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Incorporating Corrigendum No.1

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

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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 31 August 2017. It was prepared by 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 these committees can be obtained on request to its secretary.

Supersession

This part of BS 5839 supersedes BS 5839:2013, which is withdrawn.

Information about this document

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

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centres receiving signals from alarm systems – Code of practice* replaces the reference to BS 5979, which has been withdrawn; and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-sensor fire 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 **20.2**b), 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.

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".

o) In **26.2**, the recommendations for cables, wiring and other interconnections have been updated to reflect the currently available standards: BS EN 60702-1, BS EN 60702-2, BS 7629-1 and BS 7846. In addition, the duration of survival of cables has been referred to the tests in 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 removed 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

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.

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

Use of this document

As a code of practice, 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”).

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.

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.

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Section 1: General

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 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.

