

BS 5839-6:2019+A1:2020



BSI Standards Publication

Fire detection and fire alarm systems for buildings

Part 6: Code of practice for the design, installation,
commissioning and maintenance of fire detection and fire
alarm systems in domestic premises

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Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Fire risk assessment	9
4.1 Commentary	9
<i>Figure 1 — Balance between fire risk and system reliability and success rate</i>	10
4.2 Recommendations	10
5 System components	11
5.1 Commentary	11
5.2 Recommendations	11
6 Monitoring of circuits	12
6.1 Commentary	12
6.2 Recommendations	12
7 Grades of system	13
7.1 Commentary	13
7.2 Recommendations	14
8 Categories of system	14
8.1 Commentary	14
8.2 Recommendations	16
9 Choice of system	17
9.1 Commentary	17
9.2 Recommendations	21
<i>Table 1 — Minimum grade and category of fire detection and fire alarm system for protection of life in typical premises</i>	23
<i>Table 2 — Minimum grade and category of fire detection and fire alarm system for protection of property in typical premises</i>	26
10 Types of fire detector and their selection	26
10.1 Commentary	26
10.2 Recommendations	29
11 Location and siting of fire detectors	30
11.1 Commentary	30
11.2 Recommendations	31
12 Limitation of false alarms	33
12.1 Commentary	33
12.2 Recommendations	35
13 Audible fire alarm devices and audibility	37
13.1 Commentary	37
13.2 Recommendations	38
14 Fire alarm warnings for people who are Deaf and people who are hard of hearing	39
14.1 Commentary	39
14.2 Recommendations	40
15 Power supplies	40
15.1 Commentary	40
15.2 Recommendations for power supplies for Grade A systems	41
15.3 Recommendations for power supplies for Grade C systems	42
15.4 Recommendations for power supplies for Grade D systems	43
15.5 Recommendations for power supplies for Grade F systems	44

16	Wiring	44
16.1	Commentary	44
16.2	Recommendations for wiring in Grade A systems	45
16.3	Recommendations for wiring in Grade C systems	45
16.4	Recommendations for wiring in Grade D systems	45
16.5	Recommendations for wiring in Grade F systems	45
17	Control and indicating equipment	45
17.1	Commentary	45
17.2	Recommendations applicable to all control and indicating equipment	46
17.3	Additional recommendations for control and indicating equipment for Grade A systems	46
17.4	Additional recommendations for control and indicating equipment for Grade C systems	46
18	Manual call points	47
18.1	Commentary	47
18.2	Recommendations	48
19	Zoning and other means for identification of the source of alarm conditions	49
19.1	Commentary	49
19.2	Recommendations	49
20	Remote transmission of alarm signals	49
20.1	Commentary	49
20.2	Recommendations	51
21	Radio-linked systems	54
21.1	Commentary	54
21.2	Recommendations	55
22	Electromagnetic compatibility	55
22.1	Commentary	55
22.2	Recommendations	56
23	Installation, commissioning and certification	56
23.1	Commentary	56
23.2	Recommendations for installation, commissioning and certification of Grade A systems	57
23.3	Recommendations for installation, commissioning and certification of Grade C and Grade D systems	57
23.4	Recommendations for installation, commissioning and certification of Grade F systems	59
24	User instructions	59
24.1	Commentary	59
24.2	Recommendations	60
25	Routine testing	61
25.1	Commentary	61
25.2	Recommendations	61
26	Maintenance	62
26.1	Commentary	62
26.2	Recommendations	62
	<i>Table 3 — Testing and servicing by grade</i>	63
27	Logbook	65
27.1	Commentary	65
27.2	Recommendations	65
Annex A	(informative) Fire risk assessment for dwellings	66
Annex B	(normative) Control and indicating equipment for Grade C systems	70
Annex C	(informative) Choice of appropriate grade of fire detection and fire alarm system	72

Annex D	(informative) Model certificates for Grade A systems	75
	<i>Figure D.1 — Model design certificate for Grade A systems</i>	75
	<i>Figure D.2 — Model installation certificate for Grade A systems</i>	77
	<i>Figure D.3 — Model commissioning certificate for Grade A systems</i>	78
	<i>Figure D.4 — Model acceptance certificate for Grade A systems</i>	79
	<i>Figure D.5 — Model modification certificate for Grade A systems</i>	80
Annex E	(informative) Model certificate for Grade C, Grade D and Grade F systems	81
	<i>Figure E.1 — Model design, installation and commissioning certificate for Grade C, Grade D and Grade F systems</i>	81
Annex F	(informative) Model guidance to occupiers and landlords	82
	<i>Figure F.1 — Model guidance to occupiers and landlords</i>	82
Annex G	(normative) Method for calculating standby battery capacity for Grade A systems	84
Annex H	(informative) Model inspection and servicing certificate for all systems	85
	<i>Figure H.1 — Model inspection and servicing certificate for all systems</i>	85
Annex I	(normative) Servicing procedure by competent person	86
	Bibliography	88

Summary of pages

This document comprises a front cover, and inside front cover, pages i to vi, pages 1 to 89, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 5839 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 April 2019. It was prepared by Technical Committee FSH/12/1, *Installation and servicing*, under the authority of Technical Committee FSH/12, *Fire detection and alarm systems*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

This part of BS 5839 superseded BS 5839-6:2013, which was withdrawn.

BS 5839-6:2019+A1:2020 supersedes BS 5839-6:2019, which is withdrawn.

Information about this document

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

- removal of Grade B and Grade E;
- subdivision of Grade D and Grade F into Grade D1/Grade D2 and Grade F1/Grade F2, respectively;
- revision of [Table 1](#);
- updating of guidance to take into account the publication of BS 5839-1:2017 and other standards published since the last full revision of BS 5839-6;
- new table on testing and servicing by grade;
- new recommendation to prevent blocking or delaying of fire alarm signals transmitted via social alarm systems in sheltered housing to an alarm receiving centre;
- increase in the recommended standard of protection in sheltered housing flats from Category LD2 to Category LD1;
- new recommendations for fire detection in supported housing;
- new recommendation that communal fire alarm systems should not normally be installed in purpose-built blocks of flats;
- revised and expanded recommendations for Grade C.

In the United Kingdom, around 80% of all fire deaths and injuries occur in domestic premises, over 300 deaths and around 9 000 injuries per annum. Many of those who die are the most vulnerable in the community, namely elderly and socially deprived people. The installation of a fire detection and fire alarm system in premises can substantially reduce the risk of death or serious injury from fire. Indeed, the overall downward trend in annual fire deaths in domestic premises since smoke alarms in domestic premises were first given recognition in BS 5839-1 in 1988 is almost certainly attributable in part to the increasing use of smoke alarms.

The level of deaths and injuries remains, however, above a level that society regards as acceptable. It has been estimated that, in premises without smoke detectors, a substantial proportion of the fatalities from fire could be avoided if smoke detectors were installed. The fatality rate in fires in premises in which there is no working smoke detector is between two and three times the fatality rate in fires in premises in which a smoke detector is present and functions correctly.

The installation of automatic fire detectors is required in new houses, flats and maisonettes in order to satisfy building regulations ([1] to [4]). In existing houses in multiple occupation, the installation of an automatic fire detection and fire alarm system is normally required by the relevant enforcing authorities. This gives rise to the need for a suitable code of practice, as BS 5839-1 does not contain recommendations on domestic smoke alarms, nor does it address the specific design requirements for fire detection and fire alarm systems in domestic premises.

The guidance in this standard is intended for architects and other building professionals, enforcing authorities, designers and installers of fire detection and fire alarm systems and others responsible for implementing fire precautions in domestic premises.

In the case of purpose-built flats, the degree of compartmentation between occupancies is normally sufficient to ensure that fire is contained in the dwelling of origin for a prolonged period. During this time, other occupants can remain in reasonable safety within their own dwellings. Accordingly, this part of BS 5839 does not provide recommendations for fire detection systems that incorporate detectors in the communal areas or ancillary accommodation (e.g. plant rooms) within purpose-built flats. Such systems are normally undesirable and can even lead to risk to occupants. Nevertheless, if the provision of a fire detection and fire alarm system in these areas can be justified, the recommendations in BS 9991 and BS 5839-1 can be followed.

Fire detection is commonly provided in blocks of flats for the purpose of operating smoke control systems, in which case BS 7273-6:2019 - is appropriate. As the fire detectors in these cases are not intended to provide a warning to residents, and are not expected to trigger fire alarm sounders, this fire detection is outside the scope of this part of BS 5839.

Guidance on evacuation strategies and associated detection and warning systems for purpose-built blocks of flats is given in BS 9991, Approved Document B [5] and the LGA guide *Fire safety in purpose-built blocks of flats* [6]. Guidance on fire detection and fire alarm systems in sheltered housing and supported housing is given in the NFCC document *Fire safety in specialised housing* [7].

Following the major loss of life in a fire at Grenfell Tower in London in 2017, temporary fire alarm systems have been installed in blocks of flats, in which cladding does not satisfy the requirements of building regulations in relation to fire spread over external walls. These systems are intended only as a temporary measure, pending removal of the cladding. It is not intended that they will remain as a permanent facility for evacuation of residents; such temporary systems are, therefore, outside the scope of this part of BS 5839.

Communal fire alarm systems are sometimes appropriate in houses that have been converted into self-contained flats. Whether this is the case depends on the legislation in the relevant part of the UK and/or measures such as compartmentation and means of escape. In this connection, attention is drawn to the Housing Act 2004 [8] in England and Wales, the Housing (Scotland) Act 2006 [9] and the Housing (Northern Ireland) Order 1992 [10] in Northern Ireland.

It has been assumed in the drafting of this part of BS 5839 that the execution of its provisions will be entrusted to appropriately qualified and competent people.

Text introduced or altered by Amendment No. 1 is indicated in the text by tags A1 A1. Minor editorial changes are not tagged.

Amendment No. 1 introduces the following principal change:

- a recommendation that instructions to users provided by manufacturers of smoke alarms should include a warning that children might not be woken by fire alarm tones.

Use of this document

This British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is “should”.

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

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

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.

1 Scope

This part of BS 5839 gives recommendations for the planning, design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises that are:

- a) designed to accommodate a single family;
- b) houses in multiple occupation comprising a number of self-contained units, each designed to accommodate a single person or family;
- c) sheltered housing, including both the dwelling units and the common areas;
- d) supported housing.

The recommendations apply to both new and existing domestic premises.

Recommendations for routine attention are also given.

The systems covered in this part of BS 5839 range from those comprising a single self-contained smoke alarm to systems of the type described in BS 5839-1. The recommendations of this part of BS 5839 may also be applied to the fire detection components of combined domestic fire and intruder alarm systems or fire and social alarm systems.

This part of BS 5839 applies to forms of domestic premises, including bungalows, multi-storey houses, individual flats and maisonettes, mobile homes, holiday homes, sheltered housing, mansions, shared houses and houses divided into several self-contained single-family dwelling units. It does not apply to hostels, caravans or boats (other than permanently moored boats used solely as residential premises), or to the communal parts of blocks of flats or maisonettes. It does not apply to any premises used for purposes other than as domestic premises (e.g. small shops, factories or similar premises used solely as places of work).

This part of BS 5839 applies to premises used for self-catering holidays if occupied by not more than ten persons, and premises with short-term paying guests in the home of a resident operator with not more than eight guests. It is limited to premises in which guest accommodation is not located below a ground floor or above a first floor, and in which no storey is greater than 200 m² in area. For larger premises, the recommendations of BS 5839-1 apply.

This part of BS 5839 is intended for use by architects and other building professionals, enforcing authorities, installers and others responsible for implementing fire precautions in domestic premises. It is not intended for occupiers, for whom advice is published by the Government ¹⁾. However, recommendations are given for simple systems that may be installed by non-specialists.

The recommendations refer principally to fire detection and fire alarm systems installed for the purpose of life safety. However, recommendations are given for systems that are also intended to protect property.

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 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 5446-2](#), *Fire detection and fire alarm devices for dwellings – Part 2: Specification for heat alarms*

¹⁾ The Ministry of Housing, Communities and Local Government (in England and Wales), Scottish Government and the Department of Health, Social Services and Public Safety (Northern Ireland).

[BS 5446-3](#), *Fire detection and fire alarm devices for dwellings – Part 3: Specification for smoke alarm kits for deaf and hard of hearing people*

[BS 5839-1:2017](#), *Fire detection and fire alarm systems for buildings – Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*

[BS 7671](#), *Requirements for electrical installations – IET Wiring Regulations*

[BS 8591](#), *Remote centres receiving signals from alarm systems – Code of practice*

BS EN 54-2, *Fire detection and fire alarm systems – Part 2: Control and indicating equipment*

BS EN 54-4, *Fire detection and fire alarm systems – Part 4: Power supply equipment*

BS EN 54-5, *Fire detection and fire alarm systems – Part 5: Heat detectors – Point detectors*

BS EN 54-7, *Fire detection and fire alarm systems – Part 7: Smoke detectors – Point detectors using scattered light, transmitted light or ionization*

BS EN 54-10, *Fire detection and fire alarm systems – Part 10: Flame detectors – Point detectors*

BS EN 54-11, *Fire detection and fire alarm systems – Part 11: Manual call points*

BS EN 54-12, *Fire detection and fire alarm systems – Part 12: Smoke detectors – Line detectors using an optical light beam*

BS EN 54-26, *Fire detection and fire alarm systems – Part 26: Carbon monoxide detectors – Point detectors*

BS EN 54-29, *Fire detection and fire alarm systems – Part 29: Multi-sensor fire detectors – Point detectors using a combination of smoke and heat sensors*

BS EN 54-30, *Fire detection and fire alarm systems – Part 30: Multi-sensor fire detectors – Point detectors using a combination of carbon monoxide and heat sensors*

BS EN 14604, *Smoke alarm devices*

BS EN ISO 13943, *Fire safety – Vocabulary*

3 Terms and definitions

For the purposes of this part of BS 5839, the terms and definitions in BS 5839-1:2017 and BS EN ISO 13943 and the following apply.

3.1 addressable system

system in which signals from detectors, manual call points or any other devices are individually identified at the control and indicating equipment

NOTE Most addressable systems are of the analogue type, in which a signal from each detector representing the value of the sensed phenomenon is individually processed, usually at the control equipment, with a view to enabling more than two output states to be given, representing normal, fire and at least one other abnormal condition. The purpose of analysis of the signal from each detector is often identification of conditions that are not representative of fire but that can result in a false alarm from a simple non-analogue (“two state”) system.

3.2 alarm receiving centre (ARC)

continuously manned premises, remote from those in which the fire detection and fire alarm system is fitted, where the information concerning the state of the fire alarm system is displayed and/or recorded, so that the fire and rescue service can be summoned