

39 Deansgate

VENTILATION STRATEGY

In support of planning application

Date Prepared:

30th July 2021

Project preface

Client name: Kames Property Income Fund

Client address: .

.

.

Supervising Director: David Barlow

Prepared at: EDPI Limited

10th Floor

3 Hardman Street

Manchester M3 3HF

Document prepared by: David Dewsnip

Job reference: 2217-EDPI-XX-XX-RP-Z-57-10001

Reviewed by: David Barlow

1	INTRODUCTION.....	4
2	CLIENT BRIEF	4
3	VENTILATION STRATEGY	4
1.1	TENANT AREAS.....	4
1.2	RETAIL AREAS.....	5
1.3	RESTAURANT	5
1.4	PLANT ROOMS	5
1.5	LANDLORD FACILITIES	5
1.6	SARS-CoV-2	5
1.7	REFUSE STORES	6
1.8	SMOKE CONTROL.....	6
1.9	FIRE AND SMOKE DAMPERS.....	6
2	DESIGN CRITERIA.....	6

1 Introduction

This document has been prepared by EDPI to support the planning application for 39 Deansgate, Manchester and is intended to communicate the principles of ventilation strategy for the project.

The ventilation strategies outlined herein have been prepared to ensure compliance with Building Regulations Approved Documents B and F and to maintain air quality and occupant comfort in line with industry norms.

- Any potential impact of a negative nature to adjacent properties and accessible areas have been mitigated by maintaining the following principles:
- Carbon filters should be incorporated on all primary air intake arrangements
- Sound attenuators will be incorporated within ventilation systems as necessary to comply with acoustic criteria.
- Positioning exhaust arrangements such that they do not discharge on to neighbouring properties.
- Positioning exhaust arrangements such that they do not discharge on to areas regularly occupied by people.

2 Client Brief

The Brief calls for the demolition of the existing 39 Deansgate known as Speakers House, to be replaced with a single building which would provide in excess of 130,000 sq ft of 'Grade A' office space and 5,000 sq ft of flexible retail space at Ground Floor.

The building needs to meet the demands of the target occupiers whilst respecting and complimenting the immediate historic context through its massing, the use of high-quality materials and attention to detailing.

The site is a prime location and marks a key intersection on Deansgate and St Mary's Gate forming a gateway into the city's retail core.

As such, it should reinforce and enhance the local street scene through active frontages and complementary retail uses.

Key items of the Client Brief included:

- British Council for Office (BCO) compliance for all core elements
- BREEAM Excellent target (office space only)
- Flexible and sub-divisible office space

3 Ventilation Strategy

Occupant comfort and flexibility are paramount to city centre commercial property combined with optimising usable floor space, while landlord facilities must be efficient and readily maintainable. To this end landlord and tenant systems are kept separate but in all instances are based on mechanical ventilation with integrated heat recovery.

1.1 Tenant Areas

Ventilation for occupation will be provided by decentralised plant installed within the footplate of each space. Plant will be configured as ceiling mounted heat recovery units with integral filters and VRF heating/cooling coils.

Intake and discharge air will be drawn through the building façade via intakes mounted discretely behind architectural decorative screen.

To limit introduction of external contaminants, all heat recovery system intakes will incorporate carbon filters.

The units will be configured and sized to serve occupant levels within each structural bay to allow maximum flexibility for sub-division.

In order to maximise energy efficiency each system will be provided with variable volume control to manage fresh air supply based on occupancy demands as determined by appropriately located Air Quality sensors.

1.2 Retail areas

Facility will be provided within each of the retail units to incorporate heat recovery type ventilation systems as outlined for other tenant areas. To this end suitably sized intake and discharge points will be provided in the building façade at high level within the area, ready to receive suitably sized equipment. Until such time as retail user fit-out is provided insulated blanking panels will be provided.

As with other tenants, retail users will be required to install demand-controlled heat recovery ventilation systems with integrated air quality control and carbon filtration.

1.3 Restaurant

Should retail area be utilised as restaurant facility, space has also been provided for exhaust ductwork to be routed through the building to roof level where suitably selected plant will be provided by the relevant tenant.

The scope and nature of catering facilities not being known at this stage; it will be a requirement of any tenant wishing to make such provision to make separate and detailed submission incorporating details of any carbon and/or electrostatic filtration systems as necessary to maintain clean air requirements.

1.4 Plant Rooms

Ventilation plant rooms will be provided by decentralised plant installed within the footplate of each space. Plant will be configured as self-contained heat recovery units with integral filters and VRF heating/cooling coils.

Intake and discharge air will be drawn through the building façade via intakes mounted discretely behind architectural decorative screen.

To limit introduction of external contaminants, all heat recovery system intakes will incorporate carbon filters.

In order to maximise energy efficiency systems will be provided with variable volume control to manage fresh air supply based on air quality sensor.

1.5 Landlord facilities

The core toilet areas will be provided with a mechanical ventilation system generally comprising roof mounted air handling unit, ceiling grilles and interconnecting dampers. Balanced supply air will be provided to the same areas to minimise energy loss and excessive differential pressures.

The air handling unit will generally incorporate F7 bag filters, City carbon Filters, heat recovery unit, refrigerant based primary temperature control and variable speed fans.

Demand control will be provided to each floor via variable volume dampers operating under the dictates of occupancy sensors to maximise energy efficiency.

1.6 SARS-CoV-2

- In response to COVID, CIBSE and REHVA have offered practical guidance for the operation of ventilation systems to mitigate the potential return and/or transmission of COVID/SARS within the workplace, and while this aspect of system designs is likely to develop further current best practices to be adopted should include:

- Ventilation system operating times should be extended to 2hours prior to and post normal occupancy periods to encourage greater air dilution within the workspace.
- CO₂ demand control systems should have set-points adjusted to 400ppm
- Recirculation with central ventilation systems should be avoided or incorporate suitable filtration and/or disinfection equipment.
- Heat recovery equipment leakage rates from the exhaust side to the supply not to exceed 5% of the total.
- Cooling systems which inherently rely on recirculatory air should, where available, be fitted with high efficiency intake filters.
- Maintenance procedures should be enhanced to ensure more frequent cleansing and/or replacement filters and similar equipment.

1.7 Refuse stores

Refuse stores have been positioned on the external façade to allow integration of natural ventilation; as such suitably sized louvres will be provided.

1.8 Smoke Control

The fire-fighting shaft and associated lift lobby will be provided with an automatic smoke extract system generally comprising roof mounted duty/standby fans and motorised dampers with interconnecting ductwork.

All ductwork systems will be constructed to maintain the integrity of any fire compartment breached, in this respect ductwork will provide fire protection (Stability, Integrity and Insulation) to the equivalent rating of the principle compartment breached.

Electrical continuity for system operation will be provided via emergency back-up equipment comprising generator and/or UPS batteries as appropriate

Secondary staircases will be provided with an automatic opening ventilator (AOV)

1.9 Fire and Smoke Dampers

As a principle thermo-fusible link activated dampers will not be used and all compartment penetrations will be protected by combination fire/smoke dampers integrated in to a building wide damper control system to allow central testing and monitoring of equipment by the landlord.

All dampers will be addressable and be linked to a central control panel located within Landlord's plant or reception space.

2 Design Criteria

The following table summarises the design parameters used in assessing the ventilation strategy and are based on normal CIBSE and BCO guidelines

Area	Temperature		Noise	Ventilation Rates	
	Winter	Summer	Criteria	Air Changes	Fresh Air Per Person
	(°C)	(°C)	(NC)	(per Hour)	(l/s)
Offices	19-21	21-25	35-40		12
Retail	19-21	21-25	35-40		12
Reception	19-21	21-25	35-40		12
Circulation	16-18	21-28	40		n/a
Toilets	19-21	21-28	35-45	8	n/a
Showers/Change		21-28	35-45	8	n/a
Refuse	5	Uncontrolled	Uncontrolled	natural	n/a
Cycles	5	uncontrolled	uncontrolled	2	n/a

For occupancy rates a further 10% Spare should be provided as recommended by BCO (2019) guidelines.

