

 West Lothian Council	Environmental Health		SUBJECT: VENTILATION FOR CATERING PREMISES
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		Public Health	
STATUS: TRADE ADVICE Data label: Public		Pollution Control	
		Pest Control/Dog Warden	

Information Sheet FH20

Ventilation for Catering Premises

Where hot food is prepared (Cooked, reheated, baked, fried etc), adequate ventilation by either natural or mechanical means needs to be provided. This is to reduce high humidity, room temperatures, cooking odours and airborne particles. This Information Sheet gives advice on:

- What the law says;
- The design of the ventilation system;
- Other organisations with which you will need to discuss your options;
- Maintenance of the system; and
- Common problems

What the law says

1. The Regulations deal with the structure of catering and other food businesses. They require that:
 - There is a means of ventilation, which can be mechanical or natural. This must be 'suitable and sufficient'.
 - Where a mechanical system is installed, it does not pull air from a 'dirty' area to a 'clean' area. The food preparation area must not become contaminated from air brought or pulled into it.
 - All parts of a mechanical system that will need cleaned or replaced must be easily accessible. In practice, this includes filters and fans.
2. Where an extract canopy is used, it must be designed, constructed and finished to:
 - Prevent the accumulation of dirt;
 - Reduce condensation;
 - Reduce the growth of undesirable moulds; and
 - Reduce the shedding of particles.
3. There are very specific laws and standards where ventilation is used with gas powered catering equipment. You must take these into account when planning a new system. Older systems may have to be upgraded to meet these standards. More information can

be found in the HSE Information Sheet CAIS 23(rev2), 'Gas safety in Catering and Hospitality'. This is available online at <http://www.hse.gov.uk/pubns/cais23.pdf> .

The design of the ventilation system

The system should be designed to:

4. Extract enough air to keep the temperature down. As a guide, we would recommend that the temperature in kitchens be kept to no more than +25°C. In practice, +20°C should be the temperature aimed for.
5. Extract fumes, moisture and smells as near as possible to where they arise. In a kitchen, this will mean a canopy or hood directly above all cookers, ovens, fryers and boilers. As commercial dishwashers often produce large amounts of steam when opened, a canopy with mechanical air extraction should be provided for them. The exception to this may be some modern types of condensing dishwashers.
6. Capture grease at the point of extract, particularly in larger businesses and those which do a lot of frying. This has two benefits:
 - Used grease and oil smell. If it can be captured, there is less chance of complaints about the smell from neighbours.
 - Grease and oil is very flammable. Every year, there are fires in catering businesses when the oil and grease in the ventilation ducting catches fire.

The usual way of doing this is to have grease filters in the canopy. The filters catch any grease, which can then be removed for regular cleaning. It is good practice to have a channel on the inside lip of the canopy to catch condensation. This should drain into see-through containers, which can be removed for emptying and cleaning. We recommend a stainless steel or galvanised metal canopy with appropriate variable speed extractor fan(s) and filters(s) built in.

7. Minimise nuisance from smells to nearby properties. This is most likely where a business prepare strong smelling or spicy foods. It can also happen due to the arrangement of buildings, windows and wind direction at the site. Some form of odour control will be needed. Three methods are possible:
 - Activated charcoal filters. These are installed in the extract duct and filter out most of the cooking smell. They are usually disposable and will last for 6 months to a year, depending on their use. It is essential that they be of adequate size for the volume and type of odour. Use of pre-coolers, fabric filter and grease filters can all increase their useful life.
 - Air dilution. This dilutes the fumes with fresh air, assisted by fans, which increase the speed at which it leaves the outlet. The resulting mixture smells less strong, but still contains the same amount of odorous fumes. It is only likely to be effective where the increased velocity will stop smells being trapped in enclosed spaces, such as between taller buildings. Care has to be taken to stop the problem being moved to another location.
 - Odour neutralisation. This works by spraying an odour neutralising chemical into the air stream. This can be very expensive and is not always effective.
8. Minimise nuisance caused by noise and vibration from the installation. These problems can usually be overcome if a competent specialist company is used for the installation. If problems arise after installation, they should be brought back in to resolve them.
9. Have its outlet in an appropriate place. The exact place will depend a number of factors, including:
 - Local topography

- Distance to residential and commercial property
- Its appearance

Each case needs to be considered individually. In general:

- Outlets should discharge as high as possible into the air. Outlets should be above the height of surrounding windows by at least 1m, ideally 3m.
- Outlets should not be in courtyard wells and enclosed areas
- Outlets on flat roofs will need to be 1m above them to allow adequate dispersal of fumes

Other bodies with which you will need to discuss the system

10. Planning consent will be required where there is an external duct. Please contact the Planning Division on 01506 280000 for further advice on this.
11. Installation of the ventilation system may require a Building Warrant. Please contact the Building Control Division on 01506 280000 for further advice on this.

Maintenance of the system

12. The filters will need to be cleaned regularly, ideally once a week. If carried out regularly, this can often be done within the business. If longer intervals are used, a specialist contractor may be needed. If the filters have to be taken off-site for cleaning, a spare set will be needed, so that there are always filters in place.

The inside of the canopy will also need cleaned out regularly. Grease deposits are a fire hazard.

13. The extract fans will also need periodical maintenance to:

- Keep the system working effectively; and
- Stop it from becoming noisy or producing vibration.

You should find out about this from your installation contractor. If necessary, a maintenance contract should be put in place.

14. If there is the potential for grease to build up inside the system. It should be deep cleaned once a year. This is most easily done by a specialist contractor.

Common problems

Common problems with ventilation systems include:

- The level of ventilation being inadequate. This causes the temperature to rise and increases the amount of cleaning necessary, because moist and greasy air is not removed from the kitchen. The system should be designed for warm summer weather.
- The ventilation system was not being operated properly. You need to make sure that staff know how to use the system properly
- Filters and fans which are not easily accessible for cleaning. This quickly causes the system to operate more poorly and means that breakdowns can't be easily repaired.
- Air being drawn from a 'dirty' area across a 'clean' area by the ventilation system. This is usually down to poor design and installation. The same amount of fresh air should be allowed into the kitchen as is being taken out.

- The filters missing from their positions in the canopy. This results in increased smell nuisance to neighbours and allows grease to accumulate in parts of the ducting that might be difficult to clean.
- The wrong type of filters installed for the type of odour and volume of fumes. This is again a problem of poor design or management.
- Windows and doors being open. This can affect the performance of even the best-designed system. We recommend windows and doors are not opened in conjunction with the operation of the mechanical extract system.

Because many of these problems result from poor design or installation, we recommend that you get a competent ventilation engineer to design and install a system appropriate for your needs.

Further help

Remember it is your responsibility to ensure that the food served to your customers is safe. If you would like help, or need any further advice, then please contact us on 01506 280000 or environmentalhealth@westlothian.gov.uk