BS 5446-3:2015

BSI Standards Publication

Detection and alarm devices for dwellings –

Part 3: Specification for fire alarm and carbon monoxide alarm systems for deaf and hard of hearing people

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 46, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 5446 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 28 February 2015. It was prepared by Subcommittee FSH/12/2, *Fire detectors*, 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This part of BS 5446 supersedes BS 5446-3:2005, which is withdrawn.

Relationship with other publications

BS 5446 is published in the following parts:

- Part 2: *Specification for heat alarms*;
- Part 3: *Specification for fire and carbon monoxide alarm systems for deaf and hard of hearing people*.

Smoke alarms for use in dwellings are specified in BS EN 14604. Carbon monoxide alarms are specified in BS EN 50291-1.

Guidance on the siting, installation and maintenance of smoke alarms for deaf and hard of hearing people in dwellings, and user actions, is given in BS 5839-6.

Guidance on siting and maintenance of carbon monoxide alarms is given in BS EN 50292 for general use.

Information about this document

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

- inclusion of carbon monoxide alarms;
- change from "kits" to individual components that may be used to form a system appropriate to individual requirements or needs;
- inclusion of references to European standards for visual alarm devices and low frequency sounders;
- removal of requirements specific to LAVs;
- inclusion of guidance on systems suitable for varying levels of hearing loss.

Product certification/inspection/testing. Users of this British Standard are advised to consider the desirability of third-party certification of product conformity with this British Standard. Appropriate conformity attestation arrangements are described in the appropriate part of the BS EN ISO 9000 series. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

Use of this document

It has been assumed in the preparation of this British Standard 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 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 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.

Particular attention is drawn to the following specific regulations:

- Consumer Protection Act 1987 [1];
- Batteries and Accumulators (Containing Dangerous Substances) (Amendment) Regulations 2001 [2];
- Electrical Equipment (Safety) Regulations 1994 [3].

Introduction

Fire and carbon monoxide alarms for use in dwellings have been available for many years, and are specified in BS EN 14604 (smoke alarms), BS 5446-2 (heat alarms) and BS EN 50291-1 (carbon monoxide alarms). These devices are intended to warn of the presence of a potentially dangerous condition by emitting a loud piercing sound. However, people with hearing loss might not be able to adequately hear such an alarm sound.

There are recognized methods of alerting deaf and hard of hearing people, including the use of vibratory, visual alarm and low frequency audible devices. To provide a fire or carbon monoxide warning for those who are deaf or hard of hearing, it has become common practice for such devices to be coupled to domestic alarms. For example, vibrating pads can be used to awaken deaf or hard of hearing people, and visual alarms to alert those already awake, in the event of the associated alarm(s) activating. There is therefore an increasing need for standardization of such alarm systems. This part of BS 5446 addresses that need by specifying requirements for fire and carbon monoxide alarm systems that include fire and carbon monoxide alarms and associated warning devices used in dwellings to warn deaf and hard of hearing people. This part of BS 5446 does not claim to provide an exclusive or definitive solution to the problem of providing reliable protection to people with impaired hearing. It is recognized that other techniques or products might be developed which would currently fall outside the scope of this part of BS 5446.

This part of BS 5446 includes tests and requirements for vibratory, visual alarm and low frequency audible devices, for fire and/or carbon monoxide alarms by reference to BS EN 14604, BS 5446-2 and BS EN 50291-1, and for the interconnections of these components. The tests specified in this part of BS 5446 are type tests and are not intended as manufacturers' tests to maintain uniformity of quality in production, which is dealt with in the BS EN ISO 9000 series. While the tests are intended to assess the most important features of the design and construction of the components of alarm systems for deaf and hard of hearing people, they cannot remove the necessity for regular inspection and maintenance, which is essential for reliable operation.

The sound from fire and carbon monoxide alarms is intended to alert people when they are either awake or asleep, but for a person with significant hearing loss, a combination of vibration, flashing light and sound is generally required in order to provide an equivalent level of protection. Some medical conditions might require specialist medical advice as to appropriate alarm equipment.

Since any fire or carbon monoxide alarm that forms part of a system for deaf and hard of hearing people is required to conform to BS EN 14604, BS 5446-2 or BS EN 50291-1, it will incorporate a functioning sounder. BS 5446-3 specifies requirements for the additional vibration and flashing light functions and any low frequency sounders.

To assist in the selection of an alarm system appropriate to an individual's needs, a grade system has been devised for guidance purposes. The grade system is covered in more detail in the Commentary on Clause **4** and Annex A.

1 Scope

This part of BS 5446 specifies requirements and test methods for components and their means of interconnection (e.g. by electrical wiring or by radio links) intended to be assembled to create fire and/or carbon monoxide alarm systems for deaf and hard of hearing people, for the purpose of life safety in dwellings.

NOTE 1 Although this part of BS 5446 provides the specification for alarm systems for dwellings, it is recognized that these systems, or components thereof, might be used in other situations, where similar requirements could be anticipated.

NOTE 2 Equipment conforming to this part of BS 5446 might not be suitable for use in boats, due to the corrosive atmosphere. It might however be suitable for use in other leisure accommodation vehicles (LAVs).

NOTE 3 The systems specified in this part of BS 5446 are specifically intended to give warning in the event of fire, or carbon monoxide emissions. However, it is recognized that systems might also incorporate devices to alert deaf and hard of hearing people to other events, such as door bell, telephone, alarm clock, baby alarm, etc., that are outside the scope of this part of BS 5446.

This part of BS 5446 does not cover medical vibrating devices as defined in BS EN ISO 9999; these are covered by BS EN 12182.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

BS 5839-6, *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*

BS EN 54-1, *Fire detection and fire alarm systems – Part 1: Introduction*

BS EN 54-3:2001, *Fire detection and fire alarm systems – Part 3: Fire alarm devices – Sounders*

BS EN 54-23:2010, *Fire detection and fire alarm systems – Part 23: Fire alarm devices – Visual alarm devices*

BS EN 14604, *Smoke alarm devices*

BS EN 50130-4:2011, *Alarm systems – Part 4: Electromagnetic compatibility – Product family standard – Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems*

BS EN 50291 (both parts), *Electrical apparatus for the detection of carbon monoxide in domestic premises*

BS EN 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

BS EN 60068-2-6:2008, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

BS EN 60068-2-27:2009, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

BS EN 60068-2-31:2008, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*