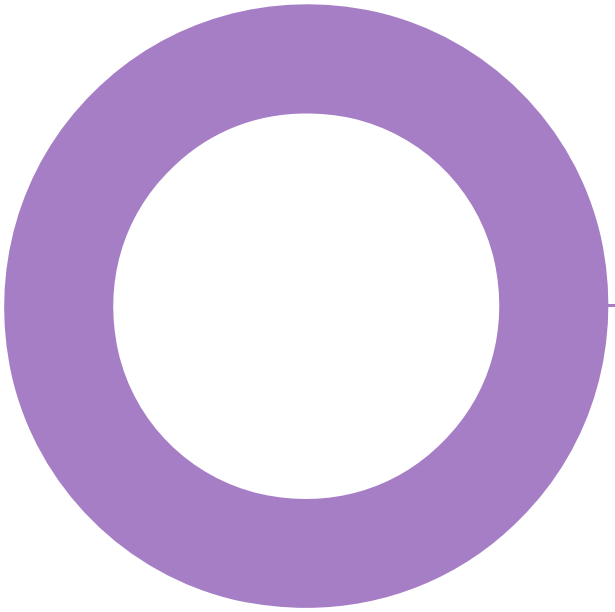
HOARE LEA

Newbridge Road.
Bath.
Oakhill Group Ltd.

MEP ENGINEERING
VENTILATION STATEMENT
FOR PLANNING
REVISION P2 – 14 MARCH 2019



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
P1	04/03/19	Draft Issue	CW/VO	VO	JS
P2	14/03/19	For Information	CW/VO	VO	JS

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Contents.

Executive summary

This report is to provide an overview of the ventilation strategy for the proposed development on Newbridge road.

The building is to utilise mechanical ventilation where natural ventilation is not possible due to findings from future Overheating, Acoustic or Air Quality studies.

The student accommodation bedrooms will be naturally ventilated with boosted mechanical extract via bathrooms. Where this is not possible, full mechanical supply and extract ventilation will be provided via local MVHR (Mechanical Ventilation Heat Recovery) units

The apartments will be will be naturally ventilated with boosted mechanical extract via bathrooms. Where this is not possible, full mechanical supply and extract ventilation will be provided via local MVHR (Mechanical Ventilation Heat Recovery) units

The other parts of the buildings such the offices and retail unit will be ventilated using individual mechanical ventilation heat recovery (MVHR) units.

1. General space ventilation systems

1.1 Student Accommodation Ventilation Systems

Ventilation will be provided to comply with Building Regulations Approved Document F. The bedrooms in the two student accommodation blocks will utilise either natural ventilation with boosted mechanical extract via the bathrooms or full mechanical ventilation in the form of MVHR. The decision to utilise mechanical or natural ventilation will be based upon the recommendations of future acoustic, overheating and potentially air quality assessments.

Approved Document F has a requirement for purge ventilation, in order to allow the removal of pollutants, such as burnt toast and paint fumes etc, via a short-term higher rate ventilation method. To satisfy this requirement, openable windows or vent panels will be provided to each bedroom.

Natural ventilation
Where the external acoustic environment and overheating permits. Natural ventilation will be provided to bedrooms. This will be via windows or opening ventilation panels which will provide enough fresh air into the apartment for the number of occupants based upon criteria detailed within Building Regulations Approved Document F.

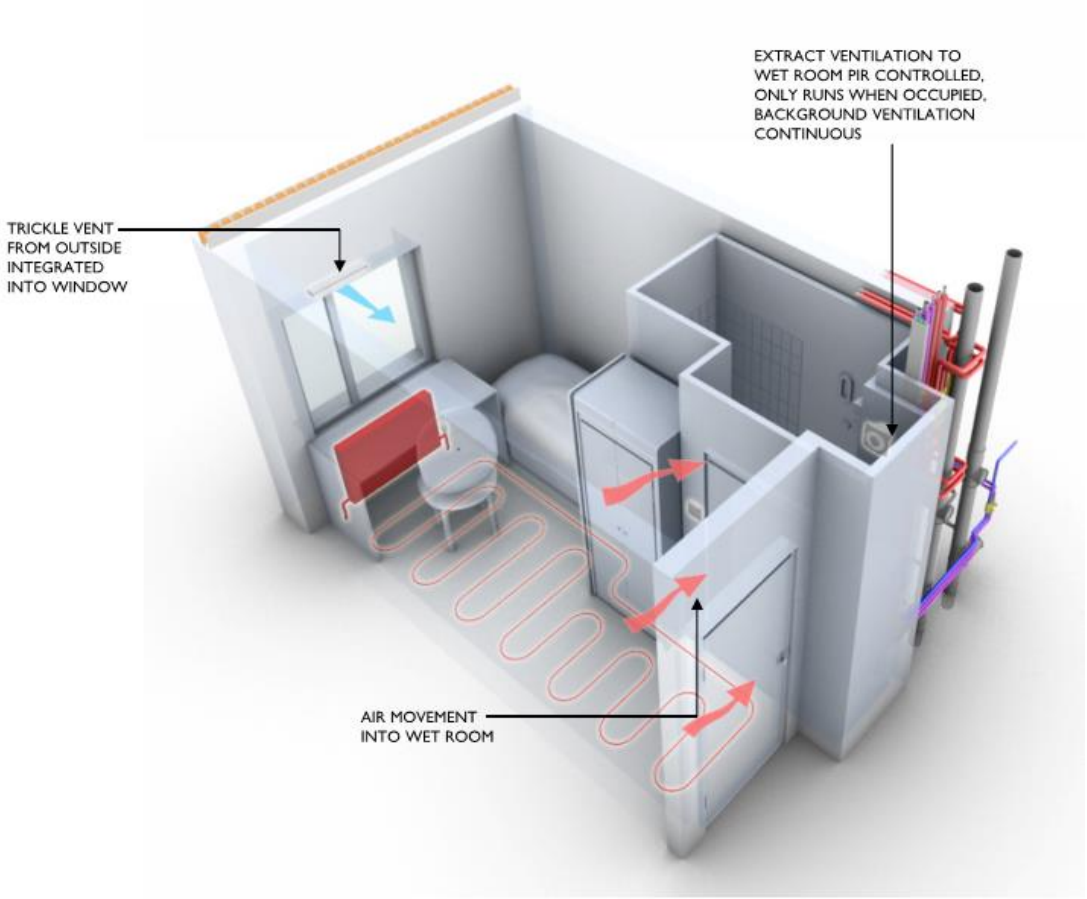

Figure 1 – Diagram of a Naturally Ventilated Bedroom

Mechanical Ventilation Heat Recovery MVHR

MVHR units will be located in the ceiling void of the bathroom of each bedroom. This approach will allow each apartment to meet the continuous ventilation requirements of the Building Regulations Approved Document F, whilst delivering the thermal efficiency required to comply with the Building Regulations Approved Document L1A and maintain the acoustic integrity of the façade.

To provide continuous ventilation, extract air will be taken from bathrooms, with supply air being distributed to the bedrooms. Ducts from the MVHR unit will be routed to the local façade for fresh air intake and for the discharge of exhaust air. The connections to atmosphere will be detailed by the architect and integrated in a discreet manner, whilst providing as much separation as possible to reduce recirculation between the intake and exhaust. The external termination points, diffusers, grilles and ductwork will be designed to have low pressure drops and meet acoustic performance criteria.

Heat will be recovered from the extracted air and used to preheat the incoming fresh air, reducing the likelihood of cold draughts. The tempered fresh air from the MVHR will be delivered to the space via discreetly-integrated architectural diffusers.

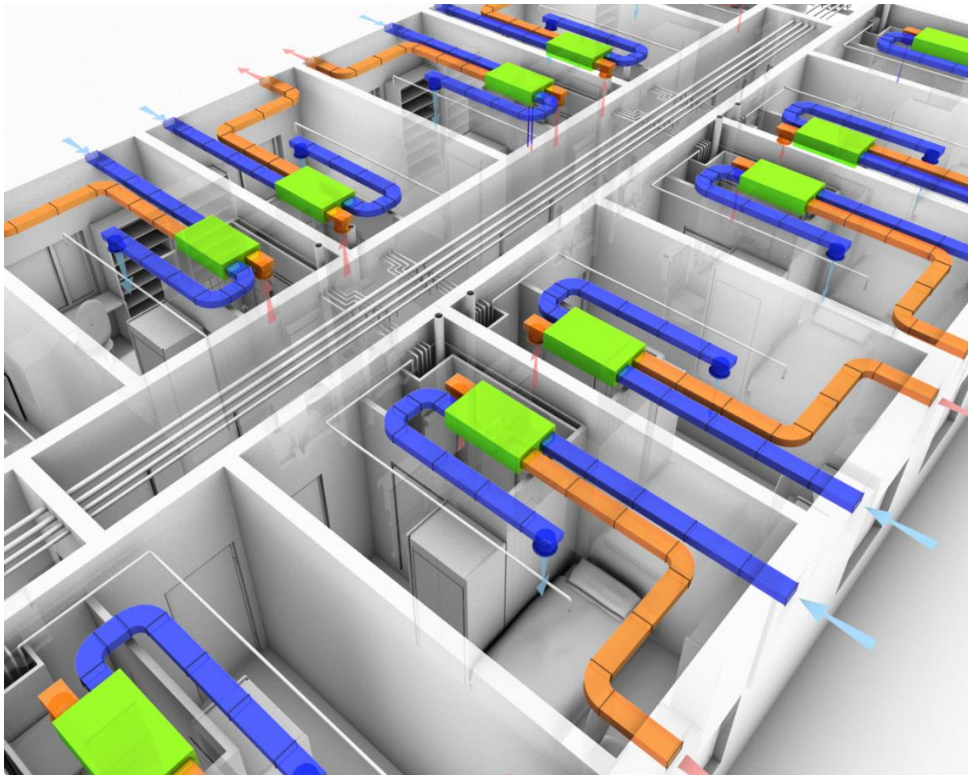

Figure 2 – Diagram of Mechanical Ventilation Heat Recovery (MVHR) to the bedrooms.

Control requirements

The MVHR units serving the accommodation spaces will operate continuously, providing ventilation to meet the minimum Building Regulations standards. The units will contain intake and exhaust temperature sensors and a heat exchanger bypass. This will allow supply air to bypass the heat exchanger, so it can provide a cooling effect if the conditions are suitable.

1.2 Apartment Ventilation Systems

Ventilation will be provided to comply with Building Regulations Approved Document F. The apartments will utilise either natural ventilation with boosted mechanical extract via the bathrooms or full mechanical ventilation in the form of MVHR. The decision to utilise mechanical or natural ventilation will be based upon the recommendations of future acoustic, overheating and potentially air quality assessments.

Approved Document F has a requirement for purge ventilation, in order to allow the removal of pollutants, such as burnt toast and paint fumes etc, via a short-term higher rate ventilation method. To satisfy this requirement, openable windows or vent panels will be provided to each bedroom.

Natural ventilation
Where the external acoustic environment and overheating permits. Natural ventilation will be provided to the apartments. This will be via windows or opening ventilation panels which will provide enough fresh air into the apartment for the number of occupants based upon criteria detailed within Building Regulations Approved Document F.

Mechanical Ventilation Heat Recovery MVHR
MVHR units will be located in the ceiling void of the bathroom of each apartment or vertically within a cupboard. This approach will allow each apartment to meet the continuous ventilation requirements of the Building Regulations Approved Document F, whilst delivering the thermal efficiency required to comply with the Building Regulations Approved Document L1A and maintain the acoustic integrity of the façade.

To provide continuous ventilation, extract air will be taken from bathrooms and the kitchen, with supply air being distributed to the bedrooms. Ducts from the MVHR unit will be routed to the local façade for fresh air intake and for the discharge of exhaust air. The connections to atmosphere will be detailed by the architect and integrated in a discreet manner, whilst providing as much separation as possible to reduce recirculation between the intake and exhaust. The external termination points, diffusers, grilles and ductwork will be designed to have low pressure drops and meet acoustic performance criteria.

Heat will be recovered from the extracted air and used to preheat the incoming fresh air, reducing the likelihood of cold draughts. The tempered fresh air from the MVHR will be delivered to the space via discreetly-integrated architectural diffusers.

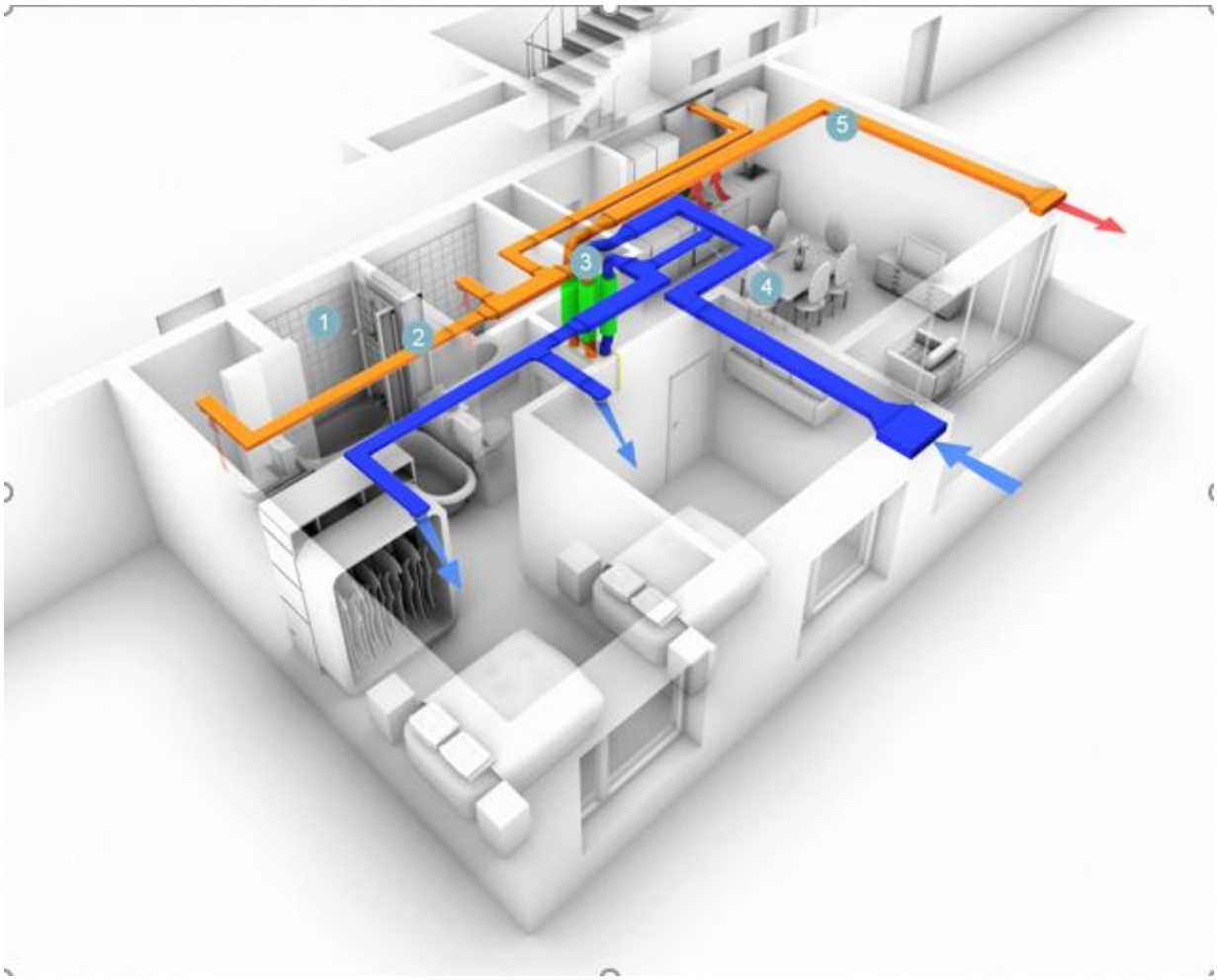

Figure 3 – Diagram of Whole House Mechanical Ventilation Heat Recovery (MVHR) to the apartments

1. Extract air from rooms 2. Fresh air supplies to rooms 3. MVHR unit	4. Fresh air intake on facade 5. Discharge air outlet on facade

Control requirements

The MVHR units serving the accommodation spaces will operate continuously, providing ventilation to meet the minimum Building Regulations standards. The units will contain intake and exhaust temperature sensors and a heat exchanger bypass. This will allow supply air to bypass the heat exchanger, so it can provide a cooling effect if the conditions are suitable.

2. Overheating

The Building Regulations Part L (Criterion 3) and SAP Appendix P require each accommodation spaces to demonstrate that it will not 'overheat' during the summer months June to August. This criterion has to be achieved without the use of mechanical cooling, whilst maintaining the acoustic criteria for the habitable rooms. Instead, the design of the façade has to be refined to reduce heat gains, and ventilation used to limit internal temperatures.

An overheating study will be completed at the next stage to determine which ventilation strategy should be applied to each space to ensure that they meet the criteria set out in Part L.

HOARE LEA

VICTOR OKPEVBA
ASSOCIATE

+44 1454 806 632
victorokpevba@hoarelea.com

HOARELEA.COM

155 Aztec West
Almondsbury
Bristol
BS32 4UB
England