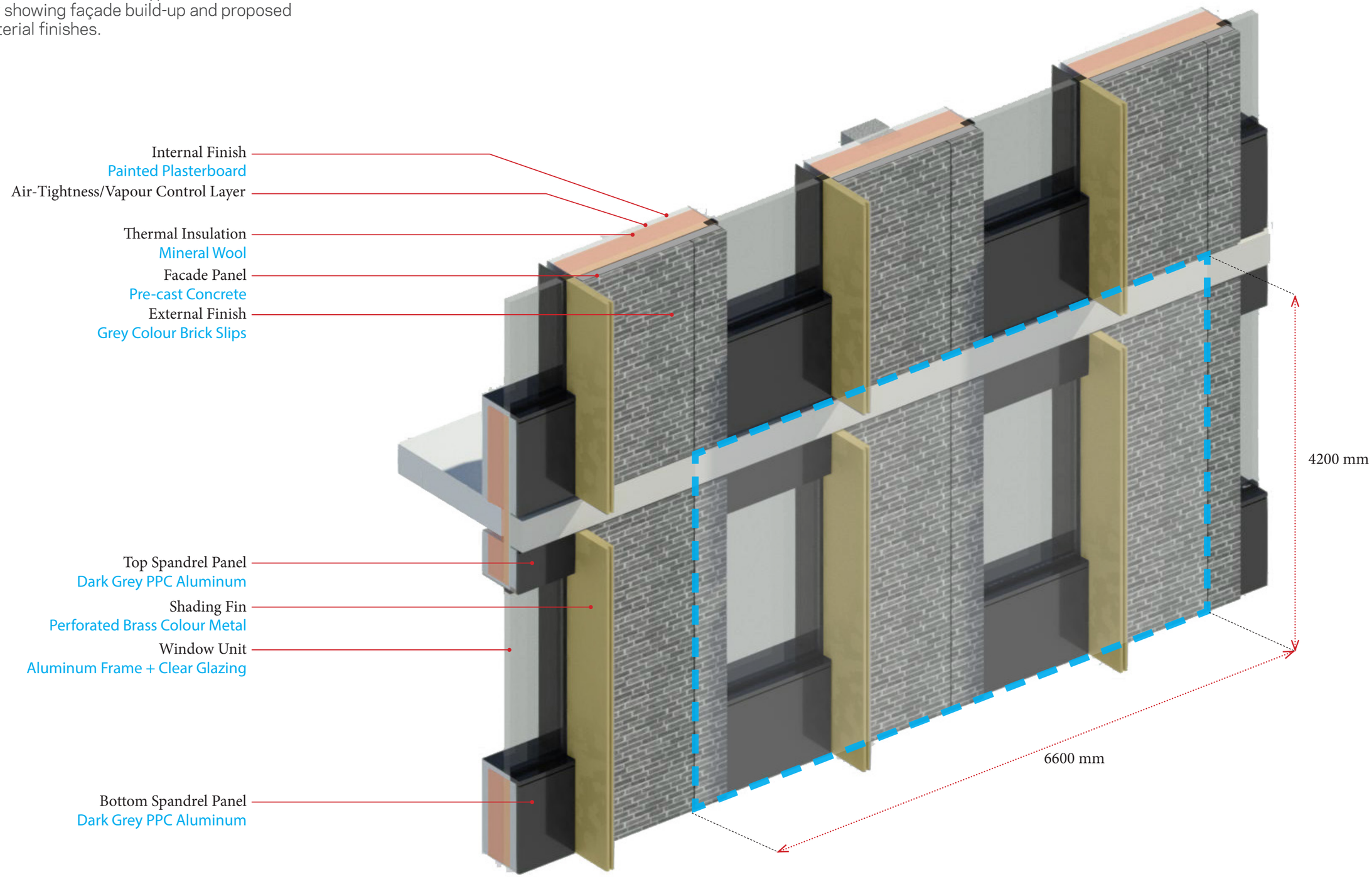
Bottom Spandrel:
dark grey PPC aluminum + insulation

Slab edge panel:
acid etched Pre-cast concrete (re-constituted stone)



4.0 Proposed Facade Concept Strategy

Axonometric view of a typical structural bay showing façade build-up and proposed material finishes.

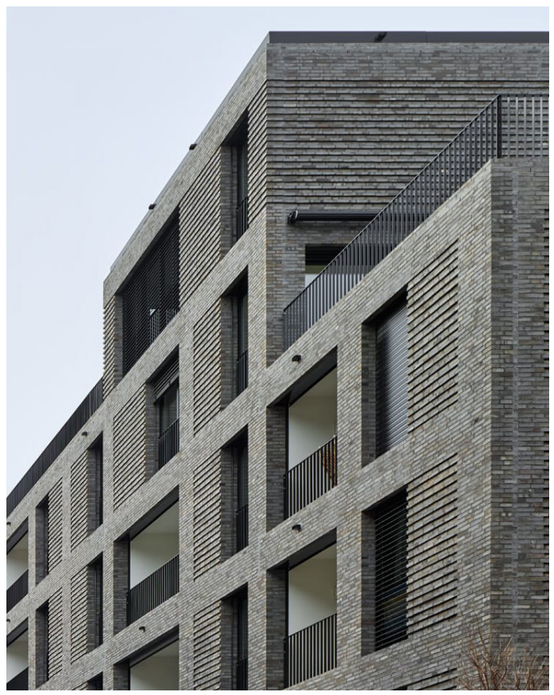


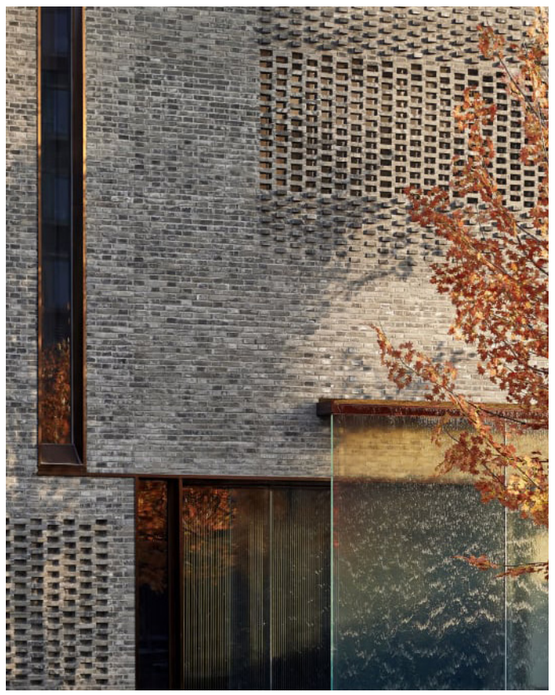
4.0 Proposed Facade Concept Strategy

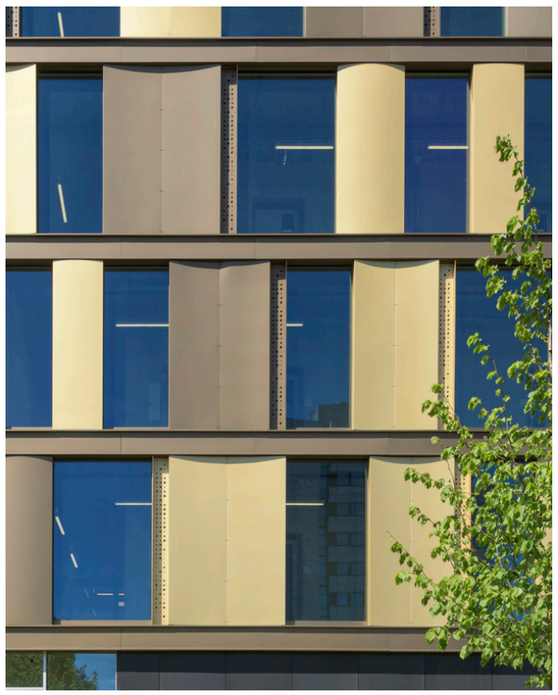
4.4 Materiality

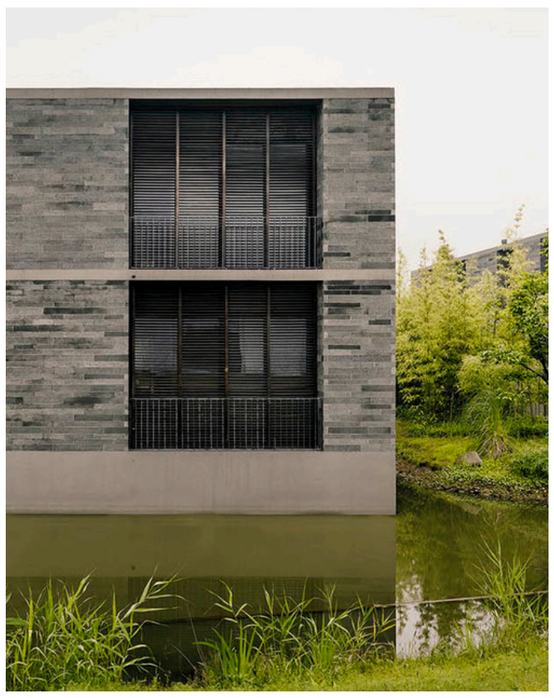
Materiality - Precedent Images

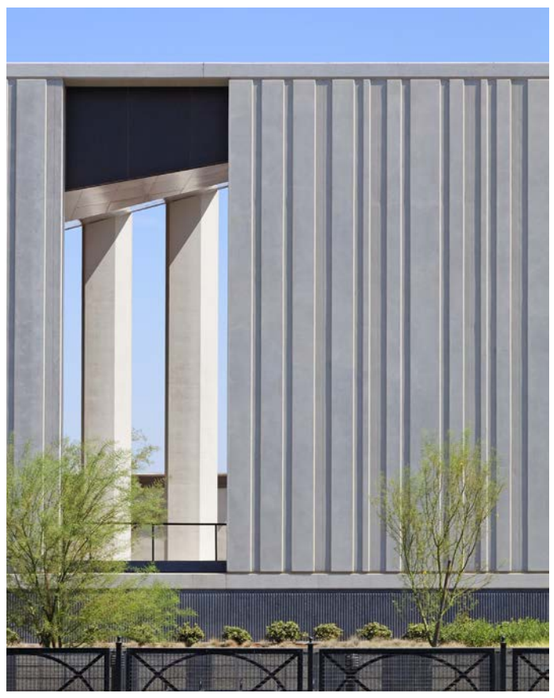
The facade materiality proposals draw inspiration from other buildings with a mixture of stone/brick and metal cladding that would complement the existing building stock on the campus.

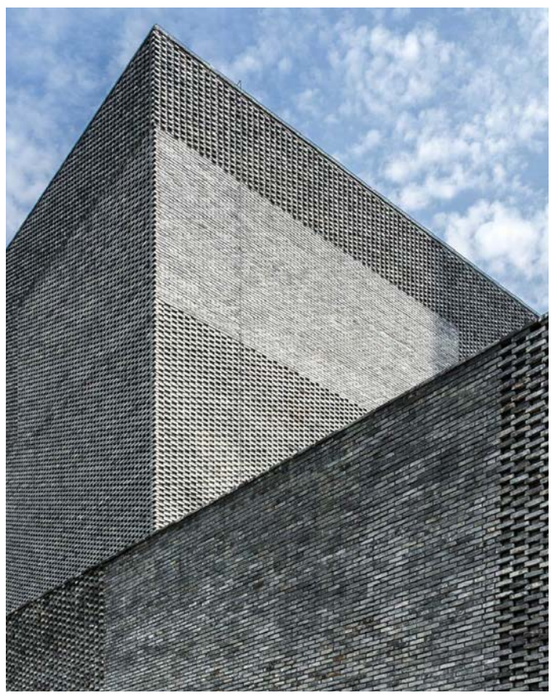


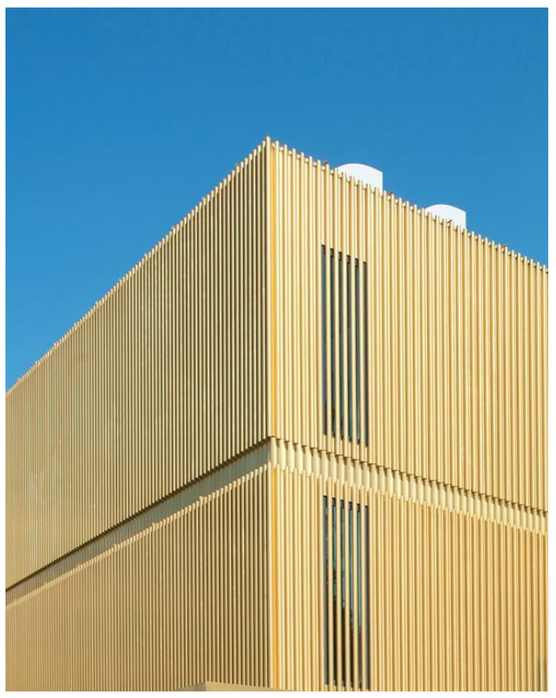








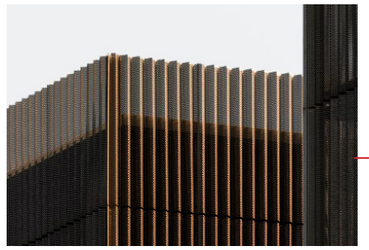




4.0 Proposed Facade Concept Strategy

4.4 Proposed Facade Material Palette

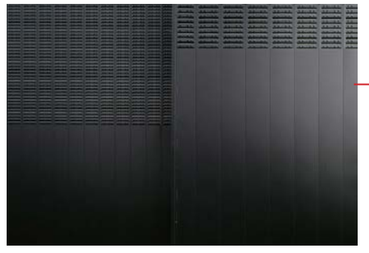
Refer to accompanying elevation drawings for detailed material specification.



Plant Screen Panels:
perforated undulated PPC metal - dark grey colour

Bricks:
grey colour/blend

Slab Edge:
pre-cast white concrete - acid etched



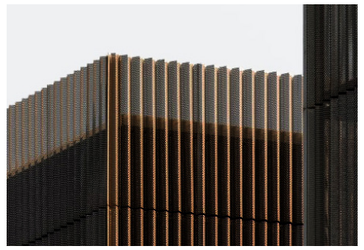
Spandrels Panels:
PPC aluminum - dark grey colour

Shading Elements:
Perforated anodized aluminum, brass colour, brushed

4.0 Proposed Facade Concept Strategy

4.4 Proposed Facades - Commercial Building

Refer to accompanying elevation drawings for detailed material specification.



1 PROPOSED NORTH ELEVATION - COMMERCIAL BUILDING

1 : 100

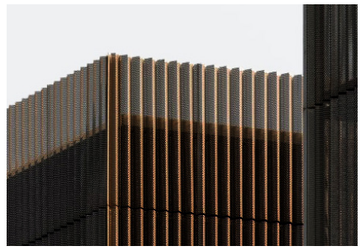
2 PROPOSED SOUTH ELEVATION - COMMERICAL BUILDING

1 : 100

4.0 Proposed Facade Concept Strategy

4.4 Proposed Facades - Commercial Building

Refer to accompanying elevation drawings for detailed material specification.



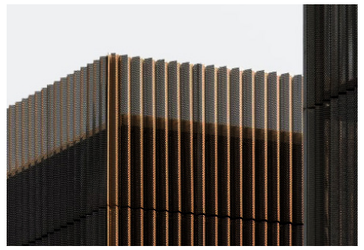
1 **PROPOSED EAST ELEVATION - COMMERICAL BUILDING**
1 : 100

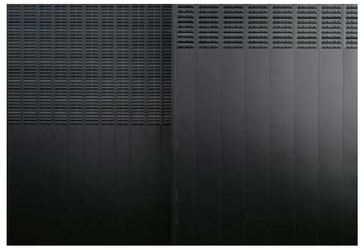
2 **PROPOSED WEST ELEVATION - COMMERICAL BUILDING**
1 : 100

4.0 Proposed Facade Concept Strategy

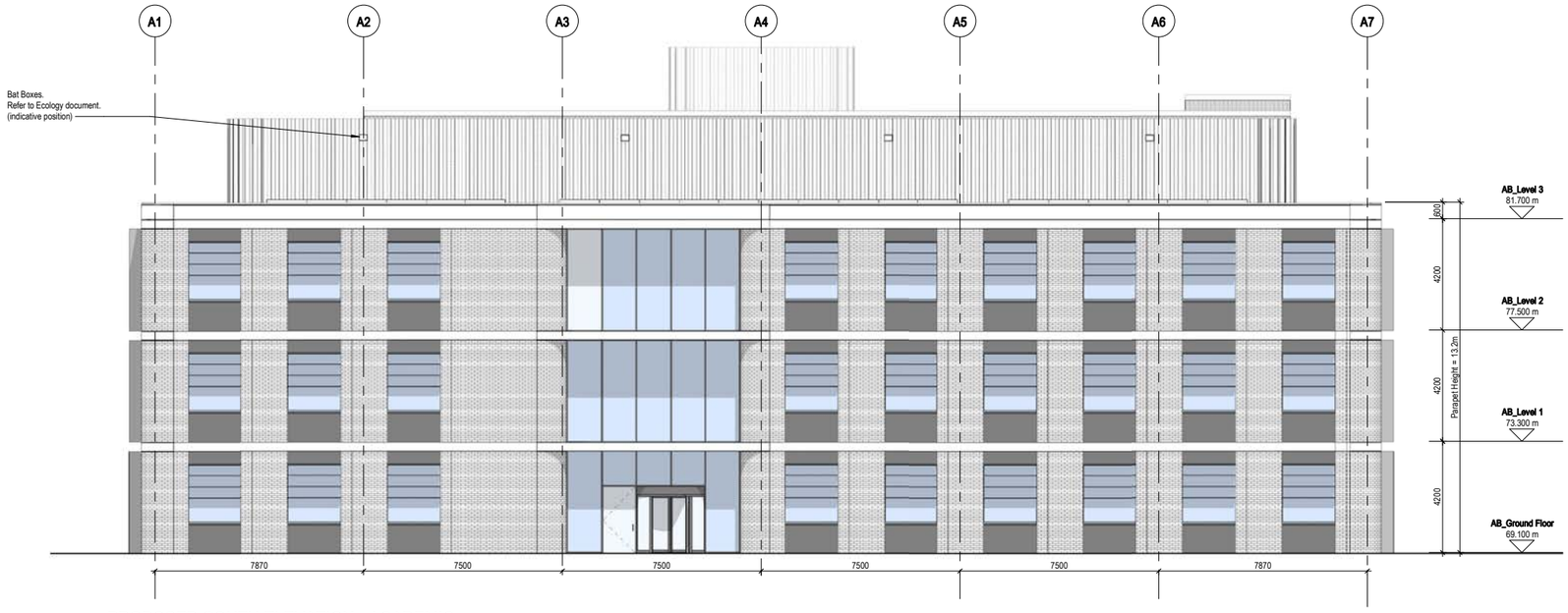
4.4 Proposed Facades - Academic Building

Refer to accompanying elevation drawings for detailed material specification.





1 PROPOSED NORTH ELEVATION - ACADEMIC BUILDING
1 : 100



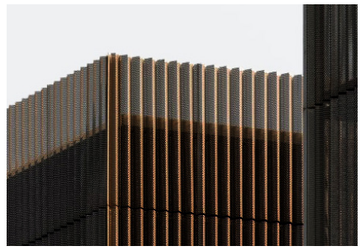
2 PROPOSED SOUTH ELEVATION - ACADEMIC BUILDING
1 : 100

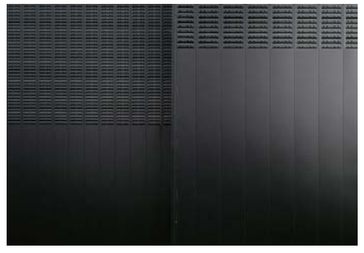
SCALE: 1:100
0 2m 4m 8m

4.0 Proposed Facade Concept Strategy

4.4 Proposed Facades - Academic Building

Refer to accompanying elevation drawings for specification.





1 PROPOSED EAST ELEVATION - ACADEMIC BUILDING
1 : 100

2 PROPOSED WEST ELEVATION - ACADEMIC BUILDING
1 : 100

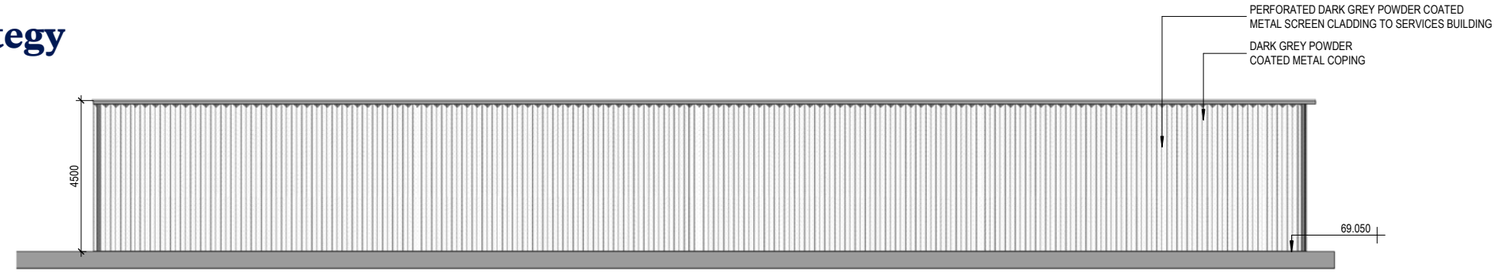
4.0 Proposed Facade Concept Strategy

4.5 Proposed Academic Services Building design

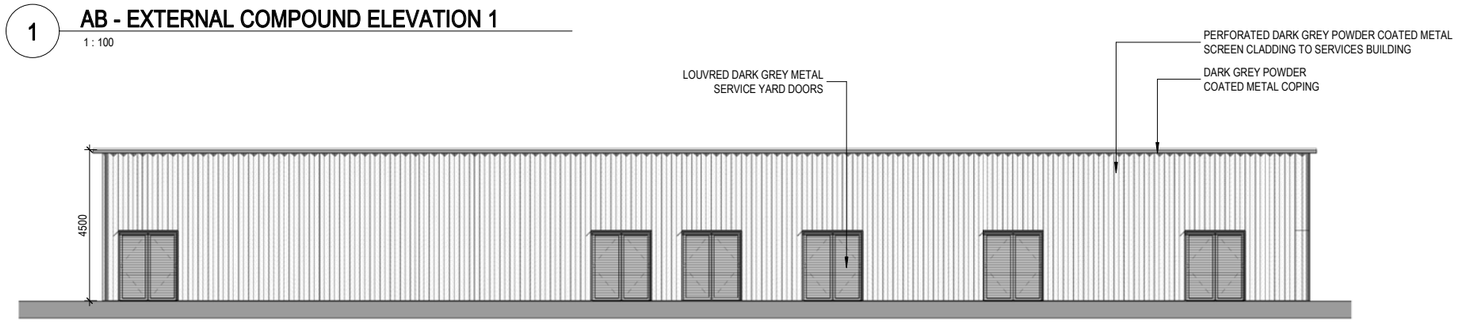
The overall construction of the services building is proposed of blockwork walls cladded with dark grey powder coated perforated metal cladding panels to create visual interest and to begin creating a shared design language with rooftop plant screening of the new Academic and Commercial buildings.

The building is capped off with powder coated metal coping colour matched to the cladding panels to create a seamless design aesthetic.

The external doors to the various spaces within the compound are proposed as either solid metal doors or louvred doors colour matched to the facade panels.

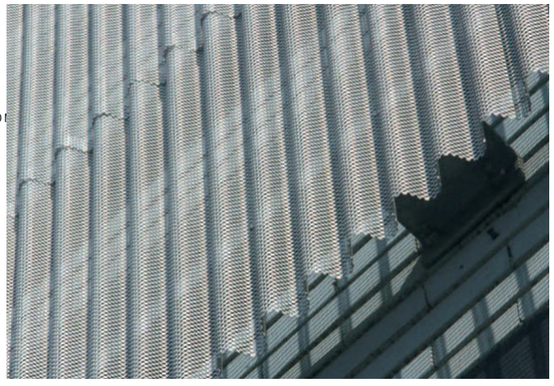


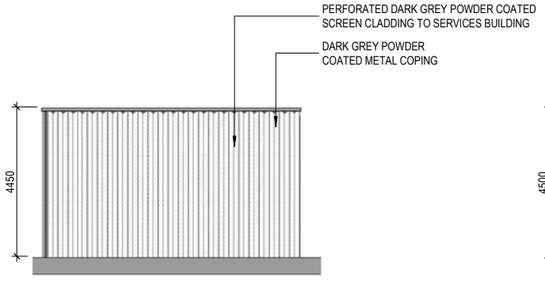
1 AB - EXTERNAL COMPOUND ELEVATION 1
1 : 100



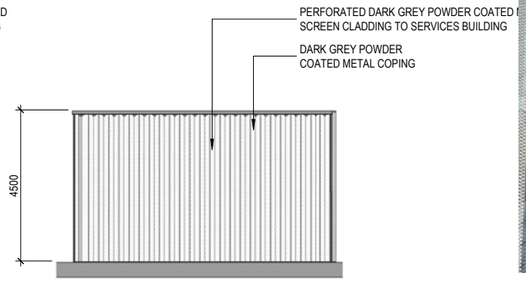
2 AB - EXTERNAL COMPOUND ELEVATION 3
1 : 100

Reference image : Perforated metal cladding panels

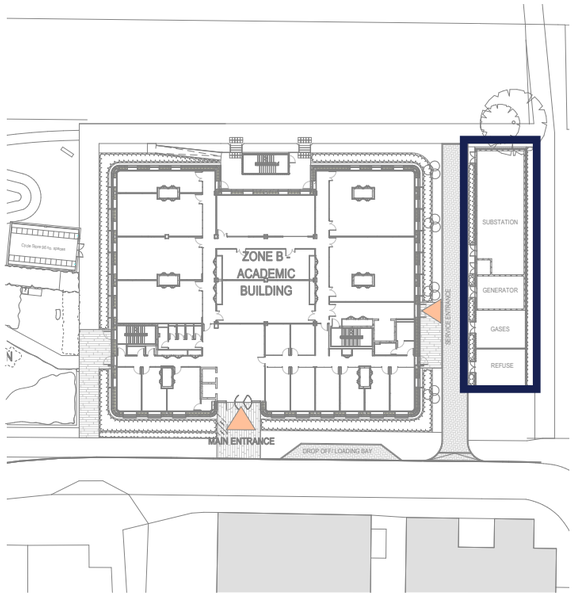




4 AB - EXTERNAL COMPOUND ELEVATION 2
1 : 100



6 AB - EXTERNAL COMPOUND ELEVATION 4
1 : 100



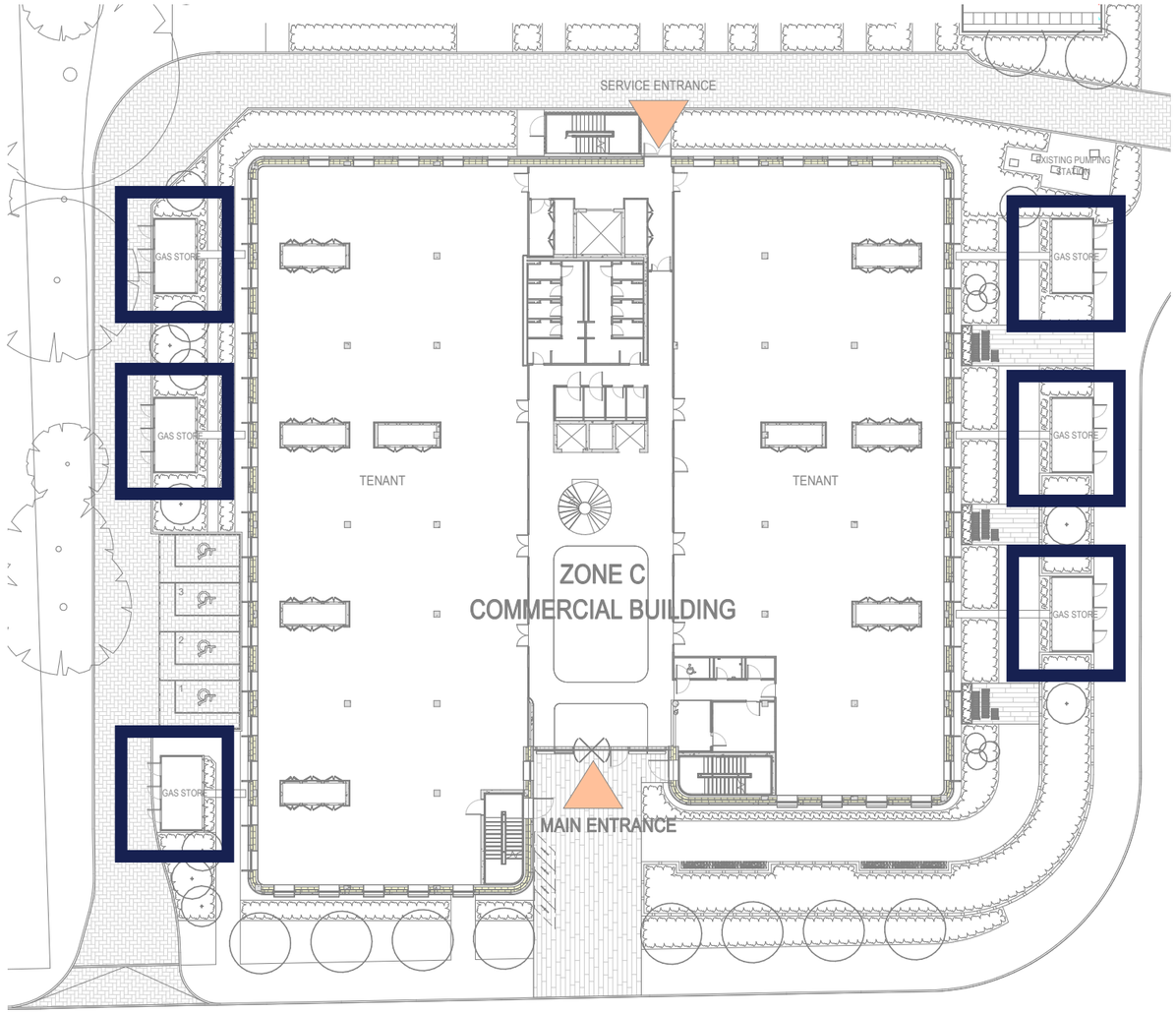
Reference image : Louvred metal doors to service yard and refuse stores

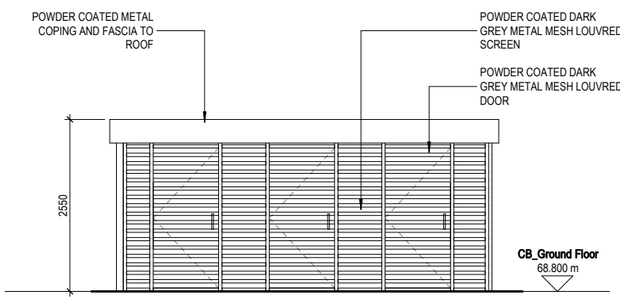
4.0 Proposed Facade Concept Strategy

4.5 Proposed Gas Stores design

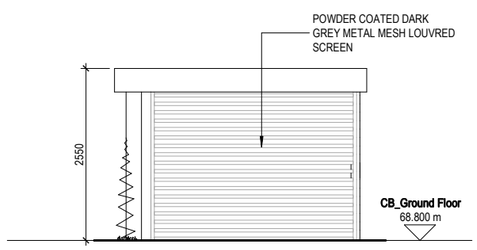
The overall construction of the typical gas store compound is blockwork construction to rear elevation facing the main building with growing planting on tension wires.

The remaining three sides are constructed of louvres and mesh metal screens to provide natural cross ventilation to the gas stores.

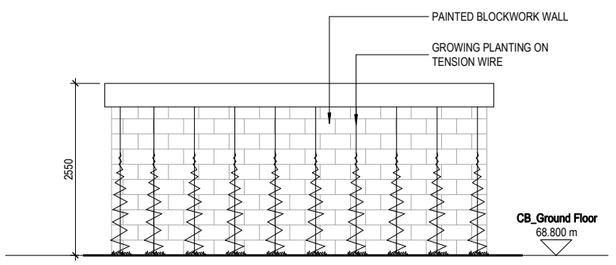




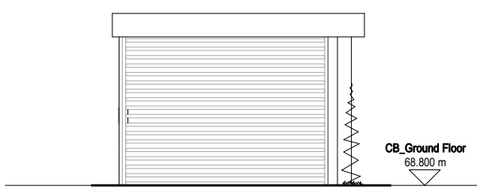
1 ELEVATION 1 - GAS BOTTLE STORE
1 : 50



2 ELEVATION 2 - GAS BOTTLE STORE
1 : 50



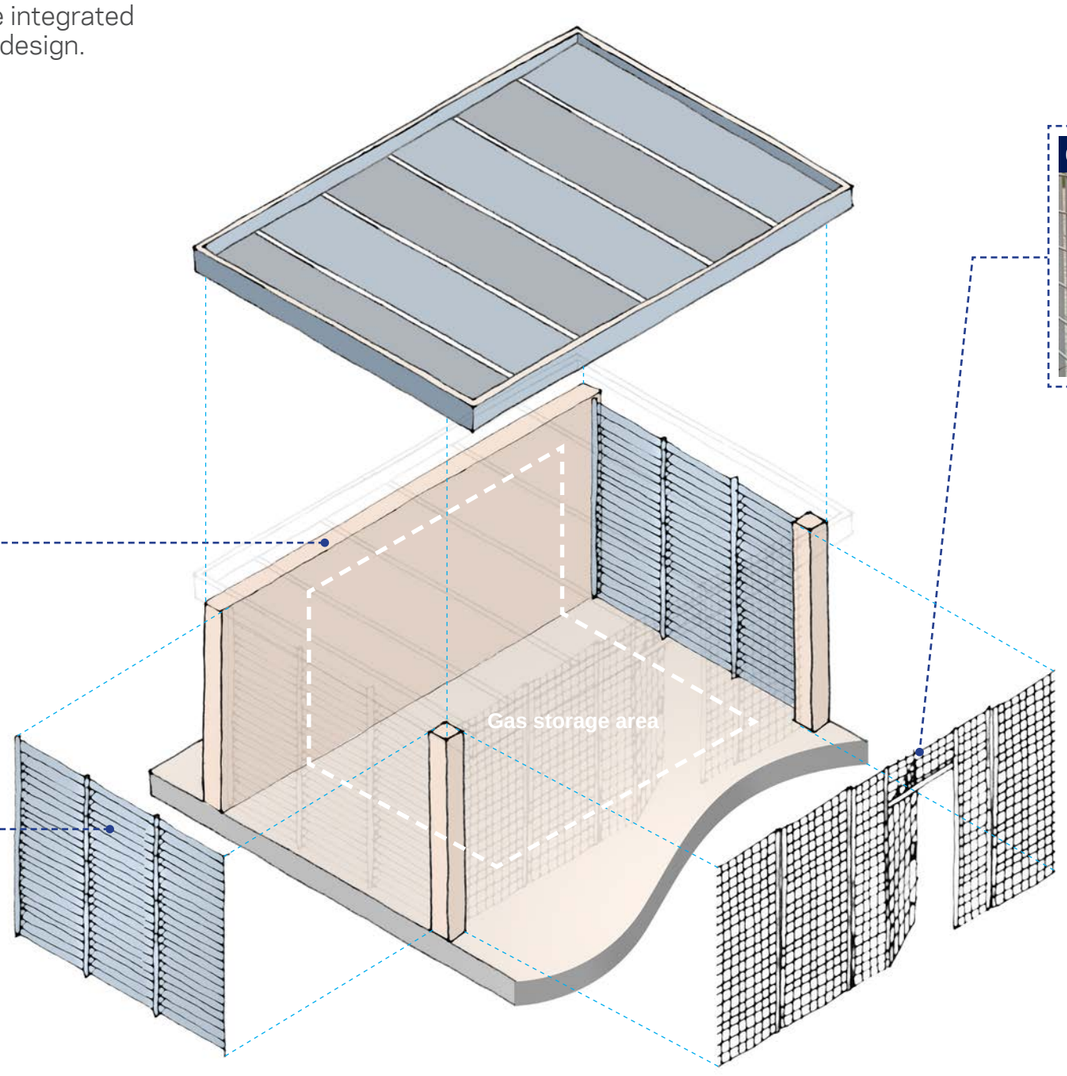
3 ELEVATION 3 - GAS BOTTLE STORE
1 : 50



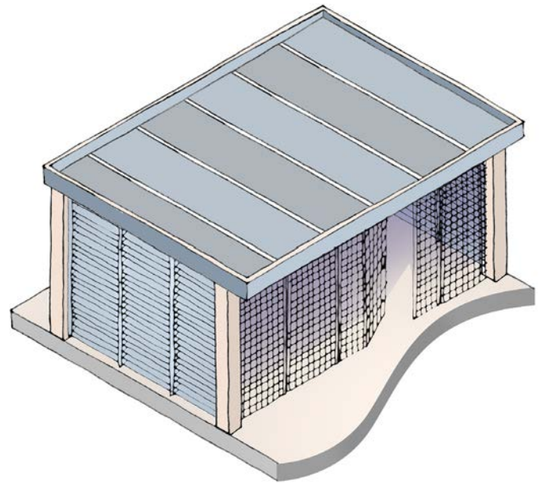
4 ELEVATION 4 - GAS BOTTLE STORE
1 : 50

3.4 Proposed Gas Stores design

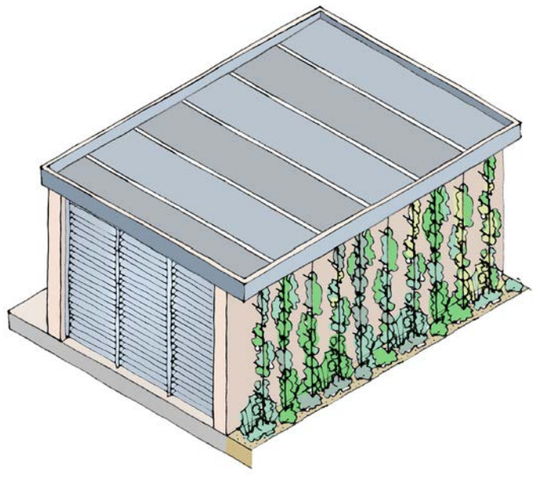
The following proposals are to be integrated as part of the ancillary structure design.



1. Steel wire trellis fixed to brick wall (brick to match facade material)
2. Louvred delta wing panel fencing to side walls. 50% ventilation allowance.
3. Galvanised steel mesh panel fencing with matching gates to footway facing elevation.



Isometric illustrating footway facing elevation:



Isometric illustrating building facing elevation:

4.0 Proposed Facade Concept Strategy

Commercial Building - Proposed building visualisation

Commercial Building - Main Entrance

4.0 Proposed Facade Concept Strategy

Academic Building - Proposed building visualisation

4.0 Proposed Facade Concept Strategy

Commercial Building - Proposed building visualisation showing Academic building in the background