

# Environmental Protection

## A guide to ventilation



This leaflet offers guidance on what information should be submitted to the council before any ventilation plant is installed.

This leaflet is meant as guidance only – the information supplied should be tailored to suit the scale, location and nature of the proposal.

### What is ventilation?

Ventilation or extraction is used to make sure that no nuisance, disturbance or loss of amenity is caused by odour, fumes, food droplets or noise to nearby properties.

### What type of ventilation should I use?

A qualified professional with specialist knowledge of ventilation schemes should design and install any ventilation system.

This process can be costly and take a long time to complete.

In circumstances where the end user of the premises is unknown, or where the specific type of food to be cooked is unknown, the installation should be designed to achieve the highest level of odour control to cater for a worst-case scenario.

There are many different types of ventilation to stop smells. These include carbon filters, electrostatic precipitation, high dilution and high velocity extraction. Not all of these are suitable for all cooking methods. In all cases, grease filters thicker than 50mm in depth must be installed.

Please note that any reference to minimum standards within this document are for guidance only and more stringent controls may be more appropriate.



## What information do I need to support my planning application for a commercial kitchen?

So the council can assess the suitability of a ventilation scheme, the following information should be provided, dependant on the nature of the proposal.

### 1. Information on Premises

- the number of meals to be served per day;
- the method(s) of preparation and cooking;
- the types of meal served, e.g. fish and chips, Chinese food, Indian food, pizzas or Italian dishes, etc; and
- proposed hours of operation of the business and any ventilation plant.

### 2. Plans and Drawings

Provide a scaled plan showing the internal arrangement of the premises and the dimensions/location of the ventilation system. The plan must contain external elevations of the buildings showing the:

- dimensions;
- route; and

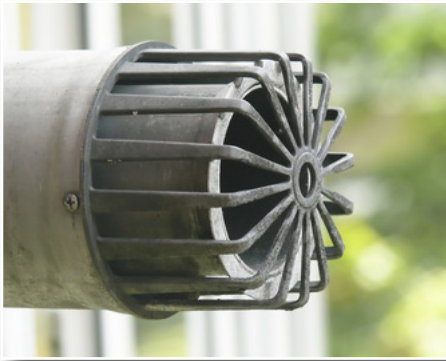
- exhaust characteristics (i.e. appearance) of the ductwork in relation to the building.

The location of all filters and the fan must be clearly marked. Where the location of a filter is shown the type must be clearly identified and cross-referenced to the detailed product specification.

### 3. Noise

Data on noise produced by the system as a whole should be provided including:

- sound power levels or sound pressure levels at given distances (the assumptions to this calculation must be clearly stated);
- an octave band analysis of the noise produced by the system should also be provided where possible;
- details of how and where ducting and fans are fitted to structures; and
- hours of operation of the ventilation system (where this differs from the hours of opening).



### 4. Pre-filters

A copy of the manufacturer's product data sheet should be supplied clearly showing the:

- manufacturer's name;
- filter name and product code;
- dimensions of the pre-filter;
- nature of the filter media; and
- manufacturer's recommendations on the frequency and type of maintenance of the pre-filter having regard to the conditions that it will be used under.

### 5. Electrostatic Precipitators ESP (where proposed)

A copy of the manufacturer's product data sheet should be supplied clearly showing the:

- manufacturer's name;
- ESP name and product code;
- dimensions of the ESP;
- flow rate rating; and
- manufacturer's recommendation on the frequency and type of maintenance of the ESP with regard to the conditions that it will be used under.

### 6. Carbon Filters (where proposed)

The details and type of carbon filter units should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows the:

- manufacturer's name;
- filter name and product code;
- dimensions of the filter panel; and
- the total number of filter panels in the filter bed.

The following information should also be included:

- the nature of the carbon (including product type);
- the frequency of replacement of the carbon units having regard to the conditions that it will be used under. The assumptions to this calculation must be clearly stated, including the frequency and duration of use;
- the manufacturer should provide recommendations on the frequency and type of maintenance required;
- total volume of carbon in cubic metres;
- total mass of carbon in kilograms;
- total surface area of the panels exposed to the exhausted air; and
- dwell time of the gases in the filter compartment and the control setting at which this is achieved. The assumptions to this calculation must be clearly stated, and should include the air change rate for the setting quoted.



### 7. Odour Counteractant or Neutralising System (eg. UV) (where proposed)

The details and type of counteractant or neutralising system should be identified. A copy of the manufacturer's product data sheet should be supplied that clearly shows the:

- manufacturer's name;
- name of delivery system and product code;
- counteractant or neutralising chemical to be used;
- COSHH data sheets for chemical to be used; and
- anticipated counteractant or neutralising delivery rate.

### 8. Cooker Hood

The following information on the characteristics of the cooker hood should be supplied that clearly show the:

- length that the cooker hood overhangs the appliances;
- face velocity at the cooker hood in metres per second; and
- dimensions of the opening of the cooker hood.

### 9. System Operation

In addition to the specification of the components, the following must be provided about the system:

- the extract rate (in m<sup>3</sup>/s) at the proposed rate of extract;
- the dwell time of the gases in the carbon filtration zone;
- the volume of the kitchen; and
- the efflux velocity

Note: The system performance is dependant upon the extract rate of the air. Where the rate can be adjusted by the use of dampers or a variable speed fan, then the conditions under which the extract rate can be achieved must be described.

### 10. Flue Design

The height and velocity of the final discharge are the two important factors. Generally, the greater the flue height, the better the dispersion and dilution of odours.

The discharge of air should be at a minimum height of 1m above the roof ridge, especially if there are buildings nearby that may affect odour dispersion and dilution.

Where this is not possible (e.g. because of ownership or structural constraints), additional techniques will be required in order to reduce odours, such as an increase in efflux velocity and additional filters, etc.

The final discharge should be vertically upwards, unimpeded by flue terminals. The number of bends in the ducting should be minimised and the ducting should have a smooth internal surface.

## 11. Maintenance

A schedule of maintenance must be provided including details for the:

- cleaning of washable grease filters;
- frequency of inspection and replacement of all filters (grease filters, pre-filters and carbon filters where proposed);
- inspection and servicing of fans; and
- if a schedule is not based on manufacturer's instructions include the reasons why.

## Environmental Protection

If you would like a copy of this document in another format such as large print, Braille, audio or in a different language, please call **0845 050 4434** or email **customer.services@southlakeland.gov.uk**



### **For further information please contact:**

Defra at [www.defra.gov.uk/environment/noise/kitchenexhaust/index.htm](http://www.defra.gov.uk/environment/noise/kitchenexhaust/index.htm) or contact us on 0845 0504434 [deh@southlakeland.gov.uk](mailto:deh@southlakeland.gov.uk)

Environmental Protection Group, Neighbourhood Services, South Lakeland District Council, South Lakeland House, Lowther Street, Kendal, Cumbria LA9 4UD

Email: [deh@southlakeland.gov.uk](mailto:deh@southlakeland.gov.uk) Website: [www.southlakeland.gov.uk](http://www.southlakeland.gov.uk)