University of Gloucestershire

University of Gloucestershire, City Campus

Ventilation Statement

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ARUP

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1 Introduction

This report outlines the ventilation and air conditioning strategy that has been developed for the City Campus project at the former Debenhams site in Gloucester city centre. This report has been produced to address the planning requirements and policies for Gloucester City Council.

It includes a description of proposed ventilation supply and extract systems, odour abatement techniques and acoustic noise characteristics. The indicative positions and design of ventilation and extract equipment has been indicated in the report.

The proposed scheme involves the refurbishment of the Debenhams site in phases and transform it into education building containing health and social care spaces, general teaching, libraries & archive, student union and various other specialist teaching spaces. The building will be occupied and completed over a period of time. The first phase, phase 1 will be approximately 6900m^2 and be located over three floors.

The building fabric will be upgraded to improved u-values, this is to minimise heat losses and heat gains, hence ensuring a low energy consumption building. The vision for the University of Gloucestershire is to reduce energy usage as practicable and viable, therefore energy efficient plant will be utilised for ventilation and air conditioning purposes

2 Planning Context

This report has been produced as set out in the guidance document ‘The Gloucester County Council, National and Local list, Validation Requirements for Planning Applications April 2021’

The document provides guidance on the level and type of information required to be submitted with a planning application. It also ensures that the council complies with current best practice advice contained in The Town and Country Planning Order 2013 (development management procedure).

3 Basis of Design

The ventilation requirements of the buildings are based on a fresh air provision of 10l/s/person or an ACH rate. The potential occupancy levels or ACH rates in the different areas are as summarised below:

Space Type	**m2/person or ACH**
Teaching Spaces	2 m2/person
Lecture Theatre	2 m2/person
Offices	8 m2/person
Clinic Rooms	8 m2/person
WCs	6 ACH
Stores	2 ACH

4 Ventilation Strategy

The intake and discharge sides of the Heat recovery units (HRUs) and fans will incorporate attenuators to limit noise emissions from ventilation plant to the background noise levels and/or the external noise (ie roads). Further attenuation shall be provided on the room side of the units to ensure the internal room noise criteria are not exceeded.

4.1 General Supply and Extract

The fresh air ventilation requirements for the building shall be provided by supply and extract heat recovery units (HRUs) complete with heat recovery via plate heat exchangers. These will be mounted at high level within the building, where possible limiting the plant located at roof level. There will be exhaust and fresh air plenum ducts provided in the risers for the HRUs to connect onto when each phase is constructed. This is a suitable strategy for the phased approach of the building.

The 10m separation of intake and exhausts required by BREEAM will be satisfied by routing the fresh air and exhaust ducts horizontally once at roof level.

4.2 Standalone Systems

4.2.1 WC Extract

The WC areas shall be serviced by heat recovery units located at high level or at roof level.

To comply with BREEAM, the WC exhaust shall be located 10m away from the nearest intake ventilation duct. This will ensure foul smells are not drawn into any fresh air intake ducts.

The WC will be maintained at a negative pressure and this will ensure make up air can be drawn from the surrounding spaces. Furthermore, it will prevent bad odours from being transferred to the surrounding spaces.

4.3 Process Extract

Process extract is not required within the building.

4.4 Café Extract

The catering facilities in the building are proposed as reheat only, therefore there are no requirements for specific kitchen extract, to remove grease etc. There will be extract provided in the café serving area to remove smells, and the makeup air shall be provided in the seating area, this will encourage odours to be extracted in the café area and not mitigate out through the rest of the building.

4.5 Generator and Sprinkler Pump Flues

There will be a generator and sprinkler pumps which will both be diesel powered and therefore require flues to exhaust pollutants away from the building. The generator room is located in the courtyard, the existing generator is being replaced, the flue currently routes vertically external to the building. It is proposed that the new flue takes the same route and terminates at least 1m above the roof and away from any openings.

The sprinkler pump is existing and shall be retained. The current pump is located within the basement and the flue routes internally and then exhausts out into the courtyard. It is proposed that this flue is extended on the façade of the building and terminates at least 1m above the roof and away from any openings.