



Ventilation Strategy Report

**90 Deansgate, Manchester
Criterion Capital**

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Issue History Summary

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1.0 / Introduction

This report has been prepared by McKee Associates in support of the planning application for the proposed renovation of a five story office building to create a hotel and associated ancillary spaces at 90 Deansgate, Manchester.

2.0 / Development Proposals

2.1 Description of Development Site

The site is located in Manchester and is bounded by College Land to the West, St.Marys Street to the South and Deansgate to the East.



Plan of the site and surrounding area

3.0 / Ventilation Compliance

All the ventilation systems shall comply with the following:

1. Approved Document Part B
2. Approved Document Part F
3. Approved Document Part O
4. CIBSE Guides
5. Relevant British Standards
6. DEFRA Guidance Document "Guidance on the Control of odour and Noise for Commercial Exhaust Systems"

Overall, the ventilation strategy shall support the overall "well-being" and safety of the occupants and enhance the environment of the spaces, support low energy and carbon solutions.

Section 5 of this report details the ventilation proposals in accordance with the aforementioned documents.

When deemed appropriate the design shall attract relevant credits for BREEAM and promote good practice ventilation strategies throughout the development.

4.0 / Development Areas

The different areas within the development can be split into the following:

1. Hotel rooms
2. Reception
3. Entrance Area
4. Communal spaces - corridors/lobbies/staircases

All of these different spaces require differing ventilation strategies in order to meet the requirements and criteria set out in Section 3, in addition to meeting the health and the wellbeing requirements of the occupants. These strategies are summarised in Section 6 of this report.

5.0 / Ventilation Proposals

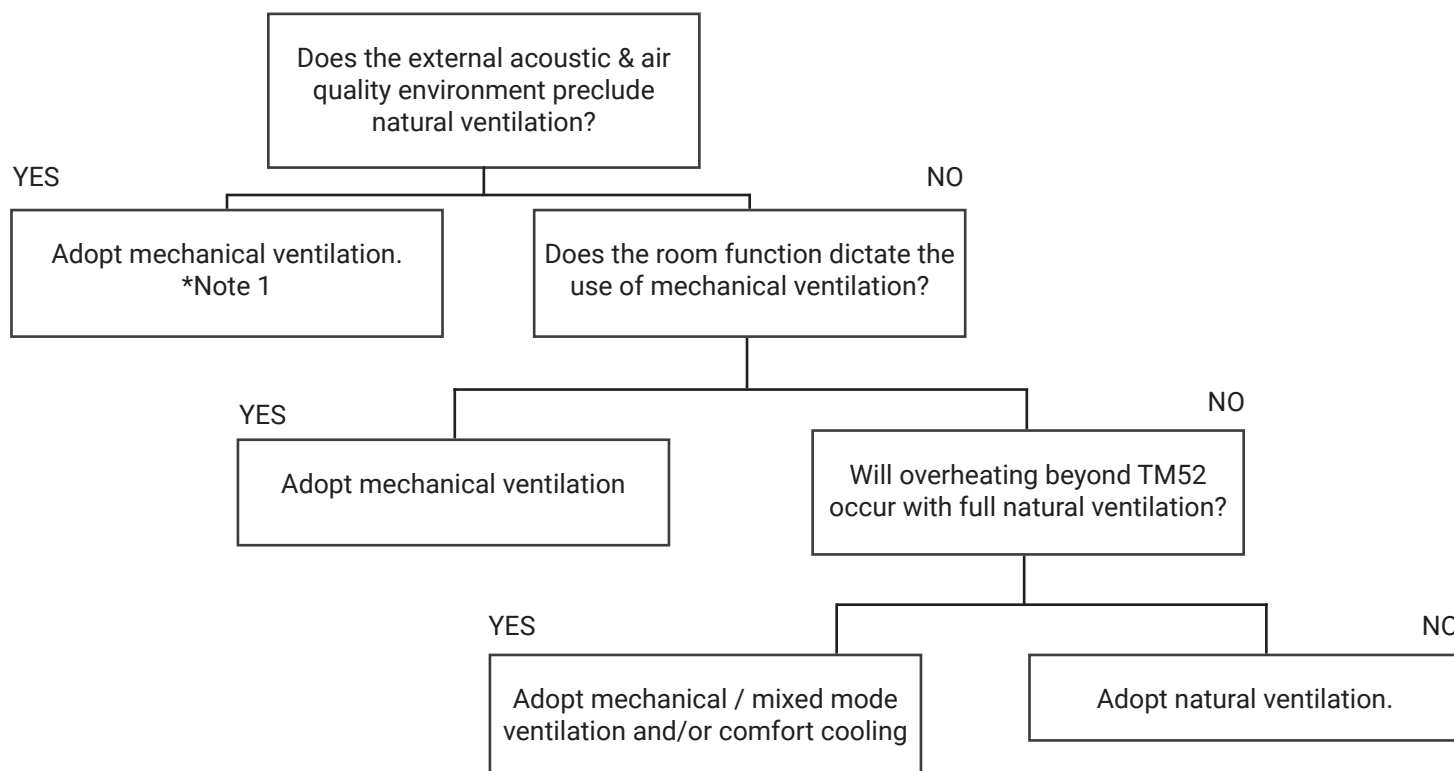
5.1. Ventilation Strategy

Whilst the principal function of the ventilation strategy is to provide sufficient fresh air and remove odours from rooms within the building, the correction ventilation strategy is crucial to minimise energy consumed by the building. Mechanical ventilation is a notable contributor to a building's electrical energy usage where installed and therefore the use of natural ventilation should be considered where appropriate.

Due to the proposed building layout, it is not possible to ventilate all guest rooms adequately, rooms which can be provided with fresh air naturally via opening windows would still require mechanical extract ventilation to service the guest bathroom areas.

Due to the location of the development in a busy area of Manchester city centre, it is likely that external noise would be an issue at all times of the day. In addition to this, fresh air brought into the building naturally would be unfiltered and could contain contaminants from localised pollution. Therefore the steps taken to determine the design methodology is as follows:

Strategic Design Approach



5.2 Heat Recovery Mechanical Ventilation [AHU]

An air handling unit (AHU) containing thermal wheel heat recovery will provide mechanical ventilation to the development, heat recovery passes the warm exhaust air through a heat exchanger, in this case a thermal wheel, where some of the thermal energy is transferred to the colder incoming 'supply' air. This reduces the amount of heat needed to be added to the supply air and can at times lead to no additional heat required, thus minimising the CO2 emissions.

For the redevelopment of 90 Deansgate, Manchester this heat recovery ventilation system has been proposed throughout the hotel rooms, entrance area and reception.

It may be possible to provide openable windows to the communal spaces and a number of the hotel rooms to allow natural ventilation to be used wherever possible, thus reducing the energy demand, however these spaces will still be provided with a mechanical ventilation system for use in the winter.

Natural ventilation can be used to good effect in spring and summer, however in winter the use of natural ventilation in the form of openable windows can lead to an increase in heat loss and therefore higher heating demand. Using a mixed mode system, where mechanical ventilation is used in the winter, minimises heat losses to the environment and despite the additional electrical energy requirements, an overall reduction in CO2 emissions can be achieved.

The mechanical ventilation air handling plant will be located at roof level with the ductwork dropping down the bedroom risers. From the risers, horizontal ductwork will serve each room with supply & extract ventilation.

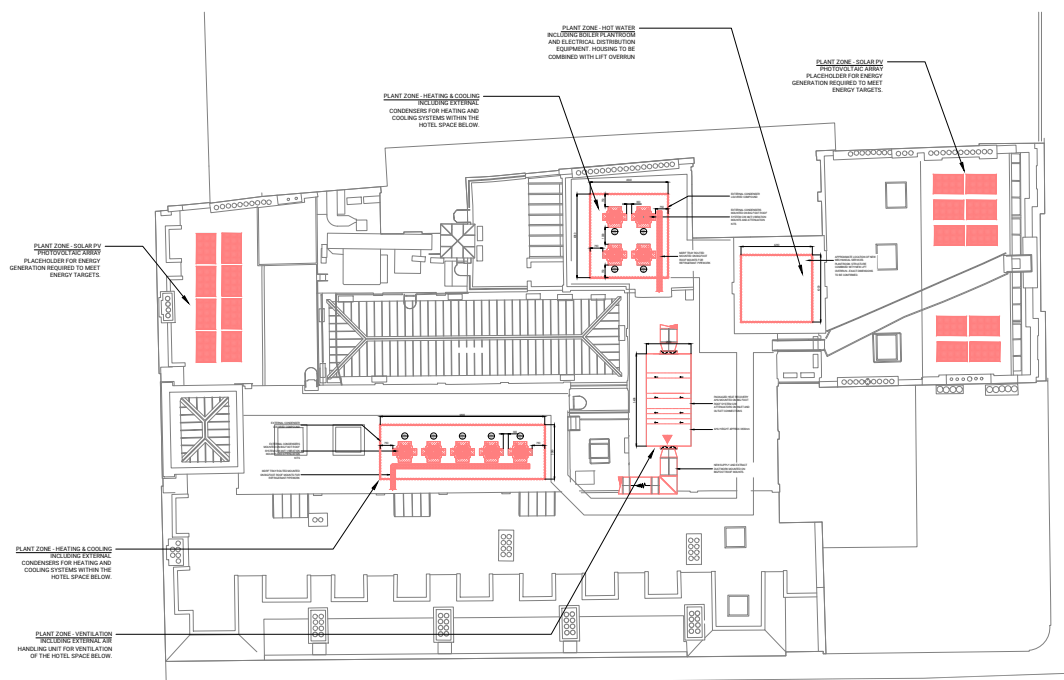
6.0 / Summary of Strategies

A strategic approach has been adopted to ascertain the most appropriate ventilation strategy for each type of space. This has taken account of environmental factors; energy efficiency and risk of overheating and the outcomes are summarised in the table below.

Room Function	Proposed Ventilation Strategy
Communal Spaces/Lobbies/Staircases	Mixed mode ventilation
Hotel Rooms	AHU Supply and Extract w/ Heat Recovery
Reception & Entrance Areas	AHU Supply and Extract w/ Heat Recovery

*Space allowance made but not within scope of services.

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PROPOSED ROOF PLAN

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