

BS 5306-8:2012



BSI Standards Publication

Fire extinguishing installations and equipment on premises

Part 8: Selection and positioning of
portable fire extinguishers – Code of
practice

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Summary of pages

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Foreword

Publishing information

This part of BS 5306 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2012. It was prepared by Technical Committee FSH/2, *Fire extinguishers*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 5306 supersedes BS 5306-8:2000, which is withdrawn.

Relationship with other publications

The other parts of BS 5306 published are as follows:

- Part 0: *Guide for selection of installed systems and other fire equipment*;
- Part 1: *Hose reels and foam inlets*;
- Part 2 (obsolescent): *Specification for sprinkler systems*;
- Part 3: *Commissioning and maintenance of portable fire extinguishers – Code of practice*;
- Part 4: *Specification for carbon dioxide systems*;
- Part 5: *Halon systems*:
 - Section 5.1: *Specification for halon 1301 total flooding systems*;
 - Section 5.2: *Specification for halon 1211 total flooding systems*.

This part of BS 5306 is intended to be read in conjunction with BS EN 2 and BS EN 3 (see also *Information about this document*).

Information about this document

Well maintained and professionally installed fire extinguishers are fundamentally safe and easy to use. Research has shown that extinguishers are successful in a significant number of fires each year and make a major contribution to first aid fire safety.

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

- recognition of changes in relevant legislation;
- recommendations added on environmental impact;
- information on the use of powder revised;
- clarification on the requirements for class A hazards;
- changes in the recommendations for class B and class C hazards;
- erroneous reference to class E removed;
- references to fire blankets removed;
- travel distances revised;
- changes to the recommendations on signs;
- calculation examples updated;
- advice on reducing vandalism added;

- recommendations added on the preservation of service information;
- advice added on extinguisher discharge characteristics.

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 part of BS 5306 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 could 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 class F fires. The provisions of the present part of BS 5306 could in general be applied to the needs of a building or on a building site.

Hazard warnings

WARNING. This British Standard calls for the use of substances and/or procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Use of this document

As a code of practice, this part of BS 5306 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 part of BS 5306 is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions in 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.

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.

Attention is drawn to the following statutory regulations; this list is not to be taken as definitive or exhaustive:

- Regulatory Reform (Fire Safety) Order 2005 [1] and associated Guidance Notes;
- Fire Safety (Scotland) Regulations 2006 [2] and associated Guidance Notes;
- Fire Precautions (Workplace) Regulations (Northern Ireland) 2001 [3] and associated Guidance Notes;
- Fire (Scotland) Act 2005 [4];
- Fire Safety Regulations (Northern Ireland) 2010 [5];
- Health and Safety (Safety Signs and Signals) Regulations 1996 [6];

- Health and Safety (Safety Signs and Signals) Regulations (Northern Ireland) 1996 [7];
- Pressure Systems Safety Regulations 2000 [8];
- Pressure Systems Safety Regulations (Northern Ireland) 2004 [9];
- Transportable Pressure Vessels Regulations 2001 [10];
- Transportable Pressure Vessels Regulations (Northern Ireland) 2003 [11];
- Environmental Protection (Controls on Ozone-Depleting Substances) (Amendment) Regulations 2011 [12];
- Controls on Ozone-Depleting Substances Regulations (Northern Ireland) 2011 [13];
- Health and Safety at Work Act etc. 1974 [14];
- Management of Health and Safety at Work Regulations 1999 [15];
- Management of Health and Safety at Work Regulations (Northern Ireland) 2000 [16].

Introduction

It is important for the fire protection of a building to be considered as a whole. Portable fire extinguishers form an important part of such facilities, although it cannot be assumed that their provision entirely obviates the need for other protection, e.g. internal rising main, hose reels, sprinklers, other automatic or manual extinguishing systems, mobile extinguishing units, and fire alarm systems.

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.

The recommendations of this part of BS 5306 are intended to assist the person(s) responsible for the safety of the building in planning to control the consequences of possible fires.

It is a legal obligation to ensure that subsequent preventative and protective measures are carried out by a competent person. It is important to note that the carrying out of a fire risk assessment is part of the duty of care legally required of the responsible person having control of a workplace.

Advice on such matters can be obtained from fire engineering companies, fire authorities, the Health and Safety Executive, fire insurers and fire safety consultants.

1 Scope

This part of BS 5306 gives advice and guidance on the suitability and positioning 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, other premises, contents and to assist evacuation.

This part of BS 5306 is not applicable to aircraft, caravans or marine craft.

NOTE Portable fire extinguishers for use in aircraft are specified in BS 7867, their provision in caravans is dealt with in BS 3632 and BS EN 1645-1, whilst those for marine craft and motor vehicles are the subject of a number of international agreements, government regulations and advisory publications.

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 5306-3, *Fire extinguishing installations and equipment on premises – Part 3: Commissioning and maintenance of portable fire extinguishers – Code of practice*

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

BS EN 2, *Classification of fires*

BS EN 3 (all parts), *Portable fire extinguishers* ¹⁾

¹⁾ This standard also gives informative references to BS EN 3-7:2004+A1:2007.

3 Terms and definitions

For the purposes of this part of BS 5306, the following terms and definitions apply.

3.1 charge

mass or volume of extinguishing medium contained in an extinguisher

NOTE The charge of a water-based medium is expressed as a volume in litres. Charges for other media are expressed as a mass in kilograms.

3.2 clean agent

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

3.3 competent person

person with enough training, experience or knowledge and other qualities to be able to assist in the implementation of preventative and protective measures

NOTE The competent person is often the competent person undertaking the maintenance of extinguishers as defined in BS 5306-3.

3.4 extinguishing medium

substance contained in an extinguisher which causes extinction of a fire

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 can be stored in the body or produced by the release of an auxiliary gas.

3.6 fire hazard

source or situation with potential to result in a fire

NOTE Examples of fire hazards include ignition sources and accumulation of waste that could be subject to ignition. Guidance is given in PAS 79.

3.7 fire risk

combination of likelihood and consequence(s) of fire

NOTE In the context of this standard, the relevant consequences are those involving injury to people, as opposed to damage to property. Guidance is given in PAS 79.

3.8 fire risk assessment

overall process of identifying fire hazards and evaluating the risks to life and property arising from them, taking account of existing risk controls (or, in the case of a new activity, proposed risk controls)

NOTE A fire risk assessment is a legal requirement for virtually all non-domestic premises, and for certain multiple-occupancy dwellings and parts of such dwellings. Guidance is given in PAS 79.

3.9 flash-spread

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

3.10 portable fire extinguisher

fire 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

NOTE Hereinafter referred to as an "extinguisher".

3.11 responsible person

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

NOTE For the purposes of this part of BS 5306, the term “responsible person” includes a nominated representative, and is the person defined by this term in the Regulatory Reform (Fire Safety) Order 2005 [1].

3.12 storey

floor or level within a building, including basements and mezzanines and ground floor

4 Provision of extinguishers – General recommendations

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 be taken into account 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 findings of this fire risk assessment should be used to help determine requirements for increased levels of extinguisher cover above the scale of provision of portable extinguishers as recommended in Clause 8.

NOTE Attention is drawn to the legal obligation to ensure that preventative and protective measures are carried out by a competent person.

4.2 The environment

The impact of the discharge of the extinguishing medium on the environment should be taken into account.

Extinguishing medium can cause collateral damage to many things such as, but not restricted to, food, machinery, building fabric, fixtures, fittings, artefacts and sensitive equipment. Expert advice on the impact of the discharge from a fire extinguisher on the local environment should be sought from a competent person.

Advice on the impact of extinguishers (and their content) on the wider environment should be sought from extinguisher manufacturers and distributors.

4.3 Erection, refurbishment and demolition of buildings

The results of a fire risk assessment should identify the types and numbers of extinguishers in the following circumstances:

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

4.4 Unoccupied buildings

The responsible person or competent person should assess the provision of extinguishers where buildings, or parts thereof, are unoccupied.

4.5 Training in the use of extinguishers

The competent person should bring to the attention of the responsible person the legal requirement for training. Every opportunity should be taken to instruct personnel in the use of extinguishers, and to demonstrate their performance.

Extinguishers for different fire classifications will have different training requirements.

NOTE Attention is drawn to legal obligations concerning training for the use of fire extinguishers.

4.6 Avoidance of multiplicity of types

To avoid confusion, all extinguishers installed in any one storey 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.

4.7 Commissioning and maintenance

The extinguishers referred to in this part of BS 5306 should be commissioned, inspected, tested and maintained by a competent person in accordance with BS 5306-3.

5 Extinguisher characteristics

5.1 General

A fire extinguisher is described by the type of extinguishing medium it contains. At present there are:

- water-based, including foam and wet chemical (see Note 1);
- powder;
- carbon dioxide;
- clean agent, including halon (see Note 2).

NOTE 1 Water-based extinguishers can be produced with or without a low-freeze additive.

NOTE 2 Attention is drawn to European Council Regulations EC 1005/2009 [17] and EU 744/2010 [18] concerning the use of halons.

Extinguishers conforming to BS EN 3 range from approximately 2 kg to 20 kg total mass, 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, and should have the appropriate class as shown in Clause 7. The class and rating system compares extinguishers by their ability to extinguish different types and sizes of test fire.

5.2 Fire ratings

Fire ratings of extinguishers are determined during controlled tests by experienced users. When using the fire rating of an extinguisher to calculate the required levels of coverage, it is therefore important to take into account the total discharge time of the extinguisher, and its range of discharge, in combination with the levels of experience of the potential users.

Extinguishers conforming to withdrawn British Standards (e.g. BS 5423, BS 7937) might still be found in service. These are still acceptable as part of the extinguisher provision for the premises provided that they can be returned to a serviceable state; and additionally are marked with a fire rating.