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MANCHESTER HOUSE
SPINNINGFIELDS
MANCHESTER

PHASE 1 – BASEMENT, GROUND, FIRST AND PODIUM LEVELS

VENTILATION STRATEGY



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1. INTRODUCTION

This Ventilation Strategy document is intended to describe the basis of design and outline description of the main ventilation systems. It is intended that the document will be revised and amplified as systems evolve through discussions with the Client, Design Team, Statutory Authorities, etc., such that it remains a record of the design intent.

This Strategy document describes the provisions for Phase 1, which is the refurbishment of the basement, ground, first and podium levels. The intended use of each floor is set out in section 3.1.

Phase 2 will deal with the refurbishment of levels 3 to 10 (refer to Appendix 1 for phasing diagram).

This Strategy complies with the requirements of Approved Document F (2006) and Approved Document B.

2. GENERAL

Factors such as recirculation of exhaust air or intake of contaminants from nearby sources have been considered to maintain the quality of outside air drawn into the building.

Toilet and kitchen extract discharges are positioned to avoid any recirculation back into the building.

Discharge velocity, louvres and gratings will be sized and located to ensure noise and odours are not objectionable to pedestrians.

Air filters used for odour and particulate reduction will be appropriate to the type of function being served within the building.

3. BASIS OF VENTILATION DESIGN

3.1 OCCUPANCY

HVAC Design Density

Basement car parking/storage	n/a
Ground floor retail units:	1 person per 2m²
First floor office accommodation:	1 person per 6m²
Podium floor office accommodation	1 person per 6m²

3.2 VENTILATION RATES

Outside Air Supply Rate	10-12 l/s per person minimum
Toilet Ventilation	10 air changes/hour extract 8 air changes/hour transfer air from adjacent occupied spaces
Plant Rooms	2 air changes/hour minimum
Car Park / Loading bay	6 air changes/hour (normal mode)

Smoke Clearance Ventilation Rates:

Car Park and Loading Bay	10 air changes/hour extract

4. DESCRIPTION OF VENTILATION SYSTEMS

4.1 GROUND FLOOR RETAIL UNITS

Provision is made for retail tenants to install packaged ventilation heat exchanger modules within each retail unit, to be connected to louvres provided at high level in the façade to draw in outside air.

Tenants will be responsible for ensuring that the intake and discharge louvres are arranged to avoid re-circulation, and for providing necessary noise attenuation.

Space for an extract fan system to serve the ground floor retail area is provided at basement level, with a riser provided to discharge air at first floor level.

Tenants would be responsible for installing a toilet extract system and connecting to an appropriate section of the high level louvre within the façade.

4.2 FIRST FLOOR OFFICE AREA

Outside air will be supplied to the office accommodation via packaged ventilation heat exchangers located on the perimeter of the building. These units recover heat from the extracted air which is used to temper incoming air. The ventilation units connect to intake and discharge louvres located in the façade and will be arranged to avoid re-circulation.

4.3 PODIUM LEVEL OFFICE AREA

Outside air will be supplied to the office accommodation via packaged ventilation heat exchangers located on the perimeter of the building. These units recover heat from the extracted air which is used to temper incoming air. The ventilation units connect to intake and discharge louvres located in the façade which will be arranged to avoid re-circulation.

4.4 TOILET VENTILATION

Toilet areas will be provided with a mechanical extract ventilation system.

Air will be extracted from above toilet cubicles into a ductwork system to localised extract fans which discharge direct to atmosphere. The extract units will incorporate duty and standby fans with automatic changeover. Air discharge locations will be positioned to avoid any likely contamination of incoming air.

Toilet makeup air will be supplied from adjacent occupied spaces.

4.5 BASEMENT CAR PARK VENTILATION

The basement level car park is provided with a mechanical extract system, discharging to atmosphere at first floor level on the southern elevation.

Air intake to the car park shall be through a ventilated roller shutter located at the main entry ramp.

To promote cross-flow, air shall be extracted at high and low level on the opposite side of the car park and discharged to atmosphere via duty/duty car park fans.

Under 'normal' operating conditions, the car park extract fans run at low speeds (providing approximately 3 air changes per hour) provided that CO levels are below 30ppm. Upon detection of CO levels rising above 30ppm, fans shall activate at normal speed in order to provide 6 air changes per hour of ventilation in accordance with the requirements of Approved Documents B and F. CO levels shall be continually monitored and fan speeds varied according to the above criteria.

The extract fans may also be operated to increase extract volume in order to reduce air temperature within the basement.

Under 'fire' mode, the extract fans shall operate at full speed to provide 10 air changes per hour in accordance with Approved Document B. The extract fans shall be rated to withstand a temperature of 300°C for a period of at least 60 minutes.

4.6 SMOKE CONTROL VENTILATION

Subject to the detailed resolution to the Fire Strategy and agreement with Building Control, the following systems are envisaged:

4.6.1 Mechanical Smoke Ventilation

- Car Park

All necessary power wiring and fire alarm interlinks will be provided to suit the operating requirements of the mechanical systems.

4.6.2 Natural Smoke Ventilation

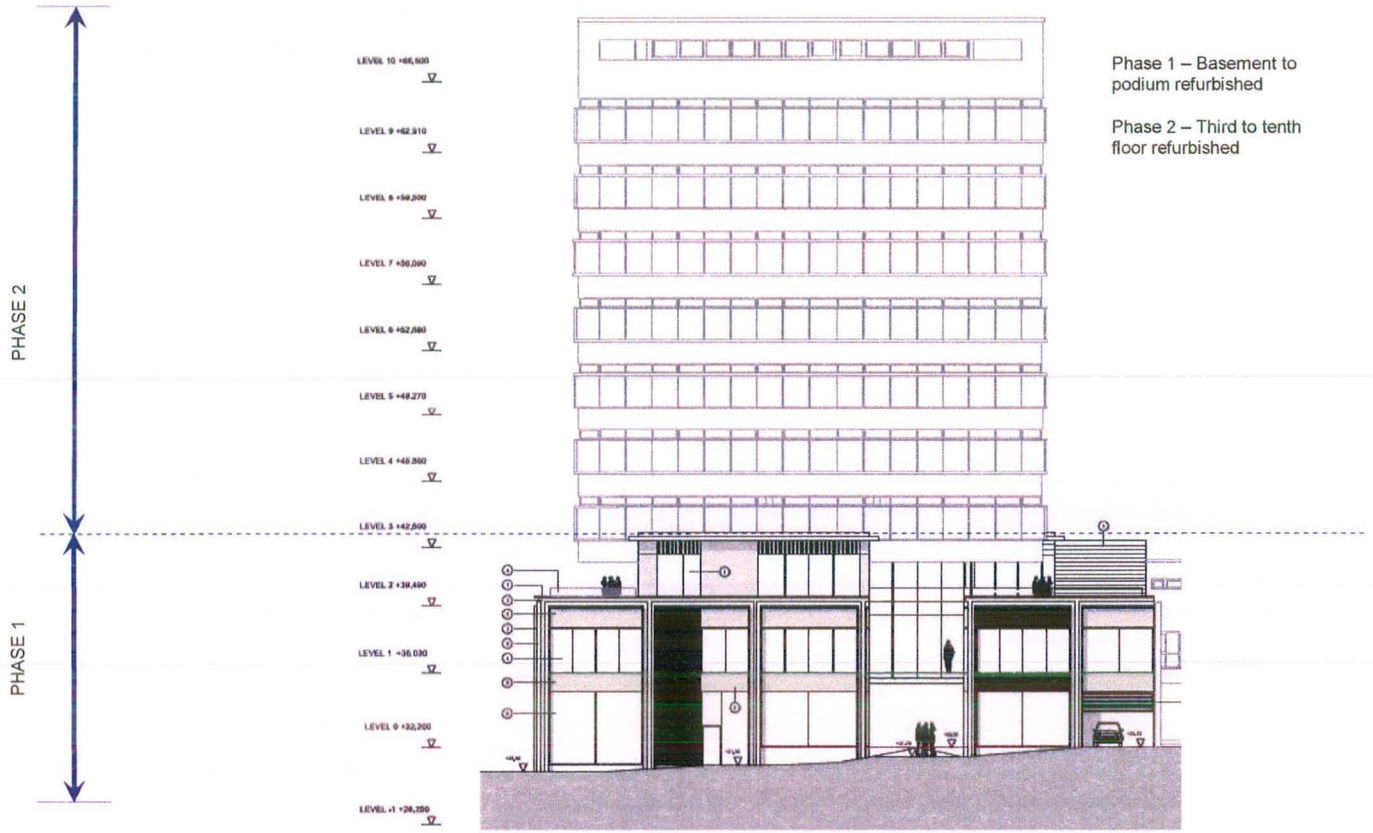
The following areas will be ventilated naturally:

- Ground floor retail units
- First floor office accommodation
- Podium level office accommodation

All ventilators and louvres for the ventilation systems will be provided to meet the Fire Strategy requirements and suit architectural design.

5. APPENDICES

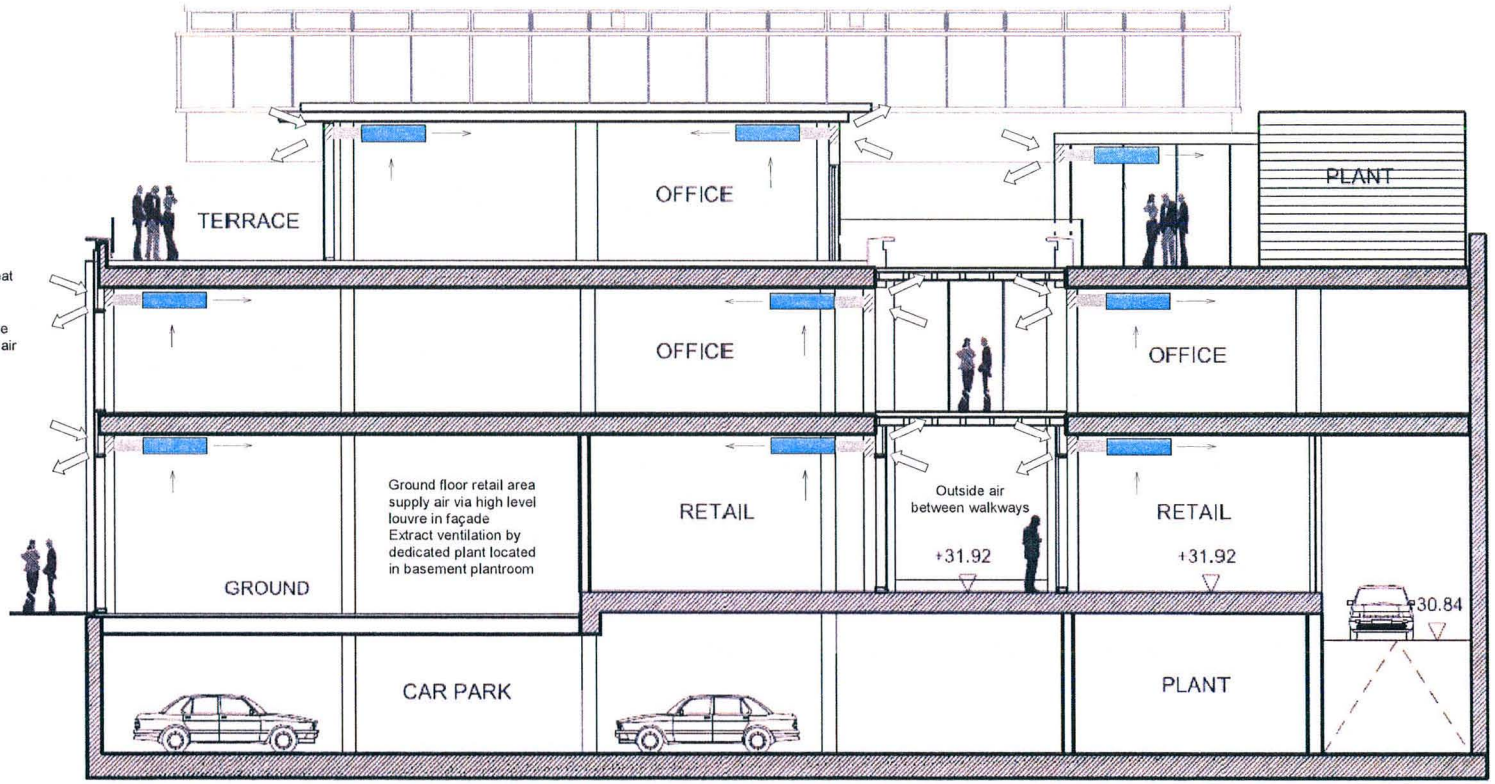
5.1 APPENDIX 1 – REFURBISHMENT PHASING DIAGRAM



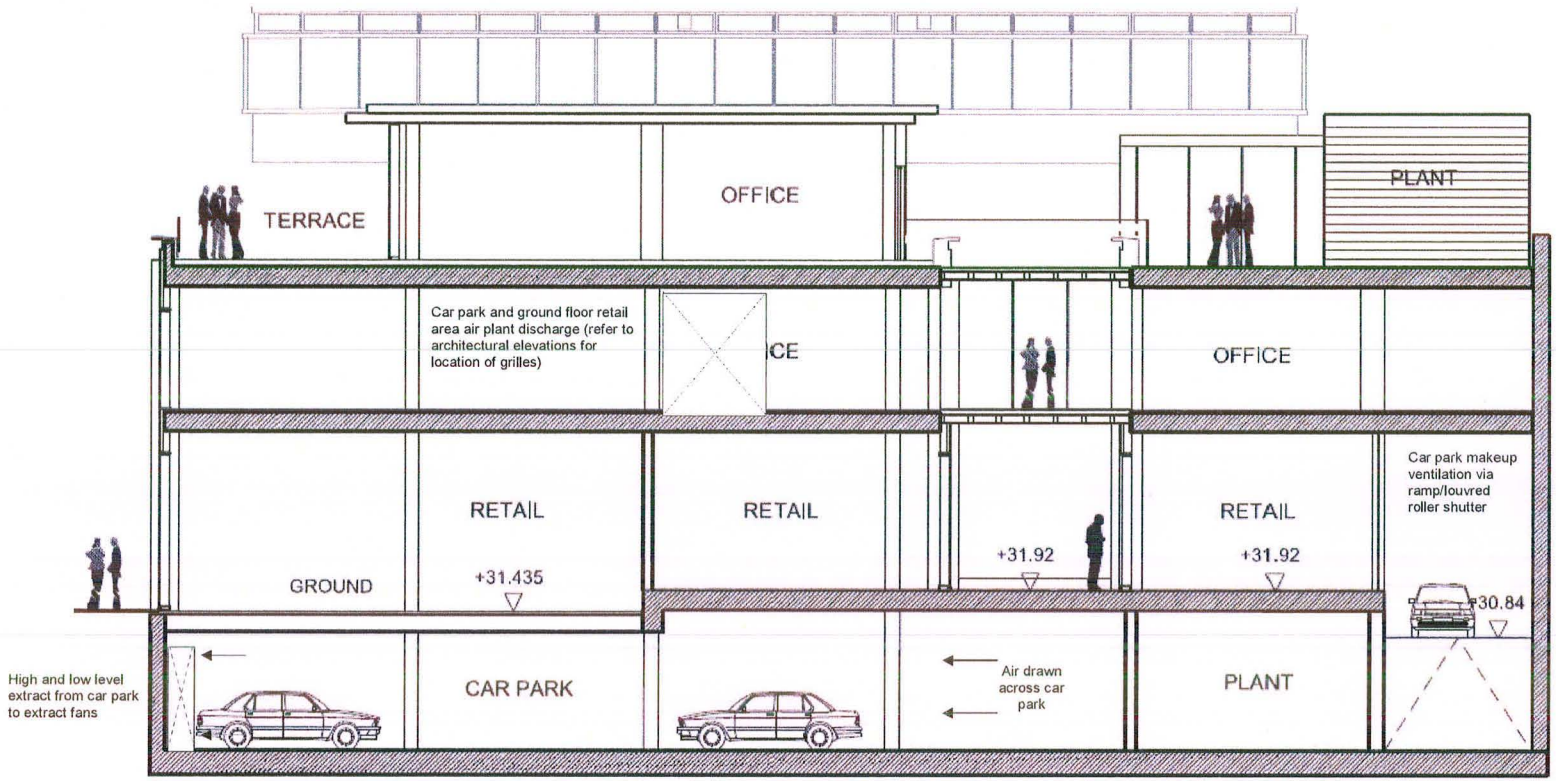
5.2 APPENDIX 2 - SUMMARY OF VENTILATION STRATEGY FOR GROUND, FIRST AND PODIUM FLOORS

Packaged ventilation units, with heat recovery and attenuation, located along perimeter facades

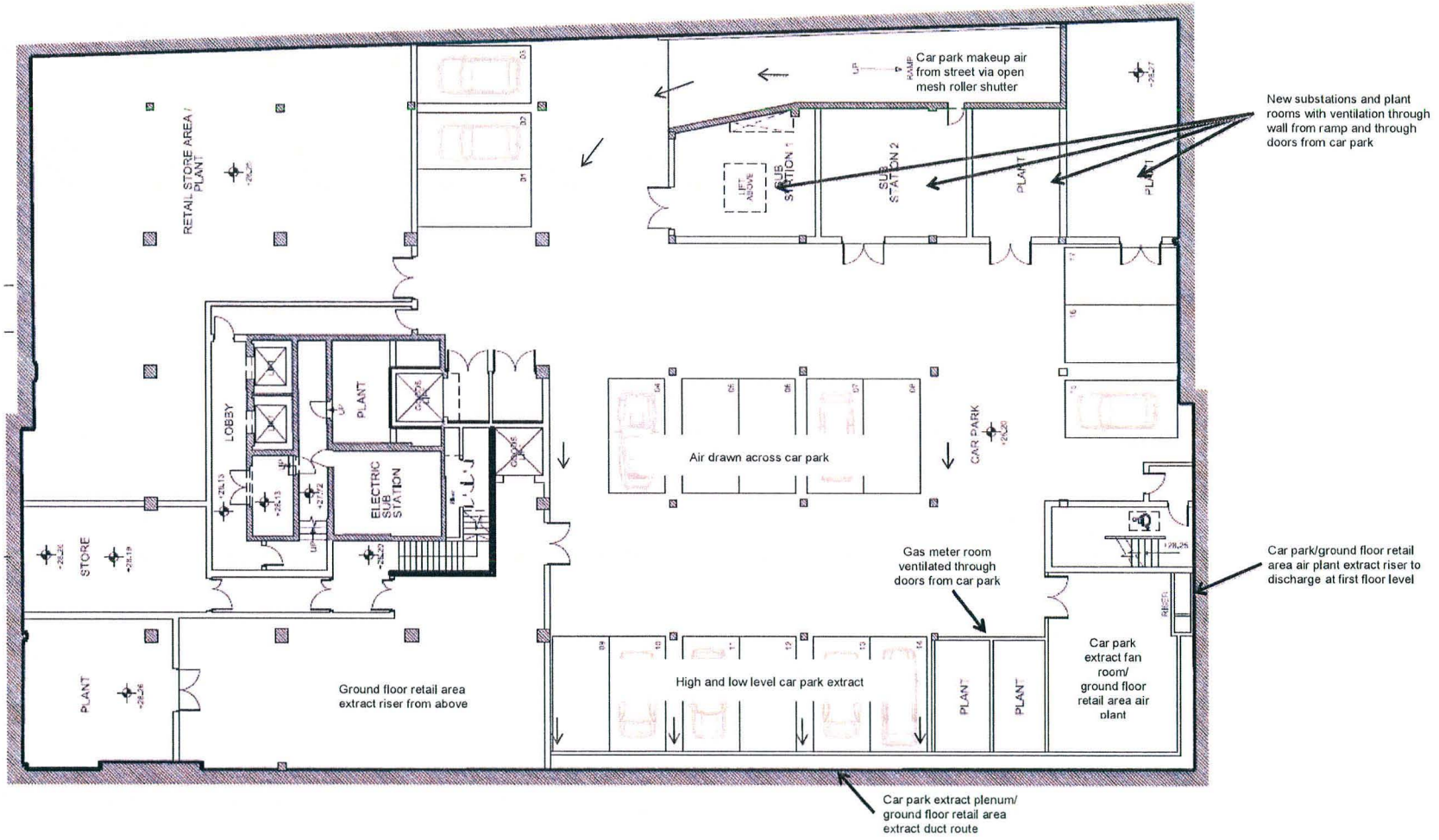
Units connected to high level louvre in façade for intake and discharge air



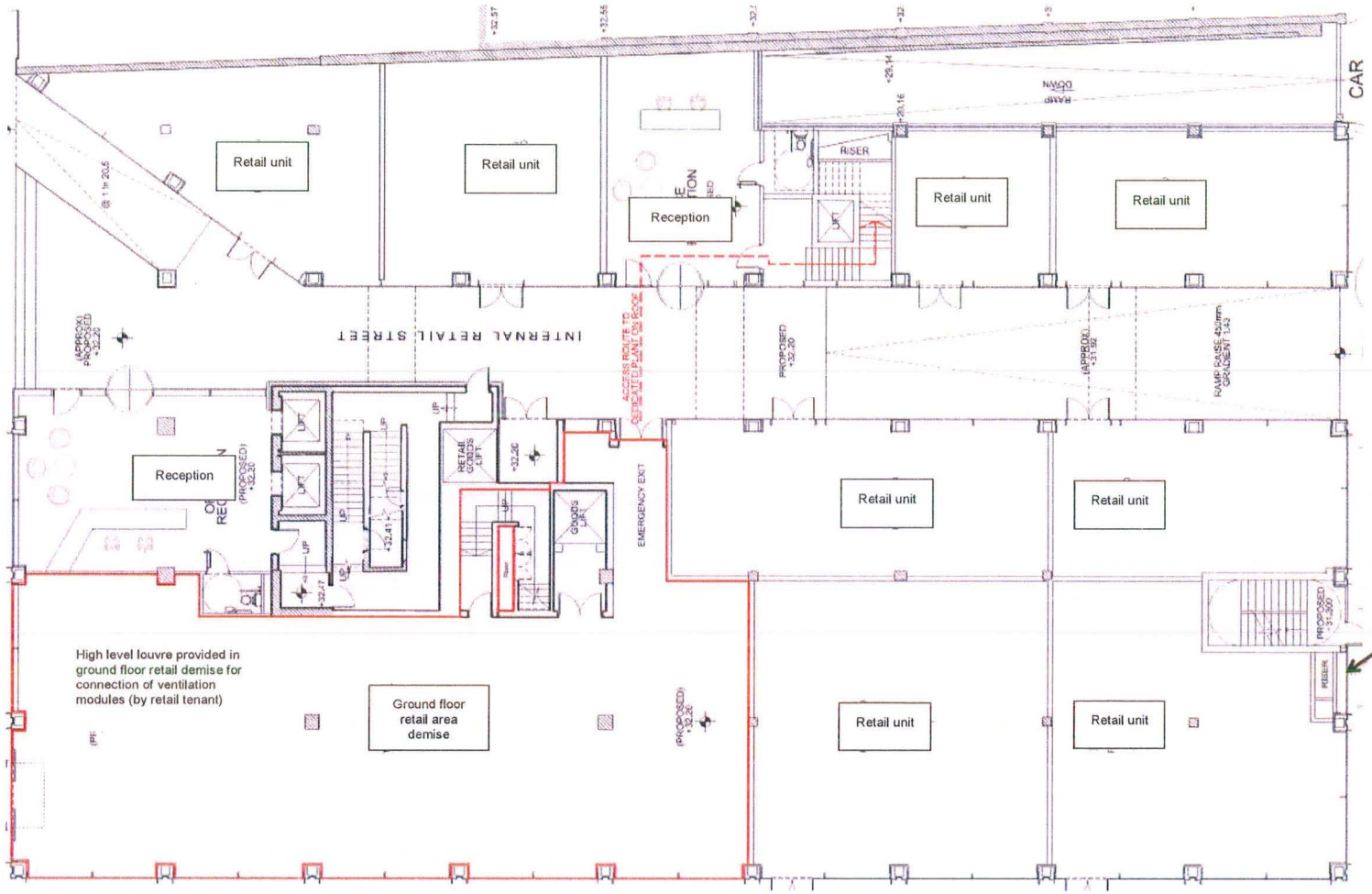
5.3 APPENDIX 3 - SUMMARY OF VENTILATION STRATEGY FOR CAR PARK EXTRACT



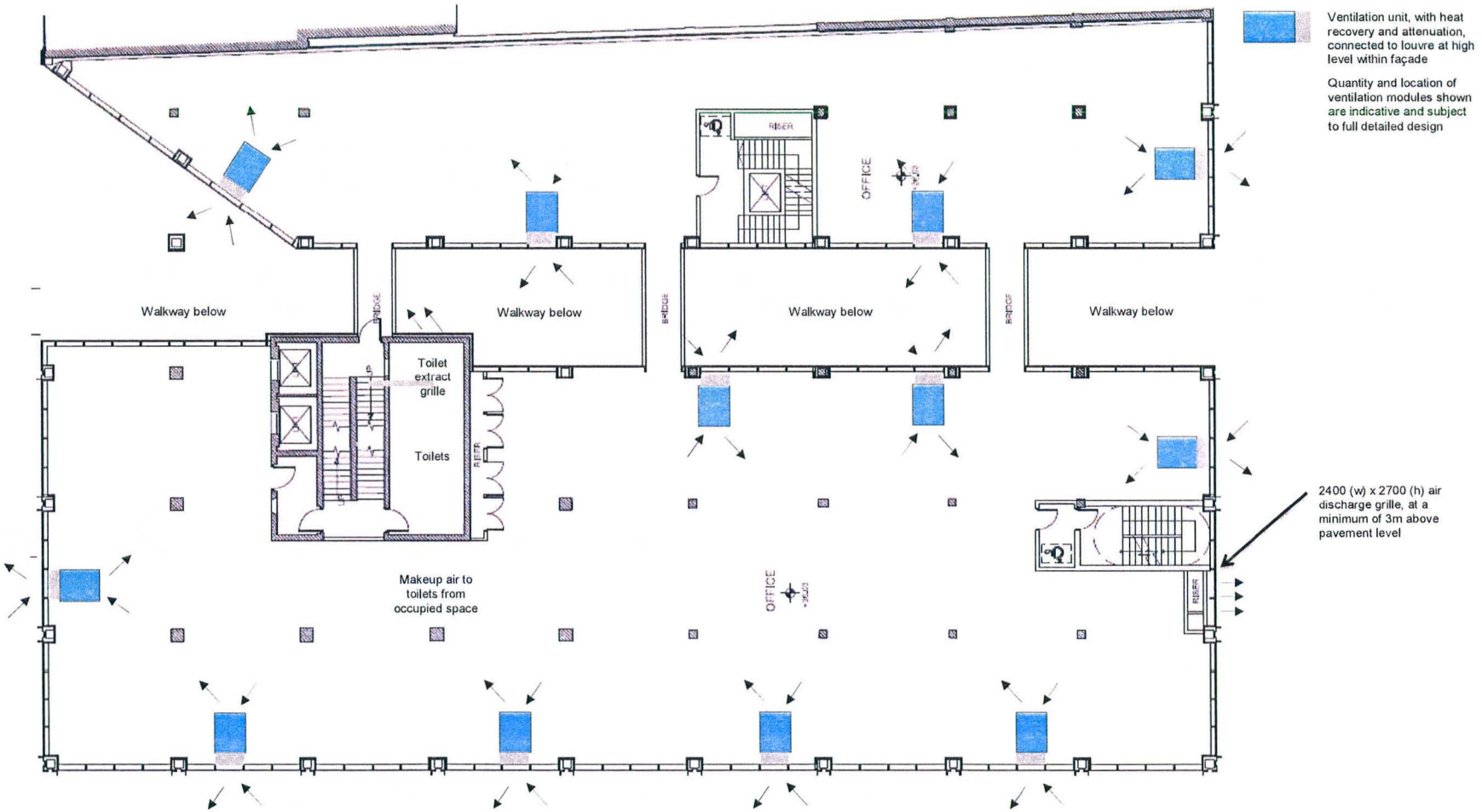
5.4 APPENDIX 4 – BASEMENT VENTILATION STRATEGY



5.5 APPENDIX 5 - GROUND FLOOR VENTILATION STRATEGY



5.6 APPENDIX 6 - FIRST FLOOR VENTILATION STRATEGY



5.7 APPENDIX 7 - PODIUM VENTILATION STRATEGY

