

1. Kitchen Ventilation Systems Description

1.1 Pizza Oven and Fryer Extract Ventilation System

The pizza oven manufacturers do not specify an extract air rate, so with the outlet size of 250mm dia, an extract rate of 0.4m³/s has been calculated.

The DEFRA risk assessment for the pizza extract system, would indicate a high level of odour control, due to exhaust being at low level.

The pizza oven extract fan would be a Flakt Woods Estoc Targe (Powerbox) model 67-450-1, high temperature rated with the motor out of the airstream, and with an external pressure availability of 550pa, however, once the final ductwork route has been established/confirmed, the system pressure should be recalculated, if different from the design drawing layout,

The fan should have a high temperature rated sound attenuator at the outlet of the extract fan.

The fan should have a speed controller.

Extract ventilation ductwork, would be stainless steel, double skinned with insulation between the 2 x skins.

The internal diameter of the ductwork from the fryer pizza oven should be 250mm diameter.

The open end of the extract ductwork, above the pizza oven, would also include a counterbalanced air-dilution inlet damper.

The ductwork should include sufficient access/cleaning doors or removable cap ends, for internal cleaning of the ductwork system

The stainless steel ductwork system should be supported via the brackets specified by the manufacturers of the stainless steel ductwork.

Odour Control will comprise:- 2 x ESP1500 modules in a 'double pass' configuration, and a carbon filter module, containing 3 x site safe carbon

cassettes, each cassette measuring 600mm x 600mm x 200mm (nominal) and contained in a purpose built housing.

The odour control equipment should be manufactured by Purified Air Ltd

The exhaust terminal, should be via the existing high level louvre, above the glazing, which is approx. 1300mm x 500mm providing an exhaust velocity of less than 1.5m/s

1.2 Fresh (replacement) Air Ventilation System

As the pizza oven is wood fired, DEFRA guidelines call for fresh replacement air ventilation, at a rate of 80% of the extract air, so the fresh air volume is calculated at $0.33\text{m}^3/\text{s}$

The fresh air fan would be a Flakt Woods ePowerBox 50-355-1-4 with an external pressure availability of 150pa, however, once the final ductwork route has been established/confirmed, the system pressure should be recalculated, if different from the design drawing layout,

The fan should have a sound attenuator at the inlet and the outlet, and have a speed controller.

The fresh air ductwork would be manufactured and installed in accordance with the HVCA DW144 specification, with access doors at each item of equipment.

Air would be supplied to the kitchen via 1 circular, high level x supply grille, as shown on the design drawing No C728/1 rev A.

The system should have an in-line electric heater battery, with fully integrated controls, that can raise $0.33\text{m}^3/\text{s}$ of air by 21°C

The heater should have a temperature/air pressure probe, to allow the heater to be activated when there is proven airflow, and to stop the heater from operating when a set duct temperature of $+20^\circ\text{C}$ is measured.

A standard G4 filter module, to prevent ingress of insects/dust should be positioned between the intake louver and the electric heater.

The intake louver is existing, high level above the glazing, and is approx. $1300\text{mm} \times 500\text{mm}$, to ensure an intake velocity of approx. less than 1.0m/s