

## **1. Kitchen Ventilation Systems Description**

### **1.1 Kitchen Extract Ventilation System**

The kitchen cookline is divided into two sections, an induction suite and 2 x charcoal grilles.

The extraction rate for the induction suite has been calculated at  $0.788\text{m}^3/\text{s}$  and the extraction rate for the charcoal grilles has been calculated at  $0.9\text{m}^3/\text{s}$

The total extract volume is  $1.7\text{m}^3/\text{s}$  with duct velocities, no higher than  $6.75\text{m/s}$

The DEFRA risk assessment for the kitchen extract system, would indicate a high level of odour control, despite exhaust being at roof level.

The kitchen extract fan would be a Flakt Woods Estoc Targe (Powerbox) model 80-560-3, high temperature rated with the motor out of the airstream, and with an external pressure availability of 500pa, 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 inlet and the outlet of the extract fan.

The fan should have a speed controller.

Extract ventilation ductwork, would be manufactured and installed in accordance with the HVCA DW172 specification for commercial kitchens

The ductwork should include sufficient access/cleaning doors for internal cleaning of the ductwork system

The kitchen extract canopy would be manufactured from 20swg 304 grade stainless steel, with a continuous perimeter condense channel, standard baffle type grease filters to the rear elevation, and a high temperature rated LED strip light within

Odour Control will include 2 x ESP4500 modules in a 'double pass' configuration, located at roof level

The odour control equipment should be manufactured by Purified Air Ltd

The exhaust terminal, should be a vertical jet cowl, high velocity (15m/s)

## **1.2 Fresh (replacement) Air Ventilation System**

As the kitchen includes some charcoal appliances, 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 1.36m<sup>3</sup>/s

The fresh air fan would be a Flakt Woods ePowerbox 67-450-1 with an external pressure availability of 300pa, 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 2 x supply air diffusers, as shown on the design drawing No C707/1

The system should have an in-line electric heater battery, with fully integrated controls, that can raise 1.35m<sup>3</sup>/s of air by 20°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°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 should be a standard wall type louver, with a bird mesh guard.