

PLANNING SUBMISSION – AIR QUALITY STATEMENT

Date: 10th May 2012

Existing Arrangement:

The proposed site area is identified in the plan below. The site currently accommodates a number of veterinary science buildings which belong to the University of Liverpool. All existing buildings on the site shall be demolished to make way for a new multi-block student residential development delivering circa 1271 new student units.



Proposed Arrangement:

Refer to the proposed external site plan options provided elsewhere in the planning submission documentation. The site area shall accommodate 3 new residential blocks which rise to almost 30 metres at the highest point. The blocks are coupled together via landscaped recreational space.

Air Quality Management Areas:

We understand from Liverpool City Council's Environmental Health Department that the entire site area sits within an existing Air Quality Management Area.

Traffic Flow:

The traffic flow to and from the site shall be defined elsewhere in the planning submission documents.

Block 2 of the proposed student residential development incorporates some provision of both covered and external car parking – the exact number of car parking spaces is quantified elsewhere in the planning submission documents.

Activities & Processes On Site:

We would confirm the following issues relevant to air quality as follows:

- **Boiler Plant / Combustion Gas Emissions:** The proposed strategy for heating and hot water relies on the existing campus wide CHP / District Heating System, therefore there shall be no on-site boilers, combustion appliances or flue gas emissions of any nature.
- **Temporary (Emergency) Electricity Generators / Heat Engines:** Only in the unlikely event of catastrophic failure of the CHP / district heating system or electrical substations, the design

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strategy incorporates provision for temporary 'contract hire' electricity generators and /or heat engines to be connected to each block. Under this unlikely scenario, temporary containerised packaged diesel-fired units would be positioned adjacent to the plant areas. All combustion gases would discharge to atmosphere via flue systems which satisfy all relevant statutory and legislative requirements. Further details will be provided in due course.

- **Catering Facilities:** There are no centralised catering facilities provided within the new development proposals. Each Cluster and studio will have its own 'domestic' kitchen, served via a dedicated Mechanical Ventilation System with Heat Recovery (MVHR) system as detailed below.
- **Residential Areas Ventilation:** Each residential cluster shall comprise a number of student bedrooms with integral shower rooms / WC's and a common kitchen. In accordance with Part F of the Building Regulations, a single Mechanical Ventilation with Heat Recovery (MVHR) unit shall be located within a designated cupboard space in each kitchen and this shall supply fresh air into each bedroom and kitchen and extract air from each shower room / WC and kitchen. The maximum possible amount of heat shall be recovered from the extract air stream before discharging the stale air to atmosphere and this shall be used to pre-heat the fresh air supply, thus reducing the primary heating load. The kitchen façade shall incorporate small architectural fresh air inlet and exhaust details.

The MVHR unit will operate at a continuous trickle with a boost facility. The entire system shall boost on the dictates of a humidity sensor (details below) located integrally within the MVHR unit, to monitor humidity within the common extract air stream. This will reliably detect whenever showers are in use or when cooking is taking place in the kitchen.

Student bedrooms / shower rooms / WC's shall have a constant ventilation rate of 3 litres/sec. This will boost to 8 litres/sec as described above. Kitchens shall have a fresh air / extract ventilation rate of 13 litres/sec and in addition, will benefit from recirculatory hoods located above the cooker hobs.

The MVHR approach to ventilating clusters provides an energy efficient means of adequately ventilating the accommodation and mitigates any external factors such as road traffic noise and external air quality (which could significantly compromise the effectiveness of an alternative natural ventilation approach).

Whilst all clusters will benefit from localised MVHR systems, all student rooms shall also have openable window lights to provide 5% of the floor area as effective open area. Trickle vents will not be required with the proposed MVHR ventilation strategy.

- **Cleaners Stores:** Shall be mechanically ventilated to achieve 6 air changes per hour. The corresponding elevation façades shall incorporate small architectural exhaust louvre details.
- **Social Hub Ventilation:** The Social Hub shall be predominantly naturally ventilated, using a fully automated window opening system which operates under the dictates of CO₂ and temperature detection.

Land-locked areas shall be mechanically ventilated with localised MVHR units, as will any staff /meeting areas with limited opening window areas.

- **Car Park Ventilation:** The car park below Block 2 shall be naturally ventilated to satisfy Building Regulations Parts B & F. 5% of the total car park area shall be distributed evenly across the east and west elevations as effective free and open area to promote natural cross ventilation for the adequate dilution and removal of fumes and smoke. Refer to the Architect's Elevation Drawings.