BS 9999:2008

BSI British Standards

Code of practice for fire safety in the design, management and use of buildings

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BSI British Standards

Publishing and copyright information

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Contents

List of figures

List of tables

Summary of pages

This document comprises a front cover, an inside front cover, pages i to xv, a blank page, pages 1 to 439 and a back cover.

Foreword

Publishing information

This British Standard is published by BSI and came into effect on 6 October 2008. It was prepared by Technical Committee FSH/14, *Fire precautions in buildings*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes the following publications, which will be withdrawn on 6 April 2009:

- BS 5588-0:1996;
- BS 5588-5:2004;
- BS 5588-6:1991;
- BS 5588-7:1997;
- BS 5588-8:1999;
- BS 5588-9:1999;
- BS 5588-10:1991;
- BS 5588-11:1997;
- BS 5588-12:2004;
- DD 9999:2005.

BS 5588-1 is not being superseded by BS 9999 but is expected to be revised in due course and issued with a new identifier.

Information about this document

DD 9999 contained a number of important changes from the guidance in the BS 5588 series, particularly in the approach for design of means of escape, and in the guidance on construction which introduced a number of new features. It also introduced the concept of the risk profile.

This document converts DD 9999 into a full British Standard, and incorporates the following changes from the Draft for Development.

- The text from BS 5588-5 (access and facilities for fire-fighting) and BS 5588-12 (management) is now included in the appropriate places as indicated in the Draft for Development.
- Account has been taken of public comments received on the Draft for Development.
- The recommendations have been updated to take into account changes to legislation and the publication of new standards and legislative guidance documents.
- The title has changed to reflect the content more accurately.
- The recommendations specifically relating to fire-fighting have been updated to take into account the findings of the Building Disaster Assessment Group (available at http://www.communities.gov.uk/fire/fireandresiliencestatisticsandre/fireresearch/buildingdisasterassessment).
- The document has been restructured into sections and the contents list expanded.

The concept behind the development of BS 9999 and BS 7974 is that technical guidance on fire safety is provided at three different levels. This permits a design approach to be adopted that corresponds to the complexity of the building and to the degree of flexibility required. The three levels are as follows.

a) *General approach*. This level is applicable to a majority of building work undertaken within the UK. In this case the fire precautions designed into the building usually follow the guidance contained in the documents published by the relevant government departments to support legislative requirements.

b) *Advanced approach*. This is the level for which BS 9999 is provided. Guidance provided in this document gives a more transparent and flexible approach to fire safety design through use of a structured approach to risk-based design where designers can take account of varying physical and human factors. Much of the guidance in BS 9999 is based on fire safety engineering principles, although it is not intended as a guide to fire safety engineering.

c) *Fire safety engineering*. This is the level for which BS 7974 is provided. This level provides an alternative approach to fire safety and can be the only practical way to achieve a satisfactory standard of fire safety in some large and complex buildings, and in buildings containing different uses.

There might be circumstances where it is necessary to use one publication to supplement another, but care needs to be taken when using a "pick-and-mix" approach as it is essential to ensure that an integrated approach is used in any one building.

Whilst primarily intended for designers, fire engineers and fire safety managers, it is expected that BS 9999 will also be of use to:

- specifiers, contractors, site supervisors and site safety officers;
- owners, tenants, occupants, facility managers, safety officers and security staff;
- regulators and enforcers, including building control bodies, fire authorities, health and safety inspectors, environmental health officers, and environmental agencies.

BS 9999 is designed as a co-ordinated package covering the four main areas that influence fire safety measures, namely:

- fire safety management;
- the provisions of means of escape;
- the structural protection of escape facilities and the structural stability of the building in the event of a fire;
- the provision of access and facilities for fire-fighting.

Individual recommendations of this British Standard applied in isolation might give little or no benefit, and might even reduce the level of fire safety. Although the basic principles and recommendations for escape from floor areas are described in Section **5**, the most conscientious application of these recommendations could be undermined unless supported by other necessary measures.

Whatever fire safety provisions are made, they can be seriously compromised by a lack of management of fire safety (see Sections **4** and **9**); inadequate facilities for fire-fighting (see Section **6**); or a lack of appropriate related measures on construction of the building (see Section **7**).

It is important therefore that all those involved in either designing or approving the package of fire safety measures appreciate these interactions and influences. In addition it is important that a record is made of the basis for any package of fire safety measures proposed and approved, whether at the initial design stage or at any subsequent alteration to the building and/or its occupancy.

In developing this British Standard, cognizance has been taken of the guidelines given in CEN Guide 6.

These issues will also form essential components of the overall fire safety strategy adopted in the occupied building to ensure compliance with relevant fire safety legislation.

Assessed capability. *Users of this British Standard are advised to consider the desirability of quality system assessment and registration against the appropriate standard in the BS EN ISO 9000 series by an accredited third-party certification body.*

Further information

Advice is available from a number of bodies, depending on whether they have a direct responsibility for the enforcement of fire safety in the building concerned. The bodies concerned include:

- local authorities;
- fire and rescue authorities;
- the Health and Safety Executive;
- building control bodies;
- environmental health departments;
- social services;
- education authorities;
- health authorities;
- the Environment Agency;
- consumer protection departments;
- petroleum licensing authorities.

Advice is also available in books and documents published by:

- Communities and Local Government (for planning and building construction matters and compliance with fire safety in occupied buildings) (http://www.communities.gov.uk);
- the Health and Safety Executive (for general and specific health and safety matters concerned with work activities) (http://www.hse.gov.uk);
- Scottish Government Building Standards (http://www.sbsa.gov.uk);
- the Department of Finance and Personnel (http://www.dfpni.gov.uk) and the Department of Health, Social Services and Public Safety (http://www.dhsspsni.gov.uk) in Northern Ireland.

Use of this document

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.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations. Some variation from the recommendations might be necessary for certain specialist buildings or areas of buildings, e.g. areas of lawful detention.

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 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.

The word "should" is used to express recommendations of this standard. The word "may" is used in the text to express permissibility, e.g. as an alternative to the primary recommendation of the clause. The word "can" is used to express possibility, e.g. a consequence of an action or an event.

Notes and commentaries are provided throughout the text of this standard. Notes give references and additional information that are important but do not form part of the recommendations. Commentaries give background information.

Contractual and legal considerations

NOTE References are made throughout this British Standard to legislation and guidance applicable in the UK. However, it is recognized that the standard might be used outside the UK, and in such circumstances, readers of the standard need to be aware of the legislative requirements and sources of further information applicable in their own countries.

Broadly speaking, fire safety legislation in the UK sets out fire safety objectives for various types of premises and their associated activities, and specifies who is responsible for ensuring that they are met. Individual items of legislation generally refer to, and give legal force to, named sets of regulations that are more detailed than the parent legislation. They either specify how certain activities are to be performed, and duties discharged, or they state functional requirements, i.e. they describe the outcome(s) required. When functional requirements are given, the regulations usually refer to other technical guidance and/or standards, including British Standards. Reference is made throughout the text to legislative material of which users of this British Standard need to be aware.

Attention is particularly drawn to regulatory requirements in respect of the following principal stages in the lifetime of a building:

a) *planning* – type, size, use, appearance, access and location of a proposed building;

b) *construction* – materials, methods, nature and extent of both structural and installed fire safety features, internal and external arrangements for access, and proximity to other buildings;

c) *use* – occupants' activities including storage and use of materials, provision of first aid fire-fighting equipment and fire safety training for occupants, and maintaining means of escape;

d) *maintenance* – maintenance of fire safety systems and equipment in occupied and unoccupied buildings;

e) *alterations and extensions* – changes in fire risk or fire safety provisions; fire safety arrangements during construction work;

f) *change of use* – changes in fire risk or fire safety provisions;

g) *demolition* – fire safety arrangements during demolition work;

h) *when empty* – empty buildings are particularly vulnerable to arson.

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.

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Section 1: General

0 Introduction

0.1 General principles

The design of buildings for fire safety relies upon an understanding of the sources of fire, materials and systems likely to be involved in fire, and the likely spread of fire.

The recommendations and guidance given in this British Standard are based on the assumption that under normal circumstances (i.e. except in the case of arson) a fire is unlikely to start in two different places in a building. Further information on the spread of fire is given in **4.1**.

The recommendations given in this British Standard are general, and all fire safety protection measures, procedures, etc., need to take into account the particular circumstances of the individual building or complex concerned. The same recommendations generally apply to both existing and new buildings, but existing buildings, especially historic buildings, often pose problems which are unlikely to arise in new buildings. In assessing the fire safety management needs of an existing building which is being modified, it is essential to have a full understanding of the existing structure and any fire safety provisions incorporated, and to take into account all of the following:

a) any change in use of the premises which could affect the fire risk profile (e.g. increased fire load and process risks, introducing the public, changes to sleeping risk, seasonal changes);

b) how the necessary fire safety levels can be practicably achieved in the existing premises and whether they are appropriate;

c) historic and environmental aspects of the premises and to what extent they need to be disturbed;

d) legislation and guidance introduced since the premises were originally constructed, or last altered, or since their fire safety was last assessed;

e) the interrelationship between life safety and measures to protect property/contents;

f) business continuity.

Historic buildings present particular challenges, as many are listed, and permitted alterations are limited without the agreement of the appropriate authorities. The advice of consultative bodies, such as English Heritage, should be sought in the early stages of design. The appropriate authorities sometimes agree to limited modifications to improve life safety where, in turn, there will be added long-term protection and preservation of the original building fabric. Specific issues relating to historic buildings can be divided into four areas:

1) the preservation of the ambience and important features of the building such as timber linings to accommodation stairs and slender cast iron structure, both of which can sometimes conflict with the desired fire safety construction but can be accommodated with suitable compensating features;

2) the existing construction of the building, including hidden features such as the extent of cavities through which fire could spread and the quality of walls, partitions and floors the fire resistance of which might be unknown or questionable. Life safety can often be addressed by the use of suitable compensating features, but these do not always cover property protection and business interests;

3) the fire performance of the building structure. Although modern construction standards seldom apply to historic buildings, action to improve the level of fire and life safety might be necessary based on change of use or due to the need to reduce the fire risk and potential for loss of the structure and/or interior in any other context;

4) the sensitivity of historic structures and interiors (finishes and contents) to fire and smoke damage.

In both new construction and upgrading existing buildings, the various aspects of fire precautions are interrelated and weaknesses in some areas can be compensated for by strengths in others. A higher standard under one of the areas might be of benefit in respect of one or more of the other areas. BS 9999 provides a level of flexibility that allows the fire protection measures and the risks to be assessed to enable reasonable practical solutions to be designed.

Fire precautions in all premises – however old – need to be seen as a whole, a package aimed at achieving an acceptable standard of fire safety. In modifying existing structures, if the new work can be shown not to have a negative impact on the remainder, it is expected that no work will be needed on the remainder, although it might be possible to offer improvement as good practice.

The principles and recommendations in this British Standard apply straightforwardly where premises have a single main use and are contained in a single, separate building. However, complications might arise where a building comprises two or more different main uses. In such cases it is important to consider the effect of one risk on another. A fire in a shop or unattended office could have serious consequences on, for example, a residential or hotel use in the same building. Similarly, a high fire risk in one part of a building could seriously affect other areas in another part of that building.

Amongst the factors that need to be taken into account in establishing a minimum package of fire protection measures are:

i) the potential users of the building;

ii) the hazard posed by one occupancy to another;

iii) provision for giving warning in case of fire, including any automatic fire detection;

iv) the provision of automatic fire suppression systems and smoke control arrangements;

v) the overall management and control of the building or development, from a fire safety point of view.

BS 9999 provides guidance on the provision of measures to control or mitigate the effects of fire. The primary objective is to ensure that an adequate standard of life safety can be achieved in the event of fire in the building. This can also have the effect of assisting the fire and rescue service and/or of providing some property and environmental protection. There are references throughout the standard to occupant safety, fire-fighter safety and property protection, to draw attention to the different considerations these could raise.

Section **2** is very important as it sets out the principles behind the guidance and introduces the concept of the risk profile. The guidance on the provision of means of escape and on construction has been developed to reflect the nature of the occupants and the use of the buildings as well as the likely fire growth and resulting risks associated with that use – the risk profile.

0.2 Management of fire safety

It is a fundamental assumption that features described in BS 9999 will require management and maintenance throughout the life of the building.

Managing fire safety is the whole process throughout the life of a building, starting with the initial design, which is intended both to minimize the incidence of fire and to ensure that, when a fire does occur, appropriate fire safety systems (including active, passive, and procedural systems) are in place and are fully functional. The management of fire safety is thus an essential element in averting disaster in the event of a fire. Although many buildings will never have a serious life-threatening fire, it is essential for fire safety procedures to be planned for every building. Often, the one common element in multi-fatality fires is that, when fire is discovered or when the alarm is raised, the occupants of premises, be they staff or members of the public, react and respond in ways which are different from those assumed or expected by the building designer. There are a number of stages by which people react to a fire alarm. Initially they tend to seek information regarding the validity of the warning, possibly by asking colleagues. They then gather belongings or seek associates or family. Only then do they seek to travel to a place of ultimate safety. The management of fire safety is intended to increase awareness and increase the probability of appropriate behaviour, to minimize the threat from the fire.

There have been numerous fire incidents, both large and small, where there have been lives lost or put at risk as a result of the safety systems provided being inappropriate or not being used effectively. In some occupancies (such as football grounds), fire is not always seen as the biggest safety problem and care is needed to avoid it becoming a neglected issue.

It is now widely acknowledged that the design and engineering put into a building for life safety can only do its job properly if it can be managed, maintained and tested over the whole life of the building, and if the staff are trained to handle incidents and operate effective and tested emergency plans.

Once the designer or engineer has handed over the building, then good management of fire safety becomes the key element to fire safety for the life of the building.

Effective management of fire safety can contribute to the protection of the building occupants in many ways:

- by working to prevent fires occurring in the first place;
- by monitoring the fire risks on an ongoing basis and taking appropriate action to eliminate or reduce the risk;
- by being aware of the types of people in the building (such as disabled people, elderly people, children, pregnant women, etc.) and any special risks or needs;
- by ensuring that all of the fire safety measures in the building are kept in working order, and in particular that the means of escape are always available;
- by training staff and organizing the evacuation plan, to ensure that occupants leave quickly if a fire occurs;
- by taking command in the event of a fire until the fire and rescue service arrives.

These tasks differ in detail depending on the occupancy of the building.

1 Scope

This British Standard gives recommendations and guidance on the design, management and use of buildings to achieve reasonable standards of fire safety for all people in and around buildings. It is not applicable to individual dwelling-houses, and might have only limited applicability to certain specialist buildings and areas of buildings (e.g. areas of lawful detention).

*NOTE The sections on fire safety management (Section **4** and Section **9**) are not applicable to buildings under construction (i.e. new build prior to partial occupation).*

This British Standard is applicable to the design of new buildings, and to alterations, extensions and changes of use of an existing building. It also provides guidance on the ongoing management of fire safety in a building throughout the entire life cycle of the building, including guidance for designers to ensure that the overall design of a building assists and enhances the management of fire safety. It can be used as a tool for assessing existing buildings, although fundamental change in line with the guidelines might well be limited or not practicable.

The recommendations and guidance given in this British Standard are intended to safeguard the lives of building occupants and fire-fighters. Whilst some of the recommendations and guidance might also assist in the achievement of other fire safety objectives – such as protection of property, the environment, communities and business/service viability – additional measures might be necessary which are outside the scope of this British Standard.

This British Standard does not cover fire safety design strategies for extreme events such as terrorist actions.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Standards publications

BS 476 (all parts), *Fire tests on building materials and structures*

BS 799-5, *Oil burning equipment – Part 5: Specification for oil storage tanks*

BS 1635, *Recommendations for graphic symbols and abbreviations for fire protection drawings*

BS 3251, *Specification – Indicator plates for fire hydrants and emergency water supplies*

BS 4533 (all parts), *Luminaires*

BS 4790, *Method for determination of the effects of a small source of ignition on textile floor coverings (hot metal nut method)*

BS 5234 (both parts), *Partitions (including matching linings)*

BS 5266-1, *Emergency lighting – Part 1: Code of practice for the emergency lighting of premises*

BS 5266-7 (BS EN 1838), *Lighting applications – Emergency lighting*

BS 5306-0, *Fire extinguishing installations and equipment on premises – Part 0: Guide for the selection of installed systems and other fire equipment*

BS 5306-1, *Code of practice for fire extinguishing installations and equipment on premises – Part 1: Hose reels and foam inlets*

BS 5306-2, *Fire extinguishing installations and equipment on premises – Part 2: Specification for sprinkler systems*

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

BS 5306-4, *Fire extinguishing installations and equipment on premises – Part 4: Specification for carbon dioxide systems*

BS 5306-5 (all sections), *Code of practice for fire extinguishing installations and equipment on premises – Part 5: Halon systems*

BS 5306-6 (all sections), *Fire extinguishing installations and equipment on premises – Part 6: Foam systems*

BS 5306-8, *Fire extinguishing installations and equipment on premises – Part 8: Selection and installation of portable fire extinguishers – Code of practice*

BS 5395-1, *Stairs, ladders and walkways – Part 1: Code of practice for the design, construction and maintenance of straight stairs and winders*

BS 5395-2, *Stairs, ladders and walkways – Part 2: Code of practice for the design of helical and spiral stairs*

BS 5410-1, *Code of practice for oil firing – Part 1: Installations up to 45 kW output capacity for space heating and hot water supply purposes*

BS 5410-2, *Code of practice for oil firing – Part 2: Installations of 45 kW and above output capacity for space heating, hot water and steam supply services*

BS 5438:1989+A2:1994, *Methods of test for flammability of textile fabrics when subjected to a small igniting flame applied to the face or bottom edge of vertically oriented specimens*

BS 5499 (all parts), *Graphical symbols and signs – Safety signs, including fire safety signs*

BS 5651, *Method for cleansing and wetting procedures for use in the assessment of the effect of cleansing and wetting on the flammability of textile fabrics and fabric assemblies*

BS 5655-6, *Lifts and service lifts – Part 6: Code of practice for the selection and installation of new lifts*

BS 5656-1, *Safety rules for the construction and installation of escalators and passenger conveyors – Part 1: Specification and proformas for test and examination of new installations*

BS 5656-2, *Escalator and moving walks – Safety rules for the construction and installation of escalators and moving walks – Part 2: Code of practice for the selection, installation and location of new escalators and moving walks*

BS 5839-1:2002+A2:2008, *Fire detection and alarm systems for buildings – Part 1: Code of practice for system design, installation, commissioning and maintenance*

BS 5839-3, *Fire detection and alarm systems for buildings – Part 3: Specification for automatic release mechanisms for certain fire protection equipment*

BS 5839-9:2003, *Fire detection and alarm systems for buildings – Part 9: Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems*

BS 5852:2006, *Methods of test for assessment of the ignitability of upholstered seating by smouldering and flaming ignition sources*

BS 5867-2:2008, *Fabrics for curtains, drapes and window blinds – Part 2: Flammability requirements – Specification*

BS 5906, *Waste management in buildings – Code of practice*

BS 6180, *Barriers in and about buildings – Code of practice*

BS 6262-4, *Glazing for buildings – Part 4: Code of practice for safety related to human impact*

BS 6263-2, *Care and maintenance of floor surfaces – Part 2: Code of practice for resilient sheet and tile flooring*

BS 6644, *Specification for installation of gas-fired hot water boilers of rated inputs between 70 kW (net) and 1.8 MW (net) (2nd and 3rd family gases)*

BS 6798, *Specification for installation of gas-fired boilers of rated input not exceeding 70 kW net*

BS 7036 (all parts), *Code of practice for safety at powered doors for pedestrian use*

BS 7157:1989, *Method of test for ignitability of fabrics used in the construction of large tented structures*

BS 7176, *Specification for resistance to ignition of upholstered furniture for non-domestic seating by testing composites*

BS 7273-4, *Code of practice for the operation of fire protection measures – Part 4: Actuation of release mechanisms for doors*

BS 7346-3, *Components for smoke and heat control systems – Part 3: Specification for smoke curtains*

BS 7346-4, *Components for smoke and heat control systems – Part 4: Functional recommendations and calculation methods for smoke and heat exhaust ventilation systems, employing steady-state design fires – Code of practice*

BS 7346-6, *Components for smoke and heat control systems – Part 6: Specifications for cable systems*

BS 7346-7:2006, *Components for smoke and heat control systems – Part 7: Code of practice on functional recommendations and calculation methods for smoke and heat control systems for covered car parks*

BS 7671, *Requirements for electrical installations – IEE Wiring Regulations – Seventeenth edition*

BS 7807, *Code of practice for design, installation and servicing of integrated systems incorporating fire detection and alarm systems and/or other security systems for buildings other than dwellings*

BS 8214, *Code of practice for fire door assemblies with non-metallic leaves*

BS 8300, *Design of buildings and their approaches to meet the needs of disabled people – Code of practice*

BS 8313, *Code of practice for accommodation of building services in ducts*

BS 8414-1, *Fire performance of external cladding systems – Part 1: Test methods for non-loadbearing external cladding systems applied to the face of a building*

BS 8414-2, *Fire performance of external cladding systems – Part 2: Test method for non-loadbearing external cladding systems fixed to and supported by a structural steel frame*

BS 8486-1, *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81 – Part 1: Electric lifts*

BS 8486-2, *Examination and test of new lifts before putting into service – Specification for means of determining compliance with BS EN 81 – Part 2: Hydraulic lifts*

BS 8491, *Method for assessment of fire integrity of large diameter power cables for use as components for smoke and heat control systems and certain other active fire safety systems*

BS 9251, *Sprinkler systems for residential and domestic occupancies – Code of practice*

BS 9990, *Code of practice for non-automatic fire-fighting systems in buildings*

BS EN 54-7, *Fire detection and fire alarm systems – Part 7: Smoke detectors – Point detectors using scattered light, transmitted light or ionization*

BS EN 54-11:2001+A1:2006, *Fire detection and fire alarm systems – Part 11: Manual call points*

BS EN 81 (all parts), *Safety rules for the construction and installation of lifts*

BS EN 115, *Safety rules for the construction and installation of escalators and passenger conveyors*

BS EN 378 (all parts), *Refrigerating systems and heat pumps – Safety and environmental requirements*

BS EN 671 (all parts), *Fixed fire fighting systems – Hose systems*

BS EN 1125, *Building hardware – Panic exit devices operated by a horizontal bar – Requirements and test methods*

BS EN 1154, *Building hardware – Controlled door closing devices – Requirements and test methods*

BS EN 1155, *Building hardware – Electrically powered hold-open devices for swing doors – Requirements and test methods*

BS EN 1363 (all parts), *Fire resistance tests*

BS EN 1364 (all parts), *Fire resistance tests for non-loadbearing elements*

BS EN 1365 (all parts), *Fire resistance tests for loadbearing elements*

BS EN 1366 (all parts), *Fire resistance tests for service installations*

BS EN 1634-1, *Fire resistance tests for door and shutter assemblies – Part 1: Fire doors and shutters*

BS EN 1634-3, *Fire resistance tests for door and shutter assemblies – Part 3: Smoke control doors and shutters*

BS EN 12101 (all parts), *Smoke and heat control systems*

BS EN 12150-1, *Glass in building – Thermally toughened soda lime silicate safety glass – Part 1: Definition and description*

BS EN 12416-2, *Fixed firefighting systems – Powder systems – Part 2: Design, construction and maintenance*

BS EN 12845, *Fixed firefighting systems – Automatic sprinkler systems – Design, installation and maintenance*

BS EN 13501 (all parts), *Fire classification of construction products and building elements*

BS EN 13823, *Reaction to fire tests for building products – Building products excluding floorings exposed to the thermal attack by a single burning item*

BS EN 14179-1, *Glass in building – Heat-soaked thermally-toughened soda lime silicate safety glass – Part 1: Definition and description*

BS EN 60702-1, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 1: Cables*

BS EN 60702-2, *Mineral insulated cables and their terminations with a rated voltage not exceeding 750 V – Part 2: Terminations*

BS EN ISO 306, *Plastics – Thermoplastic materials – Determination of Vicat softening temperature (VST)*

BS EN ISO 1182, *Reaction to fire tests for building products – Non-combustibility test*

BS EN ISO 1716, *Reaction to fire tests for building products – Determination of the heat of combustion*

BS EN ISO 12543-2, *Glass in building – Laminated glass and laminated safety glass – Part 2: Laminated safety glass*

BS EN ISO 14122-4, *Safety of machinery – Permanent means of access to machinery – Part 4: Fixed ladders*

BS ISO 10294-5, *Fire-resistance tests – Part 5: Fire dampers for air distribution systems. Intumescent fire dampers*

BS ISO 14520 (all parts), *Gaseous fire-extinguishing systems – Physical properties and system design*

ISO 834-1, *Fire-resistance tests – Elements of building construction – Part 1: General requirements*

Other publications

COLWELL, S. and MARTIN, B. *Fire performance of external thermal insulation for walls of multi-storey buildings*. BR 135. Second edition. Watford: Building Research Establishment, 2003.

HARRISON, R. and MILES, S. *Smoke shafts protecting fire shafts; their performance and design*. BRE Project Report 79204. Garston, Watford: Building Research Establishment, 2002.

MORGAN, H.P. and GARDNER, J.P. *Design principles for smoke ventilation in enclosed shopping centres*. BR 186. Watford: Building Research Establishment, 1990.

MORGAN, H.P., GHOSH, B.K., GARRAD, G., et al. *Design methodologies for smoke and heat exhaust ventilation*. BR 368. Watford: Building Research Establishment, 1999.

3 Terms and definitions

For the purposes of this British Standard the following definitions apply.

3.1 access panel
panel used to gain access to service ducts and shafts

NOTE An access panel might or might not be fire-resistant.

3.2 access room
room that forms the only escape route from an inner room (**3.68**)

3.3 access statement
explanation of philosophy and approach to inclusive design adopted in the design and construction of a building

3.4 accommodation stair
stair, additional to that or those required for escape purposes, provided for the convenience of occupants

3.5 air handling void
duct which forms part of either the supply or the return air distribution system

NOTE This is usually a ceiling or floor void and is usually known as a plenum.

3.6 air transfer grille
fixed grille not connected to the ductwork system allowing the free transfer of air between adjacent rooms and/or spaces

3.7 alternative format
information provided through an accessible medium

NOTE Examples include the provision of information electronically instead of in printed format, or in British Sign Language instead of through ordinary speech.