



PADDINGTON GREEN
POLICE STATION

Ventilation Statement

Ventilation Statement—
November 2022 - GLA0711

NOVEMBER 2022

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Ventilation Statement

0049340-BHE-XX-XX-RP-VS-0001

0049340

15 November 2022

Revision 01

Revision	Description	Issued by	Date	Checked
00	Draft Issue	SS	21.10.22	WE
01	Final issue	SS	25.15.22	WE

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Glossary

Term	Definition
MVHR	Mechanical Ventilation with Heat Recovery
FCU	Fan Coil Unit
ACH	Air Change per Hour

1 INTRODUCTION

Buro Happold has been commissioned by Berkeley Homes (Central London) Limited to produce a ventilation strategy for the proposed development at Paddington Green Police Station (PGPS), London. The Site is located in an area under the jurisdiction of Westminster City Council.

The ventilation strategy will comply with the following current regulatory requirements, standards and good practice guidance:

- Building Regulations 2021 – Approved Documents F
- Building Regulations 2021 – Approved Documents L
- CIBSE Guide B
- DW/144

The ventilation strategy for PGPS shall not result in any adverse impacts to neighbouring developments, including from an odour and acoustic perspective.

2 VENTILATION STRATEGY

2.1 APARTMENT VENTILATION

Each apartment shall be provided with a dedicated Mechanical Ventilation Heat Recovery unit (MVHR) designed in accordance with Approved Document Part F 2021. The system shall be a whole dwelling ventilation system, (System 4).

Ventilation air volumes shall be compliant with the requirements of Part F of the Building Regulations. The MVHR shall run continuously to provide the whole house ventilation rate as prescribed in Approved Document F.

When a bathroom / ensuite light or the kitchen extractor hood is switched on, the MVHR will enter 'boost' mode which will increase the volume of air which is being supplied and extracted. This volume of air from each room shall be greater than the minimum air flow rates prescribed within Approved Document F for intermittent extract systems.

Extract air shall be from bathrooms, kitchen areas and utility cupboards. Fresh air shall be supplied to all bedrooms and living rooms areas.

Intake/Exhaust ventilation to serve the MVHR shall connect to dedicated façade connections. Plenums above the balcony soffit with architectural louvres shall be provided on all floors. Intake filters shall be installed as required, dictated by the air quality in the area. Air volumes will be developed in subsequent design stages.

Intake and exhaust louvres shall be appropriately separated from each other to avoid recirculation and shall be located away from neighbouring apartments. Kitchens shall be provided with recirculation hoods.

The location of the air inlets and exhaust have been chosen so as to avoid any undue ingress of pollution.

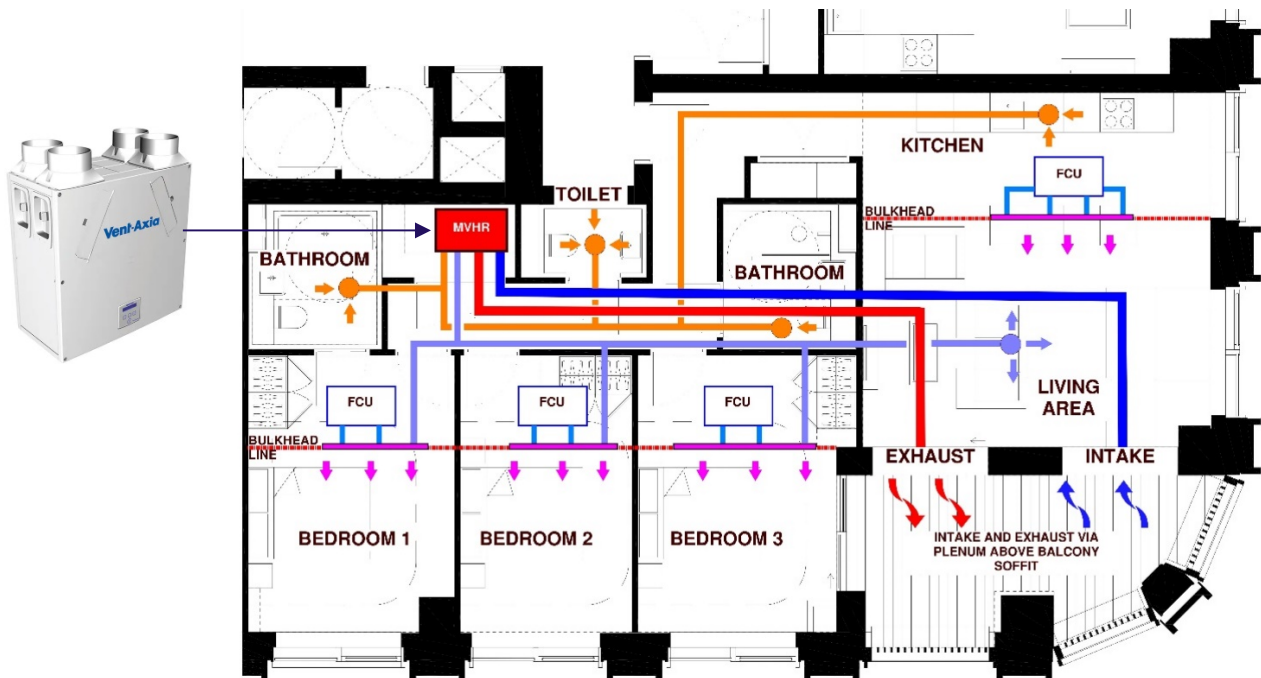


Figure 2-1 Apartment Typical Ventilation Layout

2.2 RESIDENTIAL FIREFIGHTING LOBBY SMOKE EXTRACT

Smoke ventilation will be provided for each firefighting core in line with the fire strategy which has been developed by AESG Ltd.

Each stair core is protected by an Automatic Opening Vent (AOV) at the head of the stairs. The exit from the stairs and lifts on each of the upper floors opens into a dedicated lobby which has its own smoke extract shaft.

In the event of a fire on a particular floor the smoke extract fans shall activate and the AOV on that floor will open. Air will be extracted from the lobby via the AOV and make up air shall enter the head of the stairs and shall be drawn down into the stair lobby.

Where there is a protected lobby which is not located adjacent to a stair, a second supply air shaft shall be provided to provide make up air. This type of system is known as a push / pull system and the fans on each shaft (supply / extract) are reversible and can either supply air or extract air as required.

The dedicated smoke extract fans will be located at roof level, forming part of a typical mechanical smoke ventilation system, with duty / standby fans, suitably rated for the high temperatures which could arise with smoke extract. Automatically operating vent panels will be installed to vent each firefighting lobby, which are activated on detection of a fire on that floor.

The smoke extract fans shall only operate during testing and fire scenarios. Supply and extract fan terminations at roof level shall be positioned at adequate distances apart to avoid smoke recirculation.

Lift lobby smoke ventilation shafts shall be used during normal mode for environmental control to mitigate corridor overheating. Dampers shall rotate to ensure floors have sufficient air change for removal of heat.

Adiabatic units which provide cooled air to the lobbies will be reviewed further during the next design stages to mitigate overheating risks or should it be required by SAP calculations. A Motorised Fire Damper (MSFD) shall allow the ventilation system to switch between normal mode and smoke extract mode.

The below images indicate the strategies across all blocks.

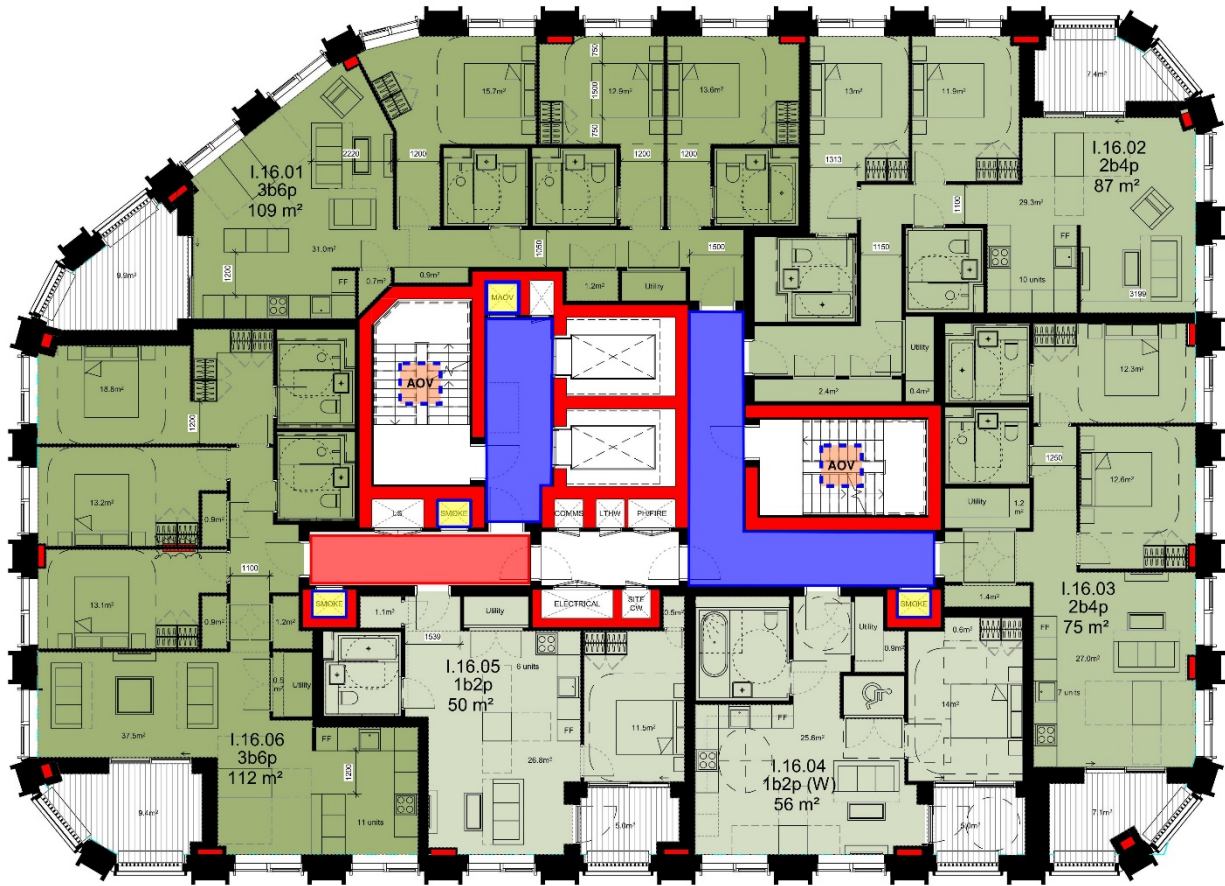


Figure 2-2 Block I Smoke extraction strategy

- SMOKE SHAFT
- PUSH/PULL SYSTEM
- SMOKE EXTRACT + TOP OF STAIRS AOV
- AUTOMATIC OPENING VENT

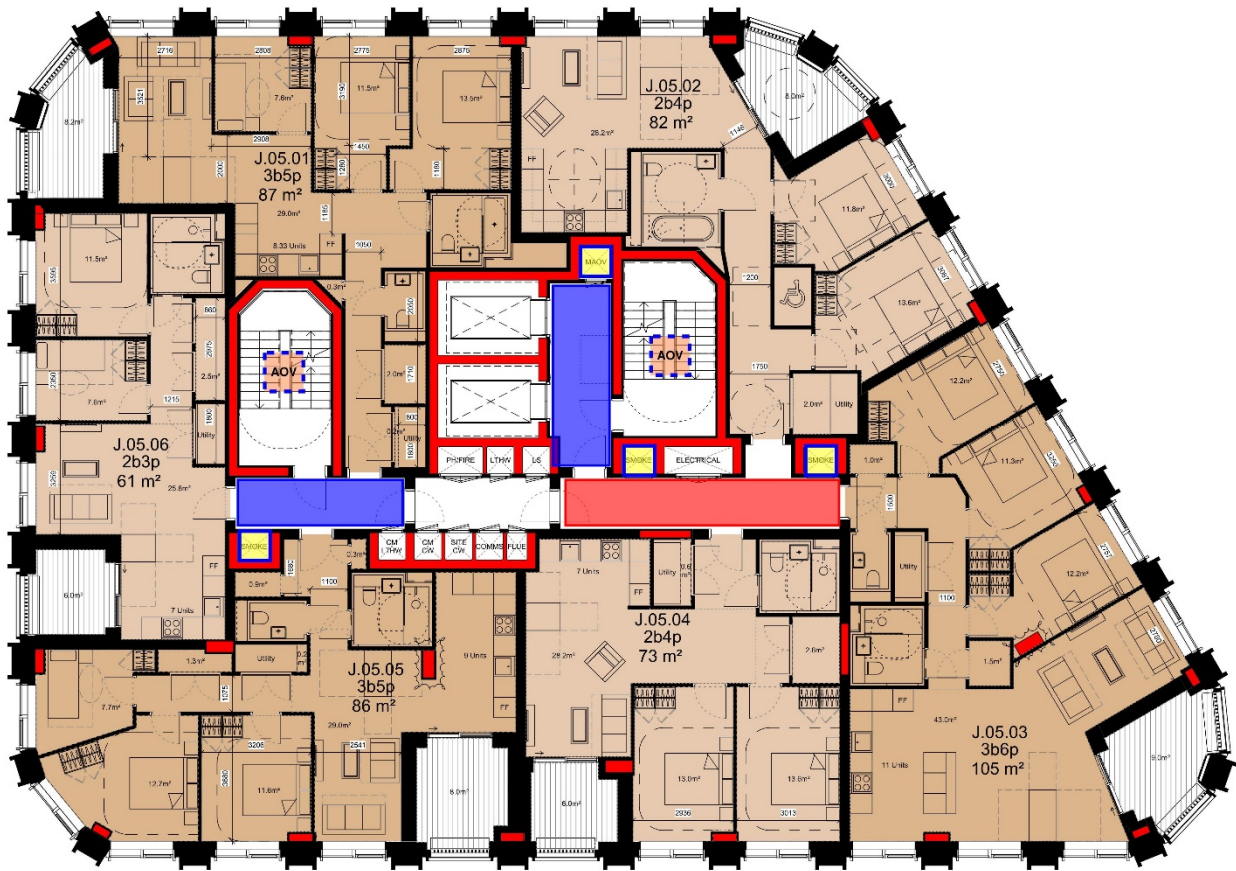






Figure 2—3 Block J Smoke extraction strategy

-  SMOKE SHAFT
-  PUSH/PULL SYSTEM
-  SMOKE EXTRACT + TOP OF STAIRS AOV
-  AUTOMATIC OPENING VENT

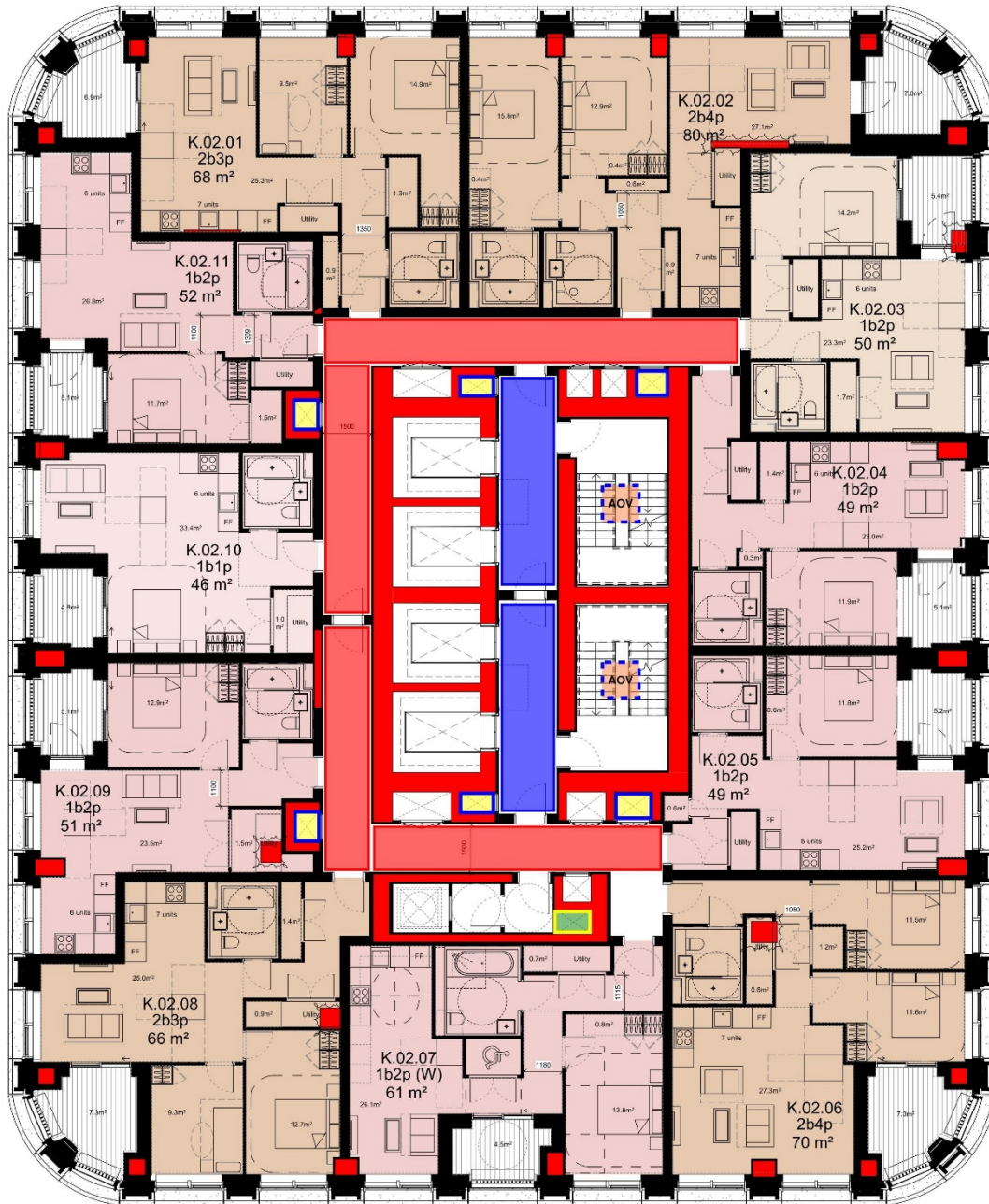


Figure 2—4 Block K smoke extraction strategy

- SMOKE SHAFT
- PUSH/PULL SYSTEM
- SMOKE EXTRACT + TOP OF STAIRS AOV
- AUTOMATIC OPENING VENT
- REFUSE CHUTE LOBBY VENT

2.3 RETAIL VENTILATION

The provision of ventilation for the commercial units at Paddington Green Police Station is to be developed during the next stage of the design.

Local façade connections at high level ground shall be provided in the form of perimeter louvres for independent ventilation plant to serve each retail space (the ventilation plant in the spaces shall be designed and installed by the future retail tenant based on their specific requirements).

The location of the louvers will be positioned so as to minimize the ingress of pollution.

2.4 BASEMENT/CAR PARK VENTILATION

Ventilation will be provided to basement areas in accordance with the PGPS Fire Strategy. Zonal smoke control shall be provided. Paddington Green Police Station (PGPS) basement ventilation systems shall be separated from the West End Gate (WEG) basement ventilation system.

Smoke extract from the rooms will be achieved by utilising the general extract ductwork system and dedicated smoke extract fans. The ductwork shall be fire rated and utilise MSFDs to change over the flow between extract fan sets (from normal basement extract fans to the smoke extract fans). Generally, all basement areas will be provided with 3 air changes per hour supply and extract at all times for background ventilation, and 10 air changes per hour in the event of a fire (zonal control).

All basement ventilation systems shall comply with BSEN 1366. All ductwork shall be fire rated.

Basement ventilation systems shall be vertically routed to ground floor and terminate at high level on the façade or within the landscape. Active frontage shall be maximised. Terminations have been shown on the landscape plans and set out within the DAS. These shall be further developed at the next design stage.

To minimise ductwork routes/sizes and to limit system resistances, the basement area has been divided into four different ventilation zones as follows:

- Zone 1 – Car park ventilation
- Zones 2, 3 and 4 – General plant rooms and cycle storages ventilation

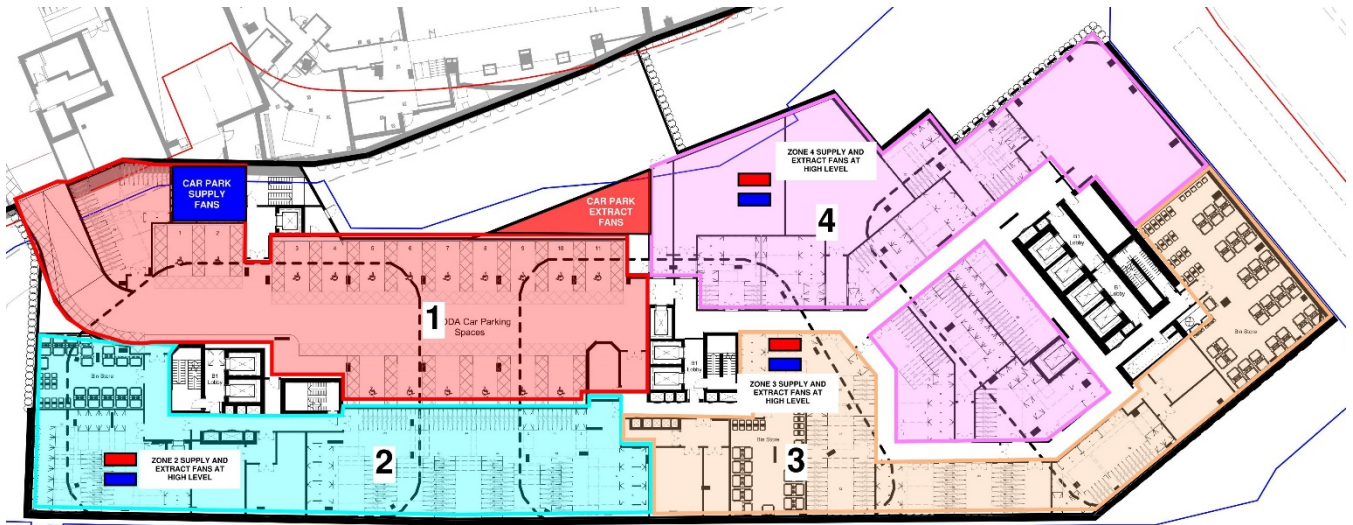


Figure 2-5 Basement ventilation zones

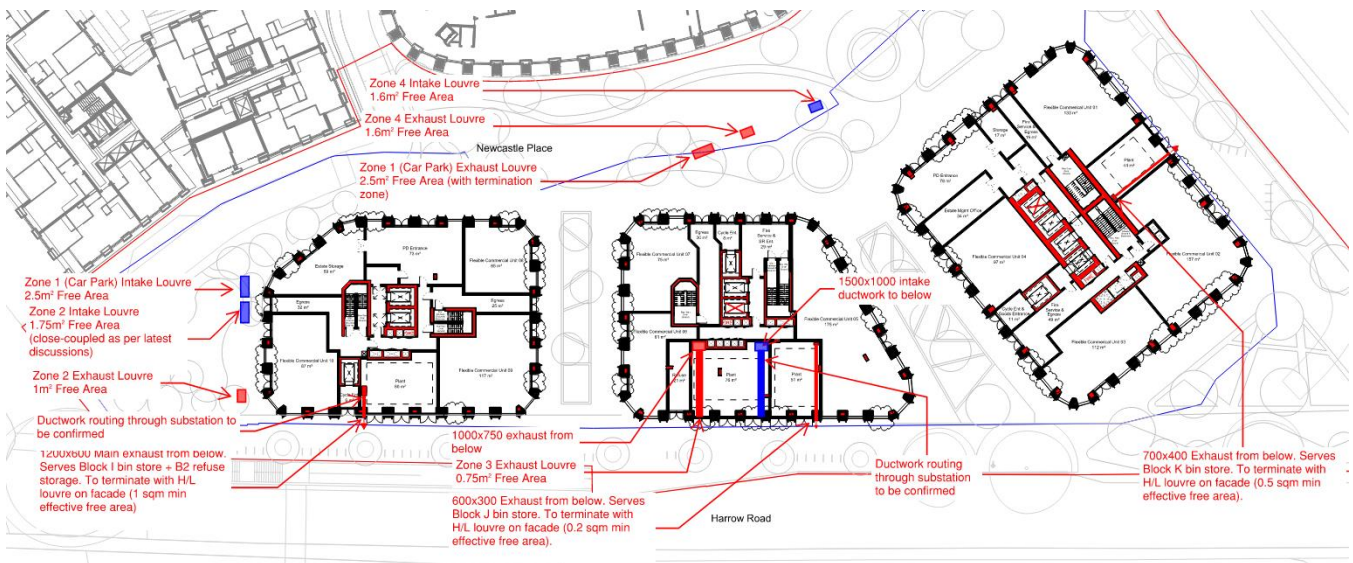


Figure 2-6 Basement ventilation terminations at ground floor

2.5 WASTE STORE VENTILATION

The waste storage areas within the building will be provided with supply and extract air at a rate of 6 ACH to ensure sufficient odour dilution is achieved. Each waste storage area (including the refuse holding area at basement B2) shall be provided with dedicated extract fans. The associated exhaust ductwork shall be routed and terminated at high level ground floor façade louvres, away from habitable areas to mitigate risks of unpleasant odours. Under a fire scenario the waste rooms fans will extract at a rate of 10 ACH.

Air make-up during both background and smoke extract ventilation scenarios to the waste areas shall be provided from the high-level supply fans associated with the general basement ventilation systems as follows:

- B2 waste holding area – make-up via Zone 2 supply fans
- Block I bin store – make-up via Zone 2 supply fans
- Block J bin storage – make-up via Zone 3 supply fans
- Block K bin storage – make-up via Zone 4 supply fans

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