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All Saints Library

Ventilation Statement

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Contents

1 Introduction **5**

1.1 Site Description 5

1.2 Description of Development 5

2 Basis of Ventilation Design **6**

2.1 Overview 6

2.2 Design Criteria 6

3 Description of Ventilation Systems **7**

3.1.1 Open plan workspaces 7

3.1.2 Enclosed workspaces (offices, meeting rooms, teaching rooms, etc.) 7

3.1.3 Special Collections (Storage, Reading Room, Workroom & Teaching Rooms) 7

3.1.4 WCs, Changing Rooms and Showers 7

3.1.5 Coffee Counter 7

3.1.6 Fire Fighting Stairs 7

4 Conclusion **8**

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Glossary

Term	Definition
AHU	Air handling unit
BREEAM	Building Research Establishment Environmental Assessment Method
CHW	Chilled water
FCU	Fan coil unit
GIA	Gross internal area
LTHW	Low temperature hot water
MCC	Manchester City Council
MMU	Manchester Metropolitan University
PV	Photovoltaic
VAV	Variable air volume
WC	Water closet

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1 Introduction

This document defines the basis of design and outline description of the ventilation systems for the All Saints Library at Manchester Metropolitan University, as required by the Manchester City Council Planning Authority.

1.1 Site Description

This 0.6 hectare Site in Manchester City Centre is bound by Oxford Road to the east, by the Mancunian Way to the north, Manchester Metropolitan University's Faculty of Business and Law to the west, and All Saints Park to the south. The Site currently comprises the vacant All Saints Library Building- a seven-storey brick building. The building on site is considered no longer fit for purpose and has been vacant since summer 2024. The Site is subject to a planning application (submitted August 2025) for demolition – due to be determined early December 2025.

Key Site Characteristics:

- Existing Use: Vacant library, considered not fit for purpose.
- Ecology: No protected species recorded on site. The Rochdale Canal Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) lies within 10km, no nationally designated or non-statutory sites are within 2km. The site is largely hardstanding with negligible ecological importance.
- Flood Risk: Located within Flood Zone 1 (indicating a less than 1 in 1,000 annual probability of river or sea flooding) and the Conurbation Core Critical Drainage Area.
- Heritage: The Site contains no known designated or non-designated heritage assets. It is not within a conservation area; the nearest being the Whitworth Street Conservation Area c. 470 m to the north. There are 11 listed buildings within a 200m radius.

1.2 Description of Development

The proposed overall quantum of development is set out within Table 1.1.

	Proposed Parameters
Site area (inside red line)	0.6ha
Height AOD (metres)	74m
Height (metres)	36.765m
Total Floorspace – GIA (sqm)	12,021m^2
Total Floorspace – GEA (sqm)	13,080m^2
Use	Use Class F1 (Learning and non-residential institutions)

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2 Basis of Ventilation Design

2.1 Overview

A good ventilation strategy is crucial to providing a high-quality indoor environment, whilst minimising energy consumption. A fully mechanical ventilation system is proposed delivering tempered fresh air from the rooftop AHUs delivered via ductwork installed within the raised access floor. Variable air volume (VAV) boxes will allow demand control ventilation; adjusting the rate of air supply according to demand by monitoring and responding to carbon dioxide levels within the space.

2.2 Design Criteria

The internal design parameters displayed in the table below have been used as a basis for ventilation system design. These parameters are based on Building Regulations Approved Document F, CIBSE guidance, and Manchester Metropolitan University design standard.

Table 2.1 Internal Design Criteria

Space Type	Occupancy Density	Noise Rating	Ventilation Rate	Air Change Rate
Library Workspace (Open Plan)	3 m^2 / person	NR38	12 l/s/person	
Library Workspace (Cellular)	3 m^2 / person	NR38	12 l/s/person	
Staff Offices	6 m^2 / person	NR38	12 l/s/person	
Teaching Rooms	3 m^2 / person	NR38	12 l/s/person	
Special Collections Storage		NR38		1 ACH
Special Collections Reading Room	10 m^2 / person	NR38	12 l/s/person	
Circulation / Stairs		NR45		
Reception	10 m^2 / person	NR45	12 l/s/person	
WC*		NR45		10 ACH
Shower Room		NR45		10 ACH
Storage (Cleaners)		NR45		3 ACH
Storage (General)		NR45		
Comms Room		NR45		1 ACH
Plant Room		NR65		1ACH
External Areas		NR 65 @ 1m		

**Negatively pressurised, supply air sized to 85% of extract air, with 15% make-up air from adjacent spaces.*

The following ventilation diversity strategy shall apply to central supply & extract ventilation systems:

- At a room, space and individual floor the ventilation distribution sizing will be designed for 100% capacity (no diversity applied) based on the architectural occupancy numbers/metrics. This means that a fully occupied room, space or floor will be able to operate at the 12 L/s/person design criteria.
- The ventilation vertical distribution (risers) will be sized based on the building peak simultaneous occupancy with the 80% diversity applied.
- The air handling units (and subsequently thermal generation plant) will be sized based on the peak simultaneous occupancy with the 80% diversity applied.

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3 Description of Ventilation Systems

This section describes the ventilation systems at the end of RIBA Stage 3. It may be necessary to adjust these systems as the design develops, while maintaining the requirements described in the previous section.

3.1.1 Open plan workspaces

Open plan workspaces will be supplied with tempered fresh air from the AHUs delivered via ductwork installed within the raised access floor. The extract air shall be removed via a centralised extract located at the extract ventilation riser locations incorporating a VAV to balance the supply and extract air flows.

3.1.2 Enclosed workspaces (offices, meeting rooms, teaching rooms, etc.)

Enclosed workspaces will be supplied with tempered fresh air from the AHUs delivered via ductwork installed within the raised access floor. The extract air shall be removed from the enclosed spaces via attenuated transfer ducts to the open plan areas and via the centralised extract at the extract ventilation riser locations.

3.1.3 Special Collections (Storage, Reading Room, Workroom & Teaching Rooms)

Primary ventilation to the special collections areas will be derived from the central air handling plant delivered via ductwork installed within the raised access floor. The extract air shall be removed from the enclosed spaces via attenuated transfer ducts to the open plan areas and via the central extract at the extract ventilation riser locations.

CO2 and temperature sensors located in these spaces will control a zonal VAV damper within the spaces, modulating the supply air rate to suit varying occupancy within the zone and shutting down the mechanical ventilation to save energy during periods of no or low occupancy. VAV boxes will be provided with attenuation to mitigate regenerated noise.

Areas within Special Collection will require 24-hour environmental conditioning to keep environment conditions within acceptable limits. Temperature and Humidity ranges are to be determined. The 24-hour environment conditioning will be provided by local closed control DX air conditioning units.

3.1.4 WCs, Changing Rooms and Showers

WC and shower areas will be provided with 6 air changes per hour of mechanical extract ventilation. Make up air will be via corridors/adjacent rooms. Both extract and make-up air will be served from the general AHU systems to maximise heat recovery potential.

3.1.5 Coffee Counter

The café servery area will be provided with a local extract ventilation point from the general ventilation system, to prevent odours escaping into the open plan spaces. The café does not require a full commercial kitchen extract system as it is cold serve / reheat food only (SoDA style ‘Grab & Go” type offering as a basis of design).

3.1.6 Fire Fighting Stairs

Each firefighting stair (2No total) will be provided with lobby smoke extract system. The smoke extract fans will be externally located at roof level directly above each associated stair. Each level of the smoke shaft shall connect directly to the firefighting lobby c/w actuated opening. The head of the stair shall be provided with an AOV for the provision of make-up air.

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4 Conclusion

The ventilation strategies described in this document will comply with Part F of the building regulations and ensure that the air quality and occupant comfort within the buildings is satisfactory.

Any negative impact of ventilation systems on accommodation within the proposed development or neighbouring properties has been mitigated by:

- Avoiding exhausting onto neighbouring buildings or locations where people are likely to be present; by exhausting at roof level where possible.
- Installing noise attenuation equipment on ventilation plant to comply with the acoustic criteria.

This document describes the ventilation systems at the end of RIBA Stage 3. It may be necessary to adjust these systems as the design develops, while maintaining the intent to meet the basis of design described in the previous section.

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