



BSI Standards Publication

Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases) –

Part 2: Specification for the installation
and maintenance of ventilation provision
for gas appliances

Publishing and copyright information

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ISBN 978 0 580 64793 2

ICS 91.060.40

The following BSI references relate to the work on this standard:

Committee reference GSE/30

Draft for comment 09/30190870 DC

Publication history

First published January 2000

Second (present) edition, December 2009

Amendments issued since publication

Date	Text affected
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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 28, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 5440 is published by BSI and came into effect on 31 December 2009. It was prepared by Technical Committee GSE/30, *Gas installations (1st, 2nd and 3rd family gases)*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 5440 supersedes BS 5440-2:2000, which is withdrawn.

Relationship with other publications

BS 5440, *Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases)*, is published in two parts:

- *Part 1: Specification for installation of gas appliances to chimneys and for maintenance of chimneys;*
- *Part 2: Specification for installation and maintenance of ventilation provision for gas appliances.*

Information about this document

This is a full revision of BS 5440-2:2000.

BS 5440-2 allows manufacturers' instructions to specify a method of installation, testing, commissioning or maintenance which differs in points of detail from this standard. This reference to manufacturers' instructions is allowed only where it results in at least an equivalent level of safety. In such circumstances, it is important that the manufacturer's instructions are followed.

Use of this document

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

In particular, attention is drawn to the following statutory regulations:

The Gas Appliances (Safety) Regulations 1995 [1]

The Gas Safety (Installation and Use) Regulations 1998 [4]

The Gas Safety (Installation and Use) Regulations 1994, as amended and applied by the Gas Safety (Application) Order 1996 [5]

The Gas Safety (Installation and Use) (Northern Ireland) Regulations 2004 [6]

The Health and Safety (Gas) (Guernsey) Ordinance 2006 [7]

The Asbestos (Prohibitions) Regulations 2006 [9]

The Building (Amendment) Regulations 2000 [11]

The Building Regulations (Scotland) 2004 [12]

The Building Regulations (Northern Ireland) 2000 [13]

1 Scope

This part of BS 5440 specifies the requirements for the installation and maintenance of ventilation provision relating to gas appliances utilizing 1st, 2nd or 3rd family gases, with a rated heat input not exceeding 70 kW based on net CV (net calorific value), used for domestic or non-domestic purposes.

This standard does not cover:

- a) liquefied petroleum gas (LPG) installations covered by BS 5482-2 and installations with gases covered by PD 5482-3;
- b) gas installations in caravans, holiday homes or residential park homes conforming to BS EN 721 or BS 3632 as appropriate, which were installed at the time of construction;
- c) decorative fuel effect gas appliances, covered by BS 5871-3; or
- d) multiple cooking appliance installations in catering establishments and schools.

NOTE 1 Although this part of BS 5440 has been developed mainly for use with gas appliances that carry the CE mark, it may also be used for installations of gas appliances which are not required under the Gas Appliances (Safety) Regulations [1] to carry the CE mark, such as used appliances.

NOTE 2 Maintenance requirements relating to existing vents are specified in Clause 8.

NOTE 3 It is essential that the installer checks the data given with an appliance to establish the basis on which the heat input is given. The data in this standard refer to heat input expressed in terms of net CV with conversion given for natural gas gross CV quoted in brackets, where appropriate.

NOTE 4 The ratio of gross:net heat input is approximately 1.11:1 for natural gas, 1.09:1 for propane and 1.08:1 for butane. For example, 9 kW input based on gross CV for natural gas is converted to the equivalent net CV input as follows:

Net input = $9.0/1.11 = 8.1$ kW.

NOTE 5 For requirements for the installation and maintenance of gas-fired catering appliances for use in all types of catering establishments (2nd and 3rd family gases), see BS 6173. Further information regarding volume air flow rates in the catering environment can be found in DW 172, Specification for kitchen ventilation systems [2], and CAIS 23, Gas safety in catering and hospitality [3].

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1179-6, *Glossary of terms used in the gas industry – Combustion and utilization including installation at consumer's premises*

BS 5250:2002, *Code of practice for control of condensation in buildings*

BS 5871-1, *Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect gas appliances – Part 1: Gas fires, convector heaters, fire/back boilers and heating stoves (1st, 2nd and 3rd family gases)*



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BS 5871-2, *Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect gas appliances – Part 2: Inset live fuel effect gas fires of heat input not exceeding 15 kW (2nd and 3rd family gases)*

BS 5871-3, *Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect gas appliances – Part 3: Decorative fuel effect gas appliances of heat input not exceeding 20 kW (2nd and 3rd family gases)*

BS 5871-4, *Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect gas appliances – Part 4: Independent gas-fired flueless fires, convector heaters and heating stoves of nominal heat input not exceeding 6 kW (2nd and 3rd family gases)*

BS EN 449:2002+A1:2007, *Specification for dedicated liquefied petroleum gas appliances – Domestic flueless space heaters (including catalytic combustion heaters)*

3 Terms and definitions

For the purpose of this British Standard the terms and definitions in BS 1179-6 and the following apply.

3.1 adapter

device to facilitate smooth and unrestricted air flow through transitional changes in section, where the cross-sectional shape of an air duct differs from that of the associated air vent

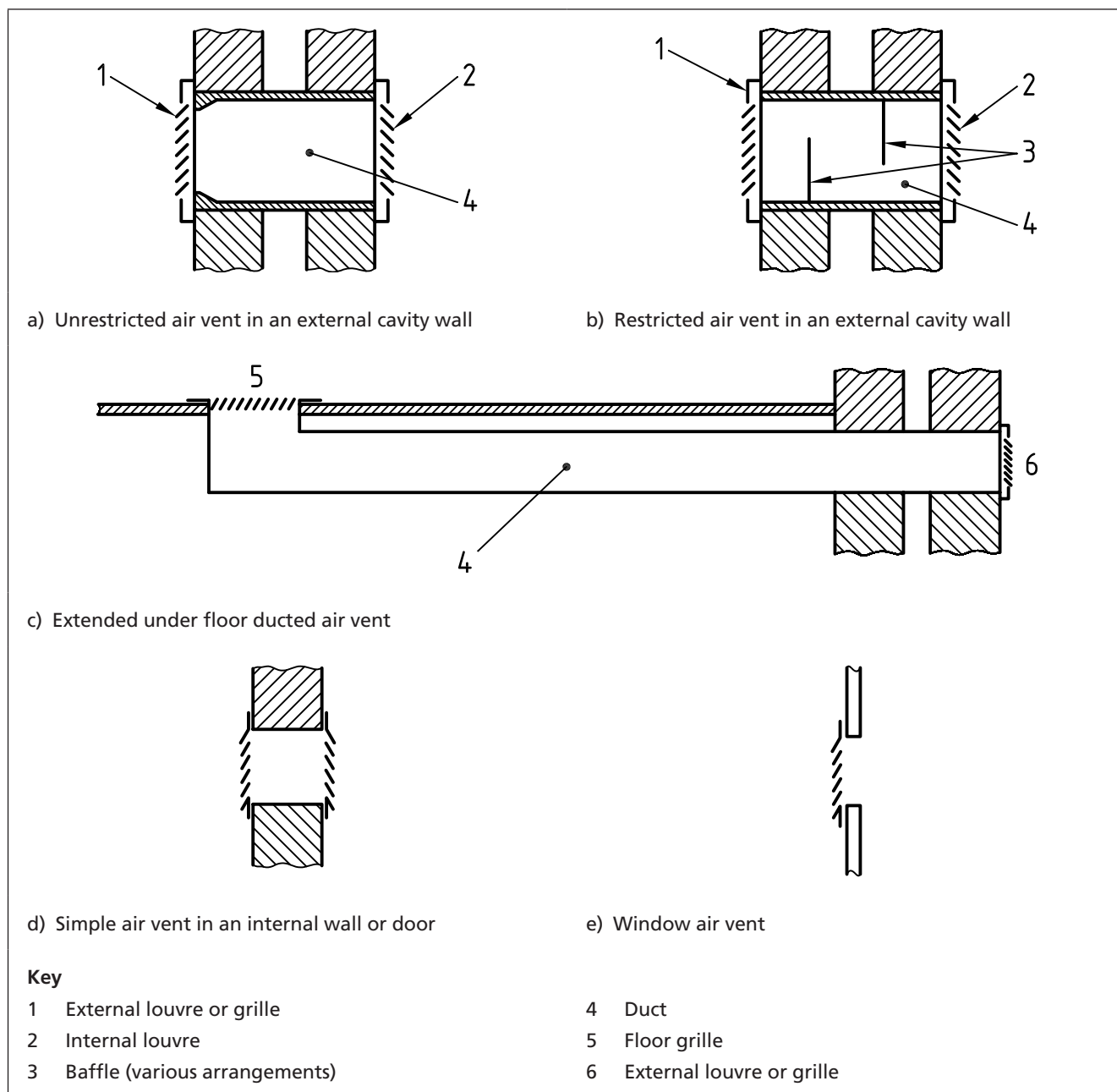
3.2 air vent

non-adjustable purpose provided arrangement designed to allow permanent ventilation

NOTE 1 Examples of air vent arrangements are given in Figure 1.

NOTE 2 Examples of air vents can include louvre doors.

Figure 1 Typical air vent arrangements



3.3 appliance compartment

enclosure specifically designed or adapted to house one or more gas appliances

NOTE An appliance compartment is only used to house gas appliances and is not a habitable space.

3.4 equivalent area

air vent free area which is aerodynamically equivalent to a single sharp-edged circular hole

NOTE For a simple air vent (e.g. a grille/louvre on both ends of a smooth, uninterrupted duct), the equivalent area may be regarded as the "free area".

3.5 free area

unobstructed cross-sectional area of a grille, louver or duct, calculated as the sum of the cross-sectional areas of all unobstructed apertures measured through the plane of minimum area and at right angles to the air flow within the apertures

NOTE See Figure 2.

3.6 grille

simple fixed mesh or lattice arrangement designed and constructed to preclude vermin but to allow the passage of air at all times

NOTE A grille can be installed independently as an air vent, set in a dedicated housing, or used with an adapter or duct (see Commentary to 5.1.5 for further details).

3.7 internal space

interior space, which is not a room

NOTE Examples include halls, passageways, stairways and landings.

3.8 intumescent air vent

assembly for preventing the spread of fire, consisting of a metal louver/grille with an intumescent block secured behind it incorporating a latticework of holes to provide continuous ventilation that expands and closes in the event of extreme heat build-up such as in a fire

NOTE When fitted to doors, an intumescent air vent usually has a louver/grille on both sides.

3.9 louver

assembly of fixed sloping blades or vanes contained within a framework designed and constructed to resist light and rain penetration, but to allow the unrestricted passage of air at all times

NOTE A louver can be employed independently as an air vent, set in a dedicated housing, or used with an adapter or duct.

3.10 protected area

area other than an appliance compartment, which is enclosed with fire-resisting materials

NOTE Examples of a protected area include a hall, landing, lobby, corridor, internal garage, stairway or shaft. Decommissioned SE ducts or U ducts are also to be considered as protected areas.

3.11 ventilation

process of supplying air to, and removing air from, a room, internal space, appliance compartment or garage

NOTE The air can be used, or intended for, purposes of combustion, cooling and/or the operation of a chimney.

3.12 maintenance

work carried out on an appliance to repair any defect

3.13 servicing

regular and planned activity carried out on an appliance to check that it is working safely and correctly

NOTE This is typically carried out annually.

4 Competence

4.1 Persons carrying out general design, installation and maintenance work associated with and impacting upon the ventilation provision for gas appliances, including electrical, water supply and drainage, shall be competent.

4.2 Persons carrying out any gas installation, commissioning, servicing and maintenance work shall be competent to do so.

COMMENTARY ON 4.1 AND 4.2

Competency includes knowledge and understanding of the applicable standards and regulations.

It is a statutory requirement that all gas work be carried out by a business or self-employed person(s) that is a member of a "class of persons" registered with a registration body which has been approved by an approval body to operate and maintain such a register.

The statutory regulations, registration bodies and approval bodies applicable to Great Britain, the Isle of Man, Northern Ireland and Guernsey are given in Table 1.

The qualifications which persons need to have to be deemed competent to carry out gas work are given in Table 2.

Table 1 Registration and approval bodies by country/territory

Country/territory	Gas registration body	Approval body	Statutory regulations
Great Britain	Gas Safe Register	Health and Safety Executive (HSE)	Gas Safety (Installation and Use) Regulations 1998 [4]
Isle of Man	Gas Safe Register	Health and Safety at Work Inspectorate (HSWI)	Gas Safety (Installation and Use) Regulations 1994, as amended and applied by the Gas Safety (Application) Order 1996 [5]
Northern Ireland	CORGI ^{A)} Gas Registration	Health and Safety Executive Northern Ireland (HSENI)	Gas Safety (Installation and Use) (Northern Ireland) Regulations 2004 [6]
Guernsey	CORGI Gas Registration	Health and Safety Executive for the States of Guernsey [HSE (Guernsey)]	Health and Safety (Gas) (Guernsey) Ordinance 2006 [7]

^{A)} This is likely to change to Gas Safe Register in April 2010.

Table 2 Competence requirements by country/territory

Qualifications	Great Britain and Isle of Man	Northern Ireland and Guernsey
Current certificate(s) of competence in the type of gas work to be conducted, issued by an awarding body accredited by the United Kingdom Accreditation Service (UKAS) (ACS certification)	✓	✓
National/Scottish Vocational Qualification (N/SVQ accredited by Ofqual), which is aligned in matters of gas safety	✓	✓
National/Scottish Vocational Qualification (N/SVQ accredited by Ofqual), which is aligned under the HSC ACoP arrangement ^{A)} as approved with the registration body	✓	✗
Any other scheme recognized by the gas registration body for registration purposes	✓	✓

^{A)} *Health and Safety Commission's Approved Code of Practice (ACoP) (COP20) – Standards of training in safe gas installation [8].*