



Mayfield Medlock Limited

MAYFIELD, PHASE 1B (PLOTS J AND K)

Ventilation, Extraction and Odour Statement





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TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70117910

OUR REF. NO. 0199-MAY-0199-MAY-WSP-K0X-XX-RP-YE-500103

DATE: DECEMBER 2024

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QUALITY CONTROL

Issue/revision	First issue	Formal Issue	Revision 2	Revision 3
Remarks	Planning Issue			
Date	20 th December 2024			
Prepared by	Fahim Ahmed			
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Authorised by	Alistair Lambert			
Signature				
Project number	70117910			
Report number	0199-MAY-WSP-K0X-XX-RP-YE-500103			

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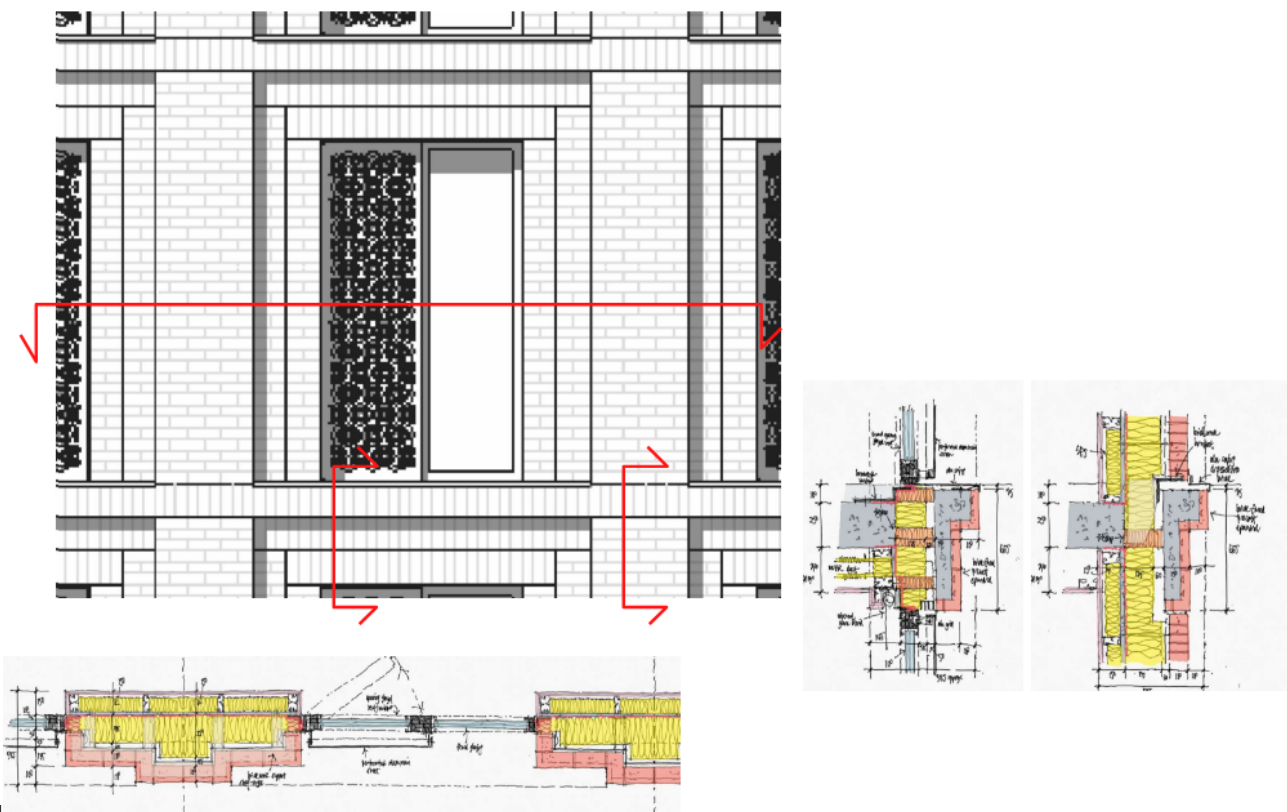


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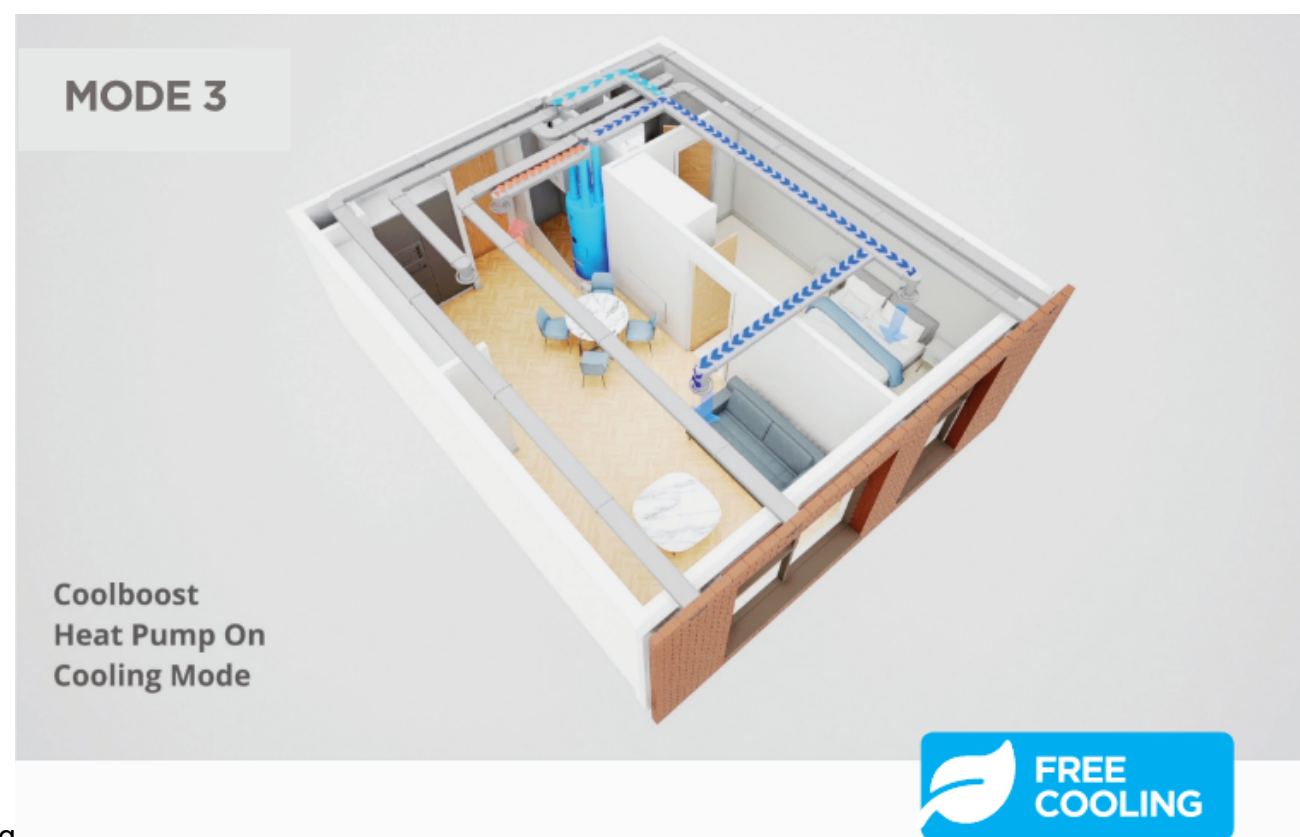


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DEVELOPMENT OVERVIEW

WSP has been appointed by Mayfield Medlock Limited to provide MEP and specialist consultancy services in relation to the engineering design of the Mayfield Phase 1B Residential development along with associated pre-planning support.

As part of this, WSP has been commissioned by Mayfield Medlock Limited (the applicant) to develop and prepare a Ventilation, Extraction and Odour Statement for the Mayfield Residential Phase 1B (the Proposed Development) in Manchester city.

WSP were appointed in October 2024, initially to undertake Stage 1 feasibility input alongside the design team before being instructed to move to RIBA Stage 2 and Planning Support.

Background to Proposals

The proposals form the first residential phase of development as part of a wider regeneration priority area. In 2018, Manchester's Executive Committee endorsed the 'Mayfield Strategic Regeneration Framework' ('SRF'), which sets out a clear ambition to guide the redevelopment, re-modelling and refurbishment of the site within SRF boundary.

The ambition for Mayfield, as set out in the SRF, is to deliver a world class, transformational, distinctive and imaginative commercially led neighbourhood, anchored by Mayfield Park, which will become a powerhouse of socio-economic productivity.

Following the endorsement of the initial SRF by Manchester City Council in 2018, applications were submitted in 2019 and approved in 2020 relating to the Poulton, multi-storey car park, Mayfield Park and the Republic. This comprised over 400,000 sq. ft. of commercial floorspace, and these planning permissions were implemented through the discharge of pre-commencement conditions and physical works being undertaken on site in 2021.

The Mayfield Park phase of development is now complete and operational, and the Mayfield Depot has been reactivated by the existing tenant, Broadwick, who operate it as a mixed-use leisure, food, and drink destination. The permissions were revised in June 2023 to account for design changes brought about by a changing regulatory environment and because of Landsec's acquisition of the previous development partner, u+i, in 2022.

The Mayfield Partnership therefore now incorporates LandsecU+I as its development partner, alongside Manchester City Council, TfGM, Network Rail and London Continental Railways.

Overview / Form of Application

Phased redevelopment of Mayfield Phase 1b comprising site remediation and reprofiling followed by the erection of two residential blocks (Use Class C3) comprising 879 no. residential units contained within four buildings ranging from 7 storeys to 24 storeys in height (Plot J) and 9 to 28 storeys in height (Plot K), including lower ground and upper ground floor commercial spaces comprising restaurant and / or retail units (Use Class E(b) and/or E(a)), and / or indoor sports facilities (Use Class F2) together with highways works, access, servicing, rooftop plant, cycle parking and back of house, along with delivery of associated public realm and other associated works for each relevant phase.

The application for Full Planning Permission comprises:

- Remediation and reprofiling works for the site to allow for the phased erection of two residential Plots (J and K) comprising Phase 1b.
- The development plots comprise two podium levels to address the site level changes and provide a generous amount of ground floor frontage, comprising commercial space, supporting residential amenity areas that are accessible to the public, and various back of house storage spaces, surrounded by new high quality public realm.
- Above the two storey podium levels, residential blocks will provide accommodation in four buildings providing a mix of 1-, 2- and 3-bedroom units in each. The total number of residential units is circa 879 at the time of writing.
- Plot J comprises two buildings on top of a two-storey podium level, with J1 being part 7 (from lower ground) and part 17 storeys (from upper ground) and J2 being part 10 (from lower ground) and part 23 storeys (from upper ground)
- Plot K comprises two buildings on top of a two-storey lower and upper ground floor, with K1 being part 9, part 28 storeys and K2 being part 11 and part 20 storeys.
- Creation of an at-grade multi-modal access route to the south of the residential blocks that will be traffic calmed to encourage pedestrian flows whilst allowing for a service road to be created, with a buffer zone between this route and the Mancunian Way.

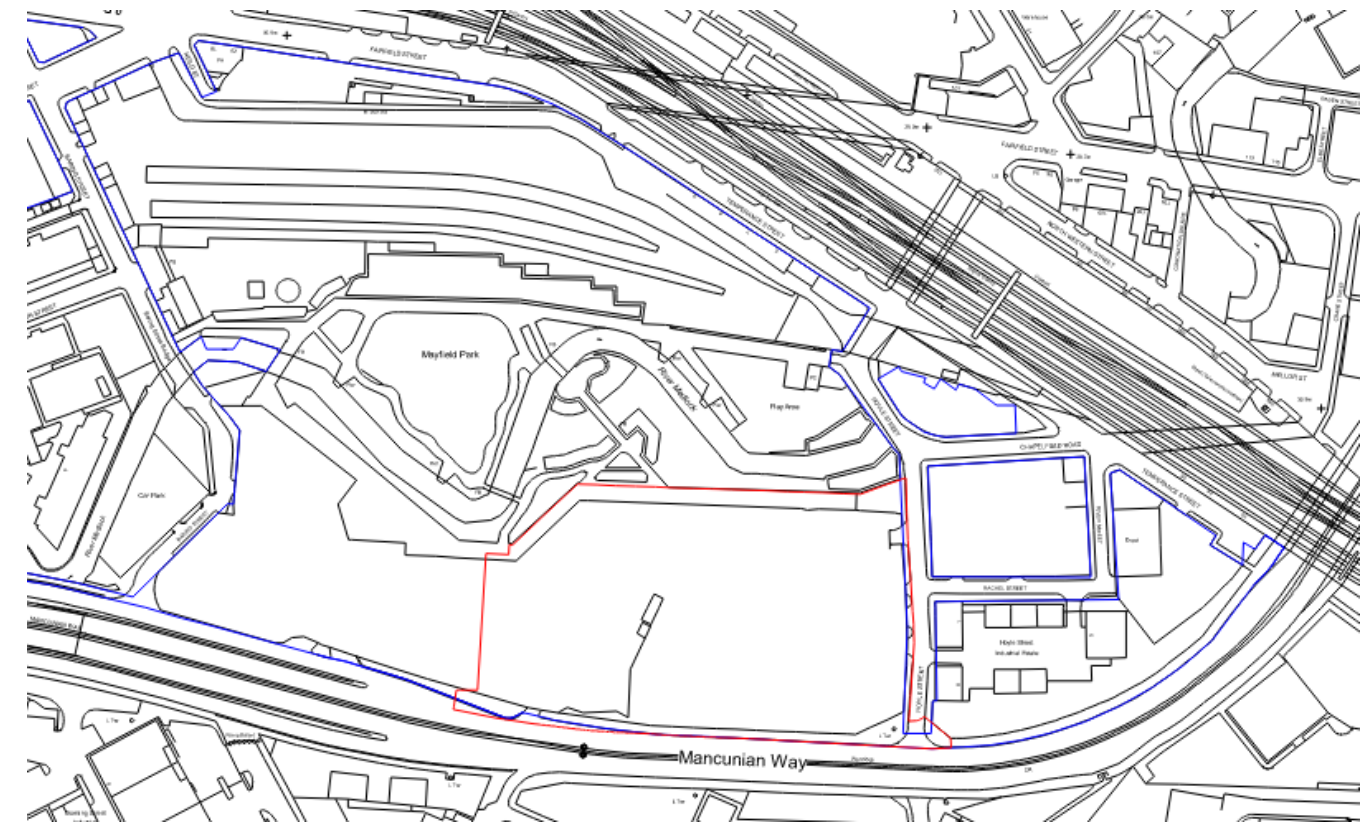


Figure 0 – Site Location Plan Showing Red Line Boundary

1. DESIGN STANDARDS

The ventilation design shall comply with the following Building Regulation Approved Documents and standards:

1.1. Statutory Requirements

Ventilation systems design will also be based on the following Statutory Requirements:

- The Building Regulations
- Clean Air Act 1993
- The Control of Pollution Act 1974 and Amendment Acts
- The Construction (Design and Management) Regulations 2015
- British Standards and Codes of Practice
- Local Air Quality Management Plans
- Building Safety Act 2022

1.2. Design Standards

Ventilation systems will be designed in accordance with recognised UK and industry best practice:

- British and European Standards (BSI)
- Chartered Institution of Building Services Engineers (CIBSE)
- Building Services Research and Information Association (BSRIA)
- Building Research Establishment (BRE)
- Heating & Ventilating Contractors Association (HVCA)
- ASHRAE Standards
- DW 172: Specification for kitchen ventilation systems (BESA)



2. Design Criteria

The ventilation system will adhere to the following design criteria.

2.1. NON-RESIDENTIAL AREAS

Table 2-1 – Ventilation Rates Non-Dwelling

Space	System	Criteria
Offices/ Meeting Rooms	Fresh air ventilation	14 l/s/person
WC/ Showers	Extract Air Changes	10 AC/H
Retail	Fresh air ventilation	5 l/s/p (tenant fit out)
Gym	Fresh air ventilation	10 l/s/p (tenant fit out)
Swimming Pool	Supply / Exhaust Ventilation	To meet heating design (tenant fit out)
Resi Amenities	Fresh air ventilation	10 l/s/person
Reception/ Communal Entrance	Fresh air ventilation	10 l/s/person
Glasshouse	Fresh air ventilation	10 l/s/person
Corridors/ Lobbies / Stairs	N/A	N/A
Bike Store	Supply / Exhaust Ventilation	2 AC/H
Refuse	Supply / Exhaust Ventilation	5 l/s/m2
Move in/ Move Out	Supply / Exhaust Ventilation	2 AC/H
MEP Plant Rooms	Supply / Exhaust Ventilation	2 AC/H (normal) 10 AC/H (basement smoke over 200m²)
Cleaners Store	Extract Air Changes	10 AC/H
Comms Room	Unvented	N/A

2.2. RESIDENTIAL AREAS

Table 2-2 – Ventilation Rates Dwelling

Space	System	Criteria
Apartments	Mechanical Ventilation Heat Recovery (MVHR)	To Building Regulations, Part F requirements and CIBSE Guide A
		Area Continuous Extract (l/s) 0.3 l/s per m2 of internal floor area and in boost high rate is:
		Kitchen 13
		Utility Room 8
		Bathroom 8
		Sanitary 6
	Purge ventilation	Passive via openable windows (to Building Regulations, Part F requirements).
Residential Corridors	Smoke Ventilation	Push / Pull Arrangement subject to Fire Engineer requirements.

3. Ventilation & Air Quality

In reference to and to quote the Air Quality ES Chapter produced by Buro Happold – Chapter 6:

- There will be no exceedance of the AQOs on-site. Concentrations are highest at ground level facing on the southern façade, facing the Mancunian Way, which will be commercial use. Highest concentrations are modelled at R1, at which the concentrations are 22.5 µg/m³ for NO₂, 16.7 µg/m³ for PM₁₀ and 9.4 µg/m³ for PM_{2.5}. These are all significantly below AQOs. Pollutant concentrations reduce with height, so residential properties will be exposed to even lower concentrations.
- An annual mean NO₂ concentration of 60 µg/m³ has been used to determine whether an exceedance of the 1-hour mean NO₂ AQO is likely. As all modelled annual average NO₂ concentrations are below this threshold at all receptors, exceedance of the 1-hour mean NO₂ AQO is deemed unlikely, in accordance with LAQM.TG(22) guidance.
- The maximum modelled PM₁₀ concentration on-site equates to less than 1 day when 24-hour mean PM₁₀ concentrations are greater than 50 µg/m³ (when following the methodology in section 6.53). Therefore, no exceedance of the 24-hour mean PM₁₀ AQO is considered likely.
- As air pollutant concentrations will be in compliance with AQOs across the EIA Site, the impact of air pollution on new receptors introduced by the Proposed Development will be negligible.
- As such, the overall significance of future exposure at the Proposed Development from NO₂ PM₁₀ and PM_{2.5} was determined not to be significant in line with EPUK and IAQM guidance.

As the impact of operational traffic on all human receptors will be negligible, no additional mitigation is recommended.

Therefore, no additional NO_x mitigation is required on mechanical ventilation systems and openable windows are allowable for all dwellings as part of the ventilation and overheating mitigation strategy.

4. VENTILATION SYSTEMS

4.1. VENTILATION FOR RESIDENTIAL SPACES

4.1.1. APARTMENTS

Mechanical ventilation shall be provided to all apartments via dedicated Mechanical Ventilation & Heat Recovery (MVHR) in line with the requirements of “Building Regulations 2010, Approved Document Part F, Volume 1: Dwellings” – 2021 edition.

Each apartment will be provided with a Mechanical Ventilation Heat Recovery (MVHR) unit. This will be in the utility cupboard within each apartment and ducted at ceiling void level.

Ductwork carrying air between the external supply/discharge terminals and the MVHR will be insulated, and wrapped with a vapour barrier outside the insulation, to prevent condensation occurring within the insulation material. Insulation with the equivalent of 25mm of a material having a thermal conductivity of 0.04W/(m.K) or less will be used for condensation prevention. Pre-insulated ductwork compliant with this performance criterion will be considered for ease of installation.

The MVHR will operate continuously by supplying outside air to occupied rooms and extracting via the kitchen and wet rooms.

The final intake and discharge terminal locations shall be located above the rapid ventilators integrated within the façade.

The apartments have been designed to comply with Acoustic, Ventilation and Overheating requirements as part of the Manchester City Council guidance and are compliant with the new Approved Document Part O.

4.1.2. KITCHEN EXTRACT SYSTEM

The kitchens will be equipped with an over hob recirculating extract fan complete with carbon filtration to minimise odours. There will be a short-term increase in internal noise levels when in use.

4.1.3. FAÇADE OPENING DETAIL FOR VENTILATION REQUIREMENT

All the apartments have rapid vent openings that will satisfy the Building Regulations to purge ventilate the apartments.

The MVHR system will draw air into the apartment and discharge air via formed louvres over the rapid ventilators. The louvres are separated as to not recirculate vitiated air back into the apartment.

4.1.4. PURGE REQUIREMENTS

Every liveable room—defined as “a room used for dwelling purposes, but which is not solely a kitchen, utility room, bathroom, cellar, or sanitary accommodation”—will have a purge ventilation system. Therefore, the only rooms that will need purge ventilation systems are bedrooms and living rooms. If the apartment consists of an open plan kitchen/living room, it is acceptable to split the area of the room 50/50 between them. Hence purge requirements will only apply to the living room space.

Purge ventilation should be capable of extracting at least four air changes per hour per room directly to the outside and can be delivered by natural “openings”. Examples of natural ventilations involve windows, trickle vents, doors or ventilation louvres in external walls. If natural means are not sufficient, mechanical systems are utilised.

4.1.5. NATURAL PURGE VENTILATION

When a habitable room has openings for purging ventilation, there are minimum opening areas to be satisfied according to Figure 4-1.

The values in the table below are based on BS 5925, which assumes all the following:

- Single-sided ventilation.
- An urban environment.
- A wind speed of 2.1 metres per second (m/s); and
- A temperature difference of 3°C between the air inside and outside the building.

Figure 4-1 - Table 1.4 from Building Regulations Part F

Table 1.4 Purge ventilation openings	
Opening type	Minimum total area of openings
Hinged or pivot windows with an opening angle of 15 to 30 degrees	1/10 of the floor area of the room
Hinged or pivot windows with an opening angle of greater than or equal to 30 degrees	1/20 of the floor area of the room
Opening sash windows	
External doors	

This purge ventilation strategy has been coordinated into all apartment types. The purge panel can be seen adjacent to the glazing in the image below as an example, however there are different elevation treatments across blocks.

All apartments are provided with a fully hinged openable window of more than 30 degrees that opens on to a perforated mesh to mitigate falling risk.

Figure 4-2 - Typical Elevation Showing Purge Panels and Ventilation Louvre Above Glazing

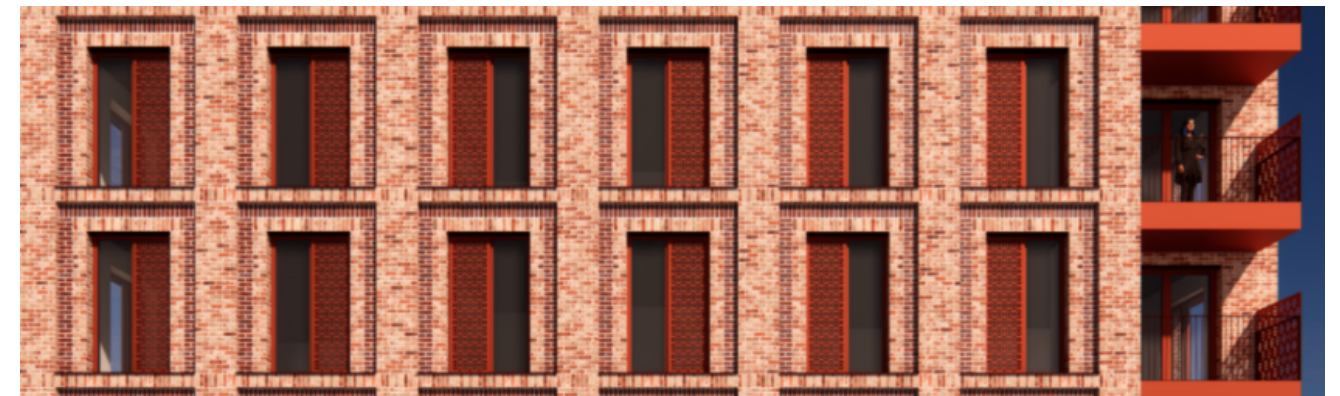
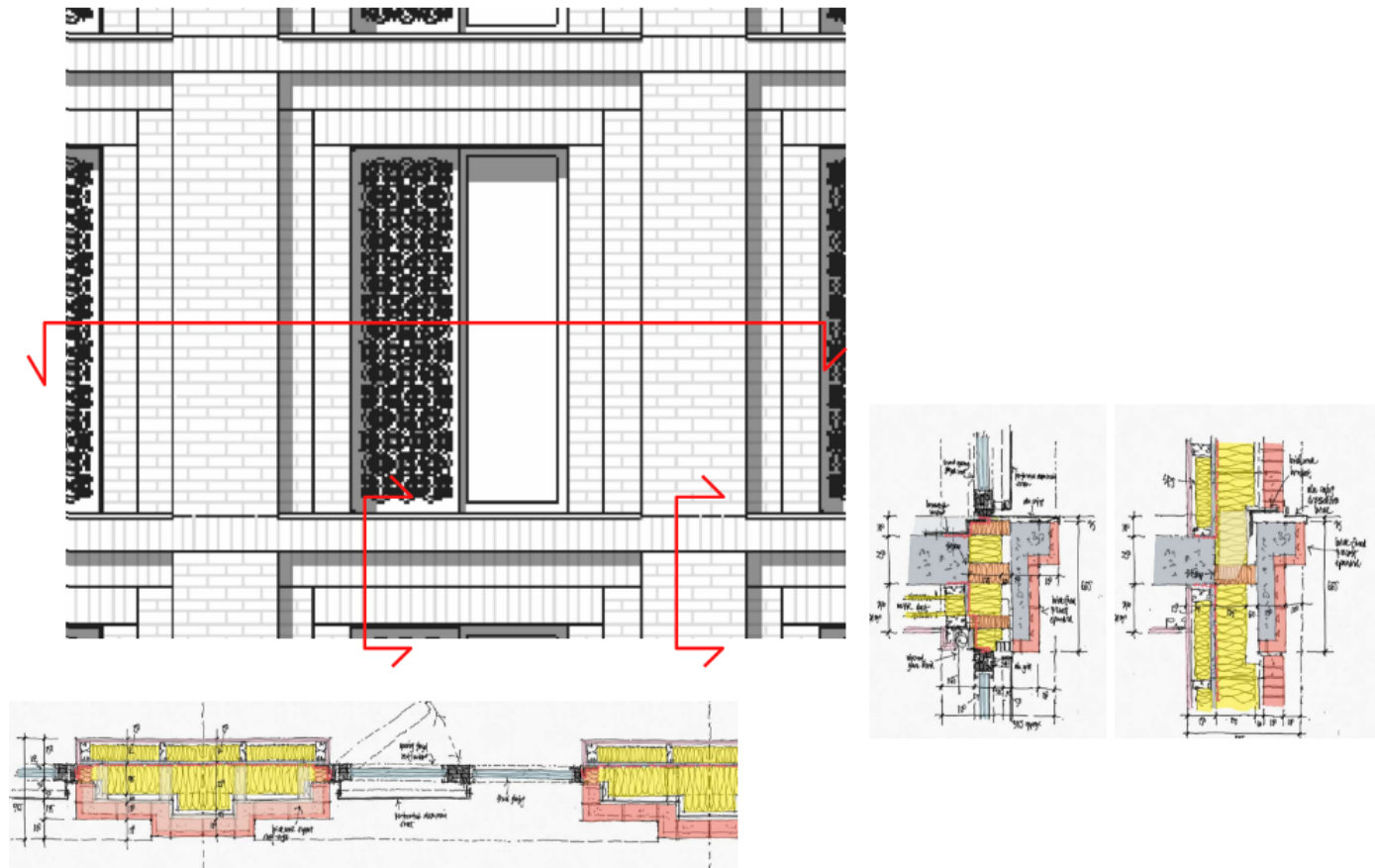


Figure 4-3 - FMDC (Facade Consultant) Window Detail



4.1.6. INTERACTION WITH APPROVED DOCUMENT PART O

Approved Document Part F sets minimum standards for purge ventilation for rapidly diluting indoor air pollutants and extracting water vapour where necessary in habitable rooms in dwellings. For domestic-type buildings, Approved Document Part O may require a higher standard than the guidance given in this document for purge ventilation to remove excess heat. In this case, the higher of the two standards should be followed.

WSP have undertaken a CIBSE TM59 study and all sample apartments are compliant, this is discussed further in the Energy Section.

Minimum ventilation rates

Figure 4-4 lists the minimum extract ventilation rates for continuous extract systems. For the fan to operate normally, a continuous rate is provided; when more extraction is required, a high rate is provided.

Figure 4-4 - Table 1.2 from Building Regulations Part F

Room	High rate (l/s)	Continuous rate
Kitchen	13	The sum of all extract ventilation in the dwelling on its continuous rate should be at least the whole dwelling ventilation rate given in Table 1.3
Utility room	8	
Bathroom	8	
Sanitary accommodation	6	

NOTE:

1. If the continuous rate of ventilation provided in a room is equal to or higher than the minimum high rate specified in the table, no extra ventilation is needed.

To supply air to the habitable rooms of a dwelling, the minimum whole residence ventilation rate must satisfy both of the following requirements:

- A minimum rate of 0.3 litres per second per m² of internal floor area (this includes all floors, e.g. for a two-storey building, add the ground-floor and first-floor areas); and
- A minimum rate determined by the number of bedrooms, as specified in the table below.

Figure 4-5 - Table 1.3 from Building Regulation, 2021 Part F1

Table 1.3 Minimum whole dwelling ventilation rates determined by the number of bedrooms	
Number of bedrooms ⁽¹⁾⁽²⁾	Minimum ventilation rate by number of bedrooms (l/s)
1	19
2	25
3	31
4	37
5	43
NOTES:	
1. If the dwelling only has one habitable room, a minimum ventilation rate of 13l/s should be used.	
2. For each additional bedroom, add 6l/s to the values in Table 1.3.	

4.1.7. ACOUSTICS WITHIN APARTMENTS

The site is heavily constrained by local acoustic levels, as such Openable Windows are not able to be used for overheating mitigation across the majority of apartment types (though they can be used for Part F purge compliance) – further validation on potential for some high level apartments on the West and North to have windows opening for a short amount of time will be carried out at the next design stage in conjunction with acoustic consultant to ensure that noise levels are not breached.

Therefore, it was agreed early within RIBA Stage 2 to assume a mechanical apartment strategy that assumed a fully sealed façade - aside from Part F Purge Ventilation requirement that shall make use of dedicated purge panels within the façade.

4.1.8. SERVICE VOID REQUIREMENTS

The services installations and distribution within the apartments will generally be routed through the ceiling voids and stud walls.

Apartment ceiling void depths will typically be as follows:

Table 4-1 - Apartment Service Void Requirements

Area	Clear Dimension (mm)
Bulkhead areas	300 mm clear void
Non-bulkhead areas	100 mm clear void
Exposed Soffit	N/A

4.1.9. APARTMENT OVERHEATING

Due to the acoustic constraints outlined above. Purge panels or openable windows cannot be used to reduce overheating risk.

The MVHR is assumed to operate continuously in residential rooms to meet minimum outdoor air requirements. However, in the majority of the apartments this is still not sufficient in order to avoid overheating.

WSP have undertaken initial CIBSE TM59 Overheating modelling with the use of the KERS Coolboost system.

The eco-friendly KERS Weatherby indoor heat pump is a combined heat recovery and hot water system with storage cylinder. Using energy in the outdoor air to provide low cost, low carbon renewable hot water. KERS's heater less design produces hot water temperatures up to 65 deg C solely using heat pump technology, resulting in greater energy savings.

The KERS Cool Boost System offers all the benefits of an MVHR with the added bonus of a cooling module for the extreme summer months, meaning homes can have a constant source of clean, fresh air and remain habitable - set to an optimal comfort temperature all year round.

The KERS cooling system works in conjunction with an MVHR Systems. Both systems work independently when no cooling is required. Once the temperature within the apartment exceeds 24 Degrees, the MVHR System will first use the cooler external air to reduce the internal temperature. If the external temperature is equal or higher than the internal temperature, the MVHR System then sends a signal to the Coolboost Module to activate the cooling controls and provides free cooling to the apartment via the MVHR ducting. Air will be taken from the room, absorbing the energy and the resultant cool air will be diverted into the room to supply free cooling. Specialist software and internal dampers will allow the control strategy to work.

The maximum cooling capacity of the unit is 1.5 kW, and this will be distributed between the living areas and the bedrooms based on the airflow rates that are being supplied into each of the spaces.

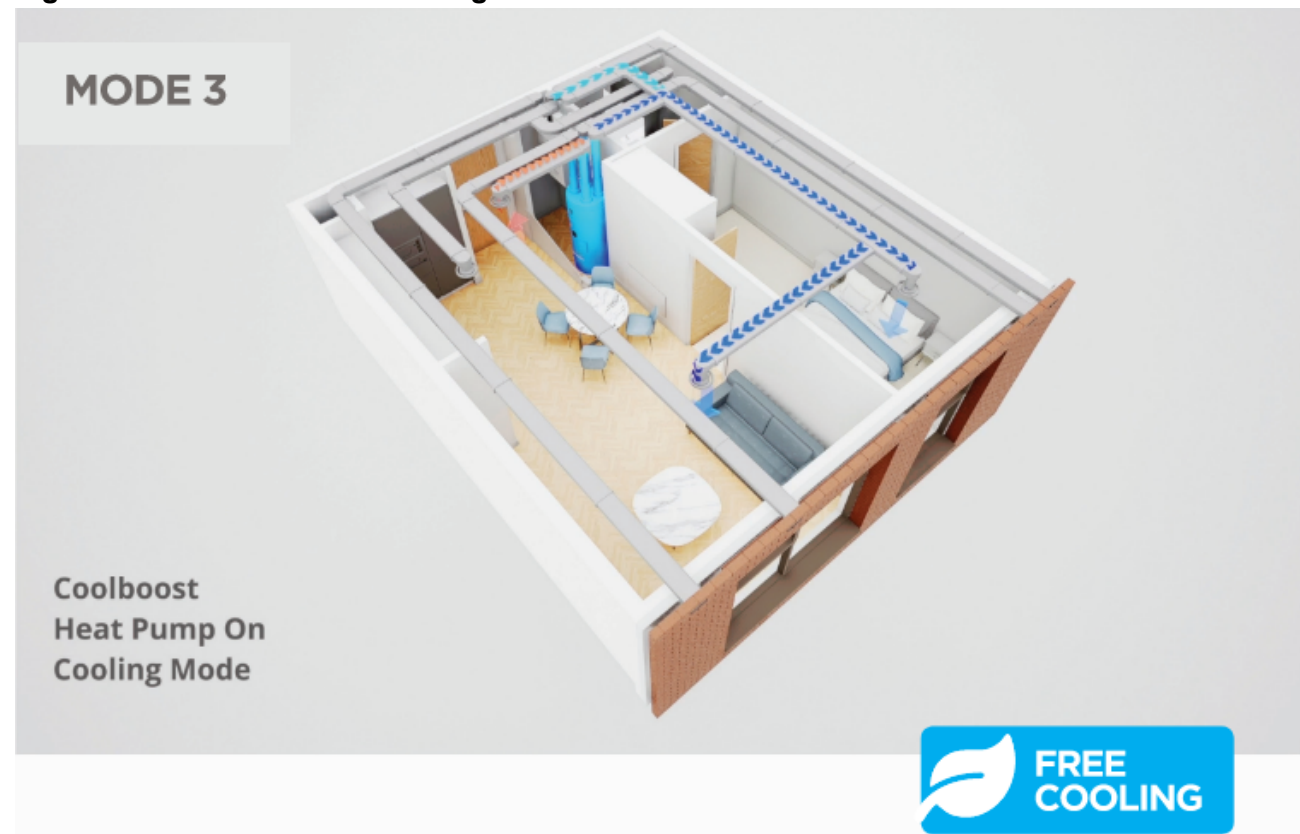
It is assumed this is applied to all apartments at this stage.

Other options for dealing with overheating such as full mechanical cooling via central plant and ASHPs with local apartment FCUs was discounted due to the potential impact on the slab-to-slab heights, corridor coordination risk, carbon impact and cost associated.

The below image shows how the KERS cooling system can work in conjunction with MVHR Systems. Both systems work independently when no cooling is required.

Once the temperature within the apartment exceeds 26 Degrees, the MVHR System will first use the cooler external air to reduce the internal temperature. If the external temperature is equal or higher than the internal temperature, the MVHR System then sends a signal to the Coolboost Module to activate the cooling controls, therefore producing cooling to the apartments via the MVHR ducting.

Figure 4-6 - Mode 3 - Free Cooling



4.2. CORRIDOR SMOKE VENTILATION

Smoke extract shall be required from the stair and lobby areas of residential floors, as set out by the Fire Engineer. It is expected that the system will be as follows:

A specialist contractor shall be responsible for designing, supplying, installing, testing and commissioning a new corridor smoke clearance system that will operate automatically in the event of a fire and in line with Fire Engineer's report.

A grille complete with fire damper (lobby ventilator) located at high level within the corridor shall open automatically at the dictates of the fire control panel to allow the passage of smoke from the affected corridor, into the smoke shaft formed within the core area.

The system shall provide an automatic opening vent (AOV) at the head of stair. This shall open automatically at the dictates of the fire control panel to provide make-up air for the clearance system. The stair door shall open into the corridor via the pressure of the system to provide this make-up air path during operation.

A dedicated corridor smoke detector located at all levels shall be used to actuate the fire damper at the affected floor.

Fans at roof level, controlled automatically by the fire control panel, once energised shall extract smoke from the building through an automatic opening vent. The fans shall be run in duty/ standby mode to ensure operation when required and be controlled automatically by the fire control panel.

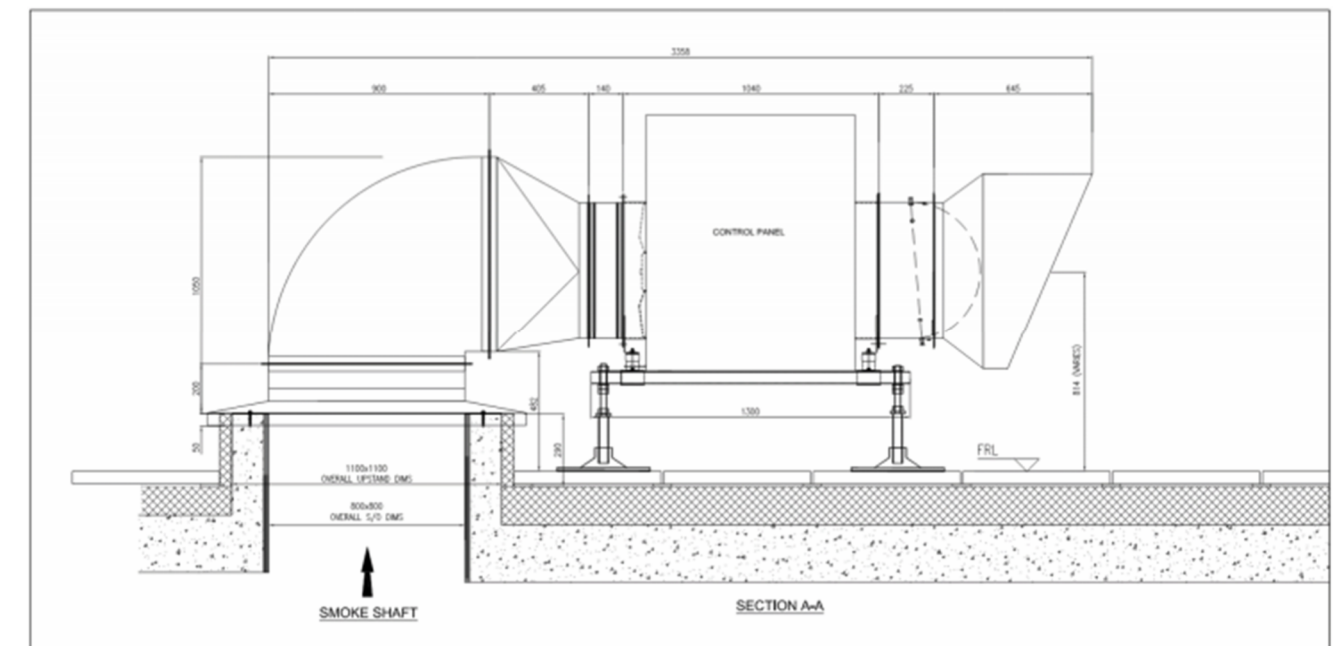
The fans shall also be complete with supply and discharge attenuation.

The system shall be designed to operate on only one level at a time, on first activation.

All plant items associated with the system shall also be fed by the Generator to ensure operation when the electricity supply is interrupted.

The control panel for each system shall be located at the foot of the stair core adjacent to the fire personnel entry point.

Figure 4-7 - Typical section of Smoke Vent Fan Set at Roof Level



The smoke exhaust systems will comprise of the following:

- Duty and standby variable speed extract fans with inverter drive, linked to pressure sensors within the lobby and corridor at each level via a control panel.
- Extract fans (3 kW nominal) rated at 300 °C for 2 hours.
- Motorised smoke and fire dampers between the shaft and the lobby at each level.
- A builder's work shaft in each lobby.
- Fire alarm interfaces and essential power supplies as required.
- Builders work shaft that is substantially straight & vertical and will connect to the lobbies at each level via a 1-hour fire rated damper and grille.
- The construction of the builder's work shaft is to have a smooth internal face and minimum air leakage.

Roof fans shall be concealed behind Architectural visual screens. The necessary free area louvre and plant access shall be provided.

All on-floor smoke exhaust connections will be provided with localised diffusers and motorised smoke dampers. The motorised smoke damper will be controlled by the fire alarm system.

Automatic opening vents (AOVs) will be provided at the top of each stair with a minimum opening of 1.0 m², subject to confirmation in the next revision of the Fire Strategy.

4.3. VENTILATION FOR NON-RESIDENTIAL SPACES

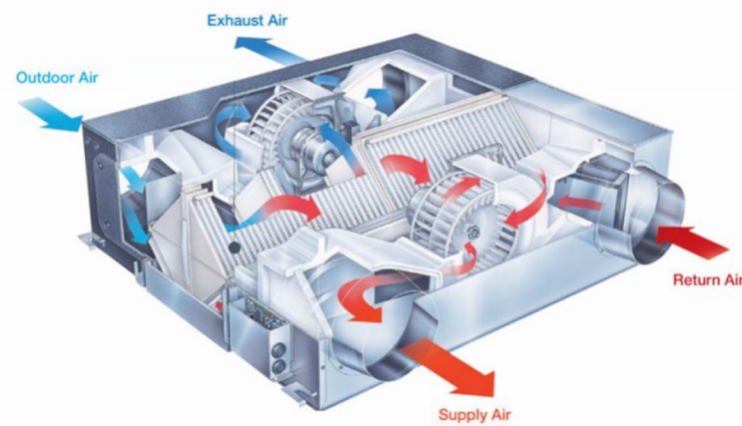
Ventilation in the non-residential spaces shall be provided by natural or mechanical means, with a preference for maximising natural ventilation wherever possible.

4.3.1. LANDLORD BACK OF HOUSE OFFICES / MEETING ROOMS

Offices with mechanical ventilation will have their own dedicated supply and extract ventilation system.

These areas will be served by local filtered heat recovery supply and extract units located within ceiling voids of each space.

Figure 4-8 - Typical Heat Recovery Unit



The air intake and exhaust louvres will be formed at high level in the façade. To minimise risks of recirculation, they will be positioned at an appropriate distance away from each other.

Communal areas may be provided with a false ceiling, or no ceiling, to suit the required aesthetic. A false ceiling solution would be equipped with supply and return air grilles. A solution with no ceilings would benefit from a higher apparent ceiling with all services exposed and finished to suit the interior design. In this case, grilles would be duct mounted.

4.3.2. WC / SHOWERS

Toilets and showers associated with all landlord areas will be provided with dedicated twin extract fans with replacement air make-up drawn from adjacent rooms and corridors via door undercuts, transfer grilles mounted directly in the door or via ceiling with transfer ducts and grilles.

Exhaust louvres will be formed at high level in the façade. To minimise risks of recirculation, the intake and exhaust louvres will be positioned at an appropriate distance away from each other.

4.3.3. AMENITY AREAS

These areas will have a dedicated ventilation system, featuring filtered heat recovery supply and extract units installed in the ceiling voids of each space. Outdoor air intake and exhaust louvres will be positioned at high levels on the façade, separated to prevent recirculation of intake and exhaust air.

Communal areas may either have a false ceiling or no ceiling, depending on the desired aesthetic. A false ceiling option would include supply and return air grilles, while the no-ceiling option would provide a higher visual ceiling with exposed services, finished to match the interior design, and grilles mounted on the ducts.

4.3.4. RECEPTION/ COMMUNAL ENTRANCE

The entrance and reception areas will have a dedicated ventilation system, featuring filtered heat recovery supply and extract units placed in ceiling voids. Outdoor air intake and exhaust louvres will be positioned high on the façade and spaced apart to minimise air recirculation.

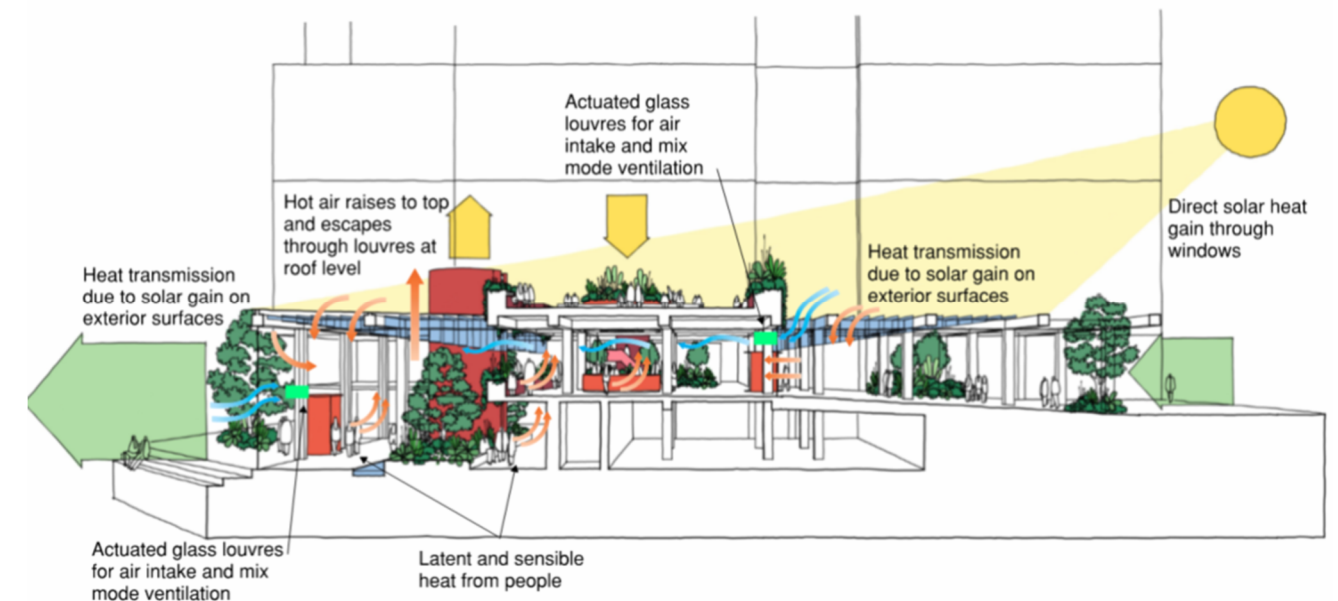
Communal areas may either have a false ceiling or no ceiling, depending on the desired aesthetic.

4.3.5. GLASSHOUSE – PLOT J ONLY

The proposed ventilation system for the Glasshouse primarily relies on passive ventilation. For most of the year, natural airflow will be used, with high-level automatic glazed louvres controlling temperature and providing fresh air. Cool air will enter at the bottom, while hot air rises and exits through the louvres at the top.

If needed, mechanical systems such as supply fans or MVHR units will be installed for colder periods. These systems will operate when the high-level openings are closed to prevent cold drafts. This strategy will be further developed in the next stage.

Figure 4-9 - Glasshouse HVAC strategy



4.3.6. CORRIDORS/ LOBBIES/ STAIRS

Corridors, lobbies, and staircases shall have no ventilation and are treated as an un-occupied space.

4.3.7. BIKE STORE

All bike storage areas will be ventilated at a rate of 2 air changes per hour (ACH), either through natural ventilation with louvred doors or via a dedicated ventilation system, depending on bike store's location.

4.3.8. REFUSE STORE

All proposed tenant and retail refuse areas are to be provided with appropriate dedicated extract ventilation. Refuse store extract ventilation shall be provided via an extract fan and ducting system that shall exhaust foul air to atmosphere at ground floor level, away from public spaces and air intakes.

All refuse areas will have mechanical extract ventilation which will be provided in line with current industry standard practice levels as set out in BS 5906:2005 - Waste management in buildings - Code of practice. A localised extract air fan will be located at high level (soffit mounted), within each refuse store, to provide 5 l/s-m² of mechanical extract ventilation.

This is in accordance with ASHRAE, Ventilation for Acceptable Indoor Air Quality, 62.1-2004, TABLE 6-4 Minimum Exhaust Rates. This extract ventilation will be ducted to the louvered façade.

Supply air make-up will be drawn from the adjacent areas and via infiltration through intake louvres along the elevation to external.

Refuse store extract ventilation shall be provided via an extract fan and ducting system that shall exhaust foul air to atmosphere at ground floor level, away from public spaces and air intakes.

Bin stores shall be ventilated at 5l/s /m² via a fire rated fan. All ductwork external to the bin store shall be fire rated.

4.3.9. BIN CHUTE ROOM

Each residential floor's bin chute lobby will have dedicated ventilation, operating at 6 air changes per hour (ACH). An extract duct will run next to the bin chute within a dedicated riser, extending to the roof where it will be connected to a dedicated fan.

Fire rated grilles are required to maintain fire protection.

4.3.10. MOVE IN/ MOVE OUT

Shall be provided with minimum 2 ACHs via dedicated mechanical system.

4.3.11. MEP PLANT ROOMS

All plant rooms shall be provided with ventilation as appropriate to their use either natural via louvred doors such as electrical substation or minimum 2 ACHs if basement wet plantrooms are at risk from stagnation.

4.3.12. CLEANERS STORE

Cleaners' stores will be provided with dedicated twin extract fans with replacement air make-up drawn from adjacent rooms and corridors via door undercuts or transfer grilles mounted directly in the door.

Exhaust louvres will be formed at high level in the east façade. The exhaust points will be required to be an adequate distance from any intake louver to minimise the risk of recirculation.

4.3.13. COMMS ROOM

The comms rooms shall have no ventilation as treated as an unoccupied space.

It is currently assumed that gas suppression is not required within comms rooms and that no ventilation for gas extraction is required.

4.3.14. BASEMENT SMOKE VENTILATION

All plant rooms located in the basement will require smoke ventilation, as advised by the Fire Engineer.

The system shall consist of one extract fan located at basement level with ductwork extracting from all room/ spaces and rising to exhaust within the public realm.

Make up air is then drawn from outside from the public realm above with automatic opening vent (AOV) ensuring they are weather tight outside use.

The fan is controlled automatically by the fire control panel and shall also be complete with supply and discharge attenuation.

The fan shall also be fed by the Generator to ensure operation when the electricity supply is interrupted.

All smoke exhaust connections will be provided with localised diffusers and motorised smoke dampers. The motorised smoke dampers will be controlled by the fire alarm system.

The smoke exhaust systems will typically comprise of the following:

- Duty and standby variable speed extract fans with inverter drive, linked to pressure sensors via a control panel.
- Extract fan (3 kW nominal) rated at 300 °C for 2 hours.
- Motorised smoke and fire dampers.
- A builder's work shafts up to the external ground floor.
- Fire alarm interfaces and essential power supplies as required.

4.4. RETAIL/ COMMERCIAL UNITS

All new retail units are being constructed as "shell and core" only. As such, sufficient plant allocation and louver shall be provided to enable a flexible tenant to fit out and ensure that such fit out is able to comply with all relevant standards.

Services serving the proposed retail units shall be designed, procured and installed by the individual tenants with appropriate power and water supplies provided only as an interface.

Plant and equipment shown on the general arrangement drawings associated with tenant areas is purely for spatial coordination purposes only.

For the ground floor Use Class E(b) units, ventilation systems will be provided by individual tenants to suit their requirements (tenant fit out). Louvred areas on the façade will be provided at high level to enable tenants' air intake and exhaust ductwork connections. These intake and exhaust louvres shall be separate at a suitable distance from each other (as described in the previous sections). The

tenant shall design a ventilation system to draw outdoor air and discharge vitiated air via this louvre arrangement.

In all cases where cooking processes will occur, fire rated kitchen extract ventilation plant will be provided by the tenant and must incorporate grease, ultra-violet, activated-carbon and electrostatic precipitator filtration systems to eliminate the build-up of grease, smoke and odours. Access to the kitchen extract ductwork and plant must be provided for regular cleaning and maintenance. This duct work will raise up to high level of the unit where it will be discharged out of the louvres along the elevation and away from any supply louvres.

The kitchen extract systems shall be designed and installed in accordance with DEFRA Guidance on the Control of Odour and Noise from Kitchen Exhaust Systems. This shall include provisions for access at each level in line with HVCA 171 – Kitchen Ventilation Systems.

A plant/BOH area will be provided centrally for the E(b) units. This is to be used by E(b) units that have fitted kitchens that require large plant space for ventilation systems, including AHU and supply and extract fans in an unheated area.

Defra has published a document entitled: 'Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems'. It describes a method of risk assessment for odour, guidance on minimum requirements for odour and noise control, and advice on equipment selection. It is recommended that any proposed commercial unit should refer to this document (particularly Annex B). Details should also be provided in relation to replacement air.

Consideration has been made regarding the coordination of tenant extract locations and openable residential windows during the tenant fit out process.

The decision for localised louvres for retail units was based on the below Pros and Cons; where a centralised strategy was assessed as being unviable.

Localised Ventilation

- High level louvre band provided to the majority of Retail Elevations – circa 400mm deep
- This allows flexible connection during fit out by tenants to connect localised plant for general ventilation (fresh air and exhaust) as well as toilet and kitchen extract systems.
- All kitchen extract systems are expected to be treated as per recommendations in EMAQ Guidance.

Centralised Ventilation Plant

Alternatively, plant space could be provided at roof level via the developer. Central remote plant could then be installed during tenant fit out and distributed to serve the unit. This plant would have to be installed following engagement with tenant to ensure it suits the correct needs. Plant allocation for each retail demise, riser and distribution routes would have to be kept flexible to suit all types of potential tenant.

The concerns of this strategy over a localised louvre solution are as follows:

- Additional risers required to roof level for each retail unit (up to 3 x 1m depending on unit size)
- The above impacts NIA of the unit as well as floors above
- All risers require access at each level for fit out of the riser by tenant
- Individual roof space area to be assigned to each tenant for fit out– impacting BNG as well as view down on staggered roof levels

- Access and Maintenance to be considered for roof space – how is plant lifted to roof during fit out, how is general access allowed for routine maintenance by tenant to roof and risers
- Lift strategy to be reviewed to consider the above tenant install and maintenance plans
- Considerable fit out works outside the tenant demise to be managed safely for residential tenants
- Reduces flexibility of internal fit out by tenant, as consideration need to position of internal spaces adjacent to risers
- Large increase on fit out cost to tenant
- Large impact to tenant Whole Life Carbon due to increase amount of service routes/ risers being installed
- Reduced system efficiencies performance of tenant install
- Higher running costs for tenants
- Acoustic plant screens at roof maybe required



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