Revision	Date	Description	Prepared By	Checked By
N1	07.08.20	Medius House Mechanical Ventilation	NL	DP

The purpose of this file note is to demonstrate and justify the fresh air intake locations related to the Medius House redevelopment and change of use to residential units. This is in response to LBC's comments relating to Planning Condition 34:-

MVHR – Condition 34:

The response states that "The Medius House Apartments have always been based on individual systems for each apartment, not a centralised system."

However, the AQA section 6.2 from the approved application clearly states that the air inlet should be positions at the rear at the highest point possible and this was set out in the condition.

It is proposed that all habitable rooms within Medius House include mechanical ventilation. These residential units have been predicted to have concentrations with the APEC C category and therefore require mitigation in accordance with relevant guidance[10]. The proposed air inlet should be positioned, where feasible, towards the rear of Medius House, at the highest possible point and a NO_x filtration unit should be included within the ventilation systems. This positioning of the ventilation systems should ensure the supply of clean air within all residential dwellings from first to eighth floor levels across the development.

Ventilation Summary

Medius House consists of 18 apartments across floors one to seven. These are split via an East to West communal corridor, with apartments located on both the North and South of the building as shown within the below image. Naturally, this results in the North apartments sharing the front façade, whilst the South apartments share the rear façade. Ventilation is provided to the Apartments via MVHR systems, one per Apartment, with fresh air inlet, and exhaust terminals in the adjacent façade.
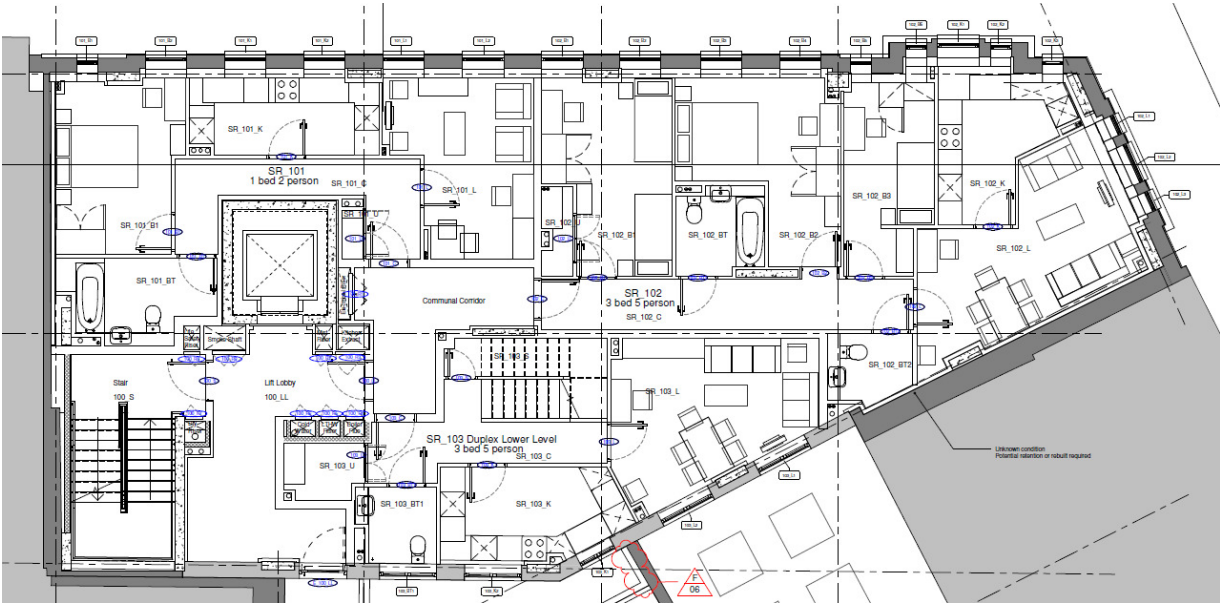
In order to completely satisfy the AQA's suggestion that fresh air inlets should be to the rear, and as high as possible, it would require the fresh air intake ducts to pass from each Apartment to the front of the building, across the communal corridor, and then through rear apartments to either connect to the rear façade, or to rise to a higher part of the building through before connecting to the rear façade, or terminate at roof level.

This presents a number of issues, namely access and maintenance (for cleaning), where ducts pass through different Apartments, increased ductwork resistance, and potential loss of critical Apartment floor area (~in order to accommodate vertical risers). MVHR units have a relatively low limit of available fan pressure, and hence the duct routes need to be kept to a minimum to achieve the flow rates required to comply with Part F of the Building Regulations.

Medius House's floor to ceiling heights are very low, and hence detailed coordination was undertaken to ensure duct runs were kept to a minimum and generally positioned through Apartment hallways to allow living area ceilings to be raised to their maximum. To route ductwork across to the rear façade would require various ducts to cross over within living areas, reducing ceiling heights by a further 200mm.

Introducing a fresh air shaft to roof level was explored and deemed not feasible, as the shaft size could not fit within the core layout, whilst maintaining the required size of lobbies for access. The shaft would have protruded into the amenity areas at roof level. A set of spill fans to push air down the shaft would be required at the top of the shaft, meaning an acoustic louvred screen would be required to visually isolate the fans from areas of the amenity space, along with providing a level of acoustic attenuation.

In conclusion, the AQA's suggestion to bring fresh air in from the rear of the building from a point as high as possible "where feasible" had been explored at design stage however it was deemed not feasible for the reasons set out above. The use of NOX filters has been implemented as a mitigation as recommended.