Intended for
Plot 4, First Street

Project no.
31204

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PLOT 4, FIRST STREET

VENTILATION/ EXTRACTION STATEMENT

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Ventilation/ Extraction Statement

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Revision History

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1. EXECUTIVE SUMMARY

The ventilation and extraction strategy for the development of plot 4 First St will meet the requirements of the building regulations parts B & F, the requirements of the fire engineer and the requirements to ensure that odour and noise emissions are controlled so as not to cause nuisance to sensitive receptors.

There are several key systems:-

- Whole house mechanical ventilation with heat recovery to the apartments
- Mechanical ventilation of the proposed laundry
- Mechanical ventilation of the proposed Gym
- Provision for ventilation of a ground floor retail unit
- Natural ventilation of the corridors
- Natural ventilation of the plant spaces
- Flue dilution extraction of the boiler and CHP exhausts
- Smoke extract from the corridors
- Automatic opening ventilators (AOVs) in the stair landings and at the roof.

All systems will terminate to external weathering louvres, except the smoke extract fans (on the roof), the AOVs (self finished) and the corridors. All mechanical fan systems will be provided with atmospheric side attenuation to ensure noise levels at sensitive receptors do not exceed agreed thresholds.

Apartments will have carbon filter media in the integrated cooker hood. Intake and discharge will be separated by the height of the apartment this will minimise any short cycling of odours.

The laundry will have lint filters before the discharge fan to limit discharge of particulates and attenuators to control any noise.

The gym will take air in and discharge air from the louvres at high level with attenuation to control any noise.

The ground floor retail unit will be class A1, A3 or A4, however the intention is that all inlet, discharge and cooling air movement is undertaken through the band of louvres within the demise of the unit at the underside of the first floor slab.

Plant rooms and meter rooms will be fitted with louvred doors.

A fan flue dilution system will be provided for the gas fired boilers and CHP units this will be designed to ensure that there are no acoustic issues with the high volume of air passing through the low level louvres <5m above ground level.

The smoke extract strategy shall open the AOV on the smoke/ fire floor, the AOV will open at the roof and the AOV will open at the smoke shaft at each end of the corridor to the fire floor only. Smoke extract fans will extract from a riser at each end of the building at a volume to maintain the corridor clear of smoke. The fans will be fed from the essential board and standby generator.

2. INTRODUCTION

This ventilation and extraction statement has been prepared to provide supplementary information for the planning submission in respect of Plot 4, First Street, Manchester. The project will comprise the demolition of any on-site structures and redevelopment of the site for 279 serviced apartments with ancillary reception area, gymnasium, lounges/meeting areas, plus ground floor commercial unit for uses with Class A1, A3 or A4, and associated cycle parking, servicing and access arrangements.

The site is constrained by the development of plots 1-3 and consideration of their occupants and the site boundaries and has been made during the development of this ventilation and extraction systems.

3. VENTILATION SYSTEMS

3.1 General

The ventilation and extraction strategy for the development will meet the requirements of the building regulations part F, the requirements of the fire engineer and the requirements to ensure that odour and noise emissions are controlled so as not to cause nuisance to sensitive receptors.

There are several key systems:-

- Whole house mechanical ventilation with heat recovery to the apartments
- Mechanical ventilation of the proposed laundry
- Mechanical ventilation of the proposed Gym
- Provision for ventilation of ground floor retail unit
- Natural ventilation of the corridors
- Natural ventilation of the plant spaces
- Flue dilution extraction of the boiler and CHP exhausts
- Smoke extract from the corridors
- Automatic opening ventilators (AOVs) in the stair landings and at the roof.

3.2 Whole House Ventilation

The apartments will include open plan bedroom with en-suite bathroom, study area, living/dining area and a kitchen with extraction over the hob. The extractor will have built in filter media for controlling cooking odours and will be combined with the bathroom extract. The unit will run continuously at the reduced ventilation rate identified in part F of the building regulations, and will be of the heat recovery type with fresh supply air to the living areas. The fresh air intake and the exhaust will discharge at the perimeter in metal louvres designed to prevent rain ingress and to discharge the exhaust away from the façade. This is especially significant on the West elevation where any perforation of the façade is required to be in metal due to the proximity of plot 1.

Any attenuation that might be required would be installed in the ductwork but this will be subject to the assessment of an acoustic engineer.

3.3 Laundry and Gym

The laundry will have a dedicated extract that will discharge through the louvres at the underside of the transfer beam at level 1 the system will comprise of ducting, extract lint filter, extract fan, atmospheric side attenuator and weathering discharge louvre at circa 4m above ground level.

The gym will have local mechanical ventilation plant with heat recovery to maintain satisfactory conditions in the gym the system will intake and discharge air through a weathering grille as for the laundry. The ducts will be attenuated on the atmospheric side of the fan to ensure noise levels at any receptors are within the threshold. The relative positions of the inlet and exhaust connections to the perimeter louvre will be as far apart as practically possible.

3.4 Class A1, A3, A4 Retail unit

There will be provision made for a weathering louvre at the underside of the first floor slab extending down to approximately 800mm to form the air intake and discharge for the retail demise. The intake shall generally be on the West elevation with the discharge to the East to avoid entrainment of moist air from the laundry.

The final design of the systems for the retail unit will be determined once an end user is in place but as a minimum will comprise of attenuation and filtration to avoid noise and odour nuisance to neighbouring building occupants.

3.5 Plant areas

There will be provision made for natural ventilation to avoid heat build up in plant areas and ventilation of any gas by means of louvred doors or supplementary wall louvres.

In the case of the boilers and CHP units there will need to be discharge of the products of combustion at low level via a flue dilution system discharging up at the underside of the first floor slab. An assessment will be made at the detailed design stage of the levels of combustion and the specific ventilation rates.

3.6 Smoke extract units

There will be provision for a smoke extract shaft at each end of the access corridor on each floor. The system will have a local automatic opening ventilation unit and a roof mounted smoke extract fan over each shaft, the fan will have an exhaust attenuator on the atmospheric side terminating in an open cowl to discharge smoke over the roof in the event of a fire.

3.7 Automatic opening vents

There will be provision made for 1.5m2 automatic opening ventilators to each floor level adjacent the lift lobby, there shall also be a 1.0m2 automatic opening vent at the roof of the stairwell.

4. CONCLUSIONS

The various ventilation systems and different space types require different solutions to discharge the air from the building so that it does not cause offense to nearby receptors. The proposals form the considerations and actions that have been taken to minimise the risks.

Amongst the measures are appropriate siting of louvres, adequate filtration, assessment of acoustic characteristics of plant and equipment and provision of attenuation as required.