



## BSI Standards Publication

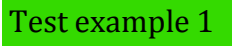


# Fire detection and fire alarm systems for buildings

Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises

This is a preview of "BS 5839-1:2017 - Tra...". [Click here to purchase the full version from the ANSI store.](#)

**IMPORTANT — PLEASE NOTE**

This is a tracked changes copy and uses the following colour coding:

-  Test example 1 — indicates added text (in green)
- ~~Test example 2~~ — indicates removed text (in red)
-  — indicates added graphic figure or table
-  — indicates removed graphic figure or table

**About tracked changes**

This document is a combined PDF containing a “tracked changes” version of BS 5839-1, which compares BS 5839-1:2017 with BS 5839-1:2013.

The original version of BS 5839-1:2017, appended at the end of this document, should be considered the version of record for this publication.

© The British Standards Institution 2019  
Published by BSI Standards Limited 2019

ISBN 978 0 539 04283 2

**Amendments/corrigenda issued since publication**

Date	Text affected
------	---------------

---

# 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

## Version comparison

This version comparison compares where new and revised clauses are located between BS 5839-1:2017 with Incorporating Corrigendum No. 1 and BS 5839-1:2013.

### BS 5839-1:2017 to BS 5839-1:2013

BS 5839-1:2017	BS 5839-1:2013
Foreword	Foreword
Section 1: General	Section 1: General
1 Scope	1 Scope
2 Normative references	2 Normative references
3 Terms and definitions	3 Terms and definitions
4 Need for a fire detection and fire alarm system and type of system	4 Need for a fire detection and fire alarm system and type of system
4.1 Commentary	4.1 Commentary
4.2 Recommendations	4.2 Recommendations
5 Categories of system	5 Categories of system
5.1 Commentary	5.1 Commentary
5.2 Recommendations	5.2 Recommendations
6 Exchange of information and definition of responsibilities	6 Exchange of information and definition of responsibilities
6.1 Commentary	6.1 Commentary
6.2 Recommendations	6.2 Recommendations
7 Variations from the recommendations of this standard	7 Variations from the recommendations of this standard
7.1 Commentary	7.1 Commentary

Section 2: Design considerations		Section 2: Design considerations	
8	Relationship between system category and protected areas	8	Relationship between system Category and areas protected
8.1	Commentary	8.1	Commentary
8.2	Recommendations	8.2	Recommendations
9	Actuation of other fire protection systems or safety facilities	9	Actuation of other fire protection systems or safety facilities
9.1	Commentary	9.1	Commentary
9.2	Recommendations	9.2	Recommendations
10	Systems in explosive gas or dust atmospheres	10	Systems in explosive gas or dust atmospheres
10.1	Commentary	10.1	Commentary
10.2	Recommendations	10.2	Recommendations
11	System components	11	System components
11.1	Commentary	11.1	Commentary
11.2	Recommendations	11.2	Recommendations
12	Monitoring, integrity and reliability of circuits external to control equipment	12	Monitoring, integrity and reliability of circuits external to control equipment
12.1	Commentary	12.1	Commentary
12.2	Recommendations	12.2	Recommendations
13	Detection zones	13	Detection zones
13.1	Commentary	13.1	Commentary
13.2	Recommendations	13.2	Recommendations
14	Alarm zones	14	Alarm zones
14.1	Commentary	14.1	Commentary
14.2	Recommendations	14.2	Recommendations
15	Communication with the fire and rescue service	15	Communication with the fire and rescue service

15.2	Recommendations	15.2	Recommendations
16	Audible alarm signals	16	Audible alarm signals
16.1	Commentary	16.1	Commentary
16.2	Recommendations	16.2	Recommendations
17	Visual alarm signals	17	Visual alarm signals
17.1	Commentary	17.1	Commentary
17.2	Recommendations	17.2	Recommendations
18	Fire alarm warnings for people who are Deaf and hard of hearing	18	Fire alarm warnings for people with impaired hearing
18.1	Commentary	18.1	Commentary
18.2	Recommendations	18.2	Recommendations
19	Staged fire alarms	19	Staged fire alarms
19.1	Commentary	19.1	Commentary
19.2	Recommendations	19.2	Recommendations
20	Manual call points	20	Manual call points
20.1	Commentary	20.1	Commentary
20.2	Recommendations	20.2	Recommendations
21	Types of fire detector and their selection	21	Types of fire detector and their selection
21.1	Commentary	21.1	Commentary
21.2	Recommendations	21.2	Recommendations
22	Spacing and siting of automatic fire detectors	22	Spacing and siting of automatic fire detectors
22.1	Commentary	22.1	Commentary
22.2	Recommendations for provision of automatic fire detectors	22.2	Recommendations for provision of automatic fire detectors
22.3	Recommendations for siting of heat, smoke and multi-sensor detectors	22.3	Recommendations for siting of heat and smoke detectors
22.4	Recommendations for siting of carbon monoxide fire detectors	22.4	Recommendation for siting of carbon monoxide fire detectors
22.5	Recommendations for siting of optical beam smoke detectors	22.5	Recommendations for siting of optical beam smoke detectors
22.6	Recommendations for siting of line heat detectors	22.6	Recommendations for siting of line heat detectors

This is a preview of "BS 5839-1:2017 - Tra...". [Click here to purchase the full version from the ANSI store.](#)

22.8	Recommendations for siting of flame detectors	22.8	Recommendations for siting of flame detectors
22.9	Recommendations for limits of ceiling height	22.9	Recommendations for limits of ceiling height
22.10	Smoke detectors in ventilation ducts	22.10	Smoke detectors in ventilation ducts
23	Control and indicating equipment	23	Control and indicating equipment
23.1	Commentary	23.1	Commentary
23.2	Recommendations	23.2	Recommendations
24	Networked systems	24	Networked systems
24.1	Commentary	24.1	Commentary
24.2	Recommendations	24.2	Recommendations
25	Power supplies	25	Power supplies
25.1	Commentary	25.1	Commentary
25.2	Recommendations for mains power supplies	25.2	Recommendations for mains power supplies
25.3	Recommendations for fire detection and fire alarm system power supply units	25.3	Recommendations for fire detection and fire alarm system power supply units
25.4	Recommendations for standby supplies	25.4	Recommendations for standby supplies
26	Cables, wiring and other interconnections	26	Cables, wiring and other interconnections
26.1	Commentary	26.1	Commentary
26.2	Recommendations	26.2	Recommendations
27	Radio-linked systems	27	Radio-linked systems
27.1	Commentary	27.1	Commentary
27.2	Recommendations	27.2	Recommendations
28	Electromagnetic compatibility	28	Electromagnetic compatibility
28.1	Commentary	28.1	Commentary
28.2	Recommendations	28.2	Recommendations
29	Electrical earthing	29	Electrical safety
29.1	Commentary	29.1	Commentary
29.2	Recommendations	29.2	Recommendations

This is a preview of "BS 5839-1:2017 - Tra...". [Click here to purchase the full version from the ANSI store.](#)

30	Responsibility for limitation of false alarms and unwanted fire alarm signals	30	Responsibility for limitation of false alarms
30.1	Commentary	30.1	Commentary
30.2	Recommendations	30.2	Recommendations
31	Categories of false alarms	31	Categories of false alarms
31.1	Commentary	31.1	Commentary
31.2	Recommendations	31.2	Recommendations
32	Acceptable rate of false alarms	32	Acceptable rate of false alarms
32.1	Commentary	32.1	Commentary
32.2	Recommendations	32.2	Recommendations
33	Causes of false alarms	33	Causes of false alarms
33.1	Commentary	33.1	Commentary
33.2	Recommendations	33.2	Recommendations
34	Design process for limitation of false alarms and unwanted fire alarm signals	34	Design process for limitation of false alarms
34.1	Commentary	34.1	Commentary
34.2	Recommendations	34.2	Recommendations
35	Measures to limit false alarms and prevent unwanted fire alarm signals	35	Measures to limit false alarms
35.1	Commentary	35.1	Commentary
35.2	Recommendations	35.2	Recommendations
Section 4: Installation		Section 4: Installation	
36	Responsibility of installer	36	Responsibility of installer
36.1	Commentary	36.1	Commentary
36.2	Recommendations	36.2	Recommendations
37	Installation practices and workmanship	37	Installation practices and workmanship
37.1	Commentary	37.1	Commentary
37.2	Recommendations	37.2	Recommendations
38	Commentary	38	Inspection and testing of wiring

Section 5: Commissioning and handover	Section 5: Commissioning and handover
39 Commissioning	39 Commissioning
39.1 Commentary	39.1 Commentary
39.2 Recommendations	39.2 Recommendations
40 Documentation	40 Documentation
40.1 Commentary	40.1 Commentary
40.2 Recommendations	40.2 Recommendations
41 Certification	41 Certification
41.1 Commentary	41.1 Commentary
41.2 Recommendations	41.2 Recommendations
42 Acceptance	42 Acceptance
42.1 Commentary	42.1 Commentary
42.2 Recommendations	42.2 Recommendations
43 Verification	43 Verification
43.1 Commentary	43.1 Commentary
43.2 Recommendations	43.2 Recommendations
Section 6: Maintenance	Section 6: Maintenance
44 Routine testing	44 Routine testing
44.1 Commentary	44.1 Commentary
44.2 Recommendations for weekly testing by the user	44.2 Recommendations for weekly testing by the user
44.3 Recommendations for monthly attention by the user	44.3 Recommendations for monthly attention by the user
45 Inspection and servicing	45 Inspection and servicing
45.1 Commentary	45.1 Commentary
45.2 Recommendation for quarterly inspection of vented batteries	45.2 Recommendation for quarterly inspection of vented batteries
45.3 Recommendations for periodic inspection and test of the system	45.3 Recommendations for periodic inspection and test of the system
45.4 Recommendations for inspection and test of the system over a 12 month period	45.4 Recommendations for inspection and test of the system over a 12 month period



This is a preview of "BS 5839-1:2017 - Tra...". [Click here to purchase the full version from the ANSI store.](#)

46.1	Commentary	46.1	Commentary
46.2	Recommendations for special inspection on appointment of a new servicing organization	46.2	Recommendations for special inspection on appointment of a new servicing organization
46.3	Recommendations for arrangements for repair of faults or damage	46.3	Recommendations for arrangements for repair of faults or damage
46.4	Modifications to the system	46.4	Modifications to the system
Section 7: User's responsibilities		Section 7: User's responsibilities	
47	Premises management	47	Premises management
47.1	Commentary	47.1	Commentary
47.2	Recommendations	47.2	Recommendations
47.3	Action in the event of pre-alarms	47.3	Action in the event of pre-alarms
48	Logbook	48	Logbook
48.1	Commentary	48.1	Commentary
48.2	Recommendations	48.2	Recommendations
Annex A (informative) Choice of appropriate category of fire detection and fire alarm system		Annex A (informative) Choice of appropriate category of fire detection and fire alarm system	
Annex B (informative) Typical noise levels in buildings		Annex B (informative) Typical noise levels in buildings	
Annex C (normative) Control and transmission equipment for tactile alarm devices provided		Annex C (normative) Control and transmission equipment for tactile alarm devices provided	
Annex D (normative) Method for calculating standby battery capacity		Annex D (normative) Method for calculating standby battery capacity	
Annex E (informative) The selection and application of fire detectors		Annex E (informative) Schematic for design against false alarms Annex F (informative) Visual alarm device illumination characteristics	
Annex F (informative) Model format for system logbook		Annex G (informative) Model format for system logbook	
Annex G (informative) Model certificates		Annex H (informative) Model certificates	
Bibliography		Bibliography	

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

## National forward

### Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2013 2018

Published by BSI Standards Limited 2013 2018

ISBN 978 0 580 78332 6 539 00071 9

ICS 13.220.20; 13.320

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

Committee reference FSH/12/1

Draft for comment 12/30260278 16/30337833 DC

### ~~Publication history~~

~~First published as CP 327.404/492.501, September 1951~~

~~First revision as CP 1019, May 1972~~

~~Second revision as BS 5839-1 January 1980~~

~~Third revision May 1998~~

~~Fourth revision October 2002~~

~~Fifth revision March 2013~~

### Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

February 2018	C1: see Figure 4
---------------	------------------

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

## CONTENTS

	Page
<b>Foreword</b>	<b>iv</b>
<b>Section 1: General</b>	<b>1</b>
1 Scope	1
2 Normative references	2
3 Terms and definitions	4
4 Need for a fire detection and fire alarm system and type of system	11
5 Categories of system	12
6 Exchange of information and definition of responsibilities	14
7 Variations from the recommendations of this standard	16
<b>Section 2: Design considerations</b>	<b>18</b>
8 Relationship between system category and protected areas	18
9 Actuation of other fire protection systems or safety facilities	21
10 Systems in explosive gas or dust atmospheres	22
11 System components	22
12 Monitoring, integrity and reliability of circuits external to control equipment	24
<i>Figure 1 — Sounder circuits</i>	28
13 Detection zones	30
<i>Figure 2 — Examples of search distances in an open area [see 13.2.3b)]</i>	32
14 Alarm zones	33
<i>Figure 3 — Alarm zones [see 14.2d)]</i>	35
15 Communication with the fire and rescue service	36
16 Audible alarm signals	40
<i>Figure 4 — Sound pressure levels [see 16.2.1a)]</i>	44
17 Visual alarm signals	45
18 Fire alarm warnings for people who are Deaf and hard of hearing	46
19 Staged fire alarms	49
<i>Figure 5 — Typical staff alarm arrangement</i>	52
20 Manual call points	52
<i>Figure 6 — Manual call points on escape routes [see 20.2d)]</i>	55
21 Types of fire detector and their selection	56
22 Spacing and siting of automatic fire detectors	63
<i>Figure 7 — Smoke detectors in pitched roofs [see 22.3d)]</i>	69
<i>Figure 8 — Detectors in top 10% of a void [see 22.3g)]</i>	70
<i>Figure 9 — Proximity of detectors to ceiling fittings [see 22.3i)]</i>	71
<i>Figure 10 — Partitions or storage on racks</i>	72
<i>Figure 11 — Ceilings</i>	74
<i>Figure 12 — Detector on perforated ceiling [see 22.3o)]</i>	77
<i>Figure 13 — Clear space around a detector [see 22.3p)]</i>	78
<i>Figure 14 — Spacing and siting of detectors on honeycomb and similar ceilings</i>	79
<i>Table 1 — Spacing and siting of detectors on honeycomb and similar ceilings</i>	80
<i>Figure 15 — Spacing and siting of detectors on ceilings with closely spaced structural beams or joists</i>	81
<i>Table 2 — Spacing and siting of detectors on ceilings with closely spaced structural beams or joists</i>	81
<i>Figure 16 — Siting optical beam detectors</i>	84
<i>Table 3 — Limits of ceiling height</i>	87

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

24	Networked systems	91
25	Power supplies	92
26	Cables, wiring and other interconnections	97
	<i>Figure 17 — Example of a networked fire alarm system</i>	102
27	Radio-linked systems	104
28	Electromagnetic compatibility	106
29	Electrical earthing	108
	<b>Section 3: Limitation of false alarms and unwanted fire alarm signals</b>	<b>127</b>
30	Responsibility for limitation of false alarms and unwanted fire alarm signals	112
31	Categories of false alarms	114
32	Acceptable rate of false alarms	115
33	Causes of false alarms	116
34	Design process for limitation of false alarms and unwanted fire alarm signals	117
35	Measures to limit false alarms and prevent unwanted fire alarm signals	118
	<b>Section 4: Installation</b>	<b>127</b>
36	Responsibility of installer	127
37	Installation practices and workmanship	128
	<i>Figure 18 — Examples of screen connections for continuity</i>	130
38	Commentary	130
	<b>Section 5: Commissioning and handover</b>	<b>132</b>
39	Commissioning	132
40	Documentation	134
41	Certification	136
42	Acceptance	137
43	Verification	138
	<b>Section 6: Maintenance</b>	<b>140</b>
44	Routine testing	140
45	Inspection and servicing	141
46	Non-routine attention	146
	<b>Section 7: User's responsibilities</b>	<b>151</b>
47	Premises management	151
48	Logbook	152
<b>Annex A</b>	<b>(informative) Choice of appropriate category of fire detection and fire alarm system</b>	<b>154</b>
	<i>Table A.1 — Choice of appropriate category of a fire detection and fire alarm system</i>	154
<b>Annex B</b>	<b>(informative) Typical noise levels in buildings</b>	<b>156</b>
	<i>Table B.1 — Typical occupational noise levels (<math>L_p</math>)</i>	156
<b>Annex C</b>	<b>(normative) Control and transmission equipment for tactile alarm devices provided for people who are Deaf and hard of hearing</b>	<b>158</b>
<b>Annex D</b>	<b>(normative) Method for calculating standby battery capacity</b>	<b>160</b>
<b>Annex E</b>	<b>(informative) The selection and application of fire detectors</b>	<b>161</b>
	<i>Figure E.1 — Flow chart for the selection of detector and application verification</i>	162
	<i>Table E.1 — Detector selection</i>	163

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

	<i>Table E.3 — Example avoiding false alarms</i>	172
<b>Annex F</b>	<b>(informative) Model format for system logbook</b>	<b>192</b>
	<i>Events other than false alarms or maintenance work</i>	194
<b>Annex G</b>	<b>(informative) Model certificates</b>	<b>195</b>
	<i>Design certificate</i>	195
	<i>Commissioning certificate</i>	201
	<i>Acceptance certificate</i>	204
	<b>Bibliography</b>	<b>213</b>

### Summary of pages

This document comprises a front cover, an inside front cover, pages i to viii, pages 1 to 170, an inside back cover and a back cover.

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

## Foreword

### Publishing information

This ~~Part~~ ~~part~~ of BS 5839 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 ~~March 2013~~ ~~August 2017~~. It was prepared by ~~Committee~~ ~~Technical Subcommittee~~ FSH/12/1, *Installation and servicing*, under the authority of Technical Committee FSH/12, *Fire detection and fire alarm systems*. A list of organizations represented on ~~this committee~~ ~~these committees~~ can be obtained on request to its secretary.

### Supersession

This part of BS 5839 supersedes BS 5839-~~1:2002+A2:2008~~ ~~2013~~, which is withdrawn.

### Information about this document

This ~~new edition introduces a number of technical changes. It does not constitute~~ ~~is~~ a full revision of the ~~document, which will be undertaken in due course. The~~ ~~standard, and introduces the~~ ~~following~~ principal changes ~~introduced by this new edition are as follows:~~

- ~~a) The title has been modified to more accurately reflect the scope and content of this part of BS 5839.~~
- ~~b) The importance of providing accurate and unambiguous information to staff in residential care premises about the location of a fire has been highlighted in Clause 4.~~
- ~~c) A definition of "zone plan" has been added to the terms and definitions (Clause 3), with additional guidance added to subclause 6.1 and Clause 23, and new recommendations added to subclauses 42.2, 46.2 and 47.2. This is reflected in the sample acceptance certificate in H.4.~~
- ~~d) Item e) of 7.2 has been modified to emphasize the importance of identifying and recording agreed variations.~~
- ~~e) A definition of "visual alarm device" has been added to the terms and definitions (Clause 3), with a new recommendation on such devices added to subclause 11.2.~~
- ~~f) Table 4 of the 2002 edition, "Limits of ceiling height (Category P systems and five minute fire and rescue service attendance)", has been deleted.~~
- ~~g) Clause 15 has been updated with guidance and recommendations on the provision of automatic transmission of fire alarm signals.~~
- ~~h) The guidance and recommendations of Clause 19 and subclause 35.2.7 have been updated to address the need to avoid delay in summoning the fire and rescue service when the fire detection and fire alarm system of a residential care premises operates.~~
- ~~i) The dimension of the width covered by the optical beam detector given in Figure 13 has been corrected to 18.75 m.~~
- ~~j) Subclause 45.1 now highlights that routine servicing of a fire and fire alarm system does not constitute a fresh review of system design, so that non-compliance with this standard might not be identified during such servicing.~~
- ~~k) The wording of Annex C has been altered to further highlight the normative status of this annex.~~
- ~~l) A new Annex F has been added containing useful information on visual alarm device illumination characteristics from LPCB CoP 0001 [1]. Copyright is claimed on Annex F. Copyright holders are BRE Global Limited, Bucknalls Lane, Watford, Herefordshire, WD25 9XX, and the Fire Industry Association, Tudor House, Kingsway Business Park, Oldfield Road, Hampton, Middlesex, TW12 2HD. LPCB CoP 0001 is periodically updated and the latest edition needs to be consulted.~~
- ~~m) It is now recommended that major variations from the recommendations of this standard are recorded in the system logbook [see 7.2e)].~~
- ~~n) The term "care home" has been substituted throughout document with "residential care premises".~~

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

~~p) The term "responsible person" has been removed and replaced with references to "premises management" to avoid confusion with the term defined in legislation.~~

a) In Clause 2:

1) BS 8591, *Remote centres receiving signals from alarm systems – Code of practice* replaces the reference to BS 5979, which has been withdrawn; and

2) references have been added to:

- BS EN 54-21, *Fire detection and fire alarm systems – Part 21: Alarm transmission and fault warning routing equipment*;
- BS EN 54-29, *Fire detection and fire alarm systems – Multi-sensor fire detectors – Point detectors using a combination of smoke and heat sensors*;
- BS EN 54-30, *Fire detection and fire alarm systems – Multi-sensor fire detectors – Point detectors using a combination of carbon monoxide and heat sensors*; and

• BS EN 54-31, *Fire detection and fire alarm system – Part 31: Multi-fire sensor detectors – Point detectors using a combination of smoke, carbon monoxide and optionally heat sensors*.

b) In Clause 3, the definition of "critical signal path" has been expanded to include transmission equipment for the routing signals to alarm receiving centres and the definition of 'false alarm' has been changed to refer to 'environmental false alarms'

c) In Section 3 a new definition of "unwanted fire signal (UwFS)" has been added, taking into account the effect on the fire and rescue service.

d) In 8.2 the multi-sensor detectors are now considered as one of the detection options for Categories L3 and L4 systems and in escape routes for Category L1 systems. An informative note explains the process of designing Category L2 systems.

e) In 11.2 and 20.2b), it is now recommended that a protective cover is fitted to a Type A manual call point to help prevent false alarms.

f) 11.2 now recommends that alarm transmission and fault warning routing equipment should conform to the requirements specified in BS EN 54-21.

g) 15.2 now recommends that alarm receiving centres to which fire alarm signals are relayed should conform to BS 8591 and have in place an agreement with the appropriate fire and rescue service to pass on fire signals from fire alarm systems at the monitored property.

h) 15.2 also includes a new recommendation that, where fire alarm signals are routed via the routing equipment of an intruder alarm system, the standby power supplies for the routing equipment should conform to 25.4.

i) In 19.2.2, it is acknowledged that, in premises, other than residential care homes, that generate a high number of unwanted fire alarm signals, automatic transmission of a signal to an alarm receiving centre may be delayed pending investigation of alarm signals from these devices.

j) A new subclause, 21.1.7 has been introduced specifically addressing video fire detectors, re-grouping text which was in different subclauses in the 2013 edition of the code.

k) New text in 21.1.8 commentary explains detection principle choices involving single sensor detectors and multi-sensor detectors.

l) Attention is drawn in Clause 22 to the need to consider field testing of hard-to-access detectors when designing the system.

m) In 22.9 and Table 3, it is now recommended that the limits specified for ceiling heights should only be used as guidance for vertical or flue-like structures, such as lift shafts and stairwells.

n) In 25.2, the recommendation to provide double pole isolation has been replaced with a recommendation to provide local safe isolation. An informative note explains what is meant by "special tool"

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

BS EN 50200 and BS 8434-2.

- p) The heading of Clause 29, "Electrical safety", has been replaced by the new heading "Electrical Earthing".
- q) Section 3 has been expanded and introduces the concept of "unwanted fire alarm signals". To minimize the risk of false alarms and unwanted fire alarm signals, it recommends that manual call points should be fitted with protective covers and that systems that incorporate connection to an alarm receiving centre should have this connection disabled during the soak period.
- r) In Clause 45, recommendations have been added for:
- 1) measuring the battery voltage;
  - 2) testing of multi-sensor fire detectors;
  - 3) for using different types of devices when carrying system tests; and
  - 4) checking whether a suitable zone plan has been provided.
- s) There is a new Annex E (informative), which gives advice regarding selection and application of fire detectors.
- t) Annex F in the 2013 edition, which gave guidance on visual alarm device illumination characteristics, has been as it duplicated the information in the referenced code: LPS CoP 0001 [1].

National building regulations [2, 3, 4] require fire detection and fire alarm systems to be installed in many buildings at the time of construction. In addition, legislation requires that, where necessary to safeguard relevant persons in case of fire, existing premises are equipped with "appropriate fire detection and fire alarm systems".

Although this standard makes recommendations for the provision of fire detection and fire alarm systems in a wide variety of premises, reference to particular types of premises in Annex A does not necessarily mean that all such premises are required by law to have such systems installed. In certain small premises, word of mouth or mechanical devices, such as rotary gongs, might constitute an adequate means of giving warning to occupants in the event of fire. The need for a fire detection and fire alarm system, and the nature of the system, is often determined by a fire risk assessment.

The fire and rescue authority can advise on the fire legislation that applies to any building. If a fire detection and fire alarm system is to be installed, or modified, to satisfy the requirements of legislation, early consultation with the authority or authorities responsible for enforcement of the legislation might be appropriate.

The protection of property with a fire detection and fire alarm system could result in an insurance company being prepared to offer a reduced premium, provided that the system is acceptable. Early consultation with the insurer is thus advisable.

Fire protection is not to be confused with fire prevention or other fire precautions, and the provision of a fire detection and fire alarm system can never be regarded as giving complete protection against fire. A fire detection and fire alarm system is, however, likely to form an important component in defence against fire, and can form part of a fire engineering solution. Advice on the likely need for a fire detection and fire alarm system in certain premises is given in BS 9999. For advice on fire engineering solutions, reference can be made to BS 7974 and PD 7974-4.

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

~~Queries and answers concerning the interpretation of BS 5839-1 are given in PD 6531.~~

Text introduced or altered by Corrigendum No. 1 is indicated in the text by tags C1 C1. Minor editorial corrections are not tagged.



This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

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").

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause.

The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations.

Commentaries give background information.

### **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.**

This is a preview of "BS 5839-1:2017 - Tra...". Click here to purchase the full version from the ANSI store.

## 1 Scope

This part of BS 5839 provides recommendations for the planning, design, installation, commissioning and maintenance of fire detection and fire alarm systems in and around buildings, other than domestic premises. It does not recommend whether or not a fire detection and fire alarm system should be installed in any given premises. Recommendations for fire detection and fire alarm systems in domestic premises are given in BS 5839-6.

The term fire detection and fire alarm systems, in the context of this part of BS 5839, includes systems that range from those comprising only one or two manual call points and sounders to complex networked systems that incorporate a large number of automatic fire detectors, manual call points and sounders, connected to numerous inter-communicating control and indicating panels.

The term also includes systems that are capable of providing signals to initiate the operation of other fire protection systems and equipment (such as fire extinguishing systems, smoke control systems or automatic door release equipment) or safety measures (such as shutdown of air handling systems, closing of oil or gas valves or grounding of lifts). It does not apply to the other systems and equipment themselves, or the ancillary circuits to interface with them. Recommendations for the planning, installation and servicing of facilities for operation of certain fire protection systems by the systems addressed within this part of BS 5839 are given in BS 7273 [\[all parts\]](#).

This part of BS 5839 does not cover systems whose primary function is to extinguish or control fire, such as sprinkler or automatic extinguishing systems, even though they might have a secondary alarm function; it does, however, cover the use of a signal from an automatic extinguishing system as one initiating element of a fire alarm system (e.g. by use of a pressure or flow switch).

This part of BS 5839 does not cover voice alarm systems. Recommendations for voice alarm systems and voice ~~enhanced~~ sounders are given in BS 5839-8.

This part of BS 5839 does not cover systems combining fire alarm functions with other non-fire related functions. Recommendations for such integrated systems are given in DD CLC/TS 50398.

This part of BS 5839 does not cover the 999 (or 112) public emergency call system, or manually or mechanically operated sounders.

This part of BS 5839 does not cover audible or visual way-guidance systems which are designed to complement fire alarm systems.

Recommendations for fire detection and fire alarm systems in electronic data processing installations and similar critical electronic equipment rooms are given in BS 6266, which provides recommendations over and above those given in this part of BS 5839.

Recommendations for fire detection and fire alarm systems in hospitals are given in the NHS Estates publications HTM 05-03 Part B [\[N1\]](#) (in England and Wales) or SHTM 82 [\[N2\]](#) (in Scotland).

This part of BS 5839 applies to extensions and alterations to existing systems, at least in respect of the design, installation, commissioning and certification of the new work, albeit that the extended or altered system might not, overall, conform to the recommendations of this standard.