

BRITISH STANDARD

Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect 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)**

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Foreword

Publishing information

This part of BS 5871 was published by BSI and comes into effect on publication of BS EN 14829;¹⁾ the intervening time constitutes the implementation period of BS 5871-4. It was prepared by GSE/30/-/4, under the authority of 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.

This part of BS 5871 covers the installation of independent gas-fired flueless fires, convector heaters and heating stoves of nominal heat input not exceeding 6 kW (2nd and 3rd family gases).

Installation of convector heaters in greenhouses as greenhouse heaters is only covered in respect of single appliance installations.

BS 5871, *Specification for the installation and maintenance of gas fires, convector heaters, fire/back boilers and decorative fuel effect gas appliances*, consists of the following parts:

- BS 5871-1: *Gas fires, convector heaters, fire/back boilers and heating stoves (2nd and 3rd family gases)*.
- BS 5871-2: *Inset live fuel effect gas fires of heat input not exceeding 15 kW and fire/back boilers (2nd and 3rd family gases)*.
- BS 5871-3: *Decorative fuel effect gas appliances of heat input not exceeding 20 kW (2nd and 3rd family gases)*.
- BS 5871-4: *Independent gas-fired flueless fires, convector heaters and heating stoves of nominal heat input not exceeding 6 kW (2nd and 3rd family gases)*.

It should be noted that the only appliances covered by this part of BS 5871 are those that are “CE” marked. However, BS 5871-4 may also be referred to for the installation of used appliances, where appropriate, providing the manufacturer’s instructions are available. In such circumstances, the installer should satisfy himself that the appliance is safe in construction and condition, and can be used without constituting a danger. Attention is drawn to Clause 5 concerning this particular aspect.

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

Although BS 5871-4 is an appliance installation standard, the drafting panel has decided to include an informative Annex A providing guidance for notified bodies and manufacturers on assessing ventilation requirements for flueless gas fires.

¹⁾ Users will be informed by BSI of the publication of BS EN 14829.

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 notes in smaller italic type.

To comply with this standard, the user has to comply with all its requirements. The user may depart from recommendations, but this would be the user’s own responsibility and they would be expected to have a good reason for doing so.

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 Safety (Installation and Use) Regulations 1998 [1]

The Gas Safety (Installation and Use) Regulations (Northern Ireland) 2004 [2]

The Gas Appliances (Safety) Regulations 1995 [3]

The Building Regulations 2000, as amended [4]

The Building (Scotland) Regulations 2004 [5]

The Building Regulations (Northern Ireland) Statutory Rules 2000, as amended [6]

The Gas Safety (Application) (Isle of Man) Order 1996 [7]

The Health and Safety (Gas) (Guernsey) Ordinance 2006 [8]

1 Scope

This part of BS 5871 specifies installation and maintenance requirements for independent gas-fired flueless fires, convector heaters and heating stoves of nominal heat input not exceeding 6 kW burning 2nd and 3rd family gases for the purpose of heating rooms or internal spaces in domestic (see note 3) or commercial premises. Specifically, it covers:

- a) fixed appliances that satisfy all the requirements of BS EN 14829;
- b) fixed appliances that satisfy the combustion requirements of BS EN 14829;
- c) convector heaters of nominal heat input not exceeding 4.2 kW in the form of greenhouse heaters in respect of single appliance installations.

NOTE 1 Appliances a) and b) are only intended as a secondary heat source (see Commentary and Recommendations on 4.2).

The heat input and ventilation, fixing and gas supply for convector heaters in the form of greenhouse heaters are specified in **8.4**, **9.4** and **Clause 11**, respectively.

This part of BS 5871 covers the selection of a suitable appliance, room sizing and ventilation requirements and other measures necessary to ensure a safe installation.

NOTE 2 Heat inputs in this document are based on net calorific value. [See also Commentary and Recommendations on Clause 5, item b).]

NOTE 3 As well as normally constructed dwellings, domestic premises include any permanently sited caravans, holiday homes and residential park homes. (See IGE/UP/8 [9].)

NOTE 4 Convector heaters in the form of greenhouse heaters are available in two forms, those which are freestanding and those which are intended to be fixed to a wall or floor.

This standard is not applicable to:

- a) mobile and portable appliances conforming to BS EN 449;
- b) appliances in motor caravans and touring caravans;
- c) appliances in boats;
- d) installations in agricultural premises; or
- e) installations in transportable accommodation units.

NOTE 5 For the maintenance of existing installations of 3rd family flueless appliances in boats, see PD 5482-3.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 669-1, *Flexible hoses, end fittings and sockets for gas burning appliances – Part 1: Specification for strip-wound metallic flexible hoses, covers, end fittings and sockets for domestic appliances burning 1st and 2nd family gases*

BS 5440-2, *Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70 kW (1st, 2nd and 3rd family gases) – Part 2: Specification for installation and maintenance of ventilation for gas appliances*

BS 5482-1, *Domestic butane- and propane-gas-burning installations – Part 1: Installations at permanent dwellings, residential park homes and commercial premises, with installation pipework sizes not exceeding DN 25 for steel and DN 28 for corrugated stainless steel or copper*

BS 5482-2, *Domestic butane- and propane-gas-burning installations – Part 2: Installations in caravans and non-permanent dwellings*

BS 6891, *Installation of low pressure gas pipework of up to 35 mm (R1¼) in domestic premises (2nd family gas) – Specification*

BS 7671, *Requirements for electrical installations – IEE wiring regulations*

BS 7967-2:2005, *Carbon monoxide in dwellings and the combustion performance of gas-fired appliances – Part 2: Guide for using electronic portable combustion gas analysers in the measurement of carbon monoxide and the determination of combustion performance*

BS 7977-1:2002, *Specification for safety and rational use of energy of domestic gas appliances – Part 1: Radiant convectors*

BS 8423, *Fireguards for fires and heating appliances for domestic use – Specification*

BS EN 50292, *Electrical apparatus for the detection of carbon monoxide in domestic premises – Guide on the selection, installation, use and maintenance*

IGE/UP/2, *Gas installation pipework, boosters and compressors in industrial and commercial premises*

3 Terms and definitions

For the purposes of this part of BS 5871, the following terms and definitions apply.

- 3.1 air vent**
non-adjustable purpose-provided unit/assembly designed to allow permanent ventilation
- 3.2 builder's opening**
enclosure constructed by the builder to accommodate fireplace components
- 3.3 conservatory**
single storey structure with at least half of the area of the walls and at least three-quarters of the area of the roof formed of glazing, polycarbonate sheets or similar translucent material, intended as a habitable space attached to a dwelling
- 3.4 convector heater**
appliance that is designed to heat a room mainly by the emission of air heated by convection
- 3.5 fireguard**
guard conforming to BS 8423
- 3.6 fireplace opening**
aperture formed in the face of the builder's opening, the fireplace recess, flue box or fire surround, if fitted
- 3.7 fireplace recess**
recess formed by the inclusion of fireplace components in the builder's opening
- 3.8 fire surround**
purpose-designed setting for a gas fire, fitted against a wall and usually incorporating a hearth
- 3.9 flue box**
non-combustible enclosure that provides a substitute builder's opening or fireplace recess
- NOTE It may be used either within an existing builder's opening or form part of a false chimney breast construction.*
- 3.10 flueless appliance (type A)**
appliance which is designed to be used without a flue and in which the products of combustion mix with the surrounding air
- 3.11 gas fire**
appliance for heating one room and incorporating a radiating surface, either in the form of a radiant or an imitation fuel
- 3.12 greenhouse**
building with walls and roof made of glazing, polycarbonate sheets or similar translucent material for the cultivation and exhibition of plants under controlled conditions

3.13 greenhouse heater

flueless convector heater of not more than 4.2 kW specially designed for installation in a greenhouse

3.14 habitable space

space intended for living, sleeping, eating or cooking

3.15 heating stove

free-standing appliance designed to simulate a solid fuel burning stove

3.16 imitation fuel

non-combustible component supplied with the appliance and designed to be in contact with gas flames

3.17 installation instructions

instructions provided by the appliance manufacturer giving detailed information and requirements on how the appliance should be installed, and checked for their validity as part of the original appliance certification

NOTE Such instructions should not be confused with other documents supplied by the appliance manufacturer, e.g. sales literature.

3.18 internal space

interior space such as a hall, passageway, stairway or landing, which is not a room

3.19 radiant

component forming part of a gas appliance and designed to become incandescent when heated by a gas flame

3.20 superimposed hearth

slab of fire-resisting material which is either located on top of a constructional hearth or on a combustible floor, and which is designed to prevent overheating of the floor beneath the slab

3.21 ventilation

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

NOTE The air may be used or intended to be used for purposes of combustion and maintaining air quality.

4 Exchange of information and planning

4.1 General

Persons carrying out the work shall be competent.

The installation work shall be carried out by a business or self-employed person, who is a member of a class of persons approved by the Health and Safety Executive (HSE) as required by the Gas Safety (Installation and Use) Regulations [1].

Persons who design the installation shall have a knowledge and understanding of the standards and regulations that apply to ensure that the completed plans will produce a safe and satisfactory installation.

COMMENTARY AND RECOMMENDATIONS ON 4.1

At the time of publication, the body with HSE approval to operate and maintain a register of businesses who are “members of a class of persons” is CORGI.

Persons deemed competent to carry out gas work are those who hold a certificate of gas safety competence acceptable to CORGI, which includes (without limitation) the Accredited Certification Scheme (ACS) and the Gas Services S/NVQ that has been aligned with ACS (for electrical work, see Commentary and Recommendations on 12.1).

4.2 Design considerations for installations other than in a greenhouse

For installations other than in a greenhouse, particular matters that shall be considered are:

- a) potential for problems of condensation;
- b) whether the appliance input is such that the appliance may be installed in its intended location in conformity with the input and ventilation requirements of Clause 8;
- c) presence of any flues which might have an adverse effect on the appliance performance unless closed off (see 9.1);
- d) presence of other heating appliances in the room space;
- e) position of heating appliances in relation to probable position of fixtures, furniture and curtains;
- f) availability of gas supplies;
- g) availability of electrical supply (where applicable);
- h) positioning of air vent(s) (see 8.1); and
- i) installation of an independent electrical carbon monoxide alarm conforming to BS EN 50291 in accordance with BS EN 50292 and the appliance and/or alarm manufacturer's instructions.

COMMENTARY AND RECOMMENDATIONS ON 4.2

Collaboration is essential between those concerned with the design and installation, both at the planning stage and during the execution of the work.

Flueless heaters might give rise to problems of condensation in the room. These appliances are intended as a secondary heat source and it is recommended that a primary heat source, such as a radiator or night store heater, is present in the room and that the room volume and ventilation are adequate for the output of the appliance selected.

Appliances fitted in conservatories might give rise to extra condensation due to low insulation values and rapid cooling below the Dew Point. The installer will have to make an independent assessment of the suitability of a flueless appliance for such an application and advise the customer if they envisage problems with condensation; the following is a list of circumstances to be considered when making this assessment:

- *overall insulation value of conservatory;*
- *likely cold surfaces, such as single glazed panels and roofing materials, on which condensation might readily form;*
- *construction of floor and amount of insulation built in;*
- *location and type of primary heating source;*
- *aspect of building: a north facing conservatory will be much more likely to suffer condensation than one on a south facing aspect;*
- *proposed usage pattern: the customer may only wish to use the heating on occasional days and condensation could be acceptable in these instances; other customers may wish to use the conservatory as a living room and expect the same level of comfort as the rest of the house;*
- *method of sealing from main house: a conservatory that has an external type door between it and the main house will experience much quicker cooling than one with a lightweight door; leading to increased condensation risk; and*
- *location of conservatory with respect to altitude, latitude, aspect, and prevailing weather conditions.*

Where an independent electrical carbon monoxide alarm is not fitted in the room or internal space where the appliance is to be installed, the user should be made aware of the potential contribution to safety, for all fuel burning appliances, that such an alarm can make. However, it should be stressed that such alarms are to be regarded only as a “back-up precaution” and not a substitute for proper installation and maintenance of appliances and ventilation.

Only an independent electrical carbon monoxide alarm conforming to BS EN 50291 should be installed. The installer is strongly advised to consider the desirability of using an alarm for which the manufacturer can demonstrate that they have obtained third party certification/inspection/testing of product conformity with BS EN 50291.

4.3 Design considerations for installations in a greenhouse

For greenhouse heaters, particular matters that shall be considered are:

- a) the potential for problems of condensation;
- b) that the appliance input is such that the appliance may be installed in its intended location in conformity with the input and ventilation requirements of 8.4;