

---

60-86 Royal College Street

---

---

Indoor Air Quality Plan

---

Doc No: RCS-BDP-ZZ-ZZ-MEP-RP-IAQP-0001  
Issue: For Information  
Rev: P02  
Date: 23 February 2023

## Document Control

<i><b>Revision</b></i>	<i><b>Description</b></i>	<i><b>Author</b></i>	<i><b>Reviewed</b></i>	<i><b>Approved</b></i>	<i><b>Date</b></i>
P01	Issue for Comment	H. Marsden			20/02/2023
P02	Issue for Information	H. Marsden			23/02/2023

**Contents**

<b>Document Control .....</b>	<b>2</b>
<b>1.0 Introduction .....</b>	<b>4</b>
<b>2.0 Ventilation Strategy .....</b>	<b>4</b>
2.1 Ventilation Design Criteria.....	4
2.2 Ventilation Systems.....	4
2.3 Ventilation plant arrangement .....	5
<b>3.0 Preventing HVAC Contamination .....</b>	<b>6</b>

## 1.0 Introduction

It is widely accepted that the quality of the indoor environment can impact occupant health. Poor indoor air quality can have a range of negative impacts on the physical health of building occupants. These effects can include immediate impacts such as eye, nose and throat irritation, headaches, dizziness and fatigue, while also contributing to long-term health issues such as asthma, respiratory diseases, heart disease and cancer.

Both external and internal factors can influence Indoor air quality. External sources can include industrial emissions or proximity to busy roads and internal sources can include building processes and chemical reactions of internal finishes and materials.

This Indoor Air Quality Plan (IAQP) focuses on external pollutants and summarises the features and aspects that must be implemented and maintained to maximise internal air quality for the new building proposed for 60-86 Royal College Street.

The plan facilitates a process that leads to design, specification and installation decisions and actions that minimise indoor air pollution during the design, construction and occupation of the building, and considers the following:

- Removal of contaminant sources
- Dilution and control of contaminant sources
- Protection of heating ventilation and air conditioning (HVAC) systems from sources of pollution during future fit-out works
- The on-site workforce will be briefed and monitored for compliance in the implementation of this plan by the Contractor.

## 2.0 Ventilation Strategy

The ventilation strategy has been designed to provide fresh air and minimise the ingress of external polluted air into the building in accordance with the criteria of the relevant standard for ventilation.

### 2.1 Ventilation Design Criteria

The design criteria for the new Mechanical engineering systems has been based on the appropriate HTM as a potential NHS hospice facility.

The rate of mechanical air supply from the ventilation systems has been chosen to suit the acceptable air change rate as recommended by HTM03-01, ventilation rate per occupant in accordance with building regulations and CIBSE recommendations and also to provide replacement air for the extract systems.

### 2.2 Ventilation Systems

The building will be largely sealed in order to control the internal environment of the building.

Due to noise pollution on the site, openable windows cannot be provided as the primary ventilation source. Therefore to keep thermal comfort within acceptable levels, mechanical ventilation will be provided by supply and extract air handling units which will incorporate high efficiency thermal wheel in order to maximise heat recovery from the extract air.

The ventilation system will be configured to achieve maximum efficiency and will include:

- Filtration
- Low Specific Fan Power
- All air handling units will incorporate an integral heat pump for heating and cooling. This means that the units provide a total solution for heating ventilation air and comfort cooling in one unit.
- High efficiency energy recovery system using thermal wheels to minimise energy required to condition outdoor air.
- Attenuation

60-86 Royal College Street will be served by a number of ventilation systems.

The systems will be low velocity with air being distributed throughout the building in insulated, galvanised sheet steel ductwork via ceiling voids and risers.

A dedicated mechanical extract system will be provided for the WCs and dirty utilities with make up air being provided from adjacent corridors.

### Air Handling Units

Three air handling units will be provided:

AHU01 will be located on the roof, and will provide general supply and return air ventilation for the northern half of each floor, levels 01 – 04.

- The intake and discharge louvres are on different elevations and separated

AHU02 will be located in the lower ground floor plant area, and will provide general supply and return air ventilation for the southern half of each floor, levels 01 – 04.

AHU03 will be located in the lower ground floor plant area, and will provide general supply and extract units serving the offices and meeting rooms on levels LG, LGM and Level 00

A plenum will be provided for the intake and exhaust to and from AHU 02 and AHU 03 located in the lower ground plantroom.

- The Intake plenum extends from an intake louver at high level of level 04 dropping down to the basement.
- The Exhaust plenum extends from the basement to an exhaust louver at high level, level 00.

### Toilet Extract System

Toilets, changing areas and dirty utilities will be separately ventilated from the rest of the floors by a roof mounted dedicated extract fan. The fan will be a twin unit, with duty and standby, variable speed, constant pressure fans.

Pressure sensors will monitor the air and control the fan speed in order to maintain a constant pressure through the distribution ductwork.

The make-up air will be supplied at room temperature or warmer in the summer months from adjacent corridors.

- The Exhaust plenum extends from the basement to an exhaust louver at high level, level 00.

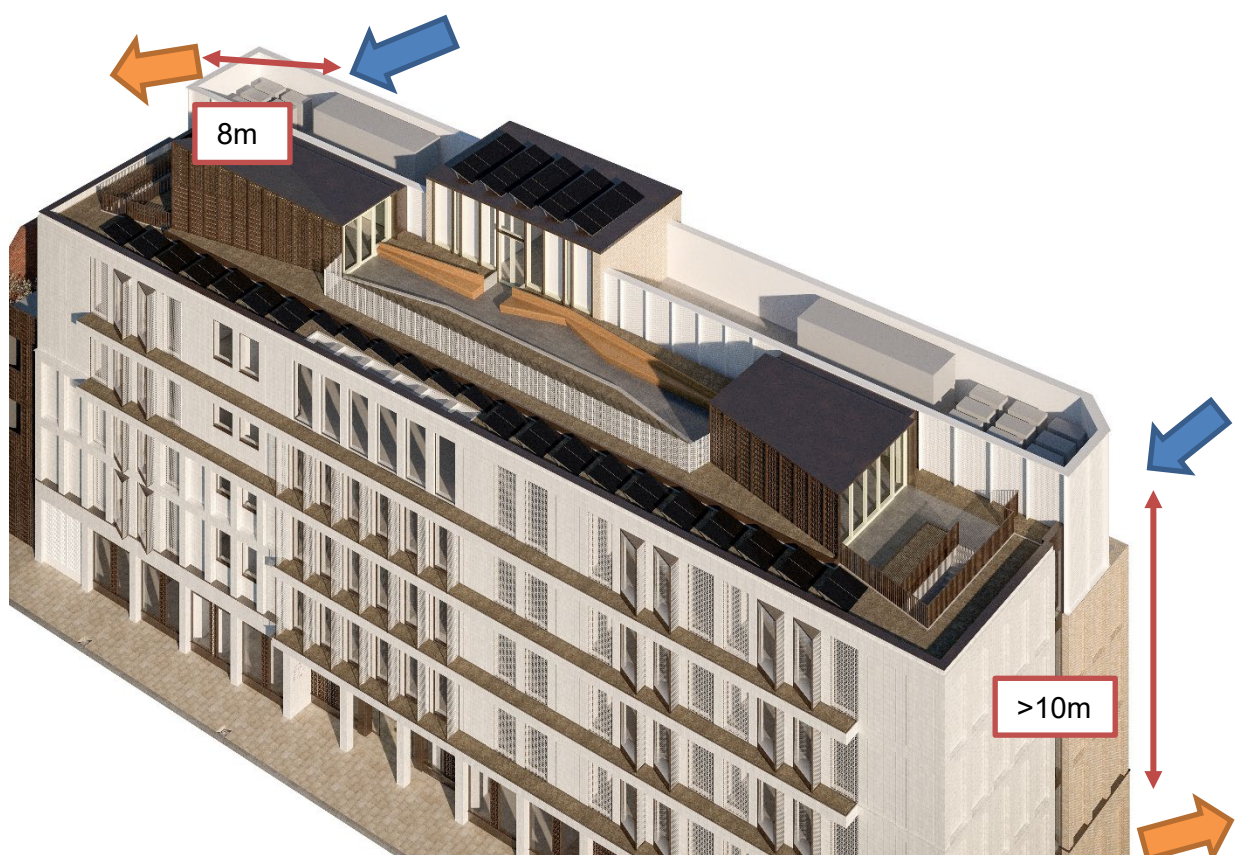
### Basement Ventilation

Where supplementary mechanical ventilation is required within plant areas, local ventilation systems will be provided and arranged to provide unheated filtered outdoor air at ambient temperature into the areas. Air volumes will be as necessary to maintain room temperatures at the manufacturer's recommended operating condition.

- The Intake plenum extends from an intake louver at high level of level 04 dropping down to the basement.
- The Exhaust plenum extends from the basement to an exhaust louver at high level, level 00.

## **2.3 Ventilation plant arrangement**

Air intake and exhaust positions have been located and distanced as much as possible to avoid cross-contamination as shown on the following 3D view and elevations on the following page.



### 3.0 Preventing HVAC Contamination

Heating, Ventilation and Air-Conditioning (HVAC) equipment and ductwork shall be protected from dust and other pollutants during the works through the following procedures:

- Materials not immediately installed shall be stored away in an area that is raised from the floor and dry.
- Only as the equipment is installed will it be removed from the plastic wrapping.
- Any openings into installed ductwork which are not in active use shall be sealed using a suitable airtight covering. This is to occur before, or immediately upon installation of any ductwork.
- Coverings to be checked at regular intervals during the construction process, with any damaged or displaced coverings repaired immediately.
- Ducts are cleaned before installing registers, grilles and diffusers
- Any construction work which generates pollution is to be avoided in areas where ductwork or air handling plant is being installed.
- 
- Filters shall be installed on air handling systems to prevent the ingress of particulate matter.
- Intakes and extracts will be located as far apart as practically possible to prevent recirculation of exhaust.
- HVAC systems shall not run where possible during future fit-out works.
- Tools with dust guards and/or collectors fitted with appropriate filters to capture dust and particulate matter generated shall be used during refurbishment.
- Fit out work areas shall be regularly cleaned throughout the project.

