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Fire sprinkler systems for domestic and residential occupancies — Code of practice

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Summary of pages
This document comprises a front cover, and inside front cover, pages i to vi, pages 1 to 64, an inside back cover and a back cover.

Foreword

Publishing information

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 30 June 2021. It was prepared by Subcommittee FSH/18/2, *Sprinkler systems*, under the authority of Technical Committee FSH/18, *Fixed fire fighting systems*. A list of organizations represented on these committees can be obtained on request to their committee managers.

Supersession

This British Standard supersedes BS 9251:2014, which is withdrawn.

Relationship with other publications

Reference is made in the publication to the advice on selection of fire protection systems set out in BS 5306-0. Attention is also drawn to the requirements of BS EN 806, with particular regard to backflow prevention, to BS EN 805 where appropriate, and to BS 1710 for guidance on identification and marking of pipework. Where pumps are provided, attention is drawn to the electrical supply requirements of BS 7671.

Sprinkler protection for industrial premises and commercial buildings other than those listed in this British Standard is specified in BS EN 12845. Where sprinklers are not installed primarily for life protection in domestic and residential occupancies, sprinkler installations conforming to BS EN 12845 might be more appropriate than those conforming to this British Standard.

Guidance on the application of sprinkler systems is given in BS 5306-0, BS 9991, BS 9999, the Building Regulations 2010, Approved Document B for use in England [1], [2], Wales [3], [4] and its equivalents in Scotland [5], [6] and Northern Ireland [7].

BS 9251 covers fire sprinkler systems for residential and domestic premises that are more than four storeys or above 18 m in height; additionally fixed residential fire sprinkler systems in buildings for residential occupancies up to four storeys or 18 m in height, whichever are lower, are covered in BS EN 16925. FSH/18/2 has detailed their concerns about BS EN 16925 in the National Foreword for that publication.

Information about this document

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

- Introduction of a fourth category of system to cater for taller residential buildings (greater than 18 m) and higher risk scenarios. The building height of over 18 m for a fourth category was chosen for the following reasons:
  - to align with Fire and Rescue Service national operational guidance, which determines capability, e.g. access and response time;
  - for consistency with BS EN 16925; and
  - greater risk profile in higher rise buildings, including the need for improved resilience.
- Additional recommendations for larger capacity minimum water supplies for taller buildings and higher risk scenarios.
- Further recommendations for duplicate pumps and other reliability enhancements in certain scenarios.

- Further recommendations for non-residential occupancies in protected buildings.
- Additional measures and information for the fire service to interact with the installation.
- Clarification of alarm and fault signalling requirements.
- Clarification of roles and responsibilities.

Product certification/inspection/testing. Users of this British Standard are advised to consider the desirability of third-party certification/inspection/testing of product conformity to this British Standard. Appropriate conformity attestation arrangements are described in BS EN ISO 9001. Users seeking assistance in identifying appropriate conformity assessment bodies or schemes may ask BSI to forward their enquiries to the relevant association.

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

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.

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.

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.

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Compliance with a British Standard cannot confer immunity from legal obligations.

Particular attention is drawn to the Water Supply (Water Fittings) Regulations 1999 [8], the Water Supply (Water Fittings) (Scotland) Byelaws 2014 [9] and the Water Regulations (Northern Ireland) 2006 [10] in respect of requirements for any fire sprinkler system which conveys, or is likely to convey, water supplied by a water undertaker or licensed water supplier.

0 Introduction

Sprinkler systems have demonstrated their value in protecting life and property in industrial and commercial applications for many years. The advent of sprinklers that operate at an earlier stage in the development of a fire, plus the recognition that the largest numbers of deaths from fire occur in the home, have led to the introduction of sprinkler systems specifically designed for domestic and residential occupancies.

A correctly designed and installed sprinkler system can detect and control a fire at an early stage of development and activate an alarm. Operation of the sprinkler system rapidly reduces the rate of production of heat and smoke, allowing more time for the occupants to escape to safety or be rescued.

Sprinkler systems can also assist firefighters in carrying out search and rescue operations by limiting fire development, which significantly reduces the risks to firefighters.

This British Standard accordingly covers design, installation, components, water supplies, maintenance and testing of residential sprinkler systems installed for the purpose of reducing risk to life and minimizing the spread of fire.

In classifying the design of the system for any specified occupancy, care needs to be taken when considering the fire loading such that it does not exceed that which would typically be expected in that occupancy.

Residential sprinkler systems consist of a water supply, backflow prevention device (e.g. check valve), stop valve, priority demand valve (where required), automatic alarm system and pipework to sprinkler heads. The sprinklers are fitted at specified locations, the appropriate sprinkler type being used for each location. The main elements of a typical residential sprinkler system are shown in Annex A.

Sprinklers operate at a predetermined temperature to discharge water over a known area below. The flow of water initiated causes the actuation of an alarm. Only sprinkler heads individually heated above their operating temperature by the heat from the fire operate to discharge water.

The provision of a sprinkler system does not negate the need for other fire precautions or practical measures, which can include structural fire resistance, escape routes with emergency lighting and signs, fire detectors and good fire safety management practices. Even with the installation of a sprinkler system, normal actions on the discovery of a fire need to be taken, such as immediate evacuation and the calling of the fire service. The sprinkler system is typically only to be turned off following liaison with the fire and rescue service and when it is deemed safe to do so.

Sprinkler system maintenance is not complex but is essential (see Clause 7). It is important that owners and occupiers are provided with adequate information.

1 Scope

This British Standard gives recommendations for the design, installation, components, water supplies and backflow protection, commissioning, maintenance and testing of fire sprinkler systems installed for life safety purposes in residential and domestic premises.

NOTE 1 Sprinkler systems also provide additional benefits for property protection and prevention of fire spread.

This British Standard is applicable for sprinkler protection of domestic and residential premises and contains specific recommendations for sprinkler systems in those premises of more than four storeys or above 18 m in height.

NOTE 2 Unless otherwise specified, references to residential sprinkler system in this British Standard include domestic sprinkler systems.

