

CAMBRIDGE ROAD ESTATE – PLANNING APPLICATION 20/02942/FUL

EXTRACTION AND VENTILATION STRATEGY

****NO AMENDMENT TO DOCUMENT SINCE SUBMISSION OF
APPLICATION IN NOVEMBER 2020 – ORIGINAL SUBMISSION DOCUMENT****

November 2020

Extraction and Ventilation
Strategy



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The project site

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Application forms

Covering letter

Application Form and Notices

CIL Additional Information Form

Design proposals

Planning Statement

Design and Access Statement

- Vol.1 - The Masterplan
- Vol.2 - The Detailed Component

The Masterplan

- Parameter Plans
- Illustrative Plans
- Design Guidelines

Phase 1 Architecture and Landscape

- GA Plans, Sections and Elevations

Supporting information

Statement of Community Involvement

Rehousing Strategy

Financial Viability Appraisal

Draft Estate Management Strategy

Transport Assessment

Phase 1 Travel Plan

Car Parking Management Plan

Servicing and Delivery Management Plan

Construction Logistics Plan

Construction Method Statement and Construction
Management Plan

Sustainable Design and Construction Statement
(Including Circular Economy Statement)

Environmental Statement

- Non Technical Summary
- Vol.1 – Technical Reports
- Vol.2 – Technical Appendices
- Vol.3 - Townscape and Visual Impact
Assessment

Energy Statement (Including Overheating

Assessment and Whole Life Cycle Assessment)

Daylight and Sunlight

Internal Assessment of the Detailed Component

External Assessment of the Illustrative Masterplan

Extraction and Ventilation Strategy

Noise Impact Assessment

Arboricultural Report and Tree Conditions Survey

Arboricultural Impact Assessment & Method
Statement

Preliminary Ecological and Bat Survey Report

Biodiversity Net Gain Assessment

Archaeology and Heritage Assessment

Ground Conditions Assessment

Utilities Report

Flood Risk Assessment

Phase 1 Drainage Statement

Fire Strategy Report

Accessibility Audit

Health Impact Assessment

Equalities Impact Assessment

Ventilation Strategy Report

for:

Cambridge Road Estate, Phase 1
Cambridge Road
Kingston Upon Thames
KT1 3JZ

On behalf of Cambridge Road Estate (RBK) LLP



Issue Register

Project: Cambridge Road Estate, Phase 1

Job Number: 18084

Document: Ventilation Strategy Report

This report has been authorised by:

Status	Rev	Details of Issue	Date	Author	Checked
S0	P01	Preliminary Issue	20/08/20	SS	RH
S0	P02	Preliminary Issue	29/08/20	SS	RH

S3 Draft

S0 Preliminary

D2 Tender

A1 Contract

Contents

1.0	Introduction	4
2.0	Residential Ventilation	6
2.1	System 3 Continuous Mechanical Extract Ventilation (CMEV).... Error! Bookmark not defined.	
2.2	System 4, Mechanical Ventilation with Heat Recovery (MVHR).....	6
2.3	Residential Units facing Cambridge Road.....	7
3.0	Commercial Ventilation and Extraction systems	8
3.1	Community Centre	8
3.2	Retail and Workspace.....	10
4.0	Car Park Ventilation System	11
4.1	Block E Car-Park.....	12
4.2	Block C Car-Park.....	13
5.0	Energy Centre Flue	13

1.0 Introduction

This report identifies the strategy for commercial and residential ventilation at the proposed development at the Cambridge Road Estate, Kingston.

The site is located within the Borough of Kingston and is bound by Cambridge Road to the north and Kingston Cemetery to the South.

The proposal for Phase 1 is for the demolition of the existing buildings and construction of 452 Residential Units, Community Centre, Retail Space, Flexible workspace and associated ancillary areas and basement/podium parking

This document will outline the strategy for the commercial ventilation and extraction systems for the Residential, Commercial and Car Park areas and how they integrate with the proposed development.

The location of the proposed Phase 1 Buildings, Blocks B, C and E for the development is shown below:



Figure 1: Location of Proposed Phase 1 Buildings

2.0 Residential Ventilation

The final selection of the type of residential ventilation has been defined within the Energy Strategy Report and it will be System 4, Mechanical Ventilation with Heat Recovery (MVHR).

2.1 System 4, Mechanical Ventilation with Heat Recovery (MVHR).

Each unit has a fresh air supply and an extract terminal, both located on external walls of the associated dwelling. A centrally located, continuously running, mechanical supply and extract fan unit extracts air via ducts from moisture producing areas or "wet rooms" such as kitchens and bathrooms to remove odours and excessive humidity. The air is passed over a heat exchanger, which transfers a high proportion of the heat from the extracted air to the incoming air, which is then distributed to the habitable rooms via ductwork. With System 4, ventilation trickle vents are not required on the windows.

The system will be designed to comply with minimum provisions for extract and whole building ventilation as set out in approved document F (Ventilation)

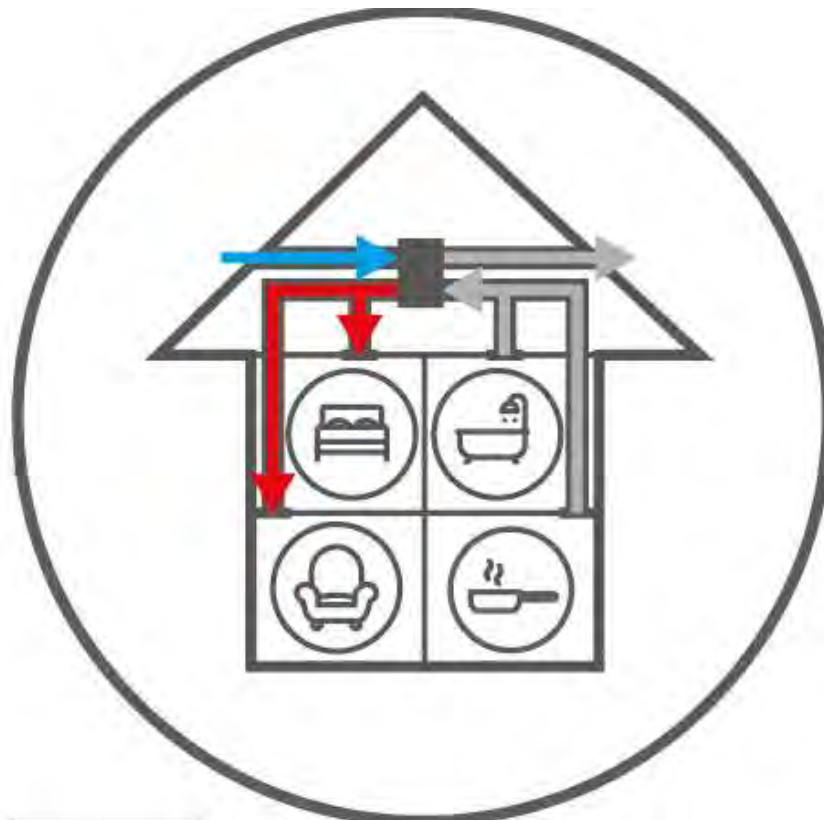


Figure 2: Mechanical Ventilation with Heat Recovery

2.3 Residential Units facing Cambridge Road

The Air Quality assessment has shown that the units that face on Cambridge Road to the North have no issues with pollution but may need equipment to overcome noise.

This may encompass attenuators on the inlets and outlets to the MVHR units. An overheating assessment has been undertaken and this has highlighted that some units within Block C will require additional ventilation units to achieve 4 air changes per hour in habitable rooms on certain facades



Figure 3: Units facing Cambridge Road Within Block C

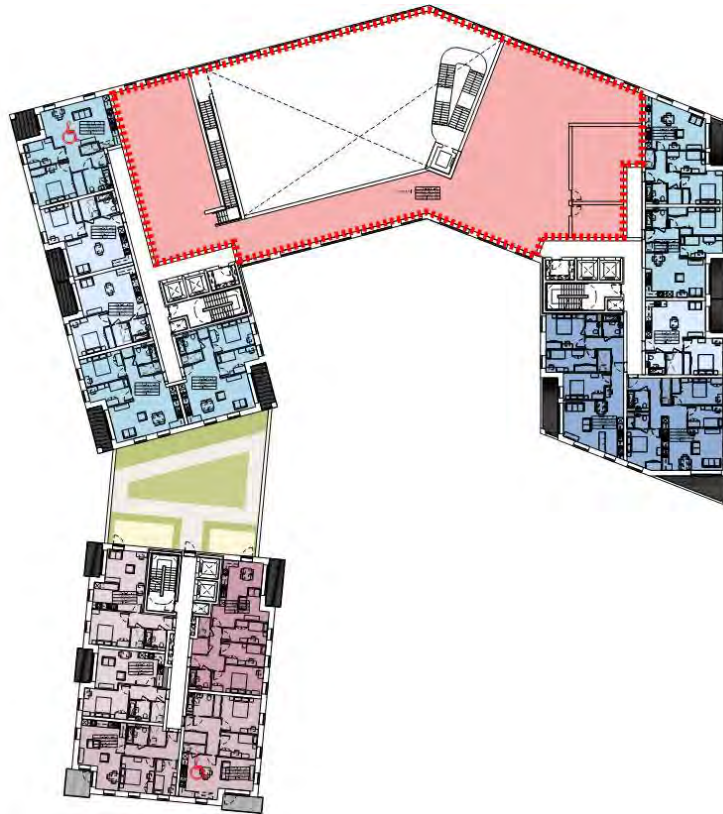


Figure 5: Community Centre, First Floor

The design of the community centre will be progressed in line with the Council's requirements once their strategy has been further developed but is expected that the ventilation will be a mix of natural and mechanical with heat recovery.

Although the Community Centre will be connected to the site-wide heating system, there may be a requirement for cooling within any offices etc and any external air-conditioning condenser units will need to be installed on the roof. Fresh air will be supplied via heat recovery ventilation units with the intake and exhaust terminations connected to louvres above the windows at each floor level.

4.0 Car Park Ventilation System

It will be necessary for the car park to be ventilated either mechanically or via natural means. Podium level car parks are common with the illustrative masterplan and it is likely that a mechanical ventilation solution will be used. The regulations state the following:

Natural Ventilation

Approved Documents Part F and Part B state that two sided ventilation will be required if done naturally.

- Part F states that 1/20th of the floor area should be naturally ventilated of which a minimum of half needs to be on two opposing sides.

Mechanical Ventilation

- Part F states that 1/40th of the floor area should be naturally ventilated of which half needs to be on two opposing sides and a mechanical ventilation system capable of at least 3 air changes per hour or the whole car park shall be provided with a mechanical ventilation system capable of at least 6 air changes per hour.

AND

For exits and ramps and areas where cars queue a local ventilation system capable of at least 10 air changes per hour.

- Part B states that in car parks which are unable to provide the minimum amount of natural ventilation, a mechanical ventilation system shall be provided capable of at least 10 air changes per hour.

The system shall operate in 2 parts, with each part capable of 50% of the duty. Each part shall have an independent power supply and all fans rated at 300°C for 60 minutes.

The mechanical ventilation system shall comprise of the following:

- Intake air via the entrance in (assume 70% free area)
- Impulse fans located within the car park area
- Extract (run and standby) fans to discharge the air to atmosphere
- Discharge air terminal

A specialist will be required to determine the sizes and systems to comply with the regulations.

4.1 Block E Car-Park

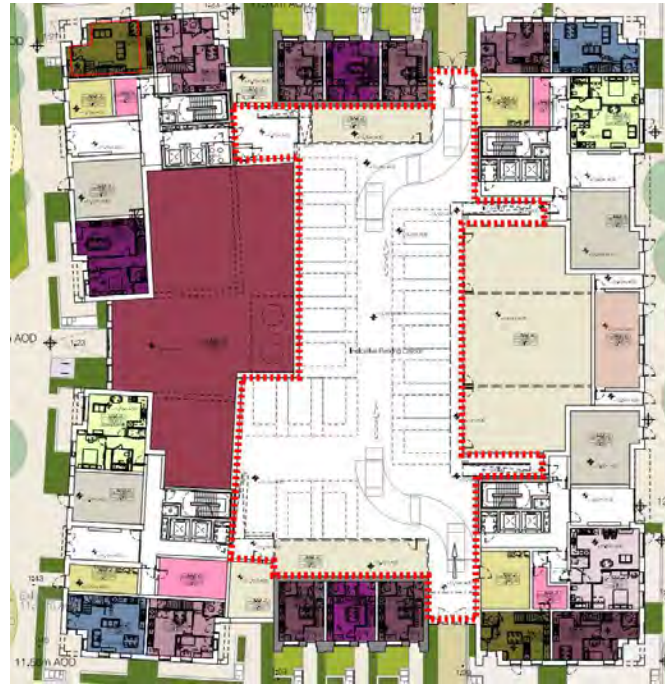


Figure 7: Layout of Block E Car Park

The layout of the Block E car park potentially does not lend itself to natural or assisted natural ventilation as openings on opposite walls cannot be achieved. One possible solution is to use extract fans in a turret upstand as sketch below:

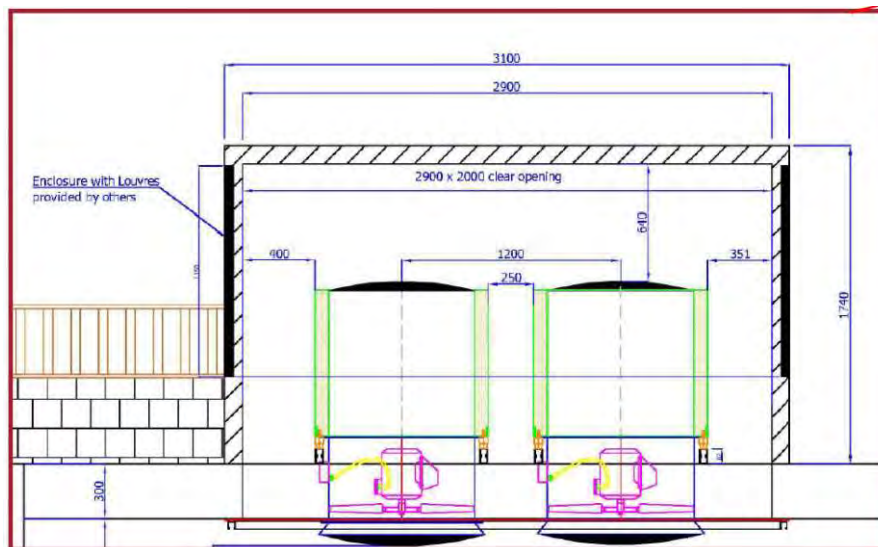


Figure 8: Extract Fans in a Turret Upstand

4.2 Block C Car-Park

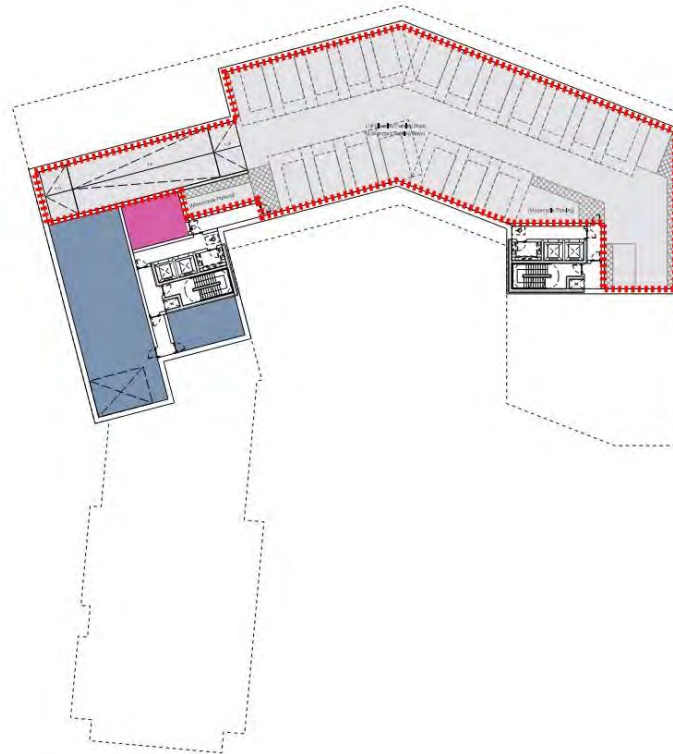


Figure 9: Layout of Block C Car Park

The layout of the Block C car park does not lend itself to natural or assisted natural ventilation as openings on opposite walls cannot be achieved and would require full mechanical extract ventilation

5.0 Energy Centre Flue

Below the podium on Block E will be the Energy Centre which will supply heat to all of the dwellings within Phase 1 and future phases. The development is to be connected to the RBKUT District energy Network when this is available. As a temporary measure gas fired boilers will be installed and the Energy Centre will contain the boilers, pump and ancillary equipment. Fresh air and exhaust air will be ducted in and out of the energy centre via mechanical ventilation fans which will be attenuated to prevent noise breakdown.

Flues will be routed internally through the block and discharge at approximately 1500mm above anything within as 12m radius on the roof. Although yet to be fully designed are estimated to be 2No. 450mm \varnothing stainless steel flues for Phase 1 with an additional 3No. 650mm \varnothing for the full site.



Figure 10: Energy Centre Below Podium in Block E

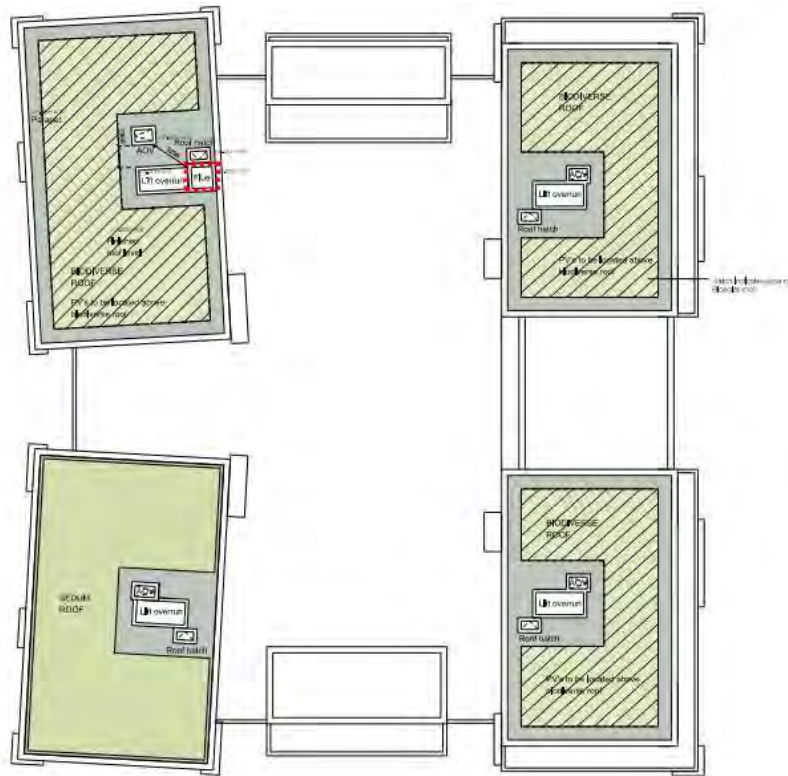


Figure 11: Position of Flue Discharge

The Design Team

ACD Environmental

Arboricultural consultant

Architecture in Perspective

Visualisation artist

AWA Consulting

MEP engineer

Base Models

Physical modelmaker

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Environmental Impact Assessment

Townscape Impact Assessment

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