

Manchester Science Park

Greenheys Redevelopment

Louvre Strategy

August 2024

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Issue Status

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Introduction

Following the receipt of comments in relation to the design and appearance of the louvres. This report sets out the louvre strategy for the building, by providing a greater level of detail on the functionality and requirements of each louvre. Along with the principles of how the team have attempted to seek an appropriate balance between design quality and the specific fire suppression / venting requirements associated with UK Bio-Bank.



View from Greenheys Lane

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Louvre Requirements & Treatment

The Greenheys development will offer a combination of speculative Category 2 laboratory spaces and custom-built facilities for the UK Biobank, which curates and manages a globally accessible biomedical database. A key feature of the development is the storage of biological samples at -80°C. To support this, advanced mechanical and electrical systems will be implemented, including enhanced fire suppression (1), liquid nitrogen cooling (2), and specialised environmental conditioning for both laboratory and archive spaces.

Propriety louvres are included within the podium to support:

1. Pressure relief in the event of the gaseous fire suppression system protecting the Archives being activated.

2. Air exhaust from the purge ventilation system in the event of an oxygen depletion alarm or fire suppressant gas clearance

The design as currently proposed utilises high performance weatherproof louvres mounted on internal plenum boxes. Each plenum box incorporates a 1m x 1m pressure relief damper on the internal face and 2 No. 400mm diameter exhaust duct connections to the sides so that the external louvre can perform both functions to minimise the number of openings required through the façade.
Silcock Leedham building services engineering recommend that a proprietary louvre system designed for use with pressure relief dampers is used to ensure that the pressure peak from release of fire suppressant in the Archive Hall is safely dissipated without risk to the building fabric, occupants and passersby.

3. UK Biobank interstitial plant room servicing, archive hall, Laboratory, Data Centre and critical back up UPS services air handling and ventilation requirements.

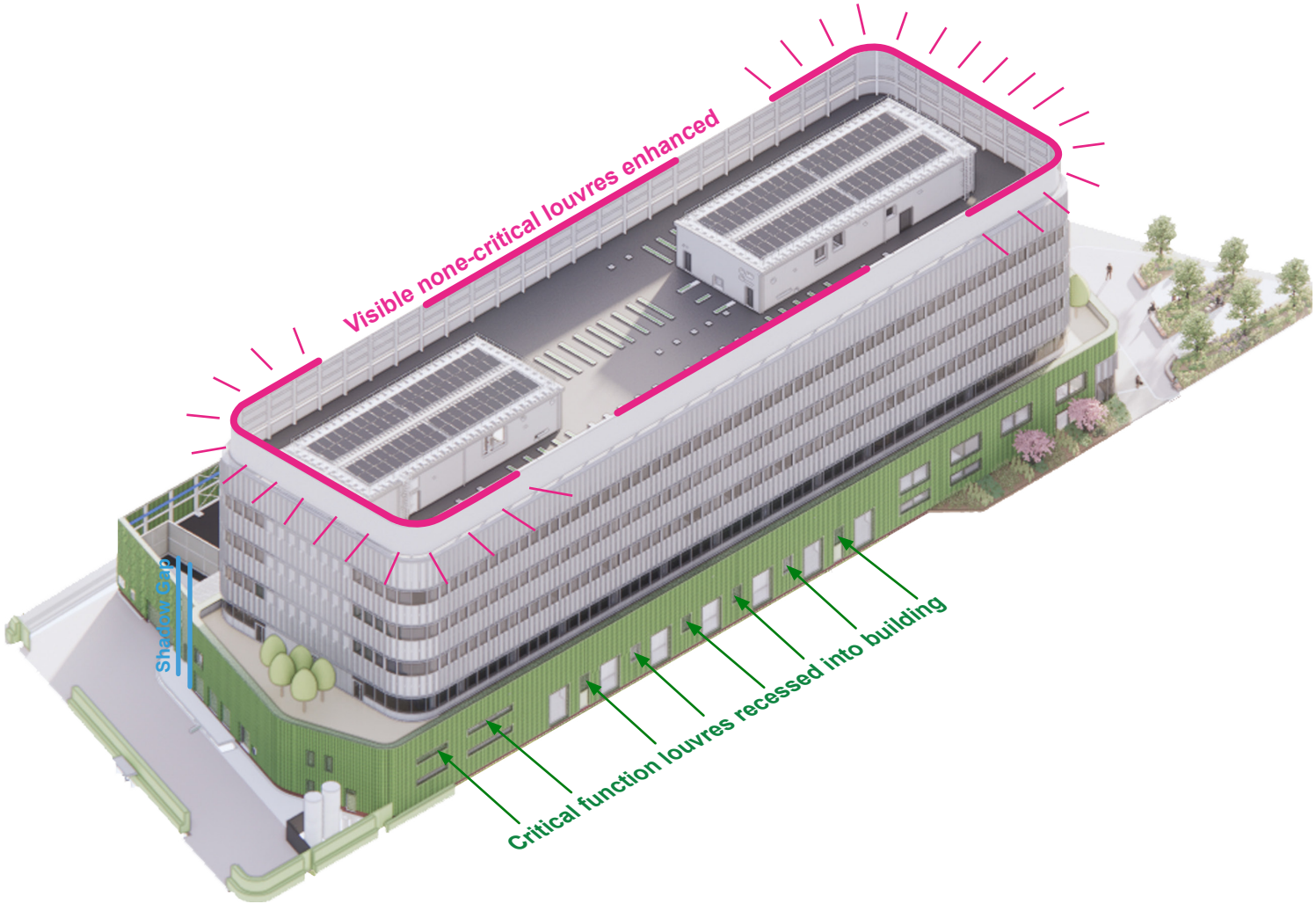
Louvre Strategy

The strategy for the louvres is based on the following:

- Functional requirements
- Visibility and appearance

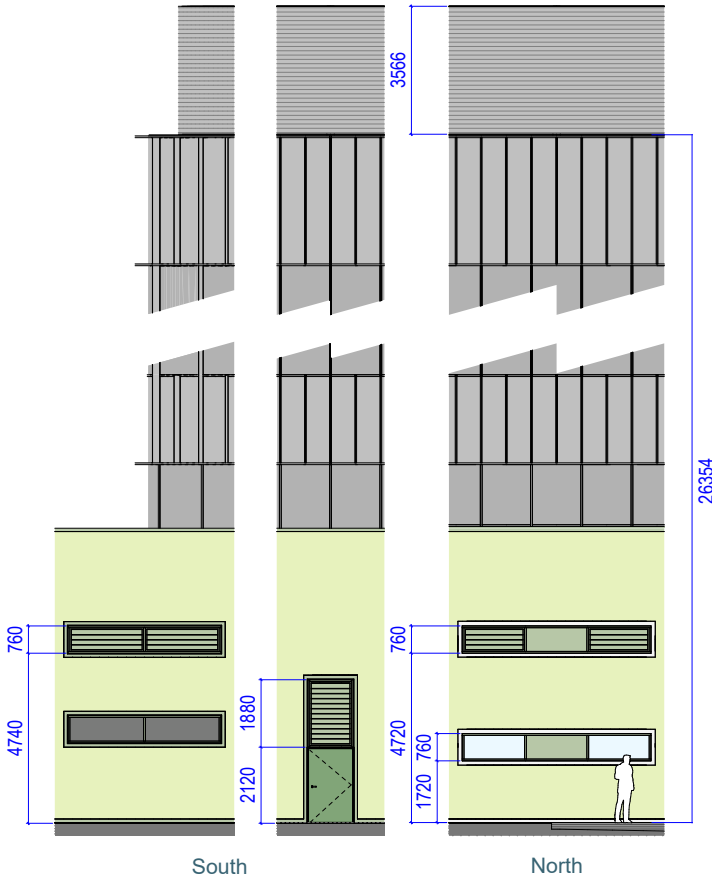
The louvres that are none-critical and are highly visible, such as those on the roof have been given an enhanced decorative appearance. Permissible due to the areas being open to atmosphere at roof level and the façade allowing a greater surface area to mitigate the bespoke non-quantifiable louvre approach.

The louvres that provide a critical function and require strict testing and compliance requirements that are only achievable with a proprietary product have been recessed into the green wall. As illustrated in the axonometric opposite and described in further detail in the following pages.

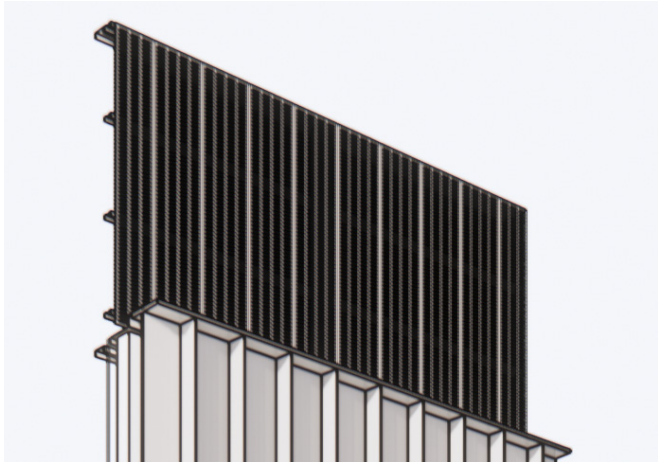


Louvre Types

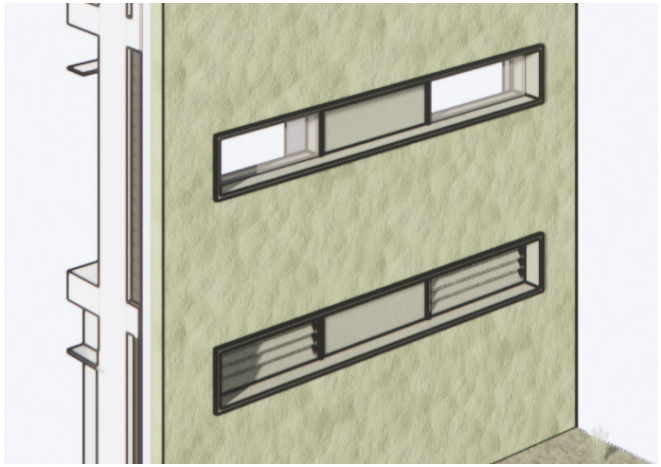
The images opposite illustrates the look and feel of the two louvre approaches described within this report.







Bespoke perforated metal cladding, functioning to allow ventilation to the open top plant areas both at roof level and annexe



Proprietary louvre system, connected to mechanical equipment located with the interstitial plant rooms at ground and first floor levels. These are included as part of the curtain walling system, recessed and considered within the overall rhythm of the facade design.

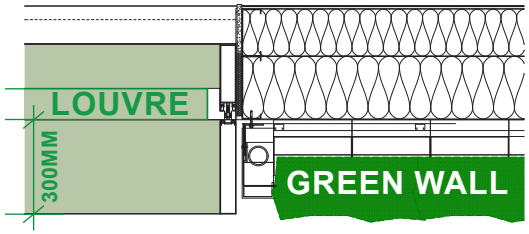
Recessed Louvres

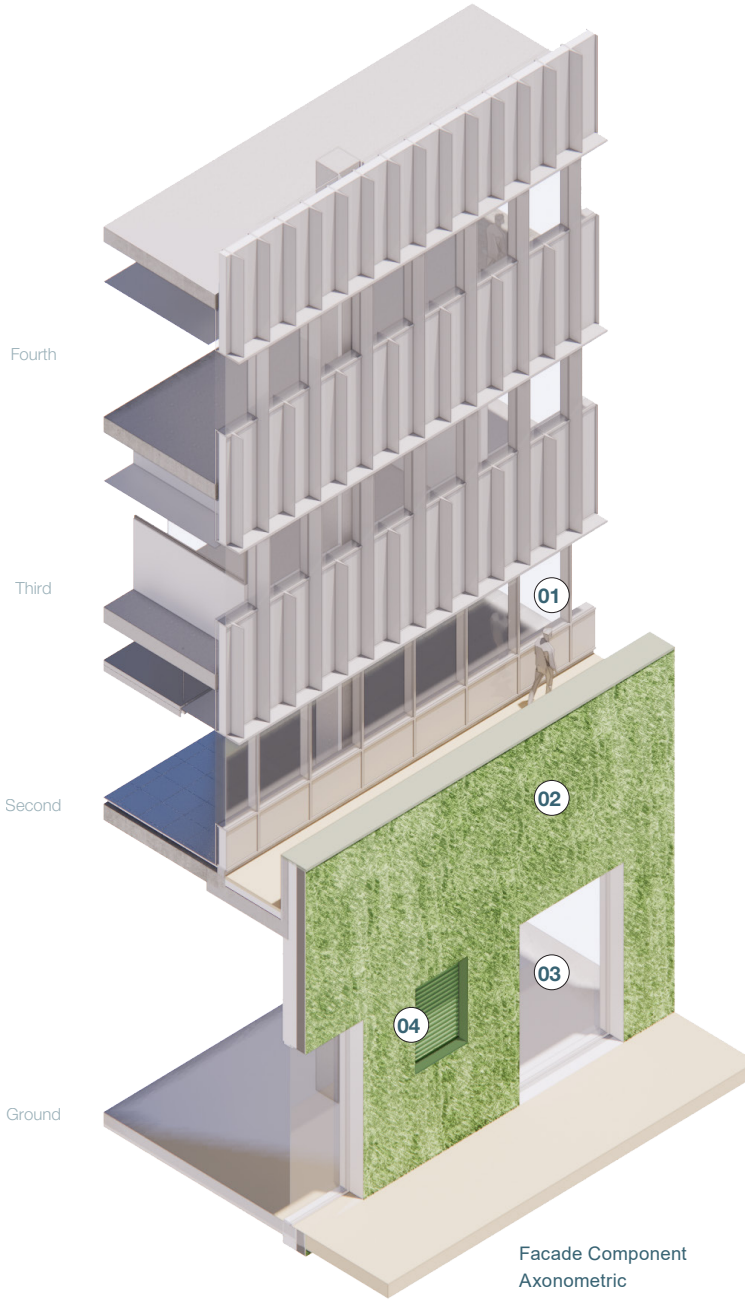
The strategy for louvres within the green wall is to hide / disguise them as far as practicable within the functional requirements of the building.

This is achieved firstly by having a green louvre that will better blend into the green foliage of the wall. This lack of contrast will not draw the eye by anyone passing the building.

The louvre is further hidden by recessing it 300mm into the curtain wall system (as per detail below). This will obscure the view of the louvre from most angles, with only the mullion becoming visible.

Only views directly facing the wall will provide a clear view of the louvres. Which is why the louvres have been placed on walls where this type of view is uncommon.

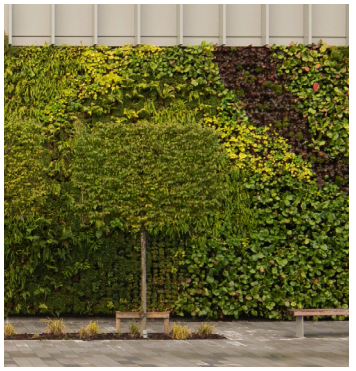




Facade Component
Axonometric

Anodised curtain wall, second floor terrace & green wall plinth

01. Solar control, clear vision glazing to 2nd floor level, with spandrels at 900mm
02. datum
    Irrigated green wall system (and elsewhere, planted wall on trellis wire system) fixed to anodised aluminium
03. rainscreen
04. Large format picture windows within plinth
    Recessed louvre



Irrigated green wall system



Climbing plant green wall

3

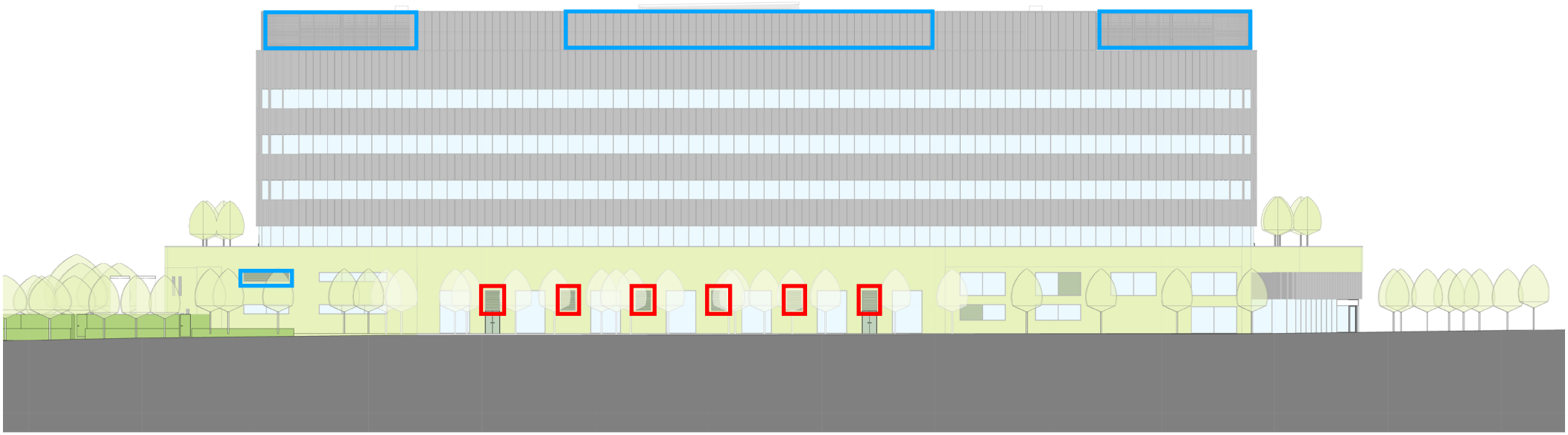
Louvre Types and Locations

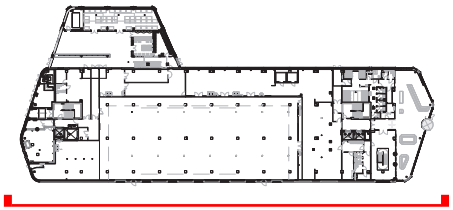
The following pages describe through elevations and plans the areas where ventilation is required within the internal building, including the mechanical and service types they facilitate.

Generally the services within the podium services interstitial confined plant rooms servicing the dedicated UK Biobank facility.

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

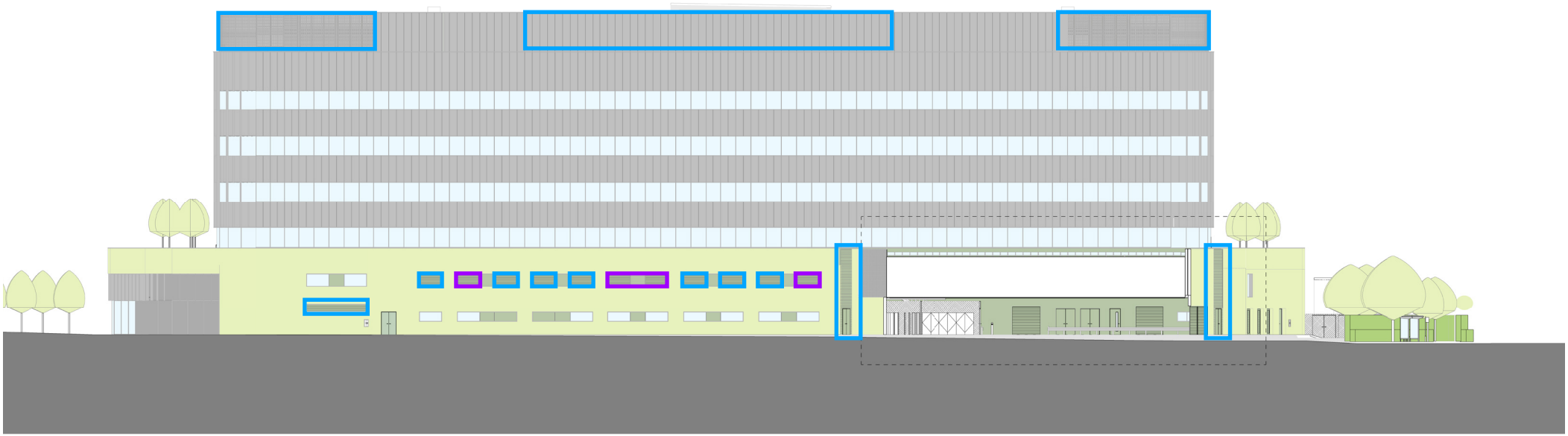
South Elevation

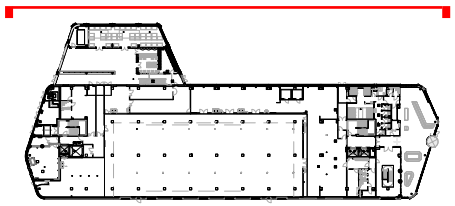


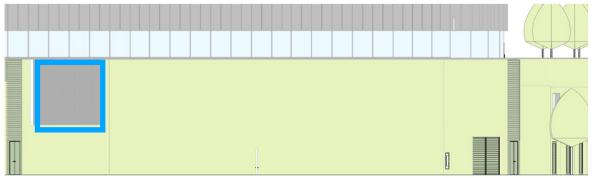


General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

North Elevation



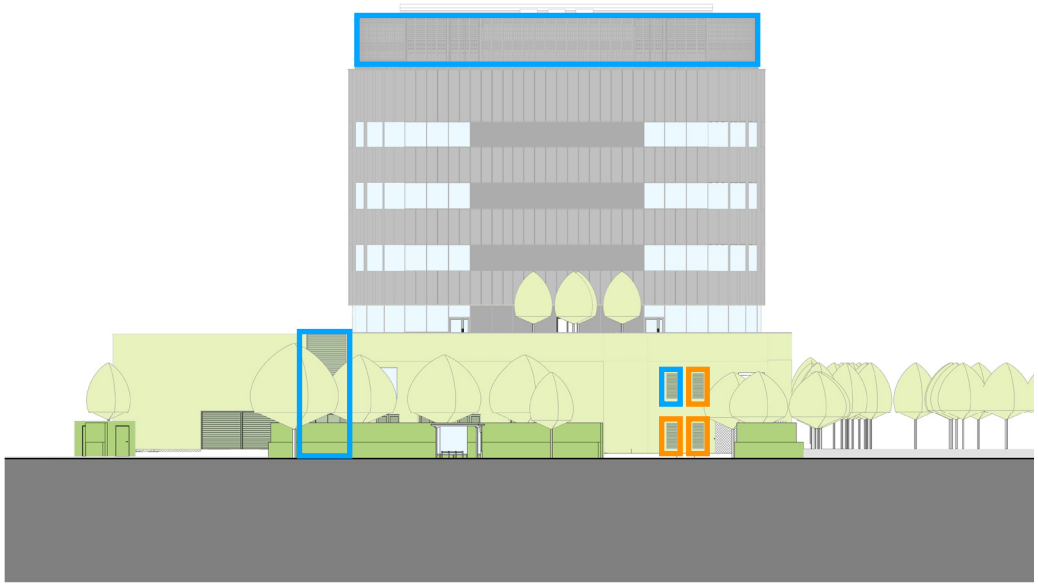




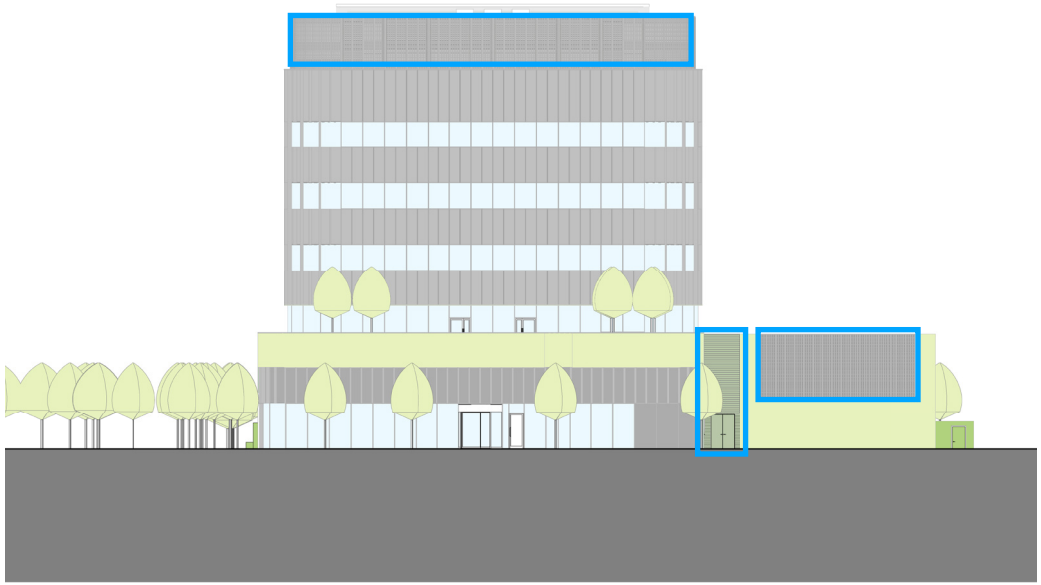
North Elevation B

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

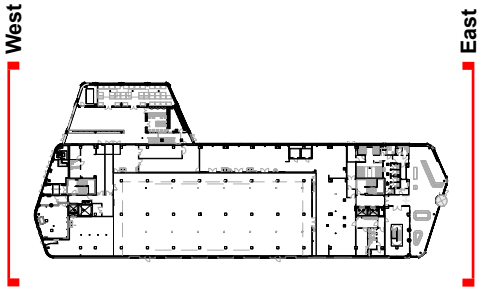
East & West Elevation



West Elevation

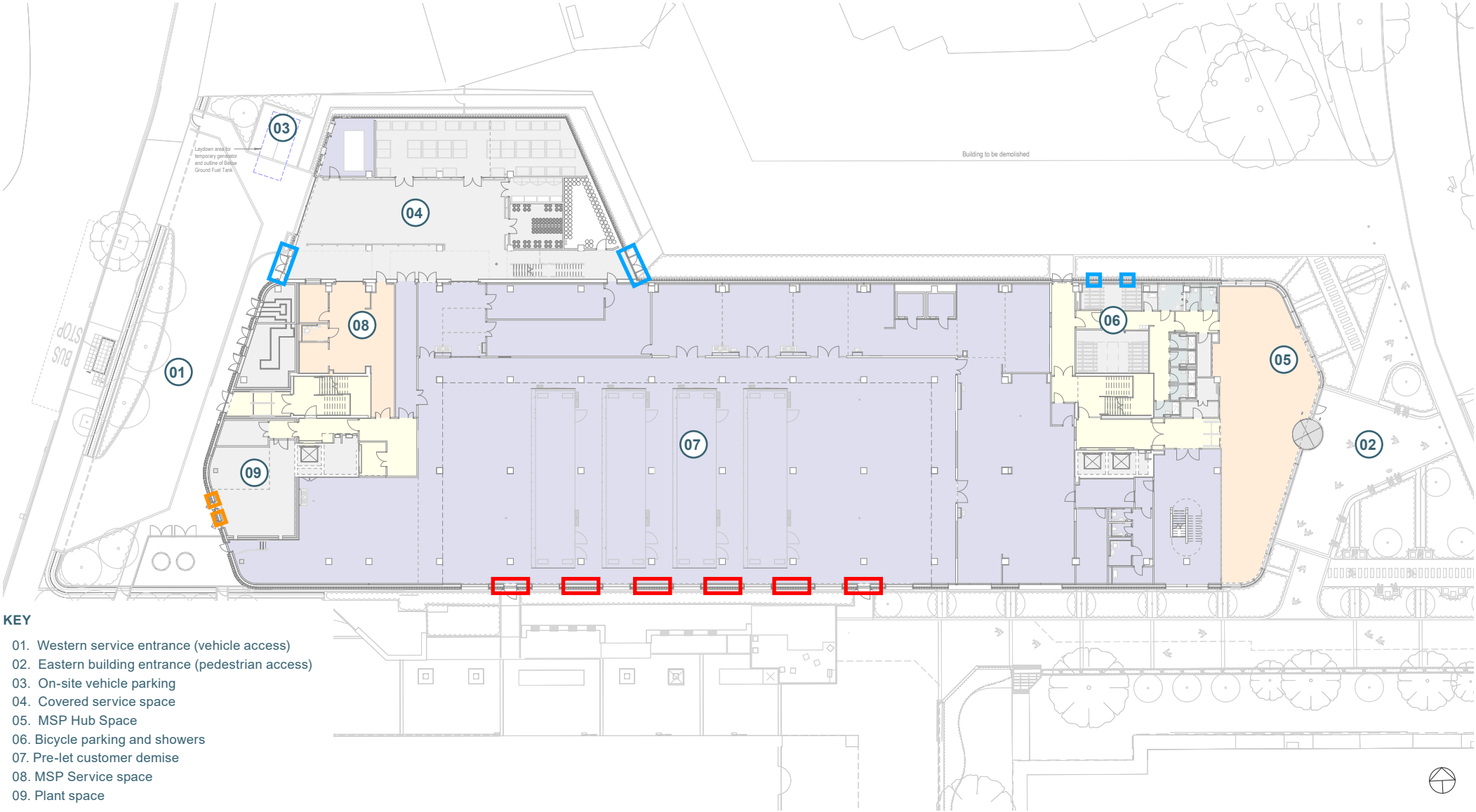


East Elevation



General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

Ground Floor

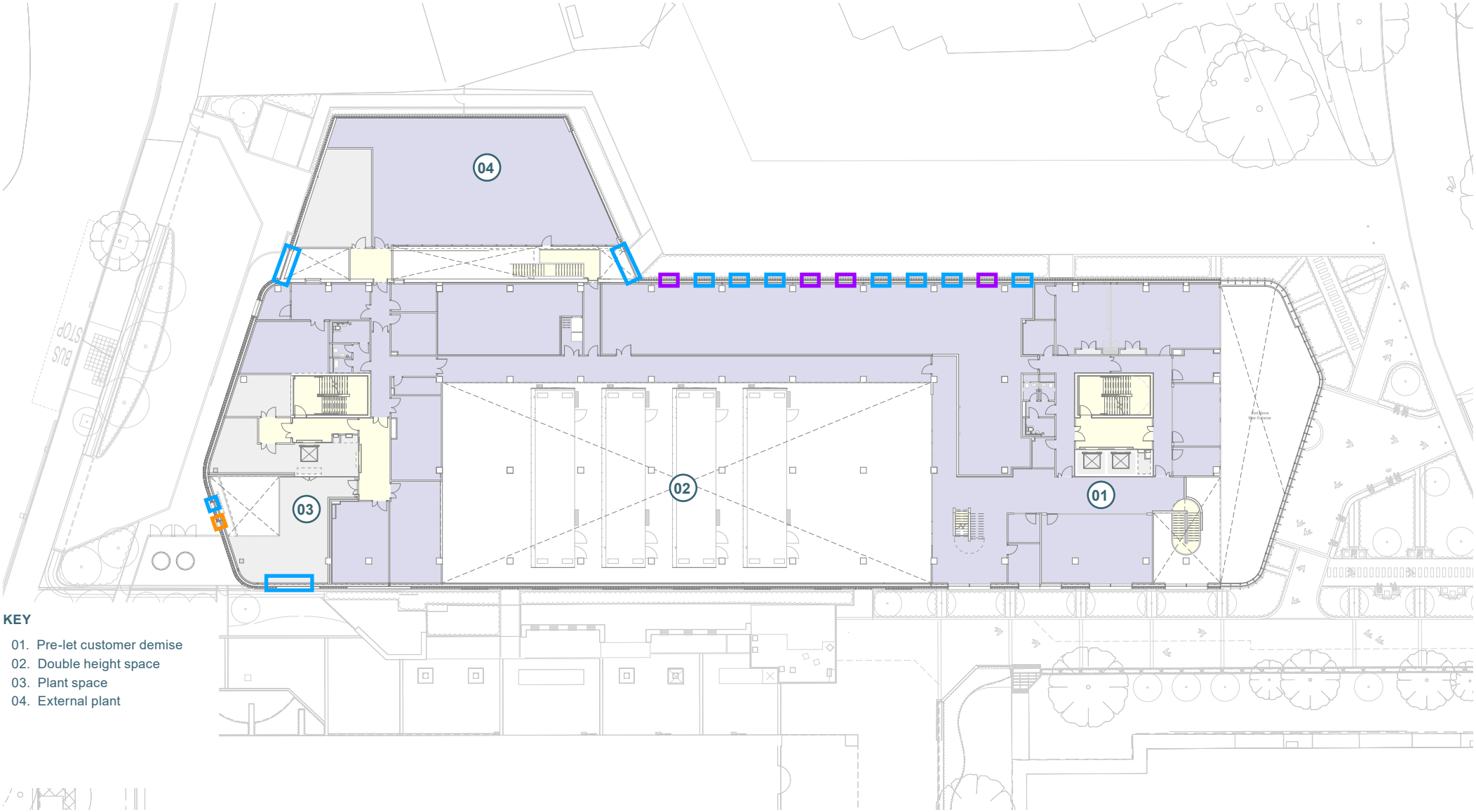


KEY

01. Western service entrance (vehicle access)
02. Eastern building entrance (pedestrian access)
03. On-site vehicle parking
04. Covered service space
05. MSP Hub Space
06. Bicycle parking and showers
07. Pre-let customer demise
08. MSP Service space
09. Plant space

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

First Floor

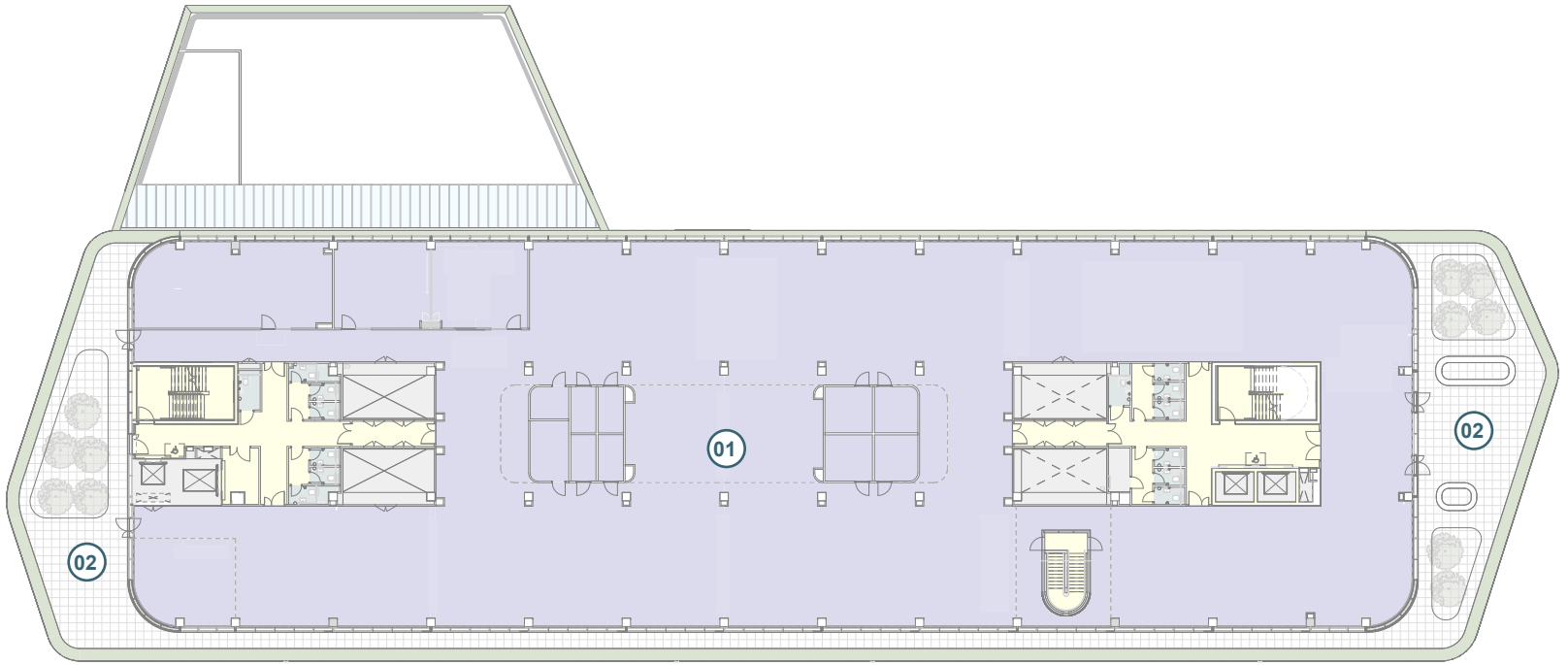


KEY

01. Pre-let customer demise
02. Double height space
03. Plant space
04. External plant

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

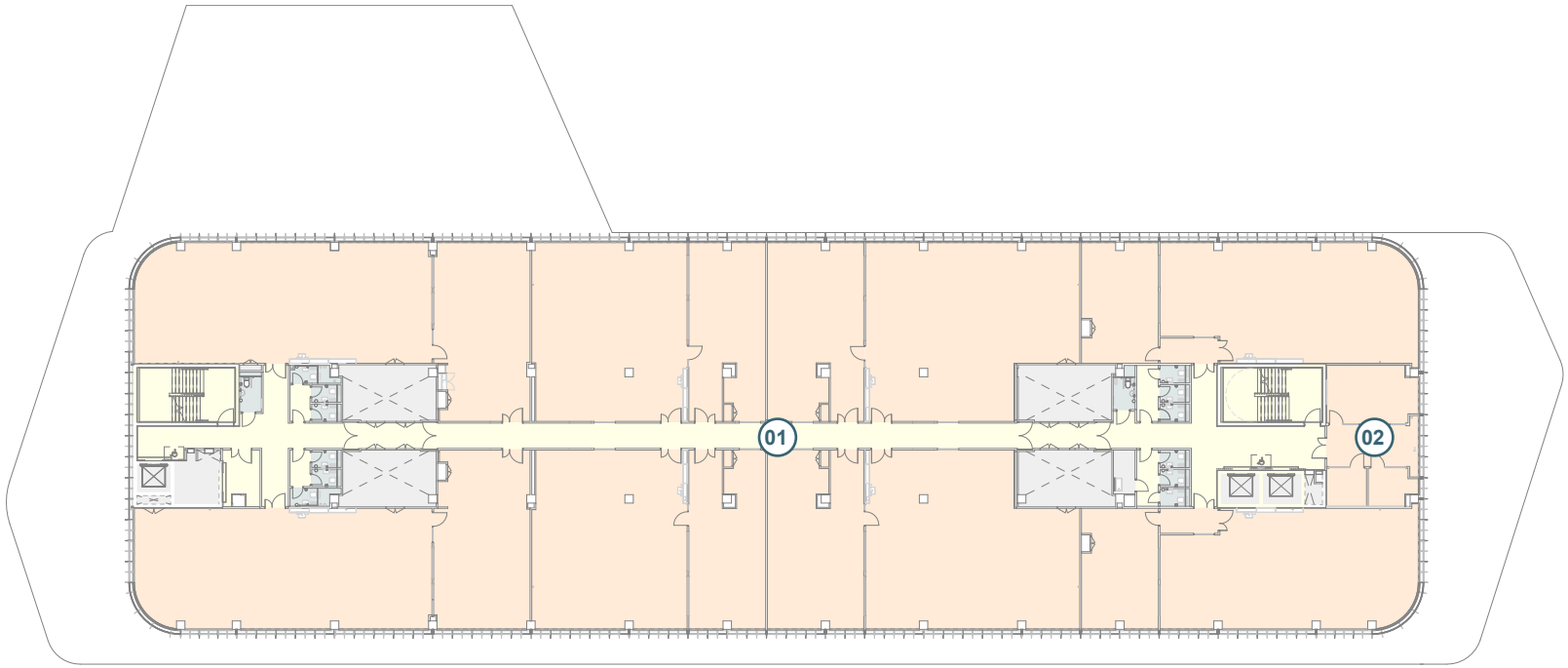
Second Floor



KEY

01. Pre-let customer demise
02. External terrace

3rd, 4th & 5th Floor

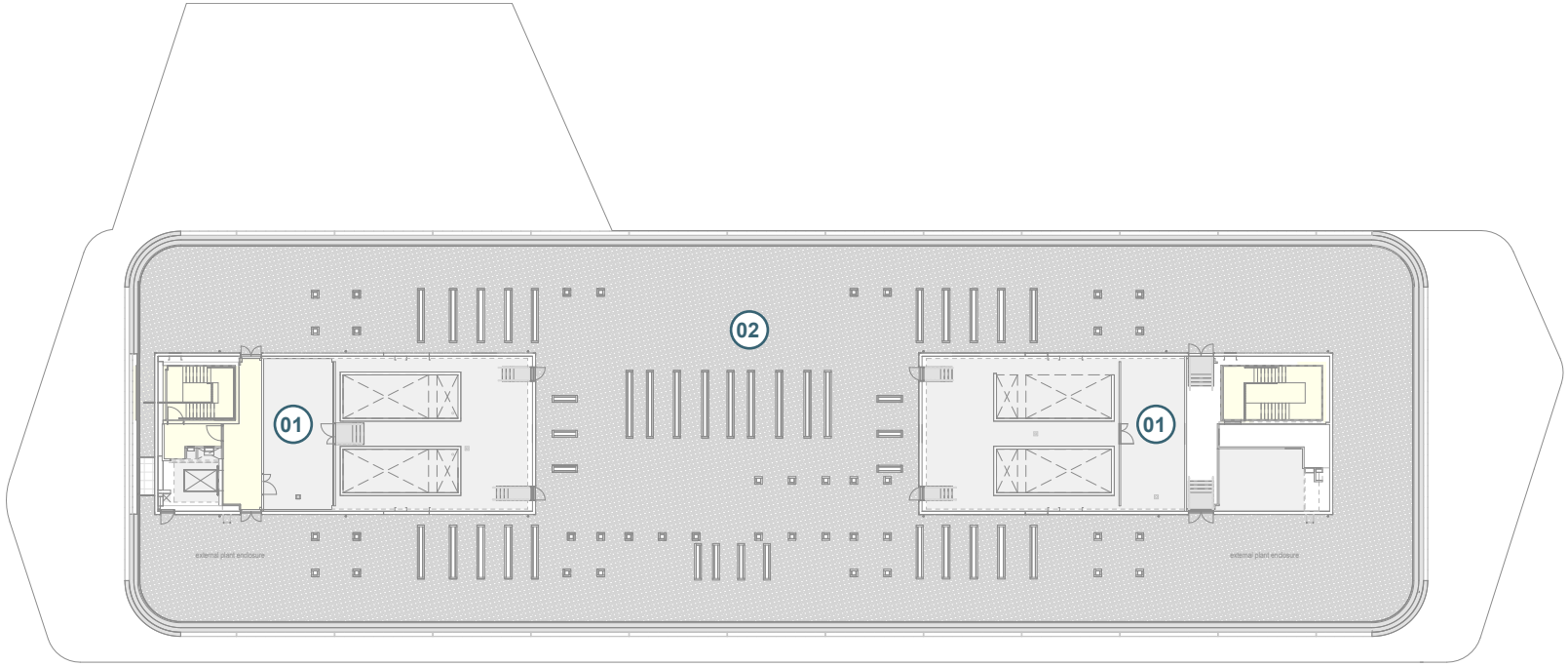


KEY (Indicative Internal Layout)

01. MSP laboratory and write-up space (with individual suite configuration)
02. MSP Customer communal space

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

Sixth Floor

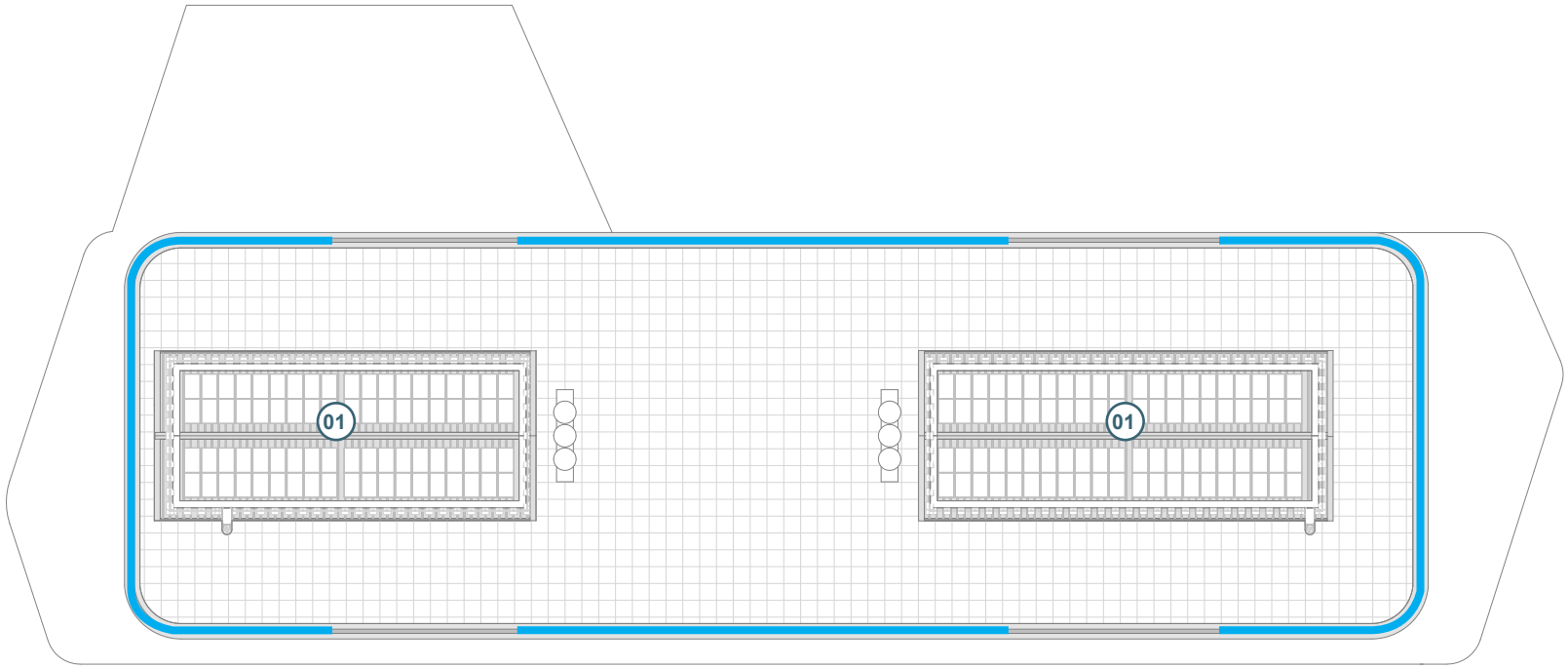


KEY

01. Enclosed plant area
02. External plant floor

General Extract
Specialist LEV Extract
Exhaust Air System
Fresh Air Intake System

Roof Plan



KEY

01. Plant enclosure roof with photo-voltaic array
02. Raised area of plant room roof
03. Plant deck above external plant floor

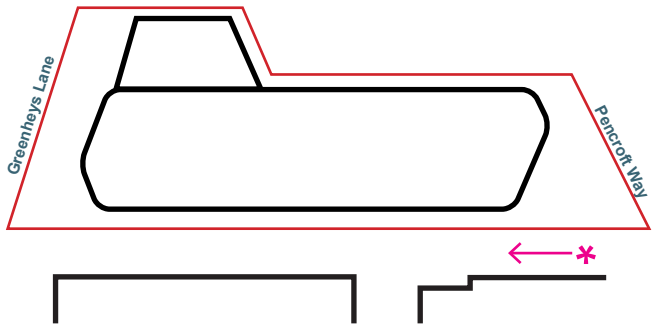
4

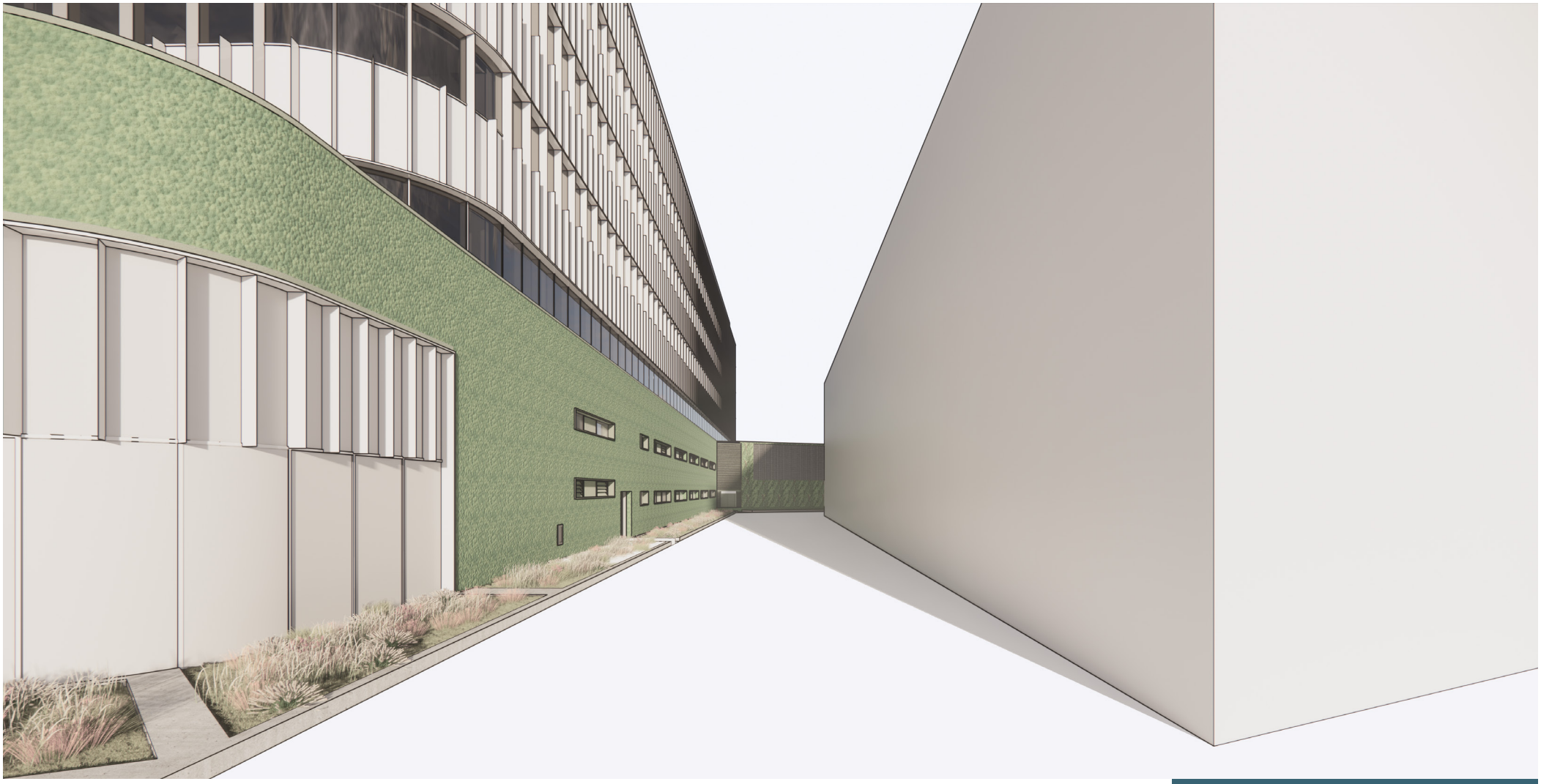
Louvre Visibility



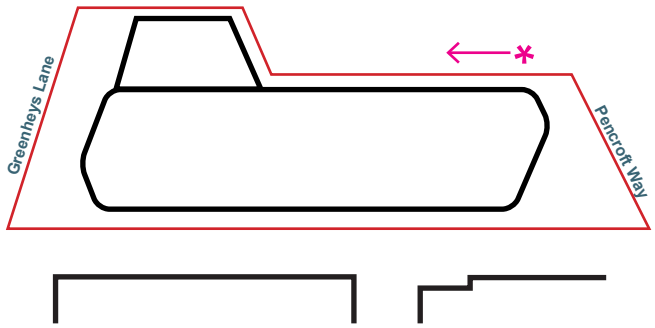


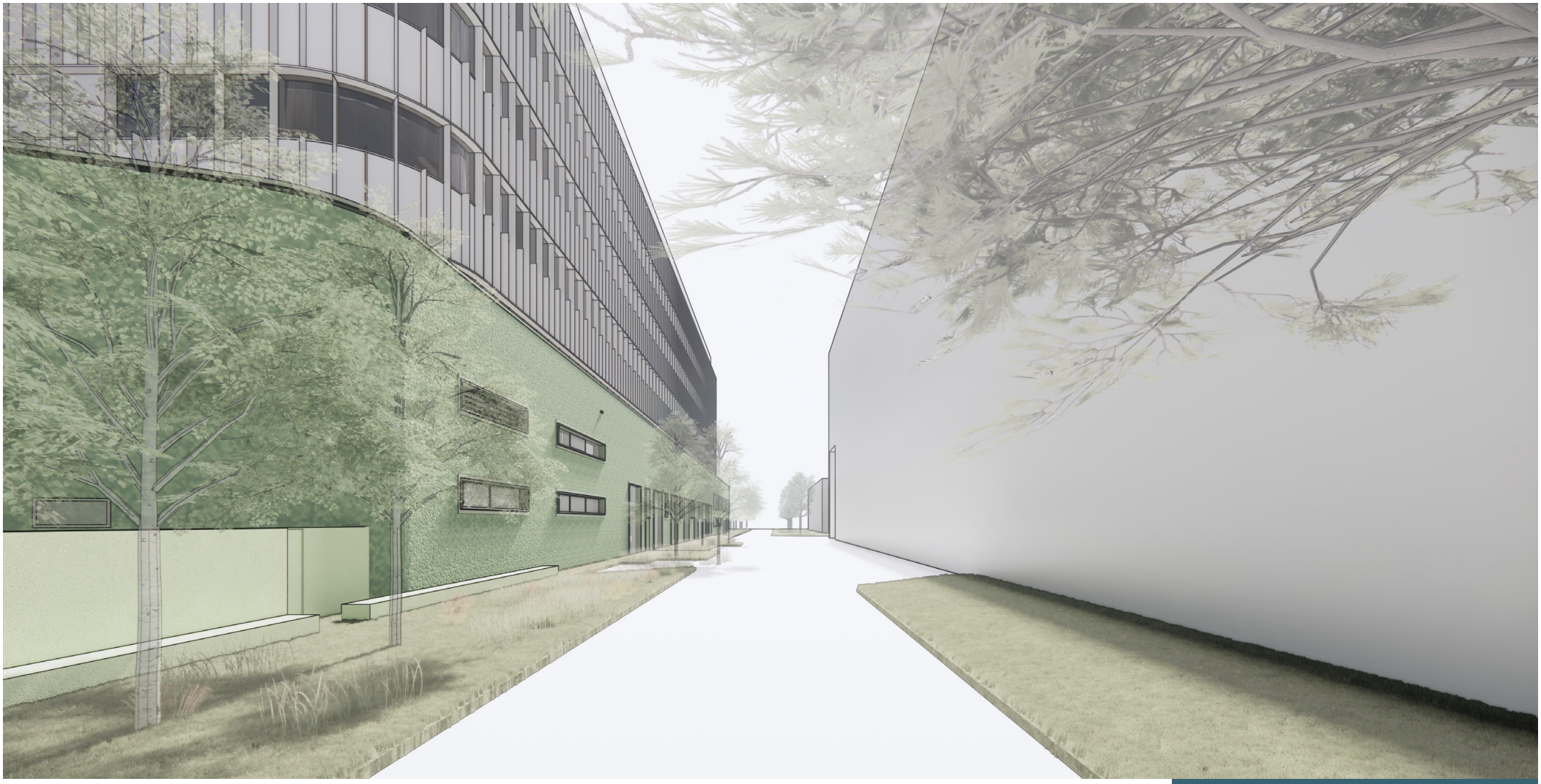
1. View from Pencroft Way



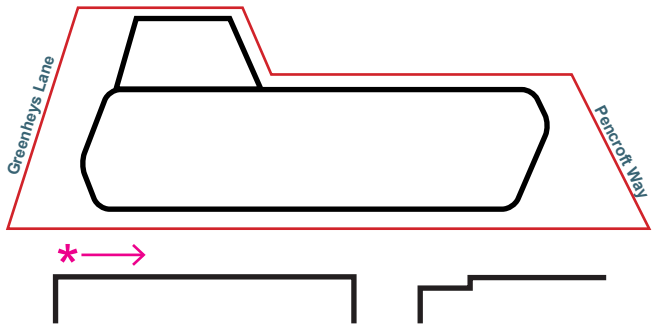


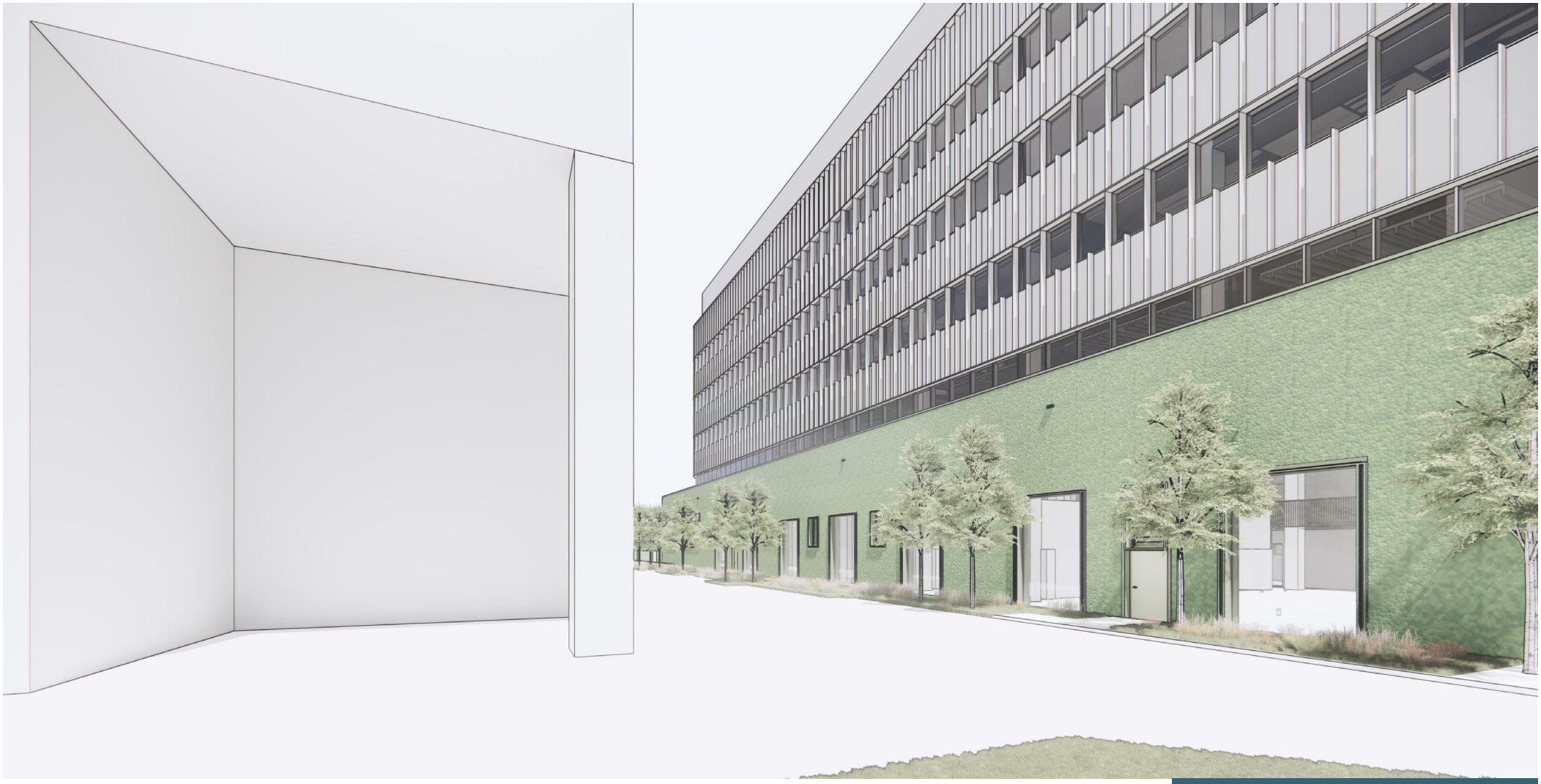
2. View from Pencroft Way



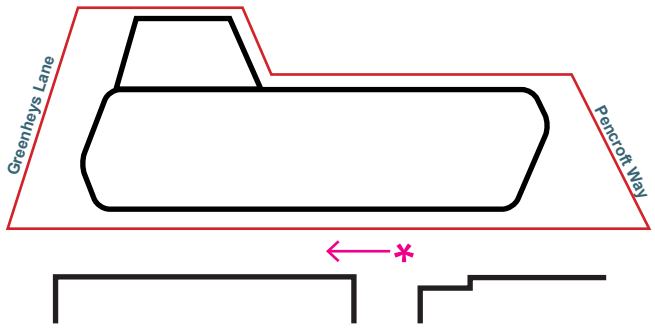


3. View from Greenheys Lane





4. View from Rutherford House



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Summary

This report presents the Louvre Strategy for the Greenheys Redevelopment at Manchester Science Park, with a focus on integrating functional requirements and aesthetic considerations to support the advanced mechanical and electrical systems necessary for the UK Biobank facility and proposed lab operations.

Louvre Treatment
The treatment of the louvres is tailored to their specific functions and locations:

- **Recessed Louvres:** Critical function louvres are recessed into the building's green wall, which helps to disguise them and maintain the visual integrity of the facade. This design choice ensures that the louvres do not detract from the building's appearance while still meeting functional requirements.
- **Decorative Louvres:** Non-critical louvres are treated with decorative elements to enhance their appearance. These louvres are positioned in areas where they are more visible, such as the roof, and are designed to complement the building's architectural style.

Louvre Types and Locations
The report details the different types of louvres and their specific locations within the building:

- **Proprietary Louvres:** These are used for critical functions such as pressure relief and air exhaust. They are integrated into the building's mechanical systems and are essential for maintaining safety and environmental conditions.
- **Bespoke Perforated Metal Cladding:** This type of louvre is used for ventilation in open-top plant areas at roof level and annexes. The cladding is designed to allow ventilation while also contributing to the building's aesthetic appeal.

Functional Requirements
The louvres are designed to fulfill several critical functions:

- **Pressure Relief:** In the event of activation of the gaseous fire suppression system, the louvres provide necessary pressure relief to protect the building structure and occupants.
- **Air Exhaust:** They facilitate air exhaust from the purge ventilation system during oxygen depletion alarms or when clearing fire suppressant gases.
- **Environmental Conditioning:** The louvres support the stringent environmental conditioning required for the storage of biological samples at -80°C, ensuring optimal conditions for both laboratory and archive spaces.

Key Views
Visual illustrations in the report demonstrate the placement and impact of the louvres from various viewpoints around the site:

- **View from Pencroft Way:** Shows how the louvres are integrated into the building's design, blending with the green wall and other architectural elements.
- **View from Greenheys Lane:** Highlights the minimal visual impact of the recessed louvres, ensuring that the building maintains a cohesive and attractive appearance.
- **View from Rutherford House:** Provides a perspective on how the louvres contribute to the overall design and functionality of the building.

Conclusion
The Louvre Strategy for the Greenheys Redevelopment ensures that the louvres meet both functional and aesthetic requirements. By integrating advanced mechanical and electrical systems with thoughtful design, the strategy supports the critical needs of the building specialist functions while maintaining the architectural integrity and visual appeal of the Greenheys Redevelopment.

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