

Small-scale ventilation systems - noise and odour control

The diagram over the page shows an ideal (small food business or take-away) scheme, incorporating all noise and odour control features. This guidance does not cover the requirements of either Greenwich Planning, Building Control or the Fire Authority. Please note that, although the diagram shows an external duct, it could be run internally, perhaps in a disused chimney. Note also that larger scale operations or low-level discharges will probably need in-line noise silencers to be fitted to the ducting.

The essential elements in the usual small-scale scheme are correct fan installation [1 below], correct duct termination [2(a) and 2(b) below] and the 3-stage filtration [3(a), 3(b) and 3(c) below]. Other comments are notes on good design, and for information only.

1. **Fan Unit** This should be inside the building to reduce noise nuisance to neighbours. It must be fixed using anti-vibration mounts and must also have flexible couplings to the duct. If you are forced to site it outside, then it must be in a properly designed acoustic enclosure.

2. **Ventilation Duct**
 - (a) The duct should terminate at least 1m above the eaves or windows of your building, or adjacent buildings, whichever is the higher. If surrounding buildings are higher than your building or are very close, then you might have to go even higher.
 - (b) The duct should be open at the top and preferably pointing directly upwards ie. there should be no duct terminal, bend or cowl. In our opinion, these simply slow down the exhaust air and add to any odour problem. Ideally, you want the exhaust to go fast and high, therefore dispersing as far away from surrounding properties as possible. This will also necessitate drain holes at the bottom of the vertical duct.
 - (c) The duct may need to widen before the carbon filters - the filters are usually bigger than the duct because they need a large surface area to react with the odour.

3. **Filters** Three stage filtration is generally necessary: grease filters, pre-filters and then carbon filters. Some manufacturers produce modules which include all 3 filters in one pre-fabricated box.
 - (a) Grease filters are sited directly over the cooking range. They are usually metal and are washable - you can take them out regularly and put them in the dishwasher. A grease trap is often incorporated into the hood.
 - (b) Pre-filters trap any particulates which have got through the grease filters. They are usually fabric-based and are disposable. They are intended to protect the relatively expensive carbon filters, thus increasing their life. The pre-filters and carbon filters can be placed inside or outside the building, but ideally should be before the fan.
 - (c) The final carbon filters work by adsorbing the odour. They must be changed on a regular cycle, which will depend on the level of kitchen use (see manufacturer's instructions).

Typical small-scale ventilation system - noise and odour control

