

Ventilation and Extraction Statement

BELGROVE HOUSE

SEPTEMBER 2023



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DRAFT

1 Introduction

This report outlines the ventilation services strategy for Belgrove House. The proposed development replaces the existing Access Storage facility in the old bus station on Euston Road, opposite Kings Cross Station. The redevelopment will see a key expansion of the Knowledge Quarter with the demolition of the existing building onsite to be replaced with a modern and highly sustainable, commercial office building with laboratory space.

A description of the ventilation strategy for the buildings is provided below, as well as the strategies to mitigate odour emission and noise pollution. Layouts detailing the ventilation intake and exhaust louvre requirements are contained within Appendix A and B.

DRAFT

2 Ventilation and Extraction Statement

2.1 Planning Requirements

2.1.1 Council planning requirements

The London Plan does not list any ventilation requirements for buildings other than asking for passive ventilation to be prioritised wherever it is appropriate.

The City of London Local Plan 2015 states the following requirements related to ventilation and extraction:

3.10.16 Ventilation or extraction systems should be routed internally and extensive or unsightly external ducting will be resisted. In new development, provision must be made within the building for services and ducting to and from all uses, including retailing. Ventilation louvres should not be sited adjoining footways.

3.15.19 As a minimum, developers will be expected to consider the potential for passive ventilation and heat recovery

3.15.21 Heating and ventilation plant should be designed so that it does not adversely affect nearby open spaces which are valued for their quiet environment. The level of noise emitted from any new plant should be below the background level by at least 10dBA.

2.1.2 BREEAM

Ventilation is covered in Health and Wellbeing (Hea) section, specifically in Hea 02. As a prerequisite to achieve this credit, a site-specific Indoor Air Quality Plan needs to be developed and implemented within Stage 2. One credit is available if ventilation is designed to minimise the indoor concentration and recirculation of pollutants in the building as follows:

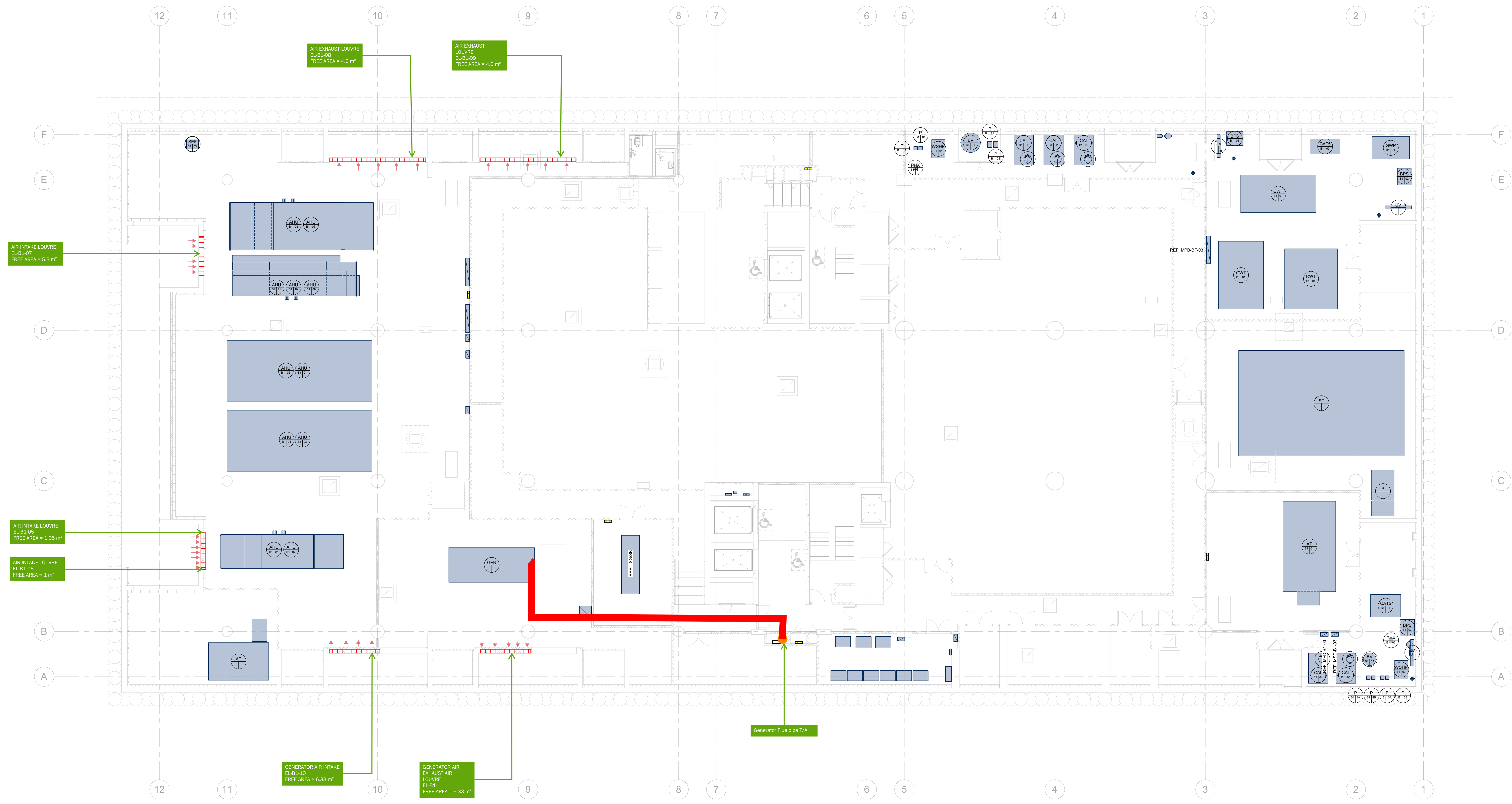
1. Provide fresh air into the building in accordance with the criteria of the relevant standard for ventilation.
2. Ventilation pathways are designed to minimise the ingress and build-up of air pollutants inside the building, in accordance with the following best practice as appropriate:
 - PD CEN/TR 16798-4:2017
 - BRE FB 30 Ventilation for healthy buildings: Reducing the impact of urban air pollution (2011)
 - BRE IP 9/14 Locating ventilation inlets to reduce ingress of external pollutants into buildings.
 - Minimise pollution as air intakes according to CIBSE TM21
3. Where present, HVAC systems must incorporate suitable filtration to minimise external air pollution, as defined in BS EN 16798-3:2017.
4. Areas of the building subject to large and unpredictable or variable occupancy patterns have carbon dioxide (CO₂) or air quality sensors specified.
5. For naturally ventilated or mixed mode buildings, the design demonstrates that the ventilation strategy provides adequate cross flow of air to maintain the required thermal comfort conditions and ventilation.

2.2 Basis of Design

The following documents have been the primary basis for the ventilation strategy proposed for the new development.

- Building Regulations Approved Document Part F1 – 2021
- Chartered Institute Building Services Engineering (CIBSE) Guidelines
- British Council of Offices (BCO) 2023
- Building Research Establishment Environmental Assessment methodology (BREEAM) for Offices.

Appendix A Louvre requirements



Atelier Ten sketch

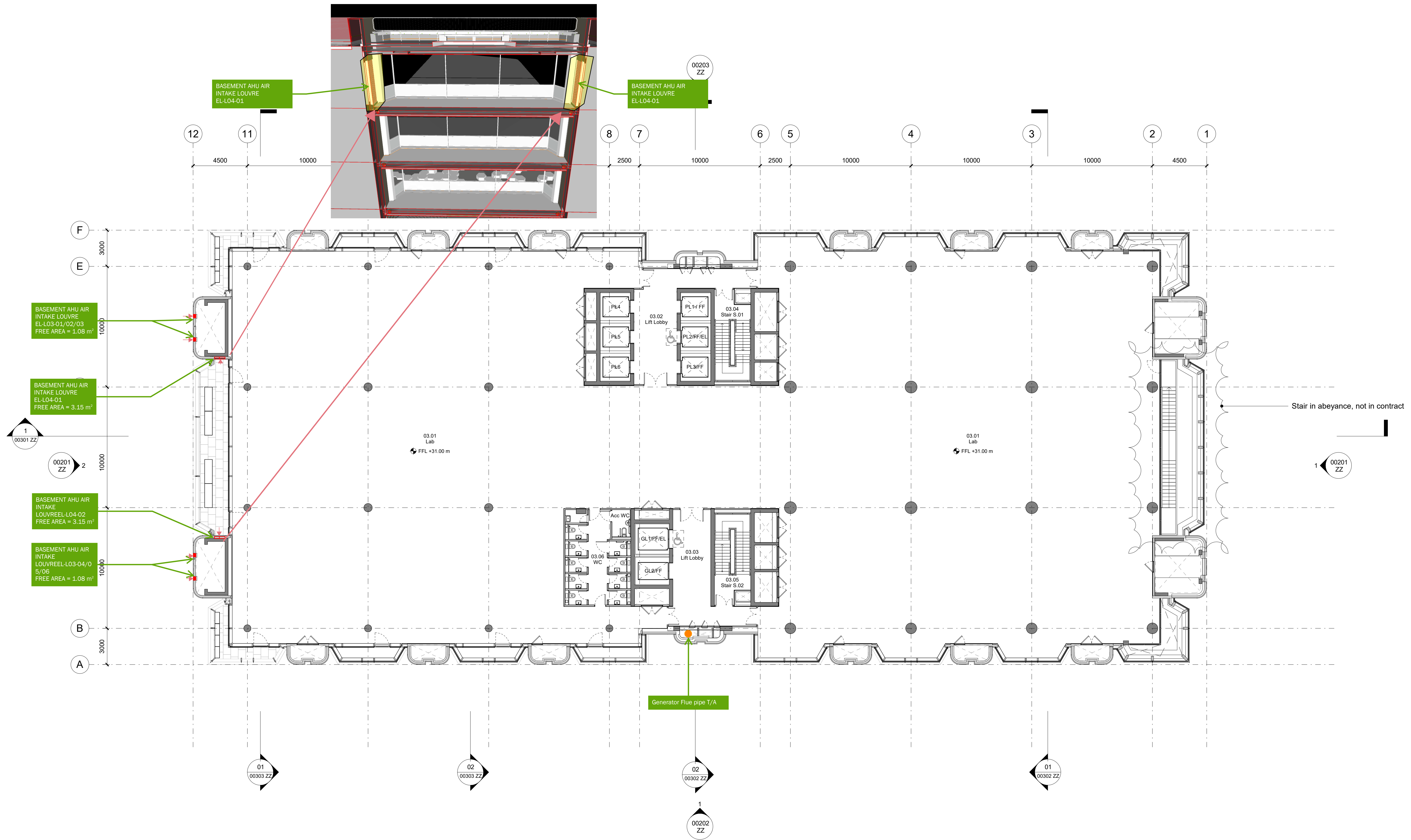
Project name: 4408 Belgrove House

Sketch title: Louver locations

Drawn: AA Checked: GD Date: 26.09.23 Scale: NTS

Sketch number: 4408-MS-SK-ST4-015 **atelier ten**





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NOTE

REV. STATUS DATE DESCRIPTION

NOTE

SECTION

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Atelier Ten sketch

Project name: 4408 Belgrove House

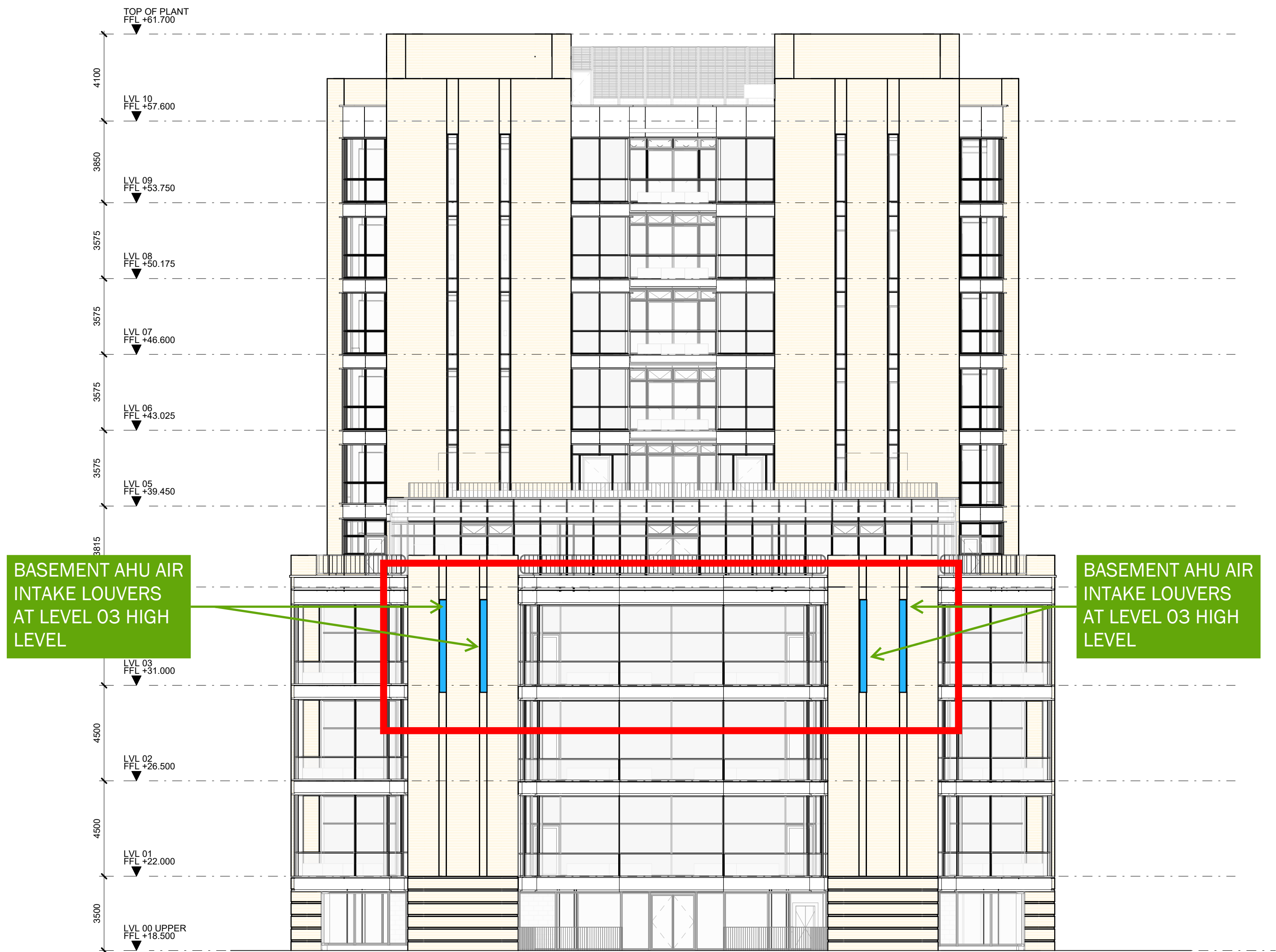
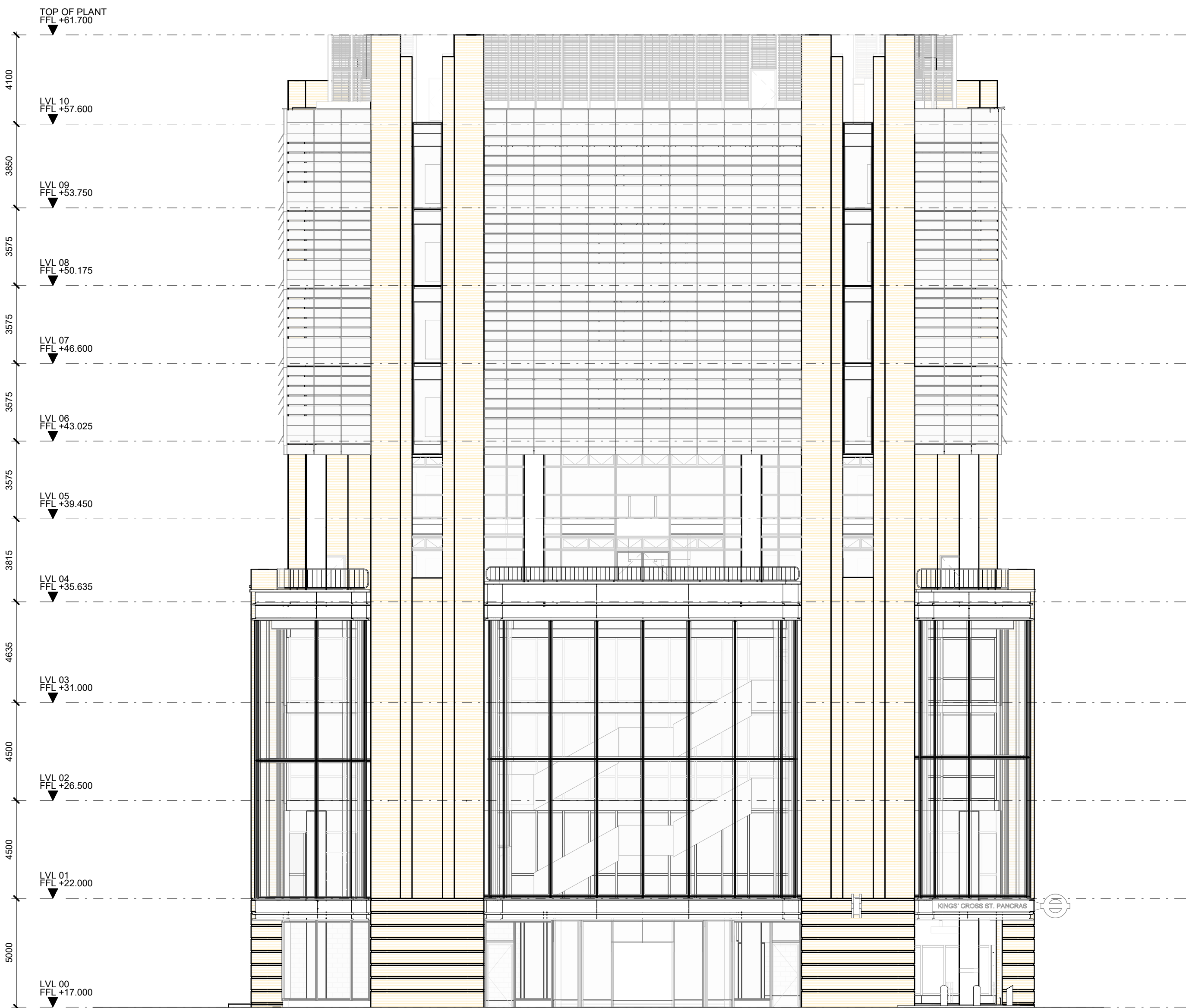
Sketch title: Louver locations

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KEY

NOTE

1. All levels are in metres and relative to Ordnance Survey Datum.
2. Please refer to AHMM document 17002_TRS_001 for T-Sheet codes and Specifications clause cross references.
3. For CDM Hazards refer to CDM 3 'Schedule of significant issues' within the CDM report issued by AHMM appointed as Principal Designer.
4. All information to be read in conjunction with ARUP Fire Strategy Report and AHMM (68) Fire Package.
5. All structural, services & landscape information referenced from consultant information.
6. Design of LUL entrance demise is subject to verification by survey of existing conditions on site and approval via TIL/LUL Controlled Works and Infrastructure Protection processes.

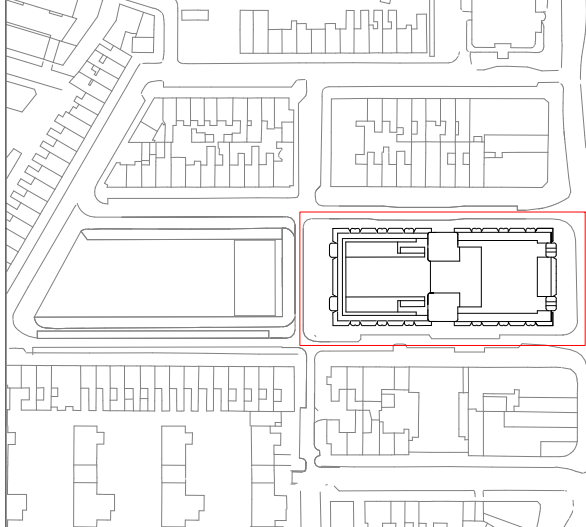
REV	STATUS	DATE	DESCRIPTION
P00	S0	21/01/22	INFORMATION
P01	S0	08/04/22	INFORMATION
P02	S4	27/05/22	STAGE 3 ISSUE
P03	S4	28/11/22	STAGE 4A ISSUE

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Atelier Ten sketch

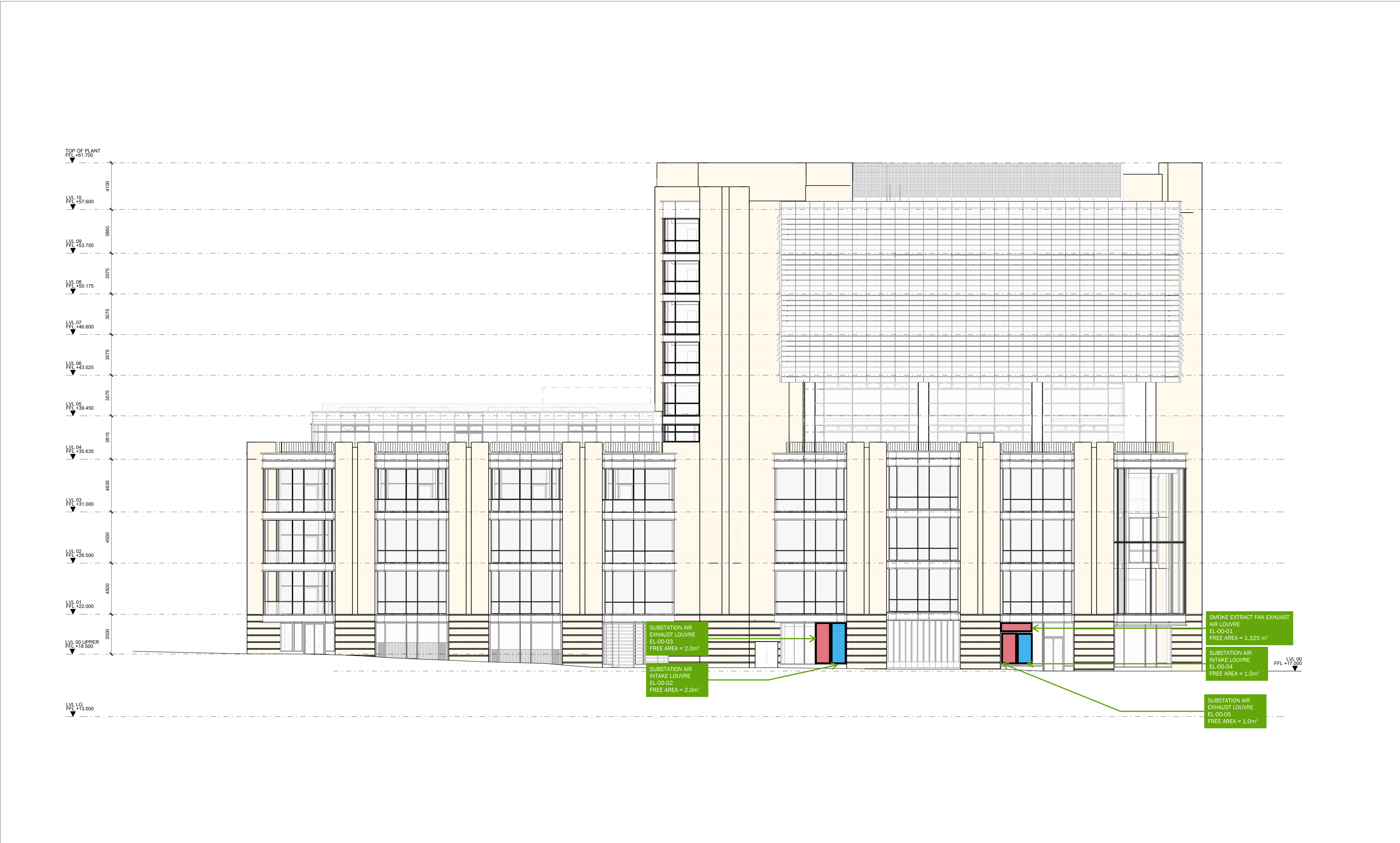
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REV STATUS DATE DESCRIPTION

P00 S0 21/01/22 INFORMATION

P01 S0 08/04/22 INFORMATION

P02 S4 27/05/22 STAGE 3 ISSUE

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Atelier Ten sketch

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MECHANICAL EQUIPMENT SCHEDULE

EXTERNAL LOUVRES

REFERENCE	EL-B1-01	EL-B1-02	EL-B1-03	EL-B1-04
GENERAL DETAILS				
Location	Basement AHU Plantroom	Basement AHU Plantroom	Basement AHU Plantroom	Basement AHU Plantroom
System served	AHU Lab Intake	AHU Lab Intake	AHU Lab Intake	AHU Lab Intake
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	16	16	16	16
Minimum Free Area (m ²)	8	8	8	8
Maximum Pressure Drop (Pa)	30	30	30	30
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Accessories				
Notes	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area

REFERENCE	EL-B1-05	EL-B1-06	EL-B1-07	EL-B1-08
GENERAL DETAILS				
Location	Basement AHU Plantroom	Basement AHU Plantroom	Basement AHU Plantroom	Basement AHU Plantroom Lightwell
System served	AHU 05 Intake	AHU 07 Intake	AHU intake	AHU normal exhaust
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	2.1	1.98	14.9	8
Minimum Free Area (m ²)	1.05	1	5.3	4
Maximum Pressure Drop (Pa)	30	30	30	30
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)				6410x1750
Accessories			Plenum box for duct connection	N/A
Notes	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area

MECHANICAL EQUIPMENT SCHEDULE

EXTERNAL LOUVRES

REFERENCE	EL-B1-09	EL-B1-10	EL-B1-11	EL-LG-01
GENERAL DETAILS				
Location	Basement AHU Plantroom Lightwell	Basement Generator Room	Basement Generator Room	Lower Ground Floor South
System served	AHU normal exhaust	Air Intake	Air Exhaust	B1 & LG Smoke Extract Fans
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	8	35	35	3.1
Minimum Free Area (m ²)	4	6.33	6.33	1.55
Maximum Pressure Drop (Pa)	30	30	30	30
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)	6410x1750			
Accessories	N/A	N/A	N/A	N/A
Notes	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	To be mounted 200mm away from motorised dampers. Assume 50% free area	Assume 50% free area

REFERENCE	EL-LG-02	EL-00-01	EL-00-02	EL-00-03
GENERAL DETAILS				
Location	Lower Ground Floor South	L00 Loading Bay	L00	L00
System served	B1 & LG Smoke Extract Fans	Smoke extract fan	LG Substations 18 & 19 Intake	LG Substations 18 & 19 Exhaust
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	3.1	2.65	-	-
Minimum Free Area (m ²)	1.55	1.325	2	2
Maximum Pressure Drop (Pa)	30	30		
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)				
Accessories			Plenum box for duct connection	Plenum box for duct connection
Notes	Assume 50% free area	Assume 50% free area; High level	Assume 50% free area	Assume 50% free area

MECHANICAL EQUIPMENT SCHEDULE

EXTERNAL LOUVRES

REFERENCE	EL-00-04	EL-00-05	EL-00-06	EL-00-07
GENERAL DETAILS				
Location	L00	L00	L00	L00
System served	LG Substation 16 Intake	LG Substation 16 Exhaust	LG Substation 17 Intake	LG Substation 17 Exhaust
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	-	-	-	-
Minimum Free Area (m ²)	1	1	0.75	0.75
Maximum Pressure Drop (Pa)				
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)				
Accessories	Plenum box for duct connection	Plenum box for duct connection		
Notes	Assume 50% free area	Assume 50% free area	Assume 50% free area	Assume 50% free area

REFERENCE	EL-03-01	EL-03-02	EL-03-03	EL-03-04
GENERAL DETAILS				
Location	L3 South Intake Shaft	L3 South Intake Shaft	L3 South Intake Shaft	L3 South Intake Shaft
System served	Basement AHU Intake	Basement AHU Intake	Basement AHU Intake	Basement AHU Intake
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	2.7	2.7	2.7	2.7
Minimum Free Area (m ²)	1.08	1.08	1.08	1.08
Maximum Pressure Drop (Pa)	30	30	30	30
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)				
Accessories				
Notes	Assume 50%-70% free area	Assume 50%-70% free area	Assume 50%-70% free area	Assume 50%-70% free area

MECHANICAL EQUIPMENT SCHEDULE

EXTERNAL LOUVRES

REFERENCE	EL-03-05	EL-03-06	EL-04-01	EL-04-02
GENERAL DETAILS				
Location	L3 South Intake Shaft	L3 South Intake Shaft	L4 South Intake Shaft	L4 South Intake Shaft
System served	Basement AHU Intake	Basement AHU Intake	Basement AHU Intake	Basement AHU Intake
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	2.7	2.7	7.8	7.8
Minimum Free Area (m ²)	1.08	1.08	3.15	3.15
Maximum Pressure Drop (Pa)	30	30	30	30
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.	See Architect's specification.	See Architect's specification.
Dimensions (H x W) (mm)				
Accessories				
Notes	Assume 50%-70% free area	Assume 50%-70% free area	Assume 50%-70% free area	Assume 50%-70% free area

REFERENCE	EL-10-01	EL-10-02		
GENERAL DETAILS				
Location	L10 Plantroom	L10 Plantroom		
System served	West Core Smoke Extract Fan	AHU 10-01 Intake		
EQUIPMENT DETAILS				
Air Flow (m ³ /s)	4	7.34		
Minimum Free Area (m ²)	2	2.5		
Maximum Pressure Drop (Pa)	30	30		
SUPPLIER DETAILS (DESIGN BASIS)				
Manufacturer	See Architect's specification.	See Architect's specification.		
Dimensions (H x W) (mm)				
Accessories			Plenum box for duct connection	
Notes	Assume 50% free area	Assume 50% free area		