



BSI Standards Publication

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

Part 1: Design, installation, commissioning and maintenance of  
chimneys – Specification

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### Summary of pages

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# Foreword

## Publishing information

This part of [BS 5440](#) is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 December 2023. 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 the committee manager.

## Supersession

This part of [BS 5440](#) supersedes [BS 5440-1:2008](#), which is withdrawn.

## Relationship with other publications

[BS 5440](#) is published in the following parts:

- *Part 1: Design, installation, commissioning and maintenance of chimneys – Specification;*
- *Part 2: Design, installation, commissioning and maintenance of chimneys – Specification.*

## Information about this document

This is a full revision of the document, and introduces the following principal changes:

- redefined chimney concepts and adopted common terminology consistent with the range of products used across the whole European Community;
- aligned with European Standards, (the general requirements for which are given in [BS EN 1443](#)) where a chimney is treated as a structure containing a flue (the passageway) and might include a liner (inner wall), insulation and an outer wall. The common terminology in UK industry, which has regarded a chimney as a masonry structure generally associated with solid fuel appliances, has been superseded. Attention is drawn to the definitions for chimney ([3.9](#)), connecting flue pipe ([3.16](#)), flue ([3.27](#)) and flue liner ([3.30](#)), air supply duct ([3.1](#)) and room-sealed chimney configuration ([3.48](#));
- updated in line with recent changes in building legislation, in particular, Approved Document B [\[1\]](#), Approved Document F [\[2\]](#) and Approved Document J [\[3\]](#);
- updated appliance design, flue material and practical experience in the disposal of products of combustion by means of flues;
- updated flueing and ventilation installation practices to reduce occurrences of CO related incidents attributable to flueing and ventilation for gas appliances; and
- incorporated, where necessary, additional requirements and guidance previously covered within Technical Bulletins.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at [bsigroup.com/standards](#), or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

## Use of this document

It has been assumed in the preparation of this part of BS 5440 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 document 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.*

Requirements in this document are drafted in accordance with the *Rules for the structure and drafting of UK standards:2022*, subclause **G.1.1**, which states, “Requirements should be expressed using wording such as: ‘When tested as described in Annex A, the product shall ...’”. This means that only those products that are capable of passing the specified test will be deemed to conform to this document.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. “organization” rather than “organisation”).

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The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute 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 specific regulations:

The gas safety regulations for the appropriate legislative region:

- Gas Safety (Installation and Use) Regulations 1998 [4];
- Gas Safety (Installation and Use) Regulations (Northern Ireland) 2004 [5]; and
- Gas Safety (Installation and Use) Regulations 1994, as amended and applied by the Isle of Man Gas Safety (Application) Order 1996 [6].

*NOTE 1 These control all aspects of the ways gas-fired systems are installed, maintained and used, mainly in domestic and commercial premises (e.g. offices, shops, hospitals, educational and other public buildings), and the classes of persons who might undertake gas work.*

The building regulations for the appropriate legislative region:

- Building Regulations for England and Wales 2000 [7];
- Building Regulations (Northern Ireland) 2000 [8];
- Building Regulations (Scotland) 2004 [9];
- Building Regulations (Isle of Man) Order 2003 [10]; and

- Gas Appliance (Safety) Regulations 1995 [\[11\]](#).

*NOTE 2 These control the supply of new gas appliances and specify the conditions required for CE/UKCA/UKNI marking.*

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## 1 Scope

This part of [BS 5440](#) specifies requirements for the installation of gas appliances to chimneys, chimney installation work likely to be undertaken by gas engineers and operatives working under UK gas industry conditions, and requirements for the maintenance of chimneys. It is applicable to open-flued chimneys for Type B gas appliances and room-sealed chimney configurations for Type C gas appliances, each of rated input not exceeding 70 kW net (see Note 2 and Note 3), burning 1st, 2nd or 3rd family gases. It applies to chimneys of the natural draught or fanned draught type and is applicable to room-sealed chimneys and open-flued chimneys supplied with the appliance as well as to those supplied separately.

*NOTE 1* Type B and Type C appliances are explained in [Annex A, Table A.1](#).

This part of [BS 5440](#) complements the requirements for the design, installation and commissioning of chimneys as required in [BS EN 15287-1](#) and [BS EN 15287-2](#), and provides extra requirements that are specific to the UK gas industry.

This part of [BS 5440](#) specifies the following:

- a) requirements for the selection of the correct chimney configuration option for gas appliances in the UK;
- b) requirements for the installation of gas appliances to new chimney or chimney configurations;
- c) requirements for the installation of gas appliances to existing chimneys or chimney configurations;
- d) requirements for the installation of appliances which carry a CE, UKCA or UKNI mark and for which the manufacturer's instructions are available to the installer; and
- e) requirements for the installation of appliances which do not carry a CE, UKCA or UKNI mark and used/second-hand appliances for which the manufacturer's instructions are available to the installer.

This part of [BS 5440](#) is applicable to:

- 1) complete chimneys and all chimney components from the appliance connection to the discharge point into outside air;
- 2) the installation of gas appliances to existing chimneys that were intended originally for appliances burning other fuels;
- 3) chimneys for residential park homes; and
- 4) chimneys for hybrid systems incorporating gas appliances.

This part of [BS 5440](#) is not applicable to:

- i) gas-fired incinerators (see [BS 5871-3](#) for the installation of decorative fuel effect appliances);
- ii) leisure accommodation vehicles; or
- iii) appliances designed for use on 100% hydrogen.

This part of [BS 5440](#) includes compatibility of appliances installed in the UK with new chimneys designated under [BS EN 1443](#) and with existing chimneys, including non-designated chimneys.

*NOTE 2* In the case of an individual appliance connected to a chimney, the 70 kW maximum rated input relates to that appliance. In the case of more than one appliance in the same room connected to a single chimney, the 70 kW maximum rated input relates to the sum of the rated inputs of all the appliances. In the case of appliances in separate dwellings connected to a shared flue in a chimney, e.g. an SE-duct or a U-duct, the 70 kW maximum rated input relates to the rated input of each individual appliance.

*NOTE 3* Installation of gas-fired hot water boilers having rated inputs exceeding 70 kW is specified in [BS 6644](#) and the Institution of Gas Engineers and Managers Standard IGEM/UP/10.

*NOTE 4* The data in this British Standard refers to heat input expressed in terms of net calorific values (CV) with conversion given for natural gas gross CV quoted in brackets where appropriate. The ratio of gross heat input to net heat input is approximately 1.1:1 for natural gas propane and butane. For example, conversion of 11 kW input based on gross CV for natural gas to the equivalent net CV input is as follows:

$$\text{net input} = 11/1.11 = 10 \text{ kW.}$$

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document<sup>1)</sup>. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

[BS 715](#), Specification for metal flue boxes for gas-fired appliances not exceeding 20 kW

BS 5440-2:2023, Chimneys, flue pipes and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases) – Part 2: Installation and maintenance of ventilation provision for gas appliances – Specification

[BS 5546](#), Specification for installation and maintenance of gas-fired water-heating appliances of rated input not exceeding 70 kW net

[BS 5864](#), Installation and maintenance of gas-fired ducted air heaters of rated input not exceeding 70 kW net (2nd and 3rd family gases) – Specification

[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 (2nd and 3rd family gases)

[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, and fire/back boilers (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 6230](#), Specification for installation of gas-fired forced convection air heaters for commercial and industrial space heating (2nd and 3rd family gases)

[BS 6728](#), Specification for selection, installation, inspection, commissioning, servicing and maintenance of gas-fired boilers of rated input not exceeding 70 kW net

[BS 6996](#), Specification for installation and maintenance of gas-fired overhead radiant heaters for industrial and commercial heating (2nd and 3rd family gases)

[BS 7461](#), Specification for electrically operated automatic gas shut-off valves fitted with throughput adjusters, proof of closure switches, closed position indicator switches or gas flow control

[BS EN 161](#), Automatic shut-off valves for gas burners and gas appliances

[BS EN 1443](#), Chimneys – General requirements

BS EN 1457 (all parts), Chimneys – Clay/ceramic flue liners – Requirements and test methods

<sup>1)</sup> Documents that are referred to solely in an informative manner are listed in the Bibliography.