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Re: Installation of louvred panel to skylight above door to western elevation at The Lincoln Building, Manchester M2 5BU to provide ducted fresh air.

12th June 2023

Statutory Guidelines and Regulations regarding CO2 levels in Commercial Kitchens

Further to the accompanying application, we would like to submit additional information that helps the Planning Department understand the proposals.

- **Why is it necessary to increase the fresh air intake and extract fan upgrade?**

That following a series of reports undertaken by Zaap's Mechanical and Kitchen Canopy Consultants, KES Facilities Ltd. it was found that there were increased carbon monoxide levels in their kitchens due to the venues being busy and the style of cooking associated with the brand.

It was found that this was both damaging to the staff and in some cases customers health. (At 0.02% CO2 at 200 parts per million the effects on adults is of a mild headache, dizziness, sickness, and tiredness after 2-3hrs.)

The forth coming 2025 EPC regulations and BESA standards regarding fresh air input state: *'Fresh air ventilation rates must be sufficient to ensure that the CO exposure levels to which the kitchen staff are subjected do not exceed the COSHH limits of 300ppm for 10mins, or the World Health Organisation guide lines of 10ppm as an average over 8hrs.'* *'For existing installations an alarm condition at not more than 2800 ppm to warn staff to increase ventilation and an automatic shutdown of the gas supply at 5000 ppm to be installed.'*

Under the Gas Safety (Installation and Use) Regulations, Regulation 26 part 9, an engineer is required to confirm exactly the ventilation and flue requirements of an appliance, including the means of intake and extraction. The effect of other appliances in that area should also be taken into consideration. Kitchen and catering establishments may require a negative pressure to be present to prevent smells escaping outside the cooking area.

Individual appliance requirements will be found in manufacturer's instructions, but advice can also be sought from the following industry documents:

- BS6173: Installation of gas-fired catering appliances
- HSE information sheet: Ventilation in Kitchens and Catering Establishments
- HVCA: Standard for Kitchen Ventilation Systems
- BS5720: Code of practice for mechanical ventilation
- BS5925: Code of practice for natural ventilation

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Interlocking and mechanical ventilation system and gas supplies.

BS6173 provides installers with design information on this subject. The objective of all ventilation systems is to ensure safe working conditions in the kitchen.

The cooking process will generate products of combustion, heat etc all of which are required to be kept within safe environmental limits by operation of the ventilation system. If a mechanical system fails or is not working correctly, the environment may become unsafe or unfit for work.

It is important to make sure all natural and mechanical ventilation systems are working effectively. The installer should fit the appropriate interlocking system between any mechanical ventilation and the operation of gas appliances so that failure of the system causes the gas supply to them to be shut off. Installation of manual bypasses to such interlock systems is not permitted.

Effective preventative maintenance and cleaning will help to prevent appliances from regularly being shut down due to the ventilation system failing.

Air Quality Testing

When testing previously commissioned installations and new installations, if the CO2 level exceeds 2800 ppm, the system needs to be made safe by isolation of individual appliances, increasing ventilation or isolation of the gas supply.

In such cases, it is recommended that the provision of ventilation is reviewed in order to achieve CO2 levels not exceeding 2800 ppm.

Summary:

From the findings detailed in previous reports by KES Facilities Ltd at the various restaurants within the Zaap estate, due to the success of this popular brand and the open style of cooking it has been found that there can be a build-up of CO2 levels in the kitchen areas. This is considered detrimental to staff health and safety.

In order to reduce these levels it has been proposed to increase the fresh air intake to the restaurant and extract canopy to meet the new regulations in 2025.