

Sprinkler systems for residential and domestic occupancies — Code of practice

ICS 13.220.10

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by Technical Committee FSH/18, Fixed firefighting systems, to Subcommittee FSH/18/2, Sprinkler systems, upon which the following bodies were represented:

- Association of Building Engineers
- British Automatic Sprinkler Association
- British Plastics Federation
- British Pump Manufacturers' Association
- Chartered Institute of Building Services
- Chief and Assistant Chief Fire Officers Association
- Copper Development Association
- Department of the Environment, Transport and the Regions
- District Surveyors Association
- Home Office
- Institute of Fire Safety
- London Fire and Civil Defence Authority
- Loss Prevention Council
- Power Actuated Systems Association
- Residential Sprinkler Association
- Warrington Fire Research Centre

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Foreword

This Draft for Development has been prepared by a Task Group from Technical Committee FSH/18/2. It gives recommendations for the design, installation, components, water supplies, commissioning and maintenance of fire sprinkler systems for use specifically in residential and domestic occupancies. It is intended for the use of designers, engineers, architects, surveyors, contractors, installers and authorities having jurisdiction. Sprinkler protection for other buildings and industrial plant is specified in BS 5306-2.

Fire sprinkler systems for domestic and residential application are designed to provide an additional degree of protection of life and property, above that already achieved by the building design and the installation of smoke and/or fire detectors and systems. This Draft for Development presumes that the sprinkler protection will form part of an integrated fire safety system.

Product certification/inspection/testing. Users of this Draft for Development are advised to consider the desirability of third-party certification/inspection/testing of product conformity with this Draft for Development. 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.

The recommendations contained in this Draft for Development result from the best technical information available to the committee at the time of writing. Firefighting and life protection encompasses a wide field of endeavour and as such it is impracticable to cover every possible factor or circumstance that might affect implementation of this Draft for Development. Therefore the design and installation of any system should be entrusted to a suitably qualified and experienced sprinkler contractor.

Attention is drawn to the requirements of BS 6700 with special regard to back-flow prevention and to BS 1710 for guidance on identification and marking of pipework.

This publication is not to be regarded as a British Standard.

It is being issued in the Draft for Development series of publications and is of a provisional nature because UK experience needs to be gained. It should be applied on this provisional basis, so that information and experience of its practical application may be obtained.

A review of this Draft for Development will be carried out not later than 2 years after its publication. Notification of the start of the review period, with a request for the submission of comments from users of this Draft for Development, will be made in an announcement in the appropriate issue of *Update Standards*.

According to the replies received, the responsible BSI Committee will judge whether the Draft for Development can be converted into a British Standard or what other action should be taken.

Observations which it is felt should receive attention before the official call for comments will be welcomed.

These should be sent to the Secretary of BSI Technical Committee FSH/18/2 at British Standards House, 389 Chiswick High Road, London W4 4AL.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 13 and a back cover.

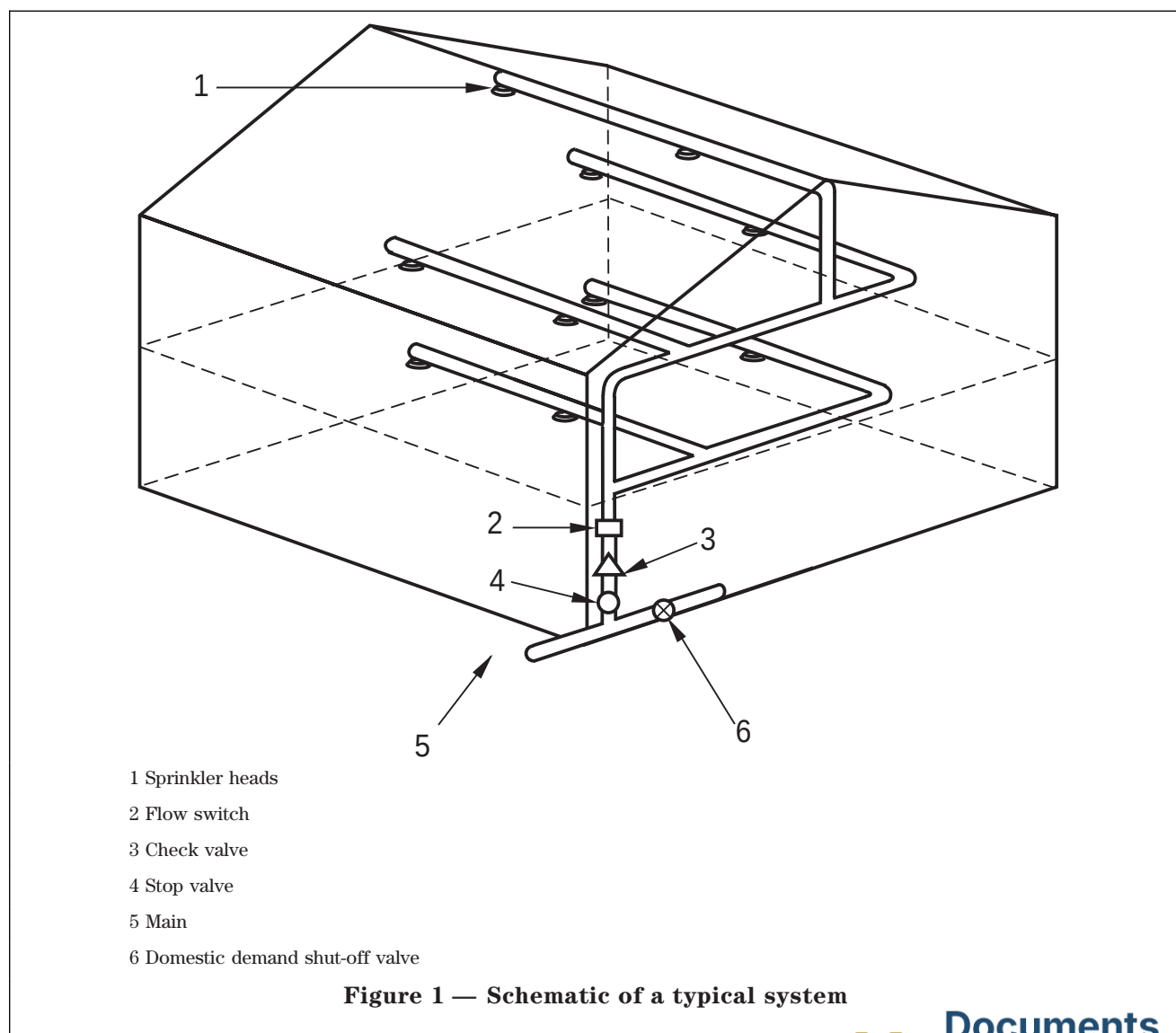
Introduction

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 residential and domestic 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 system will rapidly reduce the rate of production of heat and smoke, allowing more time for the occupants to escape to safety or be rescued.

This Draft for Development accordingly covers design, installation, components, water supplies, maintenance and testing of residential and domestic sprinkler systems installed for life safety purposes.

Residential and domestic fire sprinkler systems consist of a water supply, stop valve, priority demand valve (where required), automatic alarm system (both internal and external) and pipework to quick response sprinklers. The sprinklers are fitted at specified locations, the appropriate sprinkler type being used for each location. The main elements of a typical domestic fire sprinkler system are shown in Figure 1.



Sprinklers operate at a pre-determined temperature to discharge water over a known area below. The flow of water thus initiated causes the sounding of an alarm. Only those sprinklers operate which are individually heated above their operating temperature by the heat from the fire.

The provision of a sprinkler system does not negate the need for other fire precautions or practical measures, which may include structural fire resistance, escape routes, smoke or fire detectors and safe housekeeping practices. Even with the installation of a sprinkler system, normal actions on the discovery of a fire should be taken, such as immediate evacuation and the calling of the fire service. The sprinkler system should be turned off by the fire service 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 pay particular attention to precautions issued by the sprinkler contractor, such as the avoidance of obstructions to the sprinkler, or the painting of the sprinkler head.

1 Scope

This Draft for Development gives recommendations for the design, installation, components, water supplies, commissioning, maintenance and testing of fire sprinkler systems installed for life safety purposes with additional benefits for property protection in residential and domestic occupancies. Residential occupancies, for multiple occupation, include apartments, residential homes, houses of multiple occupancy (HMOs), blocks of flats, boarding houses, aged persons homes, nursing homes, residential rehabilitation accommodation and dormitories.

Domestic occupancies include individual dwelling houses, individual flats, maisonettes and transportable homes.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this Draft for Development. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the latest edition of the publication referred to applies.

BS 21, *Specification for pipe threads for tubes and fittings where pressure-tight joints are made on the threads (metric dimensions)*.

BS 476, *Fire tests on building materials and structures*.

BS 1387, *Specification for screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads*.

BS 1740-1, *Specification for wrought steel pipe fittings (screwed BS 21 R-series thread) – Part 1: metric units*.

BS 3505, *Specification for unplasticized polyvinyl chloride (PVC-U) pressure pipes for cold potable water*.

BS 3506, *Specification for unplasticized PVC pipe for industrial uses*.

BS 4346 (all parts), *Joints and fittings for use with unplasticized PVC pressure pipes*.

BS 5839-6, *Fire detection and alarm systems for buildings — Part 6: Code of practice for the design and installation of fire detection and alarm systems in dwellings*.

BS 6572, *Specification for blue polyethylene pipes up to a nominal bore size of 63 for below ground use for potable water*.

BS 6700, *Specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages*.

BS 7291-4, *Thermoplastics pipes and associated fittings for hot and cold water for domestic purposes and heating installations in buildings — Part 4: Specification for chlorinated polyvinyl chloride (PVC-C) pipes and associated fittings and solvent cement*.

DD 252,¹⁾ *Components for residential sprinkler systems — Test methods and specification for residential sprinklers*.

BS EN 1057, *Copper and copper alloys — Seamless round copper tubes for water and gas in sanitary and heating applications*.

BS EN 1254-1, *Copper and copper alloys — Plumbing fittings — Part 1: Fittings with ends for capillary soldering or capillary brazing to copper tubes*.

BS EN 1254-2, *Copper and copper alloys — Plumbing fittings — Part 2: Fittings with compression ends for use with copper tubes*.

BS EN 1254-3, *Copper and copper alloys — Plumbing fittings — Part 3: Fittings with compression ends for use with plastics pipes*.

BS EN 12259-1, *Fixed firefighting systems — Components for sprinkler and water spray systems — Part 1: Sprinklers*.

BS EN 29453, *Soft solder alloys — Chemical compositions and forms*.

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*.

ISO 65, *Carbon steel tubes suitable for screwing in accordance with ISO 7-1*.

¹⁾ In preparation.