



# TECHNICAL BULLETIN 231



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## Room-sealed flue/chimney terminations - Possible nuisance from fumes and the use of plume management kits

### Introduction

The CORGI Technical Helpline regularly receives enquiries about the nuisance caused by the visible plume from modern high efficiency condensing appliances. These enquiries often relate to a recently fitted appliance which has been installed in close proximity to a property's boundary or other adjacent properties.

It is therefore important that at the design stage, registered businesses and their operatives carefully consider that the location of all proposed room-sealed flue/chimney terminations are safe and ensure that the combustion products do not cause a nuisance. These are two distinct areas for consideration; remember the dimensions shown in the appliance manufacturer's installation instructions are the minimum dimensions required to ensure the safe operation of the appliance and do not ensure that the products of combustion exiting from the termination position will not cause a nuisance to others.

### Termination requirements

Regulation 27(5) of the Gas Safety (Installation and Use) Regulations 1998 (GSIUR) states "No person shall install a flue other than in a safe position." Guidance Note 182 of the Approved Code of Practice and Guidance to GSIUR then states:

*"A flue (including any terminal) should be installed in a position which ensures that it will operate effectively and that products of combustion will safely disperse and not present a hazard to any person, whether in the premises in which the associated appliance is installed (e.g. by being located a safe distance from vents and openable windows), or in adjoining/neighbouring premises. The location needs to take into account any possible developments in neighbouring property, e.g. building extensions. Any flue should therefore be sited so as to discharge at a safe distance from any boundary with adjoining premises; reference should be made to requirements in Building Regulations and appropriate standards, as applicable."*

British Standard (BS) 5440-1: 2008 – *Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases). Part 1 - Specification for installation of gas appliances to chimneys and for maintenance of chimneys* – also provides guidance on the need to correctly site a flue/chimney terminal with regard to a boundary, which is in addition to the minimum safety dimension requirements, by stating in the Commentary and Recommendation to Clause 10.2.1 "The terminal should be positioned so that the combustion products do not cause a nuisance, for example the terminal should not be positioned on a passageway, pathway or over adjoining property."

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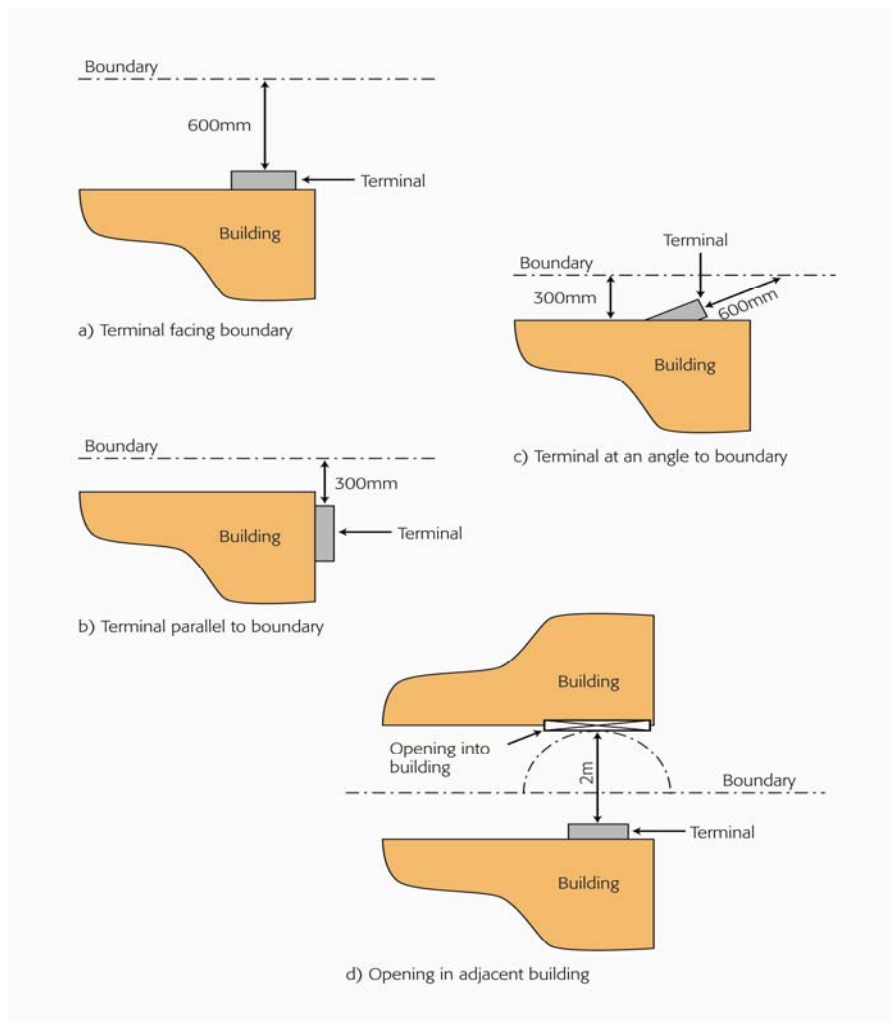
It is also important to consider that when locating a fanned draught room-sealed appliance, the position of the terminal should be such as to minimize the risk of the entry of combustion products through openable windows, vents, etc in opposite or adjacent properties.

BS 5440-1: 2008 recommends that room-sealed flue/chimney terminations are positioned:

- a) at least 2m measured horizontally from an opening in a building directly opposite; and
- b) so that the products of combustion are not directed to discharge across a boundary

With regard to proximities to boundaries, a flue duct outlet of a gas appliance needs to be sited so that it is at least 600mm from the boundary line when facing it and at least 300mm from the boundary line when running parallel to it. It is also recognised that a flue duct outlet can be angled away from the boundary so that distance between the outlet and the boundary can be maintained to at least 600mm providing the shortest distance between the terminal and the boundary is not less than 300mm (see Figure 1). However, with regard to fanned draught room sealed appliances, a distance of 600mm from the face of the terminal to a boundary opposite may not be enough to prevent the products of combustion from being considered a nuisance by a neighbouring property. It is therefore preferable if the appliance's flue/chimney can be routed vertically (through the roof) or can be orientated away from any facing boundary.

Figure 1



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## Other associated guidance

Guidance is also available in the technical documents written to accompany the Building Regulations for England and Wales (Approved Document J *Combustion appliances and fuel storage systems*), the Scottish Building Standards (Environment section of the Technical Handbook Domestic) and the Building Regulations (Northern Ireland) (DFP Technical Booklet L: 2006 *Combustion appliances and fuel storage systems*) which all require a flue/chimney terminal to be no closer than 600mm to a property boundary when facing it and no closer than 300mm when running parallel to the boundary.

Another document that needs to be considered when siting fanned draught flue/chimney terminals is the *Guide to the Condensing Boiler Installation Assessment Procedure for Dwellings*. This document has been written to provide guidance to registered operatives when carrying out the assessment procedure only and therefore only applies to existing dwellings where it is considered difficult to replace an existing appliance with a modern condensing appliance.

**Note:** For detailed information about the *Guide to the Condensing Boiler Installation Assessment Procedure for Dwellings*, reference should be made to CORGI Technical Bulletins 154 (for England and Wales) and 199 (for Scotland).

When carrying out the assessment, the guidebook **recommends** that flue/chimney terminals are positioned no closer than 2.5m to any wall, fence, building or property boundary facing the terminal and no closer than 2.5m to a car parking space unless the flue is more than 2.1m above ground level.

It is important to note that the guidebook states that it *must not be interpreted as a set of regulations or restrictions on installation practice, nor does it prevail over relevant installation standards or more specific instructions given by the boiler manufacturers*. Therefore, the recommended 2.5m distance will be difficult to enforce.

Where all of the above requirements are considered prior to installation of an appliance, possible nuisance issues should be greatly reduced.

## Plume management kits

There will be situations where it is difficult to locate a room-sealed flue/chimney termination with regard to boundary distances, possible entry positions such as openable windows, vents, etc and nuisance issues. In these situations the installation of a plume management kit, supplied by the boiler manufacturer, may be considered a suitable solution to reduce nuisance. This situation is common where an existing appliance is to be replaced with a modern high efficiency appliance where the possibility of nuisance from pluming is increased. It is less likely that a plume management kit would be used in new build properties as the property developer should have taken all the necessary considerations into their design to ensure the termination position is correct without the need for a plume management kit.

**It is important to note that unless stated in the appliance manufacturer's installation instructions, a plume management kit should not be used to circumvent the requirement to correctly locate any flue/chimney termination or air inlet position.**

BS 5440-1: 2008 - Clause 10.2.1 states:

*"Plume management kits shall only be used when provided or specified by the appliance manufacturer. They shall be installed such that the resulting chimney outlet is in accordance with Table C.2 and Figure C.8"* (BS 5440-1: 2008).

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*"If the plume management kit separates the flue duct and air inlet duct then the position of the flue duct outlet shall remain in the same pressure zone as the air inlet (e.g. on the same face of a building) and positioned to avoid the possibility of recirculation of products of combustion."*

It is important that when a plume management kit is used, the termination still needs to comply with the current minimum clearances from openings, corners, down pipes, etc as required by the appliance manufacturer's installation instructions and BS 5440-1: 2008 where referred to by the appliance manufacturer.

It is also important to ensure that the air inlet duct is also correctly located as required by the written instructions provided by the appliance manufacturer.

The question of ensuring that both the air inlet duct and flue duct outlet being in the same pressure zone is a difficult one. The example given in BS 5440-1: 2008 is that they should be on the same face of the building. However, if for example the air inlet is within a car port but the flue duct outlet is above and outside of the car port, this could potentially place the two points in different pressure zones and specialist advice would need to be sought from the appliance manufacturer. Again this advice should be provided in any subsequent written instructions provided by the appliance manufacturer, a copy of which should be left with the gas user and filed with the appliance manufacturer's instructions for future reference.

Where any terminal or air inlet is accessible from ground level or if it could be subject to damage, it should be fitted with a protective guard. In the absence of any specific manufacturer's guidance a terminal guard needs to be fitted where either the terminal or air inlet is less than 2m above ground, above a balcony or above a flat roof to which people have access.

## **Conclusion**

Any flue/chimney termination position needs to be carefully considered against all the available guidance to ensure that the final position chosen is both safe and will not be a nuisance to others.

Although it may be tempting to think that a plume management kit can be used in almost any situation to overcome difficulties with flue/chimney termination locations, it should be remembered that a plume management kit should not be used to circumvent the requirement to correctly locate the flue/chimney termination position in the first place.

It is also important that where a plume management kit is to be used, it must be installed strictly in accordance with the written instructions provided with the kit by the appliance manufacturer.

The best option is to avoid the issue of nuisance and try to terminate the flue/chimney as high as possible and preferably vertically through the roof of the property, which is now becoming a requirement in a number of European countries.

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