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Clovis Fletcher
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Dear Clovis

RYBKA

2-4 Abbey Mount, Edinburgh - 16/03669/LBC

Scope & Outline Description

We recently surveyed the existing kitchen extract duct installation at the address above in order to assess size/condition and suitability for re-use in a new small kitchen/café within the refurbished development.

The duct at the moment rises off an existing kitchen cooker hood where it then exits the building before rising vertically, via an inline kitchen extract fan, up the rear elevation of the building to a 'swan neck' terminal at roof level. The duct appears to be of painted galvanised sheet steel construction with external metal flanges and is 300x300mm external dimensions across its length. There was no obvious visual damage or deformations in the flue.

As part of the new development proposals submitted under the above Planning reference number, a small commercial kitchen or café space has been identified within the building footprint generally in the position of the existing kitchen, however it is understood the actual extent and purpose of this room may change as the building design is developed. On the current plans, a kitchen space of ~20.2m³ room volume has been identified, which sits adjacent to a servery area of volume ~19.2m³.

The route of the existing duct is as shown on the LBA elevation drawings provided as part of the Planning submission.

Calculations

The Heating and Ventilating Contractors' Association (HVCA) guide DW172 'Specification for Kitchen Ventilation Systems' provides design guidance for such an installation and recommends that, in the absence of detailed design information (ie a final kitchen layout with equipment specifications etc), the air change method of sizing kitchen extract ductwork would be appropriate (Section 5.7 of the guide). Various air change rates would apply to different scales and types of kitchens, however a minimum rate of 40 air changes per hour (ACH) is suggested, and this has been used in these calculations. In addition, the guide also recommends a maximum extract spigot velocity of 5-7m/s (Section 9.2 of the guide), which has been used to assess the suitability of the existing ductwork size.

It should be noted that, for larger commercial kitchen installations with excessive grease generation, a higher velocity of 7-10m/s is typically considered

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to be appropriate as this higher air velocity helps prevent grease build-up within the duct. Due to the relatively small scale of kitchen and the cooking that will occur within the 2-4 Abbey Mount development the lower velocity is considered to be more appropriate.

Assuming the new kitchen is to be located within the footprint currently indicated as 'Kitchen' on the current architectural plans, an air change rate of 40ACH across this space would equate to an air flow rate of 0.226m³/s. This would be pulled through a duct of dimensions 300x300mm at a velocity of 2.5m/s.

If the area of the adjacent servery was also included in the calculation, an air change rate of 40ACH across this larger footprint would equate to a higher air flow rate of 0.438m³/s. This would be pulled through a duct of dimensions 300x300mm at a velocity of 5.2m/s.

Conclusions

In summary, the material used in the construction of the existing kitchen extract duct is considered to be suitable for use in a kitchen extract system. In addition, we could not find any obvious damage or deformations of the existing flue, based on an external visual inspection.

The size of the existing duct at 300x300mm is also considered suitable for a typical commercial kitchen of this scale, either in the footprint of the existing kitchen (20.2m³) or the 'kitchen+servery' (39.4m³), which equate to in-duct air velocities of 2.5m/s or 5.2m/s respectively – both within the recommended upper limits for an extract spigot of 5-7m/s noted in DW172.

Yours sincerely



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Rybka