

Fire extinguishing installations and equipment on premises —

Part 8: Selection and installation of portable fire extinguishers — 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/2, Fire extinguishers, to Subcommittee FSH/2/12, Portable fire extinguishers (maintenance), upon which the following bodies were represented:

- British Fire Consortium
- British Telecommunications plc
- Buying Agency
- Chief and Assistant Chief Fire Officers Association
- Dorset Healthcare NHS Trust
- Fire Extinguishing Trades Association
- Home Office
- Independent Fire Equipment Distributors Association
- Institute of Fire Safety
- London Fire and Civil Defence Authority
- Loss Prevention Certification Board
- Loss Prevention Council
- Nationwide Fire Services
- Society of Motor Manufacturers and Traders

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Foreword

This revision of BS 5306-3 has been prepared under the direction of the Fire Standards Committee. The main change in this edition was to change the status of Part 3 to that of a British Standard code of practice. Part 3 was divided into two new parts, this Part 8 covering selection and installation and Part 3 covering maintenance. Part 3 and Part 8 together supersede BS 5306-3:1985 which is withdrawn. The other parts of BS 5306 published are as follows:

- *Part 0: Guide for selection of installed systems and other fire extinguishing equipment;*
- *Part 1: Hydrant systems, hose reels and foam inlets;*
- *Part 2: Sprinkler systems;*
- *Part 3: Maintenance of portable fire extinguishers — Code of practice;*
- *Part 4: Specification for carbon dioxide systems;*
- *Part 5: Halon systems — Section 5.1: Halon 1301 total flooding systems;*
- *Part 5: Halon systems — Section 5.2: Halon 1211 total flooding systems;*
- *Part 6: Foam systems;*
- *Part 7: Extinguishing powder systems.*

The rating system of BS EN 3, in which the fire performance of extinguishers on class A and class B fires, as defined in BS EN 2, are assessed on the basis of their ability to extinguish specified test fires, is used in this code for the determination of the distribution of extinguishers on premises. In this revision class B ratings recommended are determined by direct readings from tables to give the same result as by calculation but more simply. Additional consideration is given to factors that may affect the type of extinguisher selected for class A fires. Special precautions for class C and class D fires are outlined. Specific recommendations are given for controlling cooking and kitchen fires, defined in BS 7937 as class F fires. Recommendations for the identification of the content of fire extinguishers by colour are given in BS 7863. The provisions of the present code could in general be applied to the needs of a building or on a building site.

Users of this code of practice should be aware that the provision of fire extinguishers forms part of the general fire precautions for a location. As such there may be Government Regulations or official recommendations which set the level of provision. For example the Fire Precautions Act [1], Management of Health and Safety at Work Regulations (Management Regulations) [2], Fire Precautions (Workplace) Regulations as amended [3], Guide to Fire Precautions in Existing Places of Entertainment and Like Premises [4] and the Guide to Fire Precautions in Premises used as Hotels and Boarding Houses which require a Fire Certificate [5] all relate to this subject. Other types of location may be subject to other official guidance.

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.

Annexes A, B and C are informative.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from relevant statutory and legal requirements.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 17 and a back cover.

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Introduction

It is important for the fire protection of a building to be considered as a whole. Portable fire extinguishers form only part, although an important part, of such facilities, and it should not be assumed that their provision entirely obviates the need for other protection, e.g. internal rising main, hose reels, sprinklers, fire blankets or other automatic or manual extinguishing systems, or trolley mounted or large mobile extinguishing units. Portable fire extinguishers are valuable in the early stages of fire when their portability and immediate availability for use by one person enable a prompt attack to be made. They cannot be expected to deal with a large fire since they are essentially first aid fire-fighting appliances of a limited capacity.

Because of the need to consider the total fire protection of a building, this code of practice assumes that a fire risk assessment has first been carried out on the premises and that the locations, types and consequences of possible fires have been identified. The recommendations of this code of practice are intended to assist the person responsible for the safety of the building in planning to control the consequences of the possible fires. It is important to note that the performance of this risk assessment is part of the duty of care legally required of a person having control of a workplace.

Advice on such matters can always be obtained from fire authorities, the Health and Safety Executive and fire insurers. Many fire safety consultants and fire engineering companies also offer this service. In addition reference should be made as necessary to other parts of this standard.

The application of this code of practice to the needs of small private dwellings was earlier considered but it was concluded that, whereas the general principles of the code are applicable to all buildings, there are considerations of scale and economics in small private dwellings that make it unrealistic to regard the code's recommendations as applying strictly to such premises. The code of practice is, however, fully applicable to large private houses and mansions. It was also considered whether the recommendations for planning and provision given in this code could be extended to cover the needs of aircraft, caravans, ships, small marine craft and motor vehicles. It was decided not to undertake this task as it generally falls outside the defined scope of the whole series. Portable fire extinguishers for use in aircraft are specified in BS 7867, their provision in caravans is dealt with in BS 3632 and BS 4626, whilst those for marine craft and motor vehicles are the subject of a number of international agreements, government regulations and advisory publications. The recommendations for inspection, maintenance and testing in BS 5306-3 may be applied to portable extinguishers wherever they may be located.

It should be realised that the usefulness of portable fire extinguishers depends to a considerable extent on the presence of persons who know how to operate them, and staff should be trained in their use. Particular attention is drawn to the necessity for compliance with statutory requirements and to the necessity for observance of contractual obligations to insurers.

1 Scope

This part of BS 5306 gives recommendations on the suitability and siting of portable fire extinguishers, primarily those conforming to BS EN 3, that can be carried by one person and that are used for the protection of buildings and other premises and their contents.

NOTE The scale of provision of portable extinguishers will be dependent on the overall risk assessment of the building. Other fire fighting equipment or systems may be provided. Where such other means are provided, expert advice should be sought on the scale of provision.

This code of practice does not give detailed recommendations for small private dwellings. The selection and location of portable extinguishers in aircraft, caravans and marine craft are also excluded.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this British Standard. 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 4422-4, *Glossary of terms associated with fire — Part 4: Fire protection equipment*.

BS 5306-3, *Fire extinguishing installations and equipment on premises — Part 3: Maintenance of portable fire extinguishers*.

BS 7863, *Recommendations for colour coding to indicate the extinguishing media contained in portable fire extinguishers*.

BS 7937, *Specification for portable fire extinguishers for use on cooking oil (Class F)*.

BS EN 2 (all parts), *Classification of fires*.

BS EN 3 (all parts), *Specification for portable fire extinguishers*.

BS EN 1869, *Fire blankets*.

3 Terms and definitions

For the purposes of this part of BS 5306 the following terms and definitions apply¹⁾.

3.1

charge of a fire extinguisher

mass or volume of the extinguishing medium contained in the extinguisher

NOTE The charge of appliances based on water is expressed in volume (litres) and that of other appliances in mass (kilograms).

3.2

chemical foam fire extinguisher

extinguisher from which foam is expelled when chemical solutions stored separately within the body of the portable fire extinguisher are allowed to mix and react on the actuation of the operating mechanism

3.3

clean agent

electrically non-conducting, volatile or gaseous, fire extinguishing medium that does not leave a residue upon evaporation

3.4

extinguishing medium

substance contained in the portable fire extinguisher which causes extinction

3.5

fire extinguisher

appliance containing an extinguishing medium which can be expelled by the action of internal pressure and be directed on to a fire

NOTE This pressure may be stored in the body or produced by the release of an auxiliary gas.

3.6

fire risk assessment

the overall process of:

- a) identification of possible sources of fire;
- b) estimation of their probabilities;
- c) evaluation of their consequences;
- d) comparison of the resultant risk estimate with predefined action criteria.

3.7

flash-spread

rapid transfer of ignition between grouped open topped containers of flammable liquids if any member of the group becomes ignited

3.8

portable fire extinguisher

extinguisher which is designed to be carried and operated by hand and which in working order has a mass of not more than 20 kg

3.9

soda acid fire extinguisher

extinguisher from which water is expelled by pressure resulting from an acid and/or alkali reaction in the contents of the portable fire extinguisher on the actuation of the operating mechanism

3.10

supplier

party that is responsible for the product, process or service and is able to ensure that quality assurance is exercised

NOTE The definition may apply to manufacturers, distributors, importers, assemblers, service organizations, etc.

3.11

user

person or persons responsible for or having effective control over fire safety provisions adopted in or appropriate to the premises or building or risk where the portable fire extinguisher is installed

¹⁾ These definitions are in general agreement with those of BS 4422-4 but follow current use and practice.

4 General considerations

4.1 Importance of early planning

Although portable extinguishers are not permanent fittings in a structure they form part of the whole concept of fire protection and in new buildings their provision should receive consideration at the design stage. When the use of the building has been decided, or, for existing structures, if the use or layout is to be changed, a fire risk assessment should be carried out. The conclusions of this study should be used to decide upon the provision of portable fire extinguishers which will be needed. There may be legislation, regulations or other conditions which apply. Fire authorities, the Health and Safety Executive and fire insurers should be consulted for advice at this stage.

4.2 Erection and demolition of buildings

Consideration should also be given to the provision of extinguishers:

- a) during the erection of a building, particularly where material or equipment is stored pending use or installation;
- b) when a building is unused or in process of demolition;
- c) where any part of a building is brought into occupation prior to completion.

4.3 Availability of trained operators

Extinguishers are useful only where people are present who are prepared and able to use them. Therefore every opportunity should be taken to instruct personnel in their use, and to demonstrate their performance. A convenient opportunity for this occurs where extinguishers are discharged in accordance with the recommendations of BS 5306-3, annex C.

4.4 Avoidance of multiplicity of types

To avoid confusion, all extinguishers installed in any one floor of a building or single occupancy should have the same method of operation and if intended for the same function should all be similar in shape, appearance and colour. These precautions apply equally to temporary replacement units supplied during maintenance operations (see BS 5306-3, 8.5.3).

4.5 Extinguisher types

Extinguishers conforming to BS EN 3 range from approximately 1 kg to 20 kg in total weight, the latter being the maximum that it is considered a person can satisfactorily carry and use effectively. Those provided should be of a size that can conveniently be carried by the occupants of the building in which they are placed, provided always that the extinguisher rating recommended in clause 6 is satisfied. The rating system compares extinguishers by their ability to extinguish different sizes and types of fire.

4.6 Extinguisher colour coding

The colour coding of all portable extinguishers in a new installation should conform to the recommendations of BS 7863. This specifies the size of the colour coded area.

5 Suitability of extinguishers for various classes of fire

5.1 Classes of fire

Portable fire extinguishers should be provided for dealing with any potential classes of fire identified in the risk assessment. The suitability of extinguishers for dealing with the different classes of fire defined in BS EN 2 is indicated by a letter and a pictogram marked on the extinguisher in accordance with BS EN 3-5. The classes defined in BS EN 2 are as follows.

- a) Class A. Fires involving solid materials, usually of an organic nature in which combustion normally takes place with the formation of glowing embers. (These are normally carbonaceous fires.)
- b) Class B. Fires involving liquids or liquefiable solids.
- c) Class C. Fires involving gases.
- d) Class D. Fires involving metals.

For the purposes of this code of practice two additional classes are identified. These are:

- e) Class F. Fires involving fats and cooking oils.
- f) Fires involving electrical equipment.

The A and B designations marked on extinguishers are always accompanied by a figure indicating the rating of the extinguisher based on the size of fire that can be extinguished. The use of these numbers is explained in 6.1.