

Condensing Boiler Fumes

Condensing Boilers

In accordance with current Building Regulations any new boiler that is installed must be an efficient condensing type boiler. These boilers work on the principle of recovering as much as possible of the waste heat which is normally ejected to the atmosphere from the flue of a conventional (non-condensing) boiler. When in condensing mode the flue gases give up their 'latent heat' which is recovered by the heat exchanger within the boiler and used to preheat the return water. As a result the temperature of the gases leaving the flue of a condensing boiler is typically 50-60°C compared with 120-180°C in a current non-condensing boiler. At the same time an amount of water or 'condensate' is produced. A condensing boiler will always have a better operating efficiency than a conventional non-condensing one, due to its larger and more efficient heat exchanger.

The "plume"

Because the flue gases leaving a condensing boiler are cool, they tend to produce a noticeable mist or plume of water vapour around the flue terminal itself (as they condense upon contact with the atmosphere), especially under cold conditions. This is now becoming a common problem particularly with the increase in condensing boilers and also an increase in housing density.

The plume can lead to allegations of a nuisance being caused, particularly if it is blowing across neighbouring windows, doors and paths regularly used in the winter.





What the law requires

The Gas Safety (Installation and Use) Regulations require that gas fittings, appliances must be installed only by a person with required competence and they must be registered with Gas Safe Register.

Building Regulations Approved Document J contains the minimum separation distances for flues from certain openings. Reference should be made to this document before siting any external flues. However, the following is a brief summary of the main requirements:

Outlets from flues should be so situated externally as to allow the dispersal of products of combustion, and if a balanced flue, the intake of air.

Separation distances

From a surface or a boundary facing the terminal = 600mm

Below/above an opening = 300mm

Horizontal to an opening = 300-600mm (depending on the kW of the appliance).

From an internal or external corner or to a boundary alongside the terminal = 200-600mm (depending on the type of flue).

Please note this is only for gas appliances. Distances for oil appliances are generally 600mm for a boundary facing the terminal.

Office of the Deputy Prime Minister – Guide to the condensing boiler installation assessment procedure for dwellings, April 2005. This document is guidance only and does not replace or provide more weight than Building Regulations. Its main points regarding flues are:

- Flue gases discharged from the flue are cooler and less buoyant
- Flue terminal position must meet the requirements of Building Regulations Approved Document J
- Wall terminals should be sited a minimum 2.5metres from a facing wall, fence, building or property boundary (this is 600mm in Building Regulations)

British Standard BS5440-1 “recommends” that condensing boilers should not be sited where the plume “is likely to cause a nuisance”.

A Building Technical Report (14/2005) undertaken on behalf of the Office of the Deputy Prime Minister, was published in February 2006, and entitled “*Location of flues to prevent ingress of gas and oil firing flue gases under all weather conditions*”. Its main findings were:

- Most modern gas fixed boilers are fitted with burners that produce Nitrogen Oxide (which can be an irritant and aggravate asthmatic conditions) levels around 60ppm and Carbon Monoxide below 50ppm. At 300mm separation distance this would have dissipated to acceptable levels.
- There is evidence that flue gases tend to accumulate under overhanging features e.g. soffits and car ports.
- The concentration of gases is 0.5% of discharge value on boundaries. Therefore the plume is dispersed.
- Trials show that in general the separation distances in Building Regulations are adequate and need no further revision.
- In average wind speeds the plume is rapidly diluted.
- There is more risk if there is a light wind and the flue is located beneath a window.
- Fanned flues help to dilute flue gases faster than natural draught flues.

Therefore it is unlikely that, if installed in compliance with Building Regulations, the plume would be harmful to public health. However, due to the nature of the plume it could still cause a nuisance to neighbours.

Useful Contacts

If you have further queries regarding the building regulations or the safety of boiler installations then the following contacts may assist:

South Gloucestershire Council Building Control: 01454 868004

Approved Building Control Document J:

<http://www.planningportal.gov.uk/buildingregulations/approveddocuments/partj/approved>

Gas Safe Register: 0800 4085500

<http://www.gassaferegister.co.uk>

Statutory Nuisance

If complaints are received by the Council regarding alleged nuisance from a boiler plume then you would be asked to complete diary sheets. We may then contact the subject of the complaint to discuss the issue with them. Possible remedial measures might include re-siting the flue or installing a plume management kit. A plume management kit is an extension of the flue which will allow the gases to be discharged at a higher level and therefore reduce the likelihood of causing a nuisance. As it forms part of the flue it must be installed by a person who is competent and registered with Gas Safe. It is recommended that you contact your boiler manufacturer for more details about suitable plume management kits.



If informal action is unsuccessful and the Officer deems that a statutory nuisance does exist, then under Section 80 of the Environmental Protection Act 1990 an Abatement Notice can be served to prevent the existence and recurrence of the nuisance. Failure to comply with the Abatement Notice is an offence which can result in prosecution proceedings being taken and fines of up to £5000 (£20000 for commercial premises).

Making a complaint regarding a plume

Officers from the Council are available to offer assistance and advise you of your rights before you make a formal complaint. Such advice would be on an informal basis, and you would not be required to supply your details.

Before registering your complaint with Environmental Health you are advised to approach the persons causing the nuisance. Quite often this informal approach can resolve the problem on an amicable basis, but if this fails or you do not wish to make such an approach complain directly to Environmental Health by telephone.

Please note that we will ask how the plume affects you and if it is materially affecting the enjoyment and comfort of your own property. **We are unable to investigate the complaint if it is only the visual aspect of the plume you are concerned about.**

On making a complaint you will be asked to give your name, address and a daytime contact number, together with the address of the site you are complaining about, and details of the complaint. Anonymous complaints will not normally be taken, as they may be malicious. Your details will be treated with strictest confidence. Should the case end up going to court, however, you may be required to attend.

On receipt of your complaint, the case officer will contact you within 5 working days, either by letter, telephone, or in person to discuss the complaint.

If we cannot assist you with your complaint, we will explain why. If the matter is the responsibility of another agency or Department of the Council, we will either refer the matter on your behalf, or provide you with the appropriate information for you to do so yourself.

Free Internet access is available at all South Gloucestershire libraries.

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