



# A dictionary of key fire terminology

Peter Hodgson and Don Christian

**BSI**  
Business  
Information



**F is for Fire**



# **F is for Fire**

## **A Dictionary of Key Fire Terminology**

Peter Hodgson and Don Christian



First published in the UK in 2007

by  
BSI  
389 Chiswick High Road  
London W4 4AL

© British Standards Institution 2007

All rights reserved. Except as permitted under the *Copyright, Designs and Patents Act 1988*, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior permission in writing from the publisher.

While every care has been taken in developing and compiling this publication, BSI accepts no liability for any loss or damage caused, arising directly or indirectly in connection with reliance on its contents except to the extent that such liability may not be excluded in law.

The publisher has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this book, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

While every effort has been made to trace all copyright holders, anyone claiming copyright should get in touch with the BSI at the above address.

The right of Peter Hodgson and Don Christian to be identified as the authors of this Work has been asserted by them in accordance with sections 77 and 78 of the *Copyright, Designs and Patents Act 1988*.

*British Library Cataloguing in Publication Data*

A catalogue record for this book is available from the British Library

ISBN 978 0-580-50222-4

Typeset by Helios, Brighton and Rochester  
Printed in Great Britain by MPG Books, Bodmin, Cornwall

# Contents

Acknowledgements	vii
Introduction	ix
The Dictionary	1
Acronyms used in Fire Safety	155
Bibliography	167





# Acknowledgements

The authors would like to thank the following organizations who all made contributions to this publication: Association for Specialist Fire Protection, Commission DG Enterprise, Fire Protection Association, Fire Industry Association, Health & Safety Executive, Institution of Chemical Engineers, London District Surveyors Association and the Loss Prevention Certification Board. All public sector information material is reproduced under the terms of the Click-Use Licence: C2007000968. All Commission DG Enterprise material © European Communities, 1995–2006.



# Introduction

Terminology is essential for specialists in all fields of work. This is particularly true for fire safety specialists working in many countries across the world. The need for common meanings for terms used within the discipline cannot be overemphasized. This publication attempts to bring together the common terms and their definitions, as used throughout the world of fire safety, to enable a better understanding of the subject.

The principal technical committee concerned with fire safety within Europe is CEN TC127 – Fire Safety in Buildings. This European committee has been mandated by the European Commission to prepare all the technical standards in support of the Construction Products Directive (Council Directive 89/106/EEC) for fire resistance testing and measuring reaction to fire properties. It has been necessary for TC127 to agree definitions and terminology for use in all the documents and standards it has produced. The technical committees drafting standards for individual products are committed to utilize the agreed definitions and terminology of TC127.

Composite definitions are provided for some terms because there are currently a number of different definitions being used for a single term and, in some cases, a number of terms relating to the same definition, depending upon the documents one is using at the time. By providing a single definition for each term, where this is possible, we hope to alleviate the confusion which currently occurs. This publication has dealt with this problem in line with current ISO standards for terminology.

For detailed references and explanations on terminology it is recommended that the reader consult the following:

- ISO 704:2000 *Terminology work — Principles and methods*
- ISO 1087-1:2000 *Terminology work – Vocabulary — Part 1: Theory and application*
- ISO 10241:1992 *International terminology standards — Preparation and layout.*

The terms and definitions in this book are either quoted verbatim or adapted from British Standards, International Standards or other published documents. The source document is cited after each definition. The Bibliography provides full details of the source documents. If the source is a BS or an ISO that has been withdrawn, there is an asterisk before it. For example, \*BS 5810 or \*ISO 3261.

Within this publication, in most cases, terms related to a common field are listed together. For example, all terms related to fire extinguishers are listed together. Where this does not occur naturally from the alphabetical order the name of the common field is the leading word, under which the term is listed, and the rest of the term is inside angled brackets, < >. Terms are listed in alphabetical order and cross-referenced within the book, for example:

**fire extinguisher** See **extinguisher**.

BS 4422

**fire extinguisher <aerosol>** Small disposable container incorporating a valve and containing a **fire extinguishing medium** kept under greater than atmospheric pressure by means of a propellant. The contents are discharged when the valve is operated.

BS 6165

**fire extinguisher <foam, chemical>** See **foam fire extinguisher <chemical>**.

BS 5306-3

**fire extinguisher <foam, gas cartridge>**

See **foam fire extinguisher <mechanical gas cartridge>**.

BS 5306-3

**fire extinguisher <foam, stored pressure>**

See **foam fire extinguisher <mechanical stored pressure>**.

BS 5306-3

**fire extinguisher <gas cartridge, operated>**

**Extinguisher** in which the pressure for expulsion of the medium from the **body** of the **extinguisher** is produced by the opening at the time of use, of a compressed or liquefied gas cartridge.

ISO 8421-4

**fire extinguisher <powder, gas cartridge>**

**Extinguisher** containing powder that is expelled by pressure released from a **gas cartridge**.

\*BS 4422-4

This dictionary aims to provide you with a definitive catalogue of fire terms, which can be used by all fire safety specialists. We hope that you will find it useful.

Peter Hodgson and Don Christian

# The Dictionary



# A

**ablative materials** Materials which gradually erode under the influence of heat and can be used to insulate/protect adjacent elements.

BS 4422

**abnormal heat <electrotechnical>** Heat that is additional to that resulting from use under normal conditions, up to and including that which causes a fire.

FDIS 13943

**accelerator** See **sprinkler accelerator**.

BS 4422

**acceptance criteria** Qualitative and quantitative criteria which form an acceptable basis for assessing the safety of a built environment design.

FDIS 13943

**access deck** See **deck access**.

BS 5588-1

**access level <to a building>** Level at which there is suitable entry to the building from an area to which fire service appliances have access.

PD 7974-5

**access level <to equipment>** One of several states of a fire alarm control and indicating equipment in which selected:

- controls can be operated;
- manual operations can be carried out;
- indications are visible; and/or
- information can be obtained.

BS EN 54-2

**access panel** Fire resistant panel used to gain access to service ducts and shafts.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2000 Edition)*

**access room** Room which forms the only escape route from an inner room.

BS 5588-6

**accessible** With respect to buildings or parts of buildings, means that access is facilitated for disabled persons.

*Approved Document M – Access to and Use of Buildings. 2006.*

**accessible area** Area to which disabled people, including wheelchair users, may gain access.

\*BS 5810

**accommodation stairway** Stairway, additional to that or those required for escape, provided for the convenience of occupants.

BS 5588-8

**achievable maximum concentration** Concentration (as a percentage by volume) which would be produced in the net volume of a protected enclosure, by the uniform distribution of extinguishing gas, including any for extended discharge, discharged by the system.

BS 5306-5.1

**acknowledgement signal** Signal transmitted back solely as a result of the reception of another signal, e.g. a signal received at the call-out point of a remote control system indicating that remote equipment has operated. It may not, however, indicate that other alerting systems linked to the remote equipment are in fact operating.

*Fire Service Training Manual*

**action plan** Measures identified in the course of the fire risk assessment that need to be implemented to ensure the required level of fire safety is achieved or maintained.

PAS 79

**activation time** Time interval from response by a sensing device until the **suppression system**, **smoke control** system, alarm system or other fire safety system is fully operational.

FDIS 13943

**active fire protection system** See **fire protection system <active>**.

BS 4422

**actual calorific value heat release** Calorific energy per unit mass which is released by the **combustion** of a **material** under specified test conditions.

*Note* It is expressed in  $\text{J kg}^{-1}$ .

BS ISO 4880

**actual delivered density (ADD)** See **sprinkler <actual delivered density (ADD)>**.

FDIS 13943

**actuating detector** Form of **fire detector**, not part of a **fire alarm system**, used to actuate subsidiary fire protection equipment.

BS 4422

**acute toxicity** Toxicity which causes rapidly occurring poisonous effects.

FDIS 13943

**addressable point** Point that can be individually identified at the **fire alarm control and indicating equipment**.

BS EN 54-2

**addressable system** System in which signals from each **fire detector** and/or **fire alarm manual call point** are individually identified at the **fire alarm control and indicating equipment**.

BS 5839-6

**adjustable sensitivity detector** **Fire detector**, the **response threshold** of which can be varied within **detector** specified limits without permanent indication of such variation.

BS 4422

**aerial appliance** **Fire appliance** incorporating a **turntable ladder** or a **hydraulic platform**.

ISO 8421-8

**AFFF** See **foam concentrate <aqueous film forming (AFFF)>**.

BS 4422

**afterflame** **Flame** which persists after the **ignition source** has been removed.

BS EN ISO 13943

**afterflame time**

**duration of flame** Length of time for which an **afterflame** persists under specified conditions.

*Note* It is expressed in s.

BS EN ISO 13943

**afterglow** Persistence of **glowing combustion** after both removal of the **ignition source** and the cessation of any **flaming combustion**.

BS EN ISO 13943

**afterglow time** Length of time for which an **afterglow** persists under specified conditions.

*Note* It is expressed in s.

BS EN ISO 13943

**agent outlet** One or more orifices of a piping system by means of which an extinguishing fluid can be applied towards a fire source.

FDIS 13943

**air bag** Rubber-coated reinforced bag which, when inflated by compressed air, expands to lift or move heavy objects.

ISO 8421-8

**air chisel** Compressed air operated tool with assorted cutting attachments used to cut metal.

ISO 8421-8



**air handling void**

**plenum** Duct, usually a **ceiling** or **floor void**, which forms part of either the supply or the return air distribution system.  
BS 5588-9

**air inlet**

**air intake** Opening through which air is supplied.  
BS 4422

**air release** Means by which pressurizing air is able to **escape** from a nominally unpressurized space to external air.  
BS 4422

**air saw** Saw operated by compressed air.  
ISO 8421-8

**air transfer grille** Fixed **grille**, not connected to the **ductwork** system, allowing the free transfer of air between adjacent spaces.  
DD 9999

**air-entrainment** Mixing of ambient air into a **jet** or **plume** of gas or liquid as a result of momentum transfer.  
PD 7974-2

**alarm** Operation of audible and visible annunciators.  
\*BS 5345-5

**alarm condition** Condition in which a **fire detector** is giving a signal specified as indicating the possible existence of a **fire**.  
BS 4422

**alarm indication** Indication at the **indicating equipment** to show that a **detection signal** has been received.  
BS 4422

**alarm of fire** Warning of **fire**, originated by a person or by an automatic device.  
BS 4422

**alarm of fire <false>** See **false alarm of fire**.  
ISO 8421-3

**alarm receiving centre** Continuously manned premises, remote from those in which a **fire alarm system** is fitted, where the information concerning the **state** of the **fire alarm system** is displayed and/or recorded, so that the fire and rescue service can be summoned.  
PAS 79

**alarm silence facility** Means of temporarily disabling or desensitizing a **smoke alarm**.  
BS 4422

**alarm test valve** See **sprinkler alarm test valve**.  
BS 4422

**alarm time** Time interval between **ignition** of a **fire** and activation of an **alarm**.

*Note* The time of **ignition** may be known, e.g. in the case of a **fire model** or a **fire test**, or it may be assumed, e.g. it may be based upon an estimate working back from the time of detection. The basis on which the time of ignition is determined needs to be stated.

FDIS 13943

**alarm valve** See **sprinkler alarm valve**.  
BS 4422

**alarm valve <alternate>** See **sprinkler alarm valve <alternate>**.  
BS EN 12845

**alarm valve <composite>** See **sprinkler alarm valve <composite>**.  
\*BS 4422-4

**alarm valve <dry>** See **sprinkler alarm valve <dry>**.  
BS EN 12845

**alarm valve <pre-action>** See **sprinkler alarm valve <pre-action>**.  
BS EN 12845

**alarm valve <recycling>** See **sprinkler alarm valve <recycling>**.  
BS 5306-2

**alarm valve <wet>** See **sprinkler alarm valve <wet>**.

BS EN 12845

**alarm zone** Geographical sub-division of the **protected premises** in which an **alarm of fire** can be given separately from any other sub-division.

BS 4422

**alcohol resistant foam concentrate** See **foam concentrate <alcohol resistant>**.

ISO 8421-4

**alerter system** Call-out system utilizing pocket-alerters, carried by retained fire-fighters, which are triggered by a radio signal remotely transmitted.

*Fire Service Manual: Fire Service Technology, Equipment and Media – Fire Service Equipment – Inspection and Testing of Equipment Vol 1*

**alight (adjective)** Undergoing **combustion**.

FDIS 13943

**allowable travel time** Time to **escape** from a building to a **place of safety** or, in some **circumstances**, a **protected zone**.

DD 9999

**alphanumeric display** Indicator capable of giving information by the display of messages consisting of text and/or numeric characters.

BS EN 54-2

**alterable memory** Memory whose contents can be altered as part of the operation of the **control and indicating equipment** without the use of any special programming device external to the system.

\*BS 5839-4

**alternative escape route** **Escape route** sufficiently separated by either direction and space, or by fire-resisting construction, to ensure that one is still available should the other be affected by **fire**.

BS 4422

**alternative exit** One of two or more **exits**, each of which is separate from the other.

BS 4422

**AMAO** See **sprinkler <assumed maximum area of operation (AMAO)>**.

BS 4422

**ambient condition** Property of the surroundings outside the influence of a **fire**.

PD 7974-2

**analogue detector** **Detector** which gives an output signal representing the value of the sensed phenomenon.

*Note* This can be a true analogue signal or a digitally encoded equivalent of the sensed value.

BS 4422

**anchoring <for a conveyor system>** Means of attachment of the **closure for a conveyor system** to the various components of the supporting or **associated supporting construction <for a conveyor system>** to ensure correct functioning.

BS EN 1366-7

**ancillary accommodation** All parts of the building that are ancillary to the main use of the building and under the control of the **management** of the overall premises.

BS 5588-11

**ancillary service**

**ancillary device** Device, facility or system which is required to operate in response to a **fire alarm signal**.

BS 4422

**appliance ventilation duct** **Duct** provided to convey combusted air through a gas appliance.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**applicator** Extension tube for a spray **nozzle** to enable an operator to apply spray to otherwise inaccessible places.

*Fire Service Training Manual*

**approach fire fighting** Limited, specialized fire fighting operations conducted at a distance from incidents involving very high levels of radiant, convective and contact heat, such as fires involving bulk **flammable gas** and/or bulk **flammable liquid**.  
BS 4422

**approvals body** Organization responsible for approving the fire safety aspects of a building.  
BS 7974

**approvals body <Construction Products Directive>** Body authorized to issue European Technical Approvals (Article 10 of the CPD).  
**The Construction Products Directive (Council Directive 89/106/EEC)**

**aqueous film forming foam concentrate (AFFF)** See **foam concentrate <aqueous film forming (AFFF)>**.  
BS 4422

**arc resistance** Ability of an electrically insulating **material** to resist the influence of an electric arc along its surface, under specified conditions.  
*Note* The arc resistance is identified by the length of the arc, the absence or presence of a conducting path, the burning or damage of the specimen under test.  
BS EN ISO 13943

**arc tracking <electrotechnical>** See **tracking <electrotechnical>**.  
FDIS 13943

**area burning rate** Area burned per unit time under specified conditions.  
*Note* It is expressed in  $\text{m}^2 \text{s}^{-1}$ .  
BS EN ISO 13943

**area classification <dust>** Notional division of works, (plant or installation) into zones in accordance with the likelihood of the existence of a **hazardous area <dust>**

for the purpose of selection, installation and **maintenance** of electrical apparatus.  
BS 7535

**area of coverage** Area throughout which speech signals from a **voice alarm system** are sufficiently intelligible and warning signals from the system are sufficiently audible.  
BS 5839-8

**area of higher fire risk** Room or other area which, because of its function and/or contents, presents a greater risk of fire occurring and developing than elsewhere.  
*Note* Such areas can include a large kitchen, boiler room, large storeroom and other similar risks.  
BS 4422

**area of sprinkler operation** Floor area to be flooded by a **sprinkler system**, for design calculation purposes.  
BS 4422

**arm pipe** See **sprinkler arm pipe**.  
BS 4422

**arrester** See **flame arrester**.  
BS 4422

**arrester element** See **flame arrester element**.  
BS 4422

**arson** Crime of setting a **fire**, usually with intent to cause damage.  
FDIS 13943

**as low as reasonably practical (ALARP)** Where all reasonable measures will be taken in respect of risks which lie in the tolerable **zone** to reduce them further until the cost of further risk reduction is grossly disproportionate to the benefit.  
PD 7974-7

**ASET** See **available safe escape time (ASET)**.  
BS 4422

**ash**

**ashes** Mineral residue resulting from **complete combustion**.  
BS EN ISO 13943

**aspect ratio** Ratio of the height of a **pane** to its width.  
BS EN 1364-1

**asphyxiant** **Toxicant** causing hypoxia, resulting in central nervous system depression or cardiovascular effects with loss of consciousness and ultimately death.  
FDIS 13943

**aspirated apparatus** Sampling apparatus which draws a sample of the atmosphere into a sensor by means of a pump.  
BS 4422

**aspirated foam** See **foam <aspirated>**.  
BS 4422

**aspirating detection system** **Fire detection system** in which a sample of the atmosphere in the **protected space** is sucked by a fan or pump into a **fire detector** which can be remote from the **protected space**.  
BS 4422

**aspirating detector** **Detector** system in which a sample of the atmosphere in the **protected space** is sucked by a fan or pump into a **detector** which may be remote from the protected space.  
\*BS 5839-1

**assembly** **Unit** or structure composed of a combination of **materials** or **products**, or both.  
BS EN ISO 13943

**assessment** Undertaking of an investigation in order to arrive at a judgement based on evidence.  
PD 7974-7

**assistance message** Message from the **fire ground** initiating the dispatch of additional

appliances, equipment or personnel to a **fire** or other emergency.  
ISO 8421-8

**associated construction** Form of construction that may be required for the testing of some elements of construction and to which the **test specimen** is connected, e.g. the wall into which a **glazed element** would be fitted.  
BS 476-32

**associated floor area of an atrium** **Floor area** in an **atrium building** (including the area of the **atrium base**) not separated from the **atrium** by construction having a **fire resistance** equal to that required for the elements of the structure of the building.

*Note* The area of the atrium base should be included in the calculation of the associated floor area.  
BS 5588-7

**associated supporting construction <for a conveyor system>** Specific construction in which a **closure and conveyor system assembly** is to be installed and which is used to close off the furnace and provide the levels of **restraint** and thermal heat transfer to be experienced in normal use.  
BS EN 1366-7

**associated wall construction** Mechanism for closing the vertical side of a furnace for the required period of **fire resistance**.  
BS EN 1364-3

**assumed maximum area of operation (AMAO)** See **sprinkler <assumed maximum area of operation (AMAO)>**.  
BS 4422

**assumed maximum area of operation <hydraulically most favourable location>** See **sprinkler <assumed maximum area of operation, most hydraulically favourable location>**.  
BS 5306-2

**atrium** (*pl. atria*) Space within a building, not necessarily vertically aligned, passing through one or more structural floors.

*Note* Enclosed **lift wells** and escalator wells, building **services ducts** and stairways are not classified as atria.

BS 5588-7

**atrium base** Plan area of the lowest floor level, bounded by lines projected down from the edge of the floor slab immediately above the lowest floor level within the **atrium**.

DD 9999

**atrium building** Building containing one or more atria.

BS 5588-7

**attendance time** See **fire brigade attendance time**.

BS 4422

**attendant fire phenomena** Special phenomena occurring during burning such as **flaming debris**, darting flames, formation of sparks.

BS EN 1102

**audibility <of a fire alarm>** Property of a sound which allows it to be heard among other sounds.

*Note* **Audibility** depends upon the relative loudness and frequency content of the sound in comparison with other sounds which are present at the same time.

BS 5839-8

**audible warning device** Siren or klaxon fitted to a **fire appliance** and sounded to indicate that it is an emergency vehicle.

ISO 8421-8

**authority <sprinkler approvals>** Organization, office or individual responsible for approving equipment, installations or procedures.

BS 5306-2

**auto-extinguish** See **self-extinguish**.

FDIS 13943

**auto-extinguishability** Deprecated term.

FDIS 13943

**auto-extinguishing** Deprecated term.

FDIS 13943

**auto-ignition**

**self-ignition**

**spontaneous ignition** Ignition resulting from a rise of temperature without a separate **ignition source**.

*Note 1* The ignition may be caused either by **self-heating** or by heating from an external source.

*Note 2* See also **self-ignition**.

FDIS 13943

**auto-ignition temperature**

**self-ignition temperature**

**spontaneous ignition temperature** Minimum temperature at which **ignition** is obtained under specified test conditions without any source of **piloted ignition**.

*Note* It is measured in °C.

FDIS 13943

**automatic device or system** Device or system providing an emergency function without the necessity for human intervention and designed to actuate as a result of the presence of specified conditions.

\*BS 4422-2

**automatic dialling equipment** Signalling equipment that automatically dials a predetermined telephone number and subsequently transmits a voice message via a switched telephone network.

\*BS 4737-1

**automatic door release mechanism** Device that can be used for retaining a door in the open position, against the action of a **door closer**, and automatically releasing under specified conditions.

BS 4422

**automatic fire detection and alarm system**

System (other than a single self contained **smoke alarm** or **fire alarm**) in which an **alarm of fire** may be initiated automatically.

BS 4422

**automatic fire hose reel** See **hose reel <automatic>**.

BS 4422

**automatic fire protection system** See **fire protection system <automatic>**.

BS 4422

**automatic fire signal** Alarm of fire originated by an automatic device, given audibly and/or visibly.

BS 4422

**automatic fire suppression system** Fire-fighting system designed to automatically suppress or **extinguish a fire**.

*Fire Safety – Risk Assessment*

**automatic lowering line** Device for lowering persons from a height, fitted with an automatic brake to control the speed of descent.

BS 4422

**automatic powered smoke and heat exhaust ventilator** See **smoke ventilator <automatic powered>**.

BS 4422

**automatic release mechanism** See **automatic door release mechanism**.

BS 4422

**automatic self-closing device** Device which is capable of closing a door from any angle and against any latch fitted to the door.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2000 Edition)*

**automatic smoke and heat exhaust ventilator** See **smoke ventilator <automatic>**.

BS 4422

**automatic smoke curtain** See **smoke curtain <automatic>**.

BS 4422

**automatic steam injection system** System of pipes connected to a supply of steam and fitted with nozzles at suitable intervals and heights, through which steam is discharged automatically on the operation of a **fire detector**.

ISO 8421-4

**automatic/manual changeover device**

Device that can be operated to prevent the **fire detection system** from activating the automatic release of **extinguishing medium** while the **protected space** is occupied.

BS 4422

**automatic/manual or manual-only changeover device**

Device that can be operated before a person enters a space **protected** by a **fire extinguishing system** preventing the **fire detection system** from activating the automatic release.

BS 5306-4

**auto-suppression** Mechanical methods of fire suppression which are activated automatically – such systems may include water **sprinklers** and CO<sub>2</sub> flooding systems.

*HTM 81: Fire precautions in new hospitals (Firecode). 1996.*

**availability** Ability of a system to be in a **state** to perform a required function under given conditions at a given instant of time or over a given time interval, assuming that the required external resources are provided.

PD 7974-7

**available safe escape time (ASET)** Calculated time available between **ignition** of a **fire** and the time at which **tenability criteria** are exceeded in a specified space in a building.

BS 4422

**average after flame time** Average of the time measured for each test piece, during

which the test piece continues to **burn** after the burner **flame** has been withdrawn.

*Note* It is expressed in s.

**BS EN 2310**

**average burn length** Average of the distances measured for each test piece from the original edges of the test pieces to the farthest extent of damage resulting from **flame** impingement. This includes areas which have undergone **combustion**, **charring**, partial or total embrittlement but excludes areas which have become blackened, stained, distorted, discoloured, or have shrivelled or melted by the heat.

*Note* The measurements are expressed in mm.

**BS EN 2310**

**average concentration of flammable coating powder in air** Mass of **flammable coating powder** introduced into the spraying area divided by the volume of air as extracted by the ventilation system during the same period of time.

**BS EN 50177**

**average concentration of flammable solvents in air** Mass of **flammable solvents** introduced into a spraying area divided by

the volume of air as extracted by a ventilation system during the same period of time.

**BS EN 50176**

**average flaming time of droplets** See **flaming time of droplets <average>**.

**BS 4422**

**average heat for sustained burning** Average of the values of **heat for sustained burning** measured at a number of specified positions.

*Note* It is expressed in units of MJ m<sup>-2</sup>.

**BS ISO 5658-2**

**average rate of combustion** Average rate calculated for each test piece by taking the quotient of the distance covered by a **flame** between two suitable reference points by the time taken.

*Note* Measurements are expressed in mm min<sup>-1</sup>.

**BS EN 2310**

**axi-symmetric plume** **Plume of combustion products** and entrained air rising above a fire source where the air is entrained symmetrically towards the source.

**PD 7974-2**

# B

**back burn** See **counter fire**.  
ISO 8421-8

**backdraft** Rapid **flaming combustion** caused by the sudden introduction of air into a confined space which contains oxygen-deficient, hot products of incomplete combustion.

*Note* In some cases these conditions may result in an **explosion**.

FDIS 13943

**backing board** **Non-combustible** board used to support, shield or insulate a **specimen** in a **fire test** under specified conditions.  
BS ISO 5658-2

**balanced system** See **extinguishing system <balanced>**.  
BS 5306-7

**balcony access/balcony approach** (Apartment buildings) design in which each **dwelling** is approached externally via an open balcony.  
BS 5588-1

**base injection** See **foam <sub-surface application>**.  
BS 4422

**basement** Storey with a **floor** which is at some point more than 1.2 m below the highest level of ground adjacent to the outside walls.  
BS 5588-11

**beam detector** **Components**, including any reflectors, necessary for the detection of **smoke** by the attenuation of an optical beam external to the **fire detector**.  
BS 5839-5

**beam receiver** **Components** receiving an optical beam.

**beam transmitter** **Components** from which the optical beam emanates.

**behavioural scenario** Description of the behaviour of occupants during the course of a **fire**.  
FDIS 13943

## biological assay

**bioassay** System to detect and/or measure the amount of a biologically active **material**.  
BS ISO TR 9122-2

**black body** **Body** which completely absorbs any electromagnetic radiation falling upon it.  
FDIS 13943

**black body radiant source** Radiant source which produces electromagnetic radiation as described by Planck's distribution function.

*Note* The **emissivity** of an ideal **black body radiant source** is unity.

**blank cap** Cover fitted to delivery, inlet and suction connections when they are not in use.  
ISO 8421-8

**blast wave** Pressure pulse formed by an **explosion**.  
BS 4422

**body** Shell of the **extinguisher** not fitted with its accessories but fitted with all its welded parts.

*Note* **Body** is the term commonly used for reference to fire extinguishers. In the packaging industry in general the term 'container' is used for the equivalent item.

\*BS EN 3-3



**body fittings** Those parts of an **extinguisher** that, under normal working conditions, are permanently attached to the **body shell** and are subject to the working pressure.

BS 5306-3

**body shell** Unfinished outer case of an **extinguisher** usually comprising a cylindrical part with dished ends, and containing an aperture or apertures for charging the extinguisher or for subsequent fitting of components such as **nozzles**, pressure gauges and closures.

\*BS 5306-3

**boil over** Condition in which the hot **zone** at the top of a burning liquid extends sufficiently deeply to boil water that has drained to the base of the liquid, so that a large part of the burning liquid is expelled violently when the water boils.

BS 5306-0

**boiling liquid expanding vapour explosion (BLEVE)** **Explosion** caused by the rupture of a tank containing liquid at a temperature higher than its boiling point at atmospheric pressure.

*Note* If the liquid is **flammable**, then subsequent **ignition** of the dispersed vaporized contents can lead to a **fireball**.

BS 4422

**booster pump** See **sprinkler booster pump**.  
BS 4422

**booster reel** See **hose reel <fire brigade>**.  
ISO 8421-8

**borrowed light** Light received from another room.

BS 5588-11

**boundary** Edge of the land belonging to a building, or, where the land abuts a road, railway, canal or river, the centreline of that road, railway, canal or river.

DD 9999

**bounding area** Area of the real or notional surface (sides, bottom and top) of an

enclosure round a **hazard protected** by a **total flooding extinguishing system**.

BS 5306-7

**box <dry riser>** Form of construction which can enclose a **landing valve** when positioned:

- on the face of a wall;
- within a **duct**;
- in such a way as will complete the existing structure to form an **enclosure**.

BS 5041-4

**box <foam/dry riser inlet>** Box containing the inlets of **foam** pipes or water mains, installed in, or within the boundaries of the **site of a building**, preferably recessed in a wall with inlets normally at street level through which **foam** or water can be pumped to provide a supply at discharge **points** at various levels in a building.

BS 5041-5

**box <inlet>** Box containing the inlets of **foam** pipes or water mains, installed in or within the boundaries of the **site of a building**.

BS 4422

**box <outlet>** Form of construction enclosing a **landing valve**.

BS 4422

**boxed value** Criterion used at the ENV stage together with the National Application Documents, offering a National choice for a value. (It has to disappear in the EN Euro-codes.)

*Common Position of the Construction Unit of DG Enterprise*

**branch**

**branchpipe** Fitting at the delivery end of a hose which reduces its diameter and thereby increases delivery velocity to the **nozzle**.

ISO 8421-8

**branch man** Firefighter controlling a **branch**.  
ISO 8421-8

**branch system** See **sprinkler system <branch>**.  
ISO 8421-4

**breathing apparatus** Self-contained apparatus designed to allow a firefighter to breathe in an otherwise non-respirable atmosphere for a limited period.  
ISO 8421-8

**breathing apparatus <compressed air>**  
**Breathing apparatus** using compressed air, in which the expelled air is not re-used and the supply is governed by the wearer's breathing demand.  
BS 4422

**breathing apparatus <positive pressure>**  
**Breathing apparatus** wherein a constant pressure, above that of atmospheric pressure, is maintained within the face mask.  
ISO 8421-8

**breathing apparatus <regenerative>**  
**Breathing apparatus**, usually using oxygen, in which the exhaled air is recycled and the supply is governed at a constant rate.  
ISO 8421-8

**breathing apparatus communication set**  
Standard **breathing apparatus** incorporating a means of communication between the breathing apparatus control personnel and the leader of the breathing apparatus team.  
ISO 8421-8

**breathing apparatus control board** Display board comprising sections into which **breathing apparatus** identification tallies can be inserted and on which additional information can be recorded.  
ISO 8421-8

**breathing apparatus control board <stage 1>**  
**Breathing apparatus control board** used when there is not more than one entry point to a building in use and when there are not more than four **breathing apparatus** wearers.  
ISO 8421-8

**breathing apparatus control board <stage 2>**  
**Breathing apparatus control board** used when there is more than one entry point to a building in use, or when more than four wearers are deployed, to co-ordinate and control the activities at stage 1 end points.  
ISO 8421-8

**breathing apparatus identification tally**  
Personal control tag on which is recorded the name of the wearer, time of entry to the building, and cylinder pressure at that time. (The tag is left with the **breathing apparatus** control officer.)  
ISO 8421-8

**breathing apparatus safety line** **Light line**, on which there may be indicators, used to assist **breathing apparatus** wearers to find their way out of a smoke-filled environment.  
ISO 8421-8

**breathing apparatus safety line <personal>**  
Short **line** which can be clipped on to a **breathing apparatus safety line** as an additional safety precaution.  
ISO 8421-8

**breeching <collecting>** Fitting used to unite two or more lengths of hose into one hose or pipe.  
ISO 8421-8

**breeching <controlled>** Dividing or collecting breeching fitted with a **control valve** to direct flow to or from either or both outlets.  
ISO 8421-8

**breeching <dividing>** Fitting used to divide one line of hose into two or more.  
ISO 8421-8

**bridgehead** Part of a building, usually the **floor** below the **fire** (floor above in the case of a **basement**) from which **firefighting** teams may be safely committed to attack the fire.  
BS 5588-5

**building element** Integral part of a **built environment**.

*Note* This includes floors, walls, beams, columns, doors, and penetrations, but does not include contents.

FDIS 13943

**building protection <active>** Provision of a **fire detection system** and/or an **extinguishing system** within a building to limit structural damage to the building due to **fire**.

BS 4422

**built environment** Building, other structure or transportation vehicle.

*Note* Examples of other structures include tunnels, bridges, offshore platforms and mines.

FDIS 13943

**bund** Raised perimeter of an area used to contain and prevent the spreading of liquids.

*Note* See also **catchpit**.

BS 4422

**buoyant plume** Convective updraft of fluid above a heat source.

*Note* See also **fire plume**.

FDIS 13943

**burn** (*intransitive verb*) Undergo **combustion**.  
BS EN ISO 13943

**burn** (*transitive verb*) Cause **combustion**.  
FDIS 13943

**burnback time** See **foam burnback time**.  
BS 4422

**burned area** Part of the **damaged area** of a **material** that has been destroyed by **combustion** or **pyrolysis**, under specified conditions excluding any area damaged only by deformation.

*Note 1* See also **damaged area**.

*Note 2* It is expressed in m<sup>2</sup>.

BS EN ISO 13943

**burned length** Maximum extent in a specified direction of the **burned area**.

*Note 1* It is expressed in m.

*Note 2* See also **damaged length**.

BS EN ISO 13943

**burning behaviour** All the physical and/or chemical changes that take place when an item is exposed to a specified **ignition source**.

BS EN ISO 13943

**burning behaviour <fire tests>** Response of a **test specimen** when it burns under specified conditions.

FDIS 13943

**burning rate** Deprecated term. See **area burning rate**; **linear burning rate**; **mass burning rate**; **heat release rate**; and **flame spread rate**.

FDIS 13943

**bursting** Violent rupture of an object due to an **overpressure** within it or upon it.

BS EN ISO 13943

**bursting pressure <of an extinguisher>** Minimum plastic instability pressure obtained during a **bursting test** under pressure.

\*BS EN 3-3

# C

**calibration <of a computational model>**

Process of adjusting modelling parameters in a computational model for the purpose of improving agreement with experimental data.

FDIS 13943

**call <lift>** Operation of pressing a landing call button to summon a lift, or, in the lift car, of pressing the appropriate button to take a lift to the desired level.

PD 7974-5

**call-out installation** Line installation or radio alerter system, with associated **control equipment** used to summon **firefighters** to the **fire station** from their homes and/or places of employment.

*Fire Service Training Manual*

**call-out point** Place from which a **call-out installation** is remotely controlled.

*Fire Service Training Manual*

**calorific potential** Deprecated term. See **heat of combustion**.

FDIS 13943

**calorific value** Deprecated term. See **heat of combustion**.

FDIS 13943

**calorimeter** Apparatus that measures heat by detecting the change in its temperature over time.

FDIS 13943

**canopy** Any horizontal structure projecting into a void, e.g. the soffit of an upper level walkway which is not fully stepped back from the level below.

BS 5588-10

**car control station** Control panel in the lift car for the use of passengers.

BS 5588-5

**carbon dioxide (CO<sub>2</sub>)** The chemical compound CO<sub>2</sub> used as a fire **extinguishing medium**.

BS EN 25923 (BS 6535-1 ISO 5923)

**carbon dioxide extinguishing system** Fixed **extinguishing system** containing CO<sub>2</sub> as **extinguishing medium**.

ISO 8421-4

**carbon dioxide fire extinguisher** Fire **extinguisher** containing **carbon dioxide** as **extinguishing medium** under pressure.

ISO 8421-4

**carboxyhaemoglobin saturation** Percentage of blood haemoglobin converted to carboxyhaemoglobin from the reversible reaction with inhaled carbon monoxide.

FDIS 13943

**catastrophic loss (CL)** Estimate of the loss on a **site** (of a building) resulting from the following type of events:

- Explosions resulting from massive releases of **flammable vapours** or gases, commonly known as ‘vapour cloud’ explosions.
- Tank or vessel failures resulting in **flammable liquid** fires involving large areas of plant, including **boiling liquid expanding vapour explosions (BLEVEs)**.
- Pressure rupture of process equipment resulting in damage from shrapnel.
- The release of a large quantity of toxic gas which, although not necessarily causing significant property damage, could result in significant business interruption as a result of having to shut plant down pending investigation.

These events do not include sabotage, natural disasters such as hurricanes or earthquakes and falling aircraft.

**catchpit** Enclosure usually filled with stone chippings normally below ground level to contain leakage or spillage of **flammable** and/or toxic liquid.  
ISO 8421-2

**cavity** Any **concealed space** or hidden void within a building which could provide a ready route for **smoke** or **fire** spread e.g. spaces in roof construction, cavities in walls, the void between the **suspended ceiling** and the underside of the top covering.  
BS 5502-23

**cavity barrier** Construction, other than a **smoke curtain**, provided to close a **concealed space** against **penetration** of **smoke** or **flame**, or provided to restrict the movement of smoke or flame within such a space.  
BS 4422

**ceiling** Material fixed under a **floor** or **roof** plus any supporting framework, including hangers, fixings and any **insulation material**.

*Note* The **ceiling** may be attached directly to the structural building member or be suspended from it or be self-supporting.

BS EN 1364-2

**ceiling hook** Tool consisting of a pole, having a metal point with a spur at right angles, mainly used to pull down ceilings or other similar constructions to gain access to burning materials.  
ISO 8421-8

**ceiling jet** Gas motion in a layer near a **ceiling** that is generated by the buoyancy of an impinging **fire plume**.  
FDIS 13943

**ceiling membrane** Non loadbearing **element** of a building construction designed to provide horizontal **fire separation** as distinct from **protection** to any **floor** or **roof** above.  
BS 476-22

**ceiling screen** See **smoke baffle**.  
BS 4422

**ceiling system** Full **ceiling assembly** submitted to test, including hangers and fixings, e.g. lighting and ventilation ducting and access points.  
BS EN 1365-2

**ceiling void** Cavity between a structural **floor** or **roof** and the **suspended ceiling** below, through which building services may pass.  
BS 5588-9

**central commercial alarm centre** See **alarm receiving centre**.  
BS 4422

**central fire alarm station** See **alarm receiving centre**.  
BS 4422

**central monitoring station** See **alarm receiving centre**.  
BS 4422

**centrally supplied luminaire** See **emergency luminaire <centrally supplied>**.  
BS 4422

**channelling screen** Smoke barrier or automatic smoke barrier fitted beneath a balcony to prevent sideways emission of smoke from a **fire** along the underside of a balcony.  
BS 7346-3

**char** (*noun*) Carbonaceous residue resulting from **pyrolysis** or **incomplete combustion**.  
BS EN ISO 13943

**char** (*verb*) To form **char**.  
BS EN ISO 13943

**char length** Length of carbonaceous residue.

*Note 1* In some standards, **char length** is defined by a specific test method.

*Note 2* See also **burned length**.

BS EN ISO 13943

**characteristic material properties** Properties of a **material** which are specified for a grade of material which may be used for design purposes.

BS EN 1363-1

**characteristic value** See **foam <characteristic value>**.

\*BS ISO 7203-1

**charge of an extinguisher** Mass or volume of the extinguishing agent contained in the **extinguisher**.

*Note* The charge of appliances based on water is expressed in l and that of other appliances in kg.

BS 6165

**charred area** Surface area enclosed by the extremity of **flaming** or **glowing**, following light brushing.

\*BS 7525

**charring** Formation by heating of more or less pure carbon during **pyrolysis** or incomplete **combustion**.

\*BS 4422-2:1971

**check valve** Valve that permits flow of fluid in one direction only.

ISO 6182-6

**chemical foam** See **foam <chemical>**.

BS 4422

**chemical incident unit** **Fire appliance** which carries a wide range of equipment and protective clothing for dealing with chemical emergencies, including **decontamination**.

ISO 8421-8

**chemical protection suit** Rubber or plastic suit which, in conjunction with self-contained **breathing apparatus**, gloves and boots, affords protection to the skin from damage by aggressive solids or liquids through spillage or splash.

*Fire Service Training Manual*

**chemical splash suit** Protective overall made of chemically resistant **material**.

ISO 8421-8

**chimney effect** Upward movement of hot **fire effluent** caused by **convection** currents confined within an essentially vertical **enclosure**.

*Note* This usually draws more air into the **fire**.

BS EN ISO 13943

**chimney rods** Jointed rods to which the tubing of a **stirrup pump** can be connected for dealing with chimney fires.

*Fire Service Training Manual*

**circulation space** Space (including a **protected stairway**) mainly used as a means of access between a room and an **exit** from the building or **compartment**.

BS 5839-1

**circumstances** Facts or conditions which affect the **hazard** created by a defined **fire scenario**, e.g. the **ignition** source, the **material** first **ignited**, how the **fire** spreads.

BS 7899-1

**clapper** Type of sealing **assembly**.

ISO 6182-6

**clarity** Property of a sound which allows its information-bearing **components** to be identified by the listener.

BS 5839-8

**class <classification>** See **marine <division>** and **fire classification**.

BS 4422

**class 0** **Product fire performance classification** for wall and **ceiling** linings when tested to specified conditions.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**Class A fire** **Fire(s)** involving solid **materials**, usually of an organic nature, in which

- combustion** normally takes place with the formation of **glowing** embers.  
BS EN 2
- Class B fire** Fire(s) involving liquids or liquefiable solids.  
BS EN 2
- Class C fire** Fire(s) involving gases.  
BS EN 2
- Class D fire** Fire(s) involving metals.  
BS EN 2
- Class F fire** Fire(s) involving fats and cooking oils.  
BS EN 2
- clear width** Width of a corridor, stair, passage or doorway opening, measured at its narrowest point.  
BS 5588-11
- clearing device <for a conveyor system>** Device which is generally part of a **conveyor system** used to clear the **closure area** of transportable goods during the shutting of the **closure for a conveyor system**.  
BS EN 1366-7
- clinker** Solid agglomerate of residues formed by either complete or incomplete **combustion** and which may result from complete or partial melting.  
BS EN ISO 13943
- closed section of pipework** That section between two valves which may be intentionally or unintentionally closed, or between valves and storage containers including filling and product balance lines.  
BS 5306-4
- closed test arrangement** Form of **compartment**, capable of imposing a restriction on ventilation at some stage during a **fire**.  
BS 476-32
- closing device <for a conveyor system>** Device to be attached to a **closure for a conveyor system** which provides a return to closed position.  
*Note* The **closing device** ensures that the closure for a conveyor system is closed from any open position.  
BS EN 1366-7
- closure and conveyor system assembly** Complete **assembly** of a **closure for a conveyor system** and, where relevant, its frame or guide, which is provided for closing off a permanent **opening** in a **separating wall**. This includes the anchoring parts for the connection with the **separating element**, a length of any **penetrating component** on either side of the construction and the **penetration seal**, any sealing system between the closure system and any closing and/or **separating device**.  
BS EN 1366-7
- closure area** Vicinity at an **opening** which needs to be cleared in order to permit the shutting of the **closure for a conveyor system**.  
BS EN 1366-7
- closure for a conveyor system** Device to shut an **opening** for a **conveyor system** within a **fire separating element**.  
*Note* A **closure for a conveyor system** includes all **components** used to close the opening e.g. frames, guide rails, pivoting flaps, fittings and interlocking devices.  
BS EN 1366-7
- code compliant** Where a building or part of a building complies with the recommendations of an appropriate prescriptive code.  
PD 7974-0
- coincidence detection** Detection method in which an **alarm condition** is obtained only when at least two independent fire detectors show the presence of **fire**.  
*RC3e – Part 5 – Electronic data processing equipment; In cabinet protection*

**collapse** Mechanical failure of a complete **specimen** that allows it to fall from the position into which it has been fixed.

BS 476-20

**collecting head** Fitting used to connect one or more lines of hose to the suction inlet of a **pump**.

ISO 8421-8

**collector point** Unmanned **remote centre** in which the signals from a number of fire detection and/or extinguishing systems are collected for onward transmission to another remote centre.

BS 4422

**collector pumping** Method of increasing water supplies by stationing pumps at a number of sources and delivering water to the **collecting head** of a single **pump** from which it is pumped onto the **fire**.

BS 4422

**combination detector** **Fire detector** combining two or more detecting principles in a single housing.

ISO 7240-1

**combined emergency luminaire** See **emergency luminaire <combined>**.

BS 4422

**combined medium extinguishing system** System in which more than one **extinguishing medium** is used to **extinguish a fire** (e.g. **foam** and dry powder).

\*BS 4422-4

**combustible** (*adjective*) Capable of being ignited.

BS EN ISO 13943

**combustible** (*noun*) Item capable of **combustion**.

BS EN ISO 13943

**combustible dust** Dust that is **combustible** or **ignitable**.

BS 7535

**combustible load** Theoretical mass which would be lost from a **test specimen** when it is assumed to have undergone **complete combustion** in a fire test apparatus.

FDIS 13943

**combustion** Exothermic reaction of a substance with an oxidizer.

*Note* **Combustion** generally emits effluent accompanied by flames and/or visible light.

BS EN ISO 13943

**combustion efficiency** Ratio of the heat released in a **combustion** reaction to the theoretical heat of **complete combustion**.

*Note 1* **Combustion efficiency** can be calculated only for cases where complete combustion can be defined.

*Note 2* Combustion efficiency is usually expressed as a percentage.

*Note 3* It is dimensionless.

FDIS 13943

**combustion product** See **product of combustion**.

BS 4422

**combustion toxicity** Capacity of a substance within a **fire effluent** to cause injury to a living organism.

BS 7899-1

**come-a-long** See **winch <hand operated>**.

ISO 8421-8

**command post** See **control point**.

ISO 8421-8

**commercial butane** Hydrocarbon mixture consisting predominantly of butane, butylene or any mixture thereof.

Fire Certificates (Special Premises) Regulations 1976 Schedule 1 Part III



**commercial propane** Hydrocarbon mixture consisting predominantly of propane, propylene or any mixture thereof.  
**Fire Certificates (Special Premises) Regulations 1976 Schedule 1 Part III**

**common amenity areas** Areas such as kitchens, laundries, drying areas and occupiers' stores that are remote from individual dwellings.  
**BS 5588-1**

**common balcony escape** See **escape <common balcony>**.  
**BS 4422**

**common escape stair** See **escape stair <common>**.  
**BS 4422**

**common mode failure** Failure involving a single source that affects more than one type of **safety** system simultaneously.  
**FDIS 13943**

**compartment** See **fire compartment**.  
**BS 4422**

**compartment fire** See **fire compartment**.  
**BS 4422**

**compartment floor** Floor used to separate one **fire compartment** from another.  
**BS 4422**

**compartment wall** Wall used to separate one **fire compartment** from another.  
**BS 4422**

**compartmentation** Sub-division of a building by **fire resisting** walls and/or floors for the purpose of limiting **fire** spread within the building.  
**PAS 79**

**compatibility** See **foam compatibility**.  
**ISO 8421-4**

**compensator** Device that is used to prevent damage from the forces generated by expansion.  
**BS EN 1366-1**

**competent person** Person with the necessary training and experience, and with access to the requisite tools, equipment and information, accepted by the relevant authorities as capable of carrying out a defined task.  
**BS 5306-2**

**complete combustion** Combustion in which all the **combustion products** are fully oxidized.

*Note 1* This means that, when the **oxidizing agent** is oxygen, all carbon is converted to **carbon dioxide** and all hydrogen is converted to water.

*Note 2* If elements other than carbon, hydrogen and oxygen are present in the **combustible material**, those elements are converted to the most stable products in their standard states at 298 K.

**FDIS 13943**

**complete discharge** See **extinguisher <complete discharge>**.  
**BS 4422**

**component** Product manufactured as a distinct unit to serve a specific function in a building or structure about which information is required.  
**BS 476-10**

**composite material** Structured combination of two or more discrete materials.  
**BS EN ISO 13943**

**compound self-contained emergency luminaire** See **emergency luminaire <compound self-contained>**.  
**BS 4422**

**computational fluid dynamics model**  
**CFD model**

**field model** Computer simulation model where the fundamental equations of heat and mass transfer are solved using numerical methods.

*Note* In contrast to zone models, computers provide the enabling technology for these models.

**PD 7974-2**

**concealed space or cavity** Space enclosed by elements of a building (including the **suspended ceiling**) or contained within an element, but not a room, cupboard, **circulation space**, **protected shaft** or space within a flue, chute, **duct**, pipe or conduit.  
DD 9999

**concentration <toxicology>** Mass per unit volume.

*Note 1* For a **fire effluent** the typical units are  $\text{g m}^{-3}$ .

*Note 2* For a toxic gas, **concentration** is usually expressed as a **volume fraction** at  $T = 298 \text{ K}$  and  $P = 1 \text{ atm}$ , with typical units of  $\mu\text{L L}^{-1}$  ( $= \text{cm}^3 \text{m}^{-3} = 10^{-6}$ ).

*Note 3* The concentration of a gas at a temperature,  $T$ , and a pressure,  $P$ , can be calculated from its volume fraction (assuming ideal gas behaviour) by multiplying the volume fraction by the density of the gas at that temperature and pressure.

FDIS 13943

**concentration ratio of a foam solution**

See **foam concentrate ratio**

BS 4422

**concentration time curve <toxicology>**

Plot of the **concentration** of a toxic gas or **fire effluent** as a function of time.

*Note 1* For fire effluent, concentration is usually measured in units of  $\text{g m}^{-3}$ .

*Note 2* For a toxic gas, concentration is usually expressed as a **volume fraction** at  $T = 298 \text{ K}$  and  $P = 1 \text{ atm}$ , with typical units of  $\mu\text{L L}^{-1}$  ( $= \text{cm}^3 \text{m}^{-3} = 10^{-6}$ ).

FDIS 13943

**condition of control equipment** Condition of control equipment.

*Note* For example, the **control equipment** may be in the **normal condition**, the fault condition, the **alarm condition**, etc.

BS 5839-1

**condition probability** Probability of an event given the occurrence of a preceding event.

PD 7974-7

**condition warning** The status of an automatic detection system reflecting a change of signal at the **control equipment** which is greater than the ambient non-fire state and not exceeding the normal fire state.

*Code of Practice for Design, Installation, Commissioning & Maintenance of Aspirating Smoke Detector (ASD) Systems. 2005*

**configuration data** Data, other than the **operating system** that controls the configuration of a particular installation.

\*BS 5839-4

**confined explosion** Explosion of a fuel-oxidant mixture inside a closed system (e.g. vessel or building).

Institution of Chemical Engineers

**conflagration** Fire of large extent with a moving front involving a number of buildings, or a large area.

BS 4422

**connecting duct** Duct between a **fire damper** or supporting construction and a **measuring station**.

BS EN 1366-2

**connecting elements** Elements which form the links between the different components of a **fire detection** and **fire alarm system**.

BS EN 54-1

**consequences** Severity of the **outcome** of an event.

PD 7974-7

**constant mass** State of a **test specimen** when two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0.1% of the mass of the **specimen** or 0.1 g, whichever is the greater.

BS 476-12

- construction works** Building and civil engineering works.  
**The Construction Products Directive** (Council Directive 89/106/EEC)
- continuous dilution** Technique of preventing the formation of an explosive gas/air mixture by the supply of a protective gas at such a rate that the **concentration** of the gas/air mixture is always kept below the **lower explosive limit**.  
BS 4422
- continuous grade of release** See **grades of release**.  
BS 4422
- contribution to fire** Energy released by a **product** influencing the **fire growth** in pre- and post-**flash-over** situations.  
BS EN 13501-1
- control and indicating equipment** See **fire alarm control and indicating equipment**.  
BS 4422
- control centre** Permanently staffed room within or near the premises at **risk** for the receipt of emergency calls equipped with means for indicating the situation in each of the **protected premises**, and the communications needed for transmission of calls for assistance to emergency services.  
BS 4422
- control equipment <fire alarm systems>** See **fire alarm control and indicating equipment**.  
BS 4422
- control equipment <lifts, firemen's lifts>** See **lift control equipment**.  
BS 4422
- control for automatic fire protection system** Automatic device used to actuate **automatic fire protection system** after receiving a signal from the **fire alarm control and indicating equipment**.  
BS 4422
- control point** Specially marked position established for tactical command at the scene of a major incident.  
ISO 8421-8
- control room** See **fire brigade control room**.  
BS 4422
- control station <marine>** Space in which the radio, main navigating equipment, the emergency source of power, the central fire recording equipment, fire control equipment, or fire extinguishing installations are located; or a **control room** located outside a propulsion machinery space.  
\*BS 4422-9
- control unit** See **fire brigade control unit**.  
ISO 8421-8
- control valve** See **sprinkler control valve**.  
BS 5306-0
- controlled fire load** Fire load that is limited by means of management controls on the quantities of **combustible material**.  
\*BS 5588-4
- convection** Transfer of heat by movement of a fluid.  
FDIS 13943
- convective heat flux** Heat flux caused by **convection**.  
FDIS 13943
- conveyor system** Arrangement used to transport **materials** through an **opening** in a **fire separating element**.  
*Note* This can be **conveyor tracks** remote controlled or automatic equipment.  
BS EN 1366-7
- conveyor track** Arrangement that guides items to be transported on a **conveyor system**.  
*Note* This can be belts, slides, rails, screws, chains, **ducts** or pipes in which airborne particles are moved.  
BS EN 1366-7

**corridor access** Design in which each **dwelling** is approached via a common horizontal internal access or **circulation space** which may include a common entrance hall.  
BS 5588-1

**corrosion damage** Physical and/or chemical damage or impaired function caused by chemical action.  
BS EN ISO 13943

**corrosion target** Sensor used to determine the degree of **corrosion damage**, under specified conditions.

*Note* This sensor may be a **product**, a **component**, or a reference **material** used to simulate them.

FDIS 13943

**counter fire** Practice of starting a controlled **fire** to create a **fire break** in the path of an advancing **conflagration**, usually in forest firefighting.  
ISO 8421-8

**coupling** Device for connecting together hoses, valves, nozzles, etc., so as to secure continuity from the source of water supply to the delivery point.  
BS EN 671-2

**coupling <gated wye>** See **breeching <controlled>**.  
ISO 8421-8

**coupling <siamese>** See **breeching <collecting>**.  
ISO 8421-8

**covered shopping complex** Shopping complex that includes a covered **mall**, i.e. any **mall section** in which:

- more than 15 m of the length of the mall is covered by a bridge or **roof**; or
- (where the mall has an open slot above it, formed for example by projecting continuous canopies) more than 50% of its plan area is obscured; or

- (in any other case) at least 25% of its plan area is obscured by a roof or by **floors**, bridges, galleries or canopies.  
BS 5588-10

**covering** **Product** intended to protect underlying elements against **ignition**, **charring** or other damage.  
BS EN 13501-2

**critical exposure** Minimum irradiance at which **ignition** (pilot or spontaneous as specified) can be effected regardless of duration.  
BS 476-32

**critical fire load** Minimum **effective fire load** required in a **fire compartment** to produce a **fire** of sufficient severity to cause failure of **fire resistant** barriers or structural elements.  
BS 4422

**critical flux (CF)** Radiant flux at which a flame extinguishes (CHF) *or* the radiant flux after a test period of 30 min (HF-30), whichever is the lower (i.e. the flux corresponding with the furthest extent of **spread of flame**).  
BS EN 13501-1

**critical heat flux at extinguishment** Incident **heat flux**, under specified conditions, at the **point** on the surface of an item where the **flame** ceases to advance and might subsequently go out.  
BS ISO 5658-2

**critical irradiance** Minimum irradiance at which **ignition** (pilot or spontaneous as specified) can be effected, regardless of **duration**.  
BS 4422

**critical rate of application of a foam solution** Minimum theoretical **rate of application of foam solution** to a **fire** which will **extinguish** it.  
ISO 8421-4

**critical shear stress of a foam** Minimum shear stress between individual bubbles in a mass of **foam** which bears a relationship to foam viscosity, **stability** and spreading characteristics.  
ISO 8421-4

**critical signal path** All **components** and inter-connections between every **fire alarm** broadcast initiation point and the input terminals on, or within, each loudspeaker **enclosure**.  
BS 5839-8

**critical temperature** Temperature at which a structural element is assumed to be unable to support the applied load.  
BS 4422

**cubicle capacity <of a compartment>** Space contained by the inner structural surfaces of the **fire resisting** walls enclosing a **fire compartment** and either by:  
– the inner structural surfaces of the **floor** enclosing the **compartment**; or  
– of the floor and the lower surface of any non-combustible **roof**; or

– of the floor and upper surface of any **combustible roof**.

*Post-War Building Studies No. 20: Fire Grading of Buildings: Part I. General Principles and Structural Precautions. 1946.*

**cubicle capacity <of a division>** Space contained by the inner structural surfaces of its enclosing walls, the upper surface of the **floor** of its lowest storey, and either by the lower surface of any incombustible roof over the **division** or by the upper surface of any **combustible roof** over the division.

*Post-War Building Studies No. 20: Fire Grading of Buildings: Part I. General Principles and Structural Precautions. 1946.*

**curtain wall** External **non-loadbearing wall** which is independent of the **structural frame** and supported in place in front of loadbearing structures.

*Note* A **curtain wall** typically includes panels, glazing, seals, fixings, transoms and mullions.

BS EN 1364-3

# D

## **damage control unit**

**salvage tender** Fire appliance which carries a wide range of equipment designed to minimize or to prevent water and other damage occasioned during fire brigade operations.

ISO 8421-8

**damaged area** Total of those surface areas which have been affected permanently by fire under specified conditions.

*Note 1* See also **burned area**.

*Note 2* Users of this term should specify the types of damage to be considered. This could include, for example, loss of **material**, deformation, softening, melting, **charring**, **combustion**, **pyrolysis** or chemical attack.

*Note 3* It is expressed in m<sup>2</sup>.

BS EN ISO 13943

**damaged length** Maximum extent in a specified direction of the **damaged area**.

BS EN ISO 13943

**damper** Movable closure within a **duct** which can interrupt the passage of the fluid (liquid or gas) within a duct.

ISO 8421-2

**damper <fire>** Movable closure, within a **duct**, which is operated automatically or manually and is designed to prevent the passage of **fire**.

ISO 8421-2

**damper <smoke>** Movable closure within a **duct**, which is operated automatically or manually and is designed to prevent the passage of **smoke**.

BS 4422

**damping down** Wetting operations required after a **fire** is believed to have been extinguished, to deal with possible hidden **smouldering**, hot debris, etc.

ISO 8421-8

## **dangerous concentration of vapours**

**Concentration** greater than the **lower flammable limit** of the vapours.

**Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972** (SI 1972/917).

**data cabinet** Cabinet designed to protect media and valuables against the effects of **fire**.

*Note* A **data cabinet** can have doors, drawers, lids, connections and fittings.

BS EN 1047-1

**dead end** Area from which **escape** is possible in one direction only.

BS 5588-1

**decision element** Element that differentiates between a **fire** and non-fire states.

*Note* The **decision element** may be in the **detector** or the **control equipment**.

\*BS 5839-4

**deck access/deck approach <of an apartment building>** Wide approach balcony but not enclosed.

BS 5588-1

**decontamination** Removal or reduction to a safe level of chemical or other contamination, to which a **firefighter** has been exposed.

ISO 8421-8

**deep-seated fire** Fire involving solids subject to **smouldering**.

BS 5306-4

- defend in place** Life safety strategy in which occupants are encouraged to remain in their current location rather than to attempt **escape** during a **fire**.  
FDIS 13943
- deflagration** Combustion wave propagating at subsonic velocity.  
*Note* If, within a gaseous medium, **deflagration** is the same as a **flame**.  
BS EN ISO 13943
- deflagration flame arrester** Flame arrester designed to prevent a **deflagration** from being transmitted.  
BS 7244
- deflection** Movement associated with structural and/or thermal actions.  
BS EN 1363-1
- delivery hose** See **hose** <delivery>.  
ISO 8421-8
- deluge system** See **sprinkler** <deluge installation>.  
BS 5306-0
- deluge valve** See **sprinkler deluge valve**.  
\*BS 4422-4
- dependent fire zone** Fire compartment(s) of commercial enterprise areas coming under the control of the nominated wardens.  
*Firecode: Fire Practice Note 5. Commercial Enterprises on Hospital Premises. 1992*
- depressurization** Smoke control using pressure differentials where the air pressure in adjacent spaces is reduced to below that in the **protected space**.  
BS EN 12101-6
- depressurized space** Fire compartment from which air and smoke are exhausted for the purposes of depressurization.  
BS EN 12101-6
- depth <of a building>** Distance between the lowest point of the **floor** of the lowest storey of a building, to the ground level measured at the centre of that face of the building where the distance is greatest.  
BS 5588-11
- design concentration** Concentration of gaseous **extinguishing medium** necessary to **extinguish** a particular **fuel**, with a specified **safety** factor.  
BS 4422
- design density** See **sprinkler design density**.  
BS 4422
- design escape time** Calculated time from **ignition** until the time at which all the occupants of a specified part of a building should have been able to enter a **place of safety**.  
BS 4422
- design fire** Quantitative description of assumed **fire** characteristics within the **design fire scenario**.  
*Note* It is, typically, an idealized description of the variation with time of important **fire** variables such as **heat release rate**, **flame spread rate**, **smoke production rate**, toxic gas yields, and temperature.  
FDIS 13943
- design fire scenario** Specific **fire scenario** on which a deterministic **fire safety engineering** analysis will be conducted.  
FDIS 13943
- design point** See **sprinkler design point**.  
BS 5306-2
- design temperature** Temperature that the critical element will reach at the end of the specified period of **fire resistance** in a **fire test**.  
BS 5950-8
- detachable detector** **Fire detector** designed to be easily removed from its normal operating position for **maintenance** and servicing purposes.  
BS EN 54-1

**detection circuit** Transmission path which connects **points** to the **control and indicating equipment**.  
BS EN 54-2

**detection pressure** Pressure threshold at which a signal is given denoting the occurrence of an **explosion**.  
BS 4422

**detection signal** Signal from a detection device to show that a **fire** or **explosion** has been detected.  
ISO 7240-1

**detection time** Interval between **ignition** and the detection of **combustion** by an automatic or **manual system**.  
BS 4422

**detection zone** Geographical sub-division of the **protected premises** in which the detection of a **fire** can be indicated separately from any other sub-division.  
BS 4422

**detector** See **fire detector**; **explosion detector**; and **flammable gas detector**.  
BS 4422

**detector sprinkler** See **sprinkler** <**detector**>.  
BS 5306-2

**deterministic model** Specific **fire scenario** on which a deterministic **fire safety engineering** analysis will be conducted.  
FDIS 13943

**deterministic study** Methodology, based on physical relationships derived from scientific theories and empirical results, that for a given set of initial conditions will always produce the same outcome.  
BS 7974

**detonation** **Combustion** wave, accompanied by an **explosion**, propagating at supersonic velocity and characterized by a shock wave.  
BS EN ISO 13943

**detonation flame arrester** **Flame arrester** used to prevent the transmission of a **detonation**.  
BS 7244

**differential detector** **Detector** which initiates an **alarm** when the difference (normally small) in the magnitudes of the measured phenomenon at two or more places exceeds a certain value for a specified time.  
ISO 7240-1

**diffuser branch** **Branch** which can give a spray or a **jet** of variable size and which can be shut off at will.  
*Fire Service Training Manual*

**diffusion flame** **Flame** in which **combustion** occurs in a **zone** where the **fuel** and the **oxidizing agent** mix, having been initially separate.

*Note* See also **pre-mixed flame**.

FDIS 13943

**digital communicator** Signalling equipment that automatically communicates using a switched telephone network and exchanges digital information on the state of the **alarm** system.  
BS 4422

**dilution** Continuous supply of a protective gas, after purging, at such a rate that the **concentration** of a **flammable mixture** inside a pressurized **enclosure** is maintained at a value outside the **explosive limits** in a **dilution area**.

*Note* **Dilution** of oxygen by inert gas may result in a **concentration** of **flammable gas** above the upper explosive limit (UEL).

BS EN 50016

**dilution area** Area in the vicinity of a **source of release** where the **concentration** of **flammable gas** or vapour is not diluted to a safe **concentration**.  
BS EN 50016



- direct distance** See *escape* <direct distance>. **BS 4422**
- direct field of application** Outcome of a process whereby a test result is deemed to be equally valid for variations in one or more of the **product** properties and/or intended end use applications. **BS EN 13501-3**
- direct line signalling equipment** Signalling equipment that is used to transfer information concerned with the **state** of an **alarm** system via a dedicated communication channel. **BS 4422**
- discharge coefficient** Ratio of actual **flow rate**, measured under specified conditions, to the theoretical flow rate through an **opening**.  
*Note* For example, a vent. **PD 7974-2**
- discharge rate** See *escape* <discharge rate>. **BS 4422**
- discharge value** See *escape* <discharge value>. **BS 4422**
- discrete area(s)** Portion(s) of the total surface of construction, excluding framing/joints, etc., which can be expected to have a different **fire** insulating performance. **BS EN 1363-1**
- discretize** Process of replacing a continuous mathematical function by its numerical counter part where it has a value at only discrete intervals.  
*Note* For example, **grid points** in a numerical mesh. **PD 7974-2**
- disposable body** Body of a **gas cartridge** or of an **extinguisher** (usually the stored pressure type) that is not designed for recharging and should be discarded after use. **\*BS 5306-3**
- distance of travel** See *escape* <travel distance>. **BS 4422**
- distress call** Priority call over the public telephone system for sending urgent operational **fire** messages. (Used only to obtain rapid connection in cases involving the **safety** of life or property; the caller's request to the Post Office operator being prefixed by the phrase: **distress call**).  
*Fire Service Training Manual*
- distress signal unit (DSU)** Device carried by **breathing apparatus** wearers which will sound a distress signal when either manually or automatically actuated. **BS 4422**
- distribution pipe** See *sprinkler distribution pipe*. **BS 4422**
- diversity** Same performance of a function by two or more independent and dissimilar means. **PD 7974-7**
- dividing breeching** See *breeching* <dividing>. *Fire Service Training Manual*
- division <building>** Part of a building separated from the remainder of the building by a **division wall**.  
*Fire Prevention Guide 2: Fire Precautions in New Single-storey Spirit Storages and Associated Buildings. 1973.*
- division <marine>** See *marine* <division>. **BS 4422**
- division wall** Fire-resisting wall carried vertically throughout a building from the lowest level of any **basement** or sub-basement bounded by the wall, and continued sufficiently

- far above the **roof** to prevent **fire** spread between the two sides of the wall.  
**BS 4422**
- door and shutter assembly** See **doorset**.  
**BS 4422**
- door assembly** See **doorset**.  
**BS 4422**
- door closer** Mechanism attached to a door that will close the door provided that the closing force is not overcome by an **automatic door release mechanism** or obstacle.  
**BS 5839-3**
- door frame** Fixed surround into which can be fitted one or more door leaves.  
**BS 8214**
- door kit** Set of fully machined and fitted frame components together with a door leaf or leaves fully prepared for site assembly and fixing. **Door kits** may or may not include all the items of ironmongery required for the finished **door assembly**.  
**BS 8214**
- doorset** **Assembly** consisting of a fixed part and one or more moveable parts, intended to allow or prevent access through permanent openings in separating elements.  
*Note* The term doorset also covers shutter assemblies.  
**BS 4422**
- dosimeter** Personal instrument for measuring the amount (dose) of ionizing radiation absorbed by a person over a period of time.  
**ISO 8421-8**
- drainage time <25%>** See **foam drainage time**.  
**BS 4422**
- drainage time <50%>** See **foam drainage time**.  
**BS 4422**
- drainage time <of foam>** See **foam drainage time**.  
**BS 4422**
- draught** Current of air accelerating towards a **fire**, supplying air for **combustion**.  
**BS 4422**
- draught free environment** **Environment** in which the results of experiments are not significantly affected by the local air speed.  
*Note* A qualitative example is an **environment** in which a wax candle **flame** remains essentially undisturbed. Quantitative examples are small-scale **fire tests** in which a maximum air speed of  $0.1 \text{ m s}^{-1}$  or  $0.2 \text{ m s}^{-1}$  is sometimes specified.  
**BS EN ISO 13943**
- drencher head** Open **sprinkler** fitted to a pipe or **drencher system** and designed to discharge water on to a surface to be **protected** against **fire exposure**.  
**BS 4422**
- drencher system** **Automatic system** of water pipes fitted with **drencher heads** at suitable intervals and heights, and designed to discharge water on to surfaces to be **protected** against **fire exposure**.  
**ISO 8421-4**
- drift smoke** **Smoke** which is no longer in a stratified condition.  
**BS 4422**
- drill tower** Tower-like building primarily used for practising **fire brigade** operations and for drying hose.  
**ISO 8421-8**
- drop** See **sprinkler <drop>**.  
**BS 4422**
- dry fire main** See **dry riser**.  
**BS 4422**

**dry powder**

**powder suppressant** Extinguishing medium composed of finely divided solid chemical products.  
BS 4422

**dry powder appliance** Vehicle wholly or mainly used to carry and apply dry powder to a fire.  
ISO 8421-8

**dry riser****dry rising main**

**dry fire main** Vertical pipe installed in a building for firefighting purposes, fitted with inlet connections at fire and rescue service access levels and outlet connections at specified points, which is normally dry but capable of being charged with water by pumping from fire and rescue service appliances.  
BS 4422

**dual purpose powered smoke and heat exhaust ventilator**

Powered smoke and heat exhaust ventilator which has provision to allow its use for comfort ventilation.  
\*BS 7346-2

**dual purpose ventilator** Smoke and heat exhaust ventilator which has provision to allow its use for comfort (e.g. day to day) ventilation.  
BS EN 12101-2

**dual-entry firefighting lift** Firefighting lift provided with two sets of doors, one used for normal operations and the other in the firefighting mode.  
BS 5588-5

**dual-purpose area** Any area which may serve at least two different purposes, one of which is that of an escape route. Dual-purpose areas frequently feature in buildings with large interconnected areas.  
*Fire and the Design of Educational Buildings. Building Bulletin 7. Sixth Edition. 1997*

**duct** Passage through which services such as water pipes, electrical cables or air duct-work can be led through a building.  
BS 5588-9

**ductwork** System of enclosures of any cross-sectional shape for the distribution or extraction of air.  
DD 9999

**durability index** Index letter, R, S, T, U, W, and X, indicating the specific washing or cleansing procedure to which a test specimen was subjected prior to flammability testing.  
BS 5722

**durably flame retarded fabric/scenery**

Fabric/scenery that has been chemically treated to render it flame retardant so that when subjected to the appropriate wetting or cleansing procedure it retains its flame-retardant performance.

*Guide to Fire Precautions in Existing Places of Entertainment and Like Premises. 1998*

**duration** Period of time that a luminaire can continuously provide the minimum illuminance required in the emergency condition. The time is specified in hours.  
\*BS 5266-1

**duration of emergency lighting** See emergency lighting duration.  
BS 4422

**duration of flame application** Period of time during which a pilot flame is applied to a test piece.  
FDIS 13943

**duration of flaming** Length of time for which flaming combustion persists under specified conditions, including flaming combustion due to the presence of an ignition source.  
BS EN ISO 13943

**duration of operation** See extinguisher <duration of operation>.  
BS EN 3-7

**duration of steady burning** Interval between flash-over and commencement of decay.  
PD 7974-3

**dust explosion** Explosion which results from the **ignition** of a mixture of **combustible dust** and air.  
BS 4422

**dwelling** Single-family house, self-contained **flat** or **maisonette**.  
BS 5588-1

**dwelling of origin** Dwelling in which the initial **ignition** of a **fire** has occurred.  
BS 5588-1

# E

**'E' criterion** See integrity criterion 'E'.  
BS 4422

**early suppression** See **sprinkler <early suppression, fast response>**.  
BS 4422

**early suppression fast response automatic sprinkler (ESFR)** See **sprinkler <early suppression, fast response>**.  
BS 4422

**ease of ignition** Deprecated term. See **ignitability** and **minimum ignition time**.  
BS EN ISO 13943

**EC<sub>50</sub>** See **effective concentration 50 (EC<sub>50</sub>)**.  
FDIS 13943

**ECt<sub>50</sub>** See **effective exposure dose 50 (ECt<sub>50</sub>)**.  
FDIS 13943

**effective calorific value** Moisture corrected value obtained by calculation  
PD 7974-1

**effective concentration 50 (EC<sub>50</sub>)** Concentration of a toxic gas or **fire effluent**, statistically calculated from concentration-response data, that causes a specified effect in 50% of a population of a given species within a specified **exposure time** and post-exposure time.

*Note 1* For fire effluent, typical units are  $\text{g m}^{-3}$ .

*Note 2* For a toxic gas, typical units are  $\mu\text{L L}^{-1}$  ( $T = 298 \text{ K}$  and  $P = 1 \text{ atm}$ ). See **volume fraction**.

*Note 3* The observed effect is usually a behavioural response, **incapacitation**, or death. The EC<sub>50</sub> for incapacitation is termed the IC<sub>50</sub>. The EC<sub>50</sub> for lethality is termed the LC<sub>50</sub>.

FDIS 13943

**effective discharge time** See **extinguisher <effective discharge time>**.  
BS 4422

**effective exposure dose 50 (ECt<sub>50</sub>)** Product of EC<sub>50</sub> and the **exposure time** over which it was determined.

*Note 1* For **fire effluent**, typical units are  $\text{g min m}^{-3}$ .

*Note 2* For a toxic gas, typical units are  $\mu\text{L min L}^{-1}$  ( $T = 298 \text{ K}$  and  $P = 1 \text{ atm}$ ) – see **volume fraction**.

*Note 3* ECt<sub>50</sub> is a measure of **toxic potency**.

*Note 4* See also **exposure dose**.

FDIS 13943

**effective fire load** See **fire load <effective>**.  
BS 4422

**effective fire load density** See **fire load density <effective>**.  
BS 4422

**effective heat of combustion** See **heat of combustion <effective>**.  
BS EN ISO 13943

**ejector pump** Portable **jet pump** designed for removing water from depths beyond the maximum practical lift of pumps and/or in confined spaces.

*Note* An **ejector pump** can be used in basements, ships' holds, etc. It is operated by water delivered from a **pump** through standard **delivery hose**.

*Fire Service Training Manual*

**electric hammer** Heavy duty electrically operated tool similar in use to a **pneumatic drill**.  
ISO 8421-8

**electrical tracking resistance** See **tracking resistance** <electrotechnical>.

BS EN ISO 13943

**electro-magnetic automatic release mechanism** Device that converts electrical energy into a magnetic force that acts directly as the holding force, so that cessation of the electrical supply gives an automatic release.

BS 4422

**electro-mechanical automatic release mechanism** Mechanical holding device that is operated by electrical energy, so that cessation of the electrical supply gives an automatic release.

BS 4422

**element of structure** Member forming part of the **structural frame** of a building or any other beam or column.

DD 9999

**emergency call** Alarm of fire or other emergency received by the **fire brigade**.

ISO 8421-8

**emergency escape lighting** See **escape lighting**.

BS 4422

**emergency exit** See **exit** <emergency>.

BS 4422

**emergency lighting** Lighting for use when the supply to the **normal lighting** fails; it includes **escape lighting** and **standby lighting**.

BS 4422

**emergency lighting <maintained>** Lighting system in which all **emergency lighting** lamps are in operation at all times when normal or emergency lighting is required.

BS 4422

**emergency lighting <non-maintained>** Lighting system in which all **emergency lighting** lamps are in operation only when the supply to the **normal lighting** fails.

BS 4422

**emergency lighting duration** Period of time for which a luminaire can continuously provide the minimum illuminance required in the emergency condition.

BS 4422

**emergency lighting system** Complete but discrete **emergency lighting** installation, from the standby power source to the emergency lighting lamp(s), separate from the **normal lighting** system and able to provide emergency lighting.

BS 4422

**emergency luminaire <centrally supplied>**

Luminaire for maintained or non-maintained operation which is energized from an emergency power system remote from the luminaire.

BS 4422

**emergency luminaire <combined>** **Emergency lighting** luminaire containing two or more lamps, at least one of which is energized from the emergency lighting supply and the others from the **normal lighting** supply.

BS 4422

**emergency luminaire <compound self-contained>** Self-contained luminaire providing **emergency lighting** and an emergency supply for operating a **satellite luminaire**.

BS 4422

**emergency luminaire <maintained>** Luminaire in which the **emergency lighting** lamps are energized at all times when the normal or emergency lighting is required.

BS 4422

**emergency luminaire <non-maintained>** Luminaire in which the **emergency lighting** lamps are only energized when the supply to the **normal lighting** fails.

BS 4422

**emergency luminaire <satellite>** Luminaire which derives its emergency operation

- supply from an associated **compound self-contained emergency luminaire**.  
**BS 4422**
- emergency luminaire <self-contained>**  
**Luminaire** providing maintained or **non-maintained emergency lighting** in which all the elements, such as the battery, the lamp, the control unit and the test and monitoring facilities, where provided, are contained within the luminaire or adjacent to it (that is, within one metre).  
**BS 4422**
- emergency luminaire <slave>** **Luminaire** supplied from a central emergency power source and not having its own internal secondary supply.  
**BS 4422**
- emergency mode** State of a **self-contained emergency luminaire** which provides **lighting** when energized by its internal power source, the normal supply having failed.  
**BS 4533-102.22 (EN 60598-2-22)**
- emergency number** Special telephone number used to make contact with an emergency service.  
**BS 4422**
- emergency tender**  
**rescue tender** **Fire appliance** which carries a wide range of special equipment for use at **fires** or other emergencies.  
**BS 4422**
- emissivity** Ratio of the radiation emitted by a radiant source to the radiation that would be emitted by a **black body radiant source** at the same temperature.  
*Note* It is dimensionless.  
**FDIS 13943**
- empirical formula** Chemical formula of a substance in which the relative numbers of atoms of each type are given.  
*Note* Typically, the number for one type of atom is chosen to be an integer (usually C or O), e.g. a particular sample might be represented as  $C_6H_{8.9}O_{4.1}N_{0.3}Cl_{0.01}$ .  
**FDIS 13943**
- encapsulation** See **type of protection**.  
**BS 4422**
- enclosed stairway** See **stairway <enclosed>**.  
**BS 4422**
- enclosure** Space defined by **boundary** elements (on all sides) around the point of origin of the **fire**.  
**PD 7974-3**
- enclosure <built environment>** Volume in the **built environment** defined by bounding surfaces, which may have one or more **openings**.  
**FDIS 13943**
- enclosure <electrical>** External casing protecting the electrical and mechanical parts of apparatus.  
*Note* The term excludes cables.  
**BS 4422**
- end-centre array** See **sprinkler <end-centre array>**.  
**BS 4422**
- end-side array** See **sprinkler <end-side array>**.  
**BS 4422**
- endurance burning condition** Steady burning of a stabilized **flame** at or close to a **flame arrester element**.  
**BS 4422**
- endurance burning resistance** Ability of a **flame arrester** to withstand the **endurance burning condition** without **flame** transmission under specified test conditions.  
**BS 4422**
- end-use application** Real application of a **product**, in relation to all aspects that influence the behaviour of that product under different **fire situations**.

*Note* It covers aspects such as its quantity, orientation, position in relation to other adjacent products, and its method of fixing.

BS EN 13501-1

**end-use conditions** Intended conditions to which an item will be subjected during its normal working life, when used in accordance with the manufacturer's instructions.

BS EN ISO 13943

**energized condition** State in which a detector is supplied with power.

BS 5446-1

**engineered system** See **extinguishing system <engineered>**.

BS 4422

**entry firefighting** Firefighting operations, which involve voluntary direct entry into flames.

BS 4422

**environment** Conditions and surroundings that may influence the behaviour of an item or persons when exposed to **fire**.

BS EN ISO 13943

**equilibrium pressure** Pressure developed within a container when filled with a quantity of solid, liquid and gaseous contents under specified conditions.

BS 4422

**equipment protection** Provision of a fire detection and/or suppression system to an individual item of electronic equipment.

BS 6266

**equivalence ratio** Fuel/air ratio divided by the fuel/air ratio required for a **stoichiometric mixture**.

*Note 1* Standard, dry air contains 20.95% oxygen by volume. In practice, the oxygen **concentration** in entrained air may vary and calculation of the **equivalence ratio** to a standard, dry air basis will be required.

*Note 2* It is dimensionless.

*Note 3* See also **fuel-lean combustion; fuel-rich combustion; stoichiometric combustion; and stoichiometric mixture**.

FDIS 13943

**equivalent fire load density** See **fire load density <wood equivalent>**.

BS 4422

**equivalent material** Any **material** which is designed as **non-combustible** when tested to specified conditions and which, by itself or due to **insulation** provided, has structural properties and **fire integrity** equivalent to that of steel.

BS 4422

**escape** Effective action taken to reach a **safe refuge** or **place of safety**.

FDIS 13943

**escape <common balcony>** Walkway, open to the air on one or more sides, forming part of a designated **escape route** from more than one occupancy.

BS 4422

**escape <direct distance>** Shortest distance from any **point** within the **floor area**, measured within the external **enclosures** of the building, to the nearest **storey exit** ignoring walls, **partitions** and fittings, other than the enclosing walls/partitions to **protected stairways**.

BS 4422

**escape <discharge rate>** Number of persons which can pass through one unit of exit width in a given time.

BS 4422

**escape <discharge value>** Maximum number of persons that can pass through a given number of units of exit width in a given period of time, having regard in a multi-storey building to the capacity of the stairs.

BS 4422

**escape <travel distance>** Actual distance to be travelled by a person from any point



- within the **floor area** to the nearest **storey exit**, having regard to the layout of the walls, **partitions** and fittings.  
**BS 4422**
- escape bed lift** Escape lift able to carry persons in bed, together with any necessary attendants.  
**BS 4422**
- escape chute** Open, slide-like **escape** used for emergency evacuation.  
**BS 4422**
- escape hatch** Means of providing **escape** from a room or part of a building in the form of a moveable or breakable panel.  
**BS 4422**
- escape ladder** Fixed ladder, leaning ladder or hanging ladder for **escape** use.  
**BS 4422**
- escape lift** Lift that may be used for the evacuation of disabled people in a **fire**.  
*Approved Document B (Fire safety) – Volume 1: Dwellings (2000 Edition)*
- escape lighting** That part of **emergency lighting** which is provided to ensure that the **means of escape** can be effectively identified and be sufficiently illuminated to be usable at all times.  
**BS 4422**
- escape rope** Rope forming part of an **escape route**.  
**BS 4422**
- escape route** Path taken by any person during an **escape**.  
**BS 4422**
- escape route <external>** Route, external to a building, e.g. by way of a **roof**, stair, balcony, bridge, terrace, alley-way, walkway or external courtyard which terminates at a **final exit** or discharges into another **escape route**.  
**BS 4422**
- escape route <pressurized >** Route which permanently or in case of **fire** is **over-pressured** compared to the adjacent parts of the building in order to inhibit the spread of fire (**smoke**, gas or **flames**) into the **escape route**.  
**BS 4422**
- escape route <protected>** Route which is adequately enclosed and is separated by **fire-resistant** construction from a **fire** in adjoining accommodation.  
**BS 4422**
- escape route marker** Marker forming part of a **way guidance** system, provided to clearly delineate a designated **escape route**.  
**BS 4422**
- escape stair <common>** Protected escape stair serving more than one occupancy.  
**BS 4422**
- escape stairway** Stairway designed as a **means of escape** in case of fire.  
**BS 4422**
- escape stairway <external>** Stairway in the open air, separated from possible **fire** in the building by **fire-resistant** structure.  
**BS 4422**
- escape time** See **available safe escape time (ASET)**.  
**FDIS 13943**
- ESFR** See **sprinkler <early suppression, fast response>**.  
**BS 4422**
- essential ironmongery** See **ironmongery <essential>**.  
**BS 8214**
- estimated maximum loss (EML)** Cautious assessment of the maximum loss possible in reasonably adverse conditions.
- European Technical Approval (ETA)** Favourable technical assessment of the fitness for use of a construction **product** for an

intended use, issued for the purposes of the Construction Products Directive by a body authorized by a member state to issue European Technical Approvals for those purposes and notified by that member state to the European Commission.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**European Technical Approvals issuing body**

Body notified under article 10 of the Construction Products Directive.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**evacuation behaviour** Behaviour which enables occupants of a building to reach a **place of safety**.

*Note* See also **movement behaviour** and **pre-movement behaviour**.

FDIS 13943

**evacuation drill** Rehearsal of the evacuation procedure involving participation of the occupants of the premises.

BS 4422

**evacuation level** Storey(s) at which **final exits** suitable for the evacuation of persons are available.

\*BS 5588-5

**evacuation lift** See **escape lift**.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**evacuation plan** Procedure for ensuring the **safety** of occupants and for limiting loss and damage to building structure, contents, the **environment** and business interruption.

BS 4422

**evacuation service** Operation of a selected **escape bed lift** under an agreed system of **management** and control for the evacuation of dependent patients in the case of **fire**.

*Firecode: Fire Practice Note 3: Escape Bed Lifts. 1987*

**evacuation signal** Audible and/or visible signal to indicate to occupants that they have to **escape**.

BS 4422

**evacuation time** Interval between the time of a warning of **fire** being transmitted to the occupants and the time at which all of the occupants are able to reach a **place of safety**.

*Note* See also **available safe escape time (ASET)**.

BS 4422

**event** Something happening or that has happened that can be made up of several but mutually exclusive occurrences.

PD 7974-7

**event tree** Depiction of temporal, causal sequences of events, built around a single initiating condition.

FDIS 13943

**ex component** Part of electrical apparatus for **potentially explosive atmospheres** which is not to be used alone in such atmospheres and which requires additional certification of any electrical apparatus with which it is used.

\*BS 5501-1 (EN 50014)

**exhauster** See **sprinkler exhauster**.

BS 4422

**exit** Doorway or other suitable **opening** allowing egress from an occupied space.

BS 4422

**exit <emergency>**

**exit <fire>** Exit on a designated **escape route**.

BS 4422

**exit <final>** Termination of a designated **escape route**, from which there is direct access to a **place of ultimate safety**.

BS 4422

- exit <normal>** Exit intended to be usable at any time while the premises are occupied.  
BS 4422
- exit <storey>** Doorway giving direct access to a **protected stairway**, **firefighting lobby**, external **escape route** or **place of ultimate safety**.  
BS 4422
- exit <unit of width>** Minimum width required for a single file of persons to walk through an **exit**.  
BS 4422
- exit direction indicator** Part of the **way guidance** system provided to identify **escape routes** and to clearly indicate direction towards an **emergency exit**.  
BS 4422
- exit direction sign** Sign indicating the direction to an **emergency exit**.  
BS 4422
- exit indicator** Illuminated indicator forming part of the **way guidance** system and provided to clearly identify an **exit**.  
BS 4422
- exit marking** Part of the **way guidance** system provided to clearly identify an **exit** by using luminous marking to outline part or all of the exit surround.  
BS 5266-2
- exit sign** Sign that indicates an **escape route** or a **final exit**.  
BS 4422
- explosibility** Ability of a dust to take part in a cloud **explosion** when dispersed in air at a suitable concentration and in the presence of an effective **ignition source**.  
BS 4422
- explosible dust** Dust which, when present as a mixture with air, might explode on contact with an **ignition source**.  
*Occupational Storage Hazards – Prevention and Control of Dust Explosions*
- explosimeter** See **flammable gas detector**.  
ISO 8421-8
- explosion** Abrupt expansion of gas which can result from a rapid **oxidation** or decomposition reaction, with or without an increase in temperature.  
BS 4422
- explosion decoupling** Technique for preventing the propagation of **flames** and **explosions** from one apparatus to other parts of an installation by the use of special devices, e.g. mechanical high-speed shut-offs, rotary valves, or **flame arresters**.  
BS 4422
- explosion detector** Device or arrangement of apparatus, containing one or more **explosion sensors**, that responds to a developing **explosion**.  
BS 4422
- explosion efficiency** Ratio of the energy in a **blast wave** to the energy theoretically available from the **heat of combustion**.  
Institution of Chemical Engineers
- explosion index** See **explosion indices**.  
BS 4422
- explosion index  $K$**  Constant defining, under specified conditions, the maximum rate of pressure rise with time  $(dp/dt)_{\max}$  of an **explosion** in a volume,  $V$ , according to the equation  $K = (dp/dt)_{\max} V^{1/3}$ .  
BS 4422
- explosion index  $K_{\max}$**  Maximum value of the **explosion index  $K$**  determined by tests over a wide range of reactant concentrations.  
BS 4422
- explosion index  $p_m$**  Maximum **overpressure** attained during an **explosion** relative to the pressure in the vessel at the time of **ignition**.  
BS 4422

**explosion index  $p_{\max}$**  Maximum value of the **explosion index  $p_m$**  determined by tests over a wide range of reactant concentrations.  
BS 4422

**explosion indices** Numerical terms, determined in accordance with standard test methods, which characterize the contained **explosion** of a specified concentration of reactants in a vessel having a specified volume.  
BS 4422

**explosion limits** See **explosive limits**.  
BS 4422

**explosion point <lower>** Temperature of a **combustible** liquid at which the concentration of the saturated vapour in air is equal to the **lower explosive limit**.  
BS 4422

**explosion point <upper>** Temperature of a **combustible** liquid at which the concentration of the saturated vapour in air is equal to the **upper explosive limit**.  
BS 4422

**explosion points** Temperatures of **combustible** liquid at which the concentration of the saturated vapour is equal to the upper and lower **explosive limits**.  
BS 4422

**explosion-pressure-resistant** Property of vessels and equipment designed to withstand the expected **explosion** pressure without becoming permanently deformed.  
BS EN 1127-1

**explosion-pressure-shock-resistant** Property of vessels and equipment designed to withstand the expected **explosion** pressure without rupturing, but allowing permanent deformation.  
BS 4422

**explosion-protected apparatus** Electrical equipment having a recognized **type of protection** designed to ensure that it will

not cause an **explosion** of the surrounding atmosphere.  
BS 4422

**explosion protection system** Composite arrangement of devices to detect automatically the onset of an **explosion** and initiate the actuation of a **suppression system** or other devices to limit destructive effects of the explosion.  
BS 4422

**explosion range** See **explosive range**.  
BS 4422

**explosion relief** Part of the panel-work of an **enclosure** designed and constructed to release the excess pressure in the event of an **explosion**, in order to prevent injury to persons and further damage to equipment.  
BS 4422

**explosion resistant** Property of vessels and equipment designed to be either explosion-pressure resistant or explosion-pressure shock-resistant.  
BS 4422

**explosion sensor** Device which is responsive to the changes caused by a developing **explosion** in one or more of the environmental parameters such as pressure, temperature and/or radiation.  
BS 4422

**explosion suppressant** Substance which, when dispersed into a container, can arrest a developing **explosion** in that container.  
BS 4422

**explosion suppression** Abrupt halting of an incipient or developing **explosion** within an **enclosure**.  
BS 4422

**explosion suppression system** Composite arrangement of devices to detect automatically the onset of an **explosion** and to initiate the actuation of suppression.  
BS 4422

**explosion suppressor** Appliance containing an **explosion suppressant** which can be expelled by the action of internal pressure.  
BS 4422

**explosive atmosphere** Mixture with an **oxidizing agent**, (usually air), of **flammable substances** in the form of gas, vapour, mist, powder or flock, in such proportions that it can be **ignited**.  
BS 4422

**explosive atmosphere <potential>** Area where there is a possibility that an **explosive atmosphere** could be generated by releases of **flammable** gases or vapours.  
BS 4422

**explosive limits**

**explosion limits** Limits of the **explosive range**.  
BS 4422

**explosive limits <lower (LEL)>** Lowest **concentration** of a **flammable substance** in air within which an **explosion** can occur.  
BS 4422

**explosive limits <upper (UEL)>** Highest **concentration** of a **flammable substance** in air within which an **explosion** can occur.  
BS 4422

**explosive power** Amount of **explosion** energy released relative to the explosion energy released by the same mass of TNT, expressed as a percentage.

Explosive yield =  $\text{explosive power} \times \text{weight} / 100$ .

Institution of Chemical Engineers

**explosive range**

**explosion range** Range of the concentration of a **flammable substance** in air within which an **explosion** can occur.  
BS 4422

**explosive test mixture** Specified **explosive mixture** used for the testing of electrical

apparatus for **potentially explosive atmospheres**.

\*BS EN 50014

**exposed building** Building which might be in danger of taking **fire** by reason of fire in another building or other source external to the building.

*Post-War Building Studies No. 20: Fire Grading of Buildings: Part I. General Principles and Structural Precautions. 1946.*

**exposed face** Side of a test construction that is exposed to the heating conditions of a **fire test**.

BS EN 1363-1

**exposed lining** Face of the wall exposed to **fire** in a **fire test**.

BS 5268-4.2

**exposed surface** Surface of a **test specimen** subjected to the heating conditions of a **fire test**.

*Note* For **floor-covering** systems, the **exposed surface** is generally the use surface.

FDIS 13943

**exposing building** Building which, being on **fire**, might endanger any other building.

*Post-War Building Studies No. 20: Fire Grading of Buildings: Part I. General Principles and Structural Precautions. 1946.*

**exposure dose** Measure of the maximum amount of a toxic gas or **fire effluent** which is available for inhalation, calculated by integration of the area under a concentration-time curve.

*Note 1* For fire effluent, typical units are  $\text{g min m}^{-3}$ .

*Note 2* For a toxic gas, typical units are  $\mu\text{L min L}^{-1}$  ( $T = 298 \text{ K}$  and  $P = 1 \text{ atm}$ ). See **volume fraction <gas in a mixture>**.

FDIS 13943

**exposure hazard** Danger directly resulting from nearby **fire**.

BS 4422

**exposure time** Length of time for which people, animals or **test specimens** are exposed under specified conditions.

BS EN ISO 13943

**extended field of application** Outcome of a process that predicts, for a variation of a **product** property and/or its intended end use application(s), a test result on the basis of one or more test results to the same test standard.

BS EN 13501-3

**extent of combustion** Maximum length of a **material** that has been destroyed by **combustion** or **pyrolysis**, under specified test conditions, excluding any region damaged only by deformation.

BS EN 60695-4

**extent of surface ignition** Maximum distance of lateral **flame spread** on the upper surface.

\*BS 476-3

**external escape stairway** See **escape stairway <external>**.

BS 4422

**external non-substantial component** **Non-substantial component** that is not covered on one side by a **substantial component**.

BS EN 13501-1

**external wall** Wall forming the external envelope of a building which may be exposed separately to an internal or external **fire**.

BS EN 1365-1

**extinction area <of smoke>** **Product** of the volume occupied by **smoke** and the **extinction coefficient** of the smoke.

*Note* It is a measure of the amount of smoke, and the typical units are  $m^2$ .

FDIS 13943

**extinction coefficient <of smoke>** Natural logarithm of the ratio of incident light intensity to transmitted light intensity, per unit light path length.

*Note* Typical units are  $m^{-1}$ .

FDIS 13943

**extinguish** Terminate **combustion**.

BS 4422

**extinguishant** See **extinguishing medium**.

BS 4422

**extinguishant <gas container system>**

System in which the propellant gas is separately contained in a gas container, not in the powder container.

BS 5306-7

**extinguisher** Appliance containing an **extinguishing medium** which can be discharged on to a **fire** by the action of internal pressure.

*Note* **Extinguishers** may be sub-classified by the method of discharge (stored pressure, **gas cartridge**, etc.) or by the extinguishing medium used (water, **foam**, **dry powder**, etc.).

BS 4422

**extinguisher <aerosol type>** Small disposable container, incorporating a valve and containing an **extinguishing medium** kept under greater than atmospheric pressure by means of a propellant, from which the contents are discharged when the valve is operated.

*Note* **Dry powder extinguishers** of the aerosol type are designed to be discarded after use and not to be refilled. **Extinguishers** containing **halon** are intended to be returned to the manufacturer for recovery of any residual halon.

BS 4422

**extinguisher <charge>** Mass or volume of the **extinguishing medium** contained in the extinguisher.

*Note* The charge of appliances based on water is expressed in volume and that of other appliances in mass.

BS 4422

**extinguisher <complete discharge>** Discharge of an **extinguisher** to the **point** where the internal and external pressures are equal, the valve control being kept fully open.  
BS 4422

**extinguisher <duration of operation>** Time during which the **extinguishing medium** can continue to discharge, without any interruption in the discharge and with valve fully opened not including the residual propellant gas.  
BS 4422

**extinguisher <effective discharge time>** Time from the commencement of discharge of the **extinguishing medium** at the **nozzle** to the moment at which discharge of the medium (but not necessarily the propellant gas) ceases.  
BS 4422

**extinguisher <field rechargeable>** **Extinguisher** that can be recharged in the field without return to the manufacturer or its approved agent.  
BS 4422

**extinguisher <portable>** **Extinguisher** which is designed to be carried and operated by hand.  
BS 4422

**extinguisher <service pressure>** **Equilibrium pressure** developed within the **extinguisher body** when it is filled to the maximum recommended charge and at its maximum allowable temperature.  
BS 4422

**extinguisher <transportable>** **Extinguisher** mounted on wheels or skids.  
BS 4422

**extinguisher body** Shell of an **extinguisher**, not fitted with its accessories but fitted with all its welded parts.  
BS 4422

**extinguisher body <disposable>** **Body** of a **gas cartridge** or of an **extinguisher** (usually of the stored pressure type) that is not designed for recharging and should be discarded after use.  
BS 4422

**extinguisher body <rechargeable, factory sealed>** **Body** of a **gas cartridge** or of an **extinguisher** (usually the stored pressure type) that is intended to be recharged after use but only by the manufacturer or his approved agent.  
BS 4422

**extinguisher body fittings** Parts of the **extinguisher** that, under normal working conditions, are permanently attached to the **extinguisher body shell** and are subject to the working pressure.  
BS 4422

**extinguisher body shell** Unfinished outer case of the **extinguisher** usually comprising a cylindrical part with dished ends, and containing an aperture or apertures for charging the extinguisher or for subsequent fitting of **components** such as **nozzles**, pressure gauges and closures.  
BS 4422

**extinguishing concentration** Minimum concentration (as a percentage by volume) of **extinguishant** necessary to **extinguish** a **flame** of a particular **fuel** under defined experimental conditions.  
BS 5306-5.1

**extinguishing concentration <minimum>** Minimum concentration (as a percentage by volume) of a specified gaseous **extinguishing medium** necessary to **extinguish** a **flame** of a particular **fuel** under defined experimental conditions.  
BS 4422

**extinguishing concentration <recommended>** Concentration of a gaseous **extinguishing medium** necessary to ensure

extinction of **flaming combustion** of a particular **material**.

BS 4422

**extinguishing foam**

**finished foam** Extinguishing medium consisting of a mass of bubbles mechanically or chemically formed by a liquid.

BS 4422

**extinguishing medium** Substance which, when discharged on to a **fire**, is intended to terminate **combustion**.

BS 4422

**extinguishing medium <residual content>**

Quantity of **extinguishing medium** remaining within the **extinguisher** after the maximum possible discharge.

BS 4422

**extinguishing powder** Extinguishing medium composed of finely divided solid chemical **products**.

*Note* The capital letters (A, B, C or D) usually added before the term **extinguishing powder** correspond to the standard classes of fires.

ISO 8421-4

**extinguishing system** Fixed system consisting of a calculated supply of **extinguishing medium** connected to fixed **nozzle(s)** through which, after manual or automatic initiation, the medium is discharged to **extinguish a fire**.

BS 4422

**extinguishing system <balanced>** Extinguishing system, with more than one discharge **nozzle**, in which the flow of **extinguishing medium** is intended to divide equally at each junction in the pipework.

BS 4422

**extinguishing system <dry powder>** Extinguishing system containing **dry powder** as the **extinguishing medium**.

BS 4422

**extinguishing system <engineered>** Piped **extinguishing system** in which the discharge of **extinguishing medium** is defined according to the nature and location of the **combustibles**, and in which the piping and central storage of extinguishing medium are calculated in order to give the required rates and durations.

BS 4422

**extinguishing system <total flooding>**

**Firefighting system** arranged to discharge **extinguishing medium** into an enclosed volume so as to achieve the appropriate **design concentration** throughout the volume.

BS 4422

**extinguishing system <unbalanced>** Extinguishing system, with more than one discharge **nozzle**, in which the flow of **extinguishing medium** divides unequally at one or more junctions in the pipework.

BS 4422

**extinguishing system <water>** Extinguishing system utilizing water as the **extinguishing medium**.

BS 4422

**extra low voltage (elv)** Voltage that does not exceed 50 V between conductors, or between any conductor and earth.

\*BS 5839-4

**extreme value** Statistical methodology dealing with the **probability distributions** of large and small values.

PD 7974-7



# F

**F factor** Minimum **concentration** of a toxic gas **irritant** that is expected to seriously compromise the ability to **escape** from a **fire**.

*Note 1* The concentration is usually expressed as a **volume fraction** at  $T = 298\text{ K}$  and  $P = 1\text{ atm}$ , in which case the typical units are  $\mu\text{L L}^{-1}$  ( $=\text{cm}^3\text{ m}^{-3} = 10^{-6}$ ).

*Note 2* See also **fractional effective concentration**.

FDIS 13943

**fabric smoke curtains** Non-fire-supporting **material** used for the containment of cool **smoke** and gases (up to  $600^\circ\text{C}$ ).

LPS 1182-2.1, *Requirements and tests for LPCB approval of fixed fabric smoke curtains, fixed metal smoke curtains and powered smoke curtains*. 2005

**factory sealed rechargeable body** See **extinguisher body <disposable>**.

\*BS 5306-3

**fail safe** Locking an output device with the application of power and having the device unlock when the power is removed.

*Fire Safety – Risk Assessment*

**failure cause** Circumstances during design, manufacture or use which have led to failure.

PD 7974-7

**failure mode** Predicted or observed results of a **failure cause** on a stated item in relation to the operating conditions at the time of the failure.

PD 7974-7

**falling main** Vertical pipe, similar to a **rising main** but installed in buildings with

multi-level **basements** for the supply of water for **firefighting**.

ISO 8421-8

**false alarm <malicious>** Alarm originated by a person knowing that there is or was no emergency.

ISO 8421-8

**false alarm <system failure>** Alarm originated by defective equipment.

ISO 8421-8

**false alarm of fire** Fire signal resulting from a cause(s) other than **fire**.

PAS 79

**false alarm with good intent** Alarm originated by a person, with good intent, in the mistaken belief that there is or was a **fire** or other emergency.

ISO 8421-8

**fault tree** Depiction of the logical dependencies of events on one another, built around a critical resulting event, which usually has an unacceptable level of consequence and may be described as a failure.

FDIS 13943

**fault warning** Automatic indication giving audible and visible warning that a fault exists in a system.

BS 4422

**fault warning receiving station** Centre from which the necessary corrective measures can be initiated on receipt of a fault signal.

BS 4422

**fault warning routing equipment** Intermediate equipment which routes a **fault warning** signal from the **fire alarm control and**

- indicating equipment** to a fault warning receiving centre.  
BS 4422
- FEC** See **fractional effective concentration (FEC)**.  
FDIS 13943
- FED** See **fractional effective dose (FED)**.  
BS 4422
- FFFP** See **foam concentrate <film-forming fluoroprotein (FFFP)>**.  
BS 4422
- FIC** See **fractional irritant concentration (FIC)**.  
BS 4422
- field rechargeable extinguisher** See **extinguisher <field rechargeable>**.  
BS 4422
- filling density** Mass ratio of the charge to the internal volume that it occupies of an **extinguisher** or **gas cartridge** filled with CO<sub>2</sub> or other liquefiable gas.  
ISO 8421-4
- filling ratio** Ratio of the mass of gas introduced into a container to the mass of water at 15°C that fills the container fitted as for use, i.e. complete with valve, siphon tube, float, etc., as necessary.  
\*BS 5396
- film forming** See **foam concentrate <aqueous film forming (AFFF)>**.  
BS 5306-6.1
- film-forming fluoroprotein foam concentrate** See **foam concentrate <aqueous film forming (AFFF)>**.  
BS 4422
- final exit** See **exit <final>**.  
BS 4422
- final voltage of a battery** Lowest recommended voltage to which a battery should be discharged. The final voltage is specified by the battery manufacturer.  
BS EN 54-4
- fire** Process of **combustion** characterized by the emission of heat and effluent and usually accompanied by **smoke**, and/or **flame**, and/or **glowing**.  
FDIS 13943
- fire <class A>** Fire involving solid **materials**, usually of an organic nature, in which **combustion** normally takes place with the formation of **glowing embers**.  
BS EN 2
- fire <class B>** Fire involving liquid or liquefiable solids.  
BS EN 2
- fire <class C>** Fire involving gases.  
BS EN 2
- fire <class D>** Fire involving metals.  
BS EN 2
- fire <class F>** Fire involving cooking fats and oils.  
BS EN 2
- fire <controlled>** Self-supporting **combustion** which has been deliberately arranged to provide useful effects and which is controlled in its extent in time and space.  
BS EN ISO 13943
- fire <uncontrolled>** Self-supporting **combustion** which spreads uncontrolled in time and space.  
FDIS 13943
- fire alarm** See **alarm of fire**.  
BS 4422
- fire alarm <self contained>** Fire detection device containing, in one housing, all the **components** (with the possible exception of the energy source) necessary to detect a **fire** and sound an audible alarm.  
BS 4422

**fire alarm call point <manual>** Activating device for the manual operation of an **automatic fire detection and alarm system**.  
\*BS 4422-3 (ISO 8421-3)

**fire alarm control and indicating equipment**  
Equipment through which fire detectors can be supplied with power and which

- is used to accept a **detection signal** and actuate a **fire alarm signal**;
- is able to pass on the **fire detection signal**; and
- is used to **monitor** automatically the correct functioning of the system.

BS 4422

**fire alarm device** Component of a **fire alarm system**, not incorporated in the **fire alarm control and indicating equipment**, which is used to give a perceptible warning of **fire**, e.g. sounder or visual indicator.  
BS EN 54-1

**fire alarm device <manual>** Fire alarm device, manually operated, which gives an audible and/or visible **alarm of fire**.  
BS 4422

**fire alarm manual call point** Device for the manual initiation of an **alarm of fire**.  
BS 4422

**fire alarm receiving station** Alarm receiving centre from which the necessary **fire protection** or **firefighting** measures can be initiated at any time.  
BS EN 54-1

**fire alarm routing equipment** Intermediate equipment which routes (transmits) an **alarm** signal from the **fire alarm** to a fire alarm receiving station.  
ISO 7240-1

**fire alarm signal** Signal, which can be electrical, mechanical, audible, visual, etc., to show that a **hazard** from **fire** exists in an area.  
*Note* The signal can be local, addressed to occupants of the area, or remote, addressed

to other people or organizations from whom assistance might be required.  
BS 4422

**fire alarm signalling device** Equipment not incorporated in the **control and indicating equipment** which is used to give a warning of **fire**, e.g. audible sounder or optical signalling device.  
\*BS 4422-3 (ISO 8421-3)

**fire alarm sounder** Component of a **fire alarm system** to give an audible **alarm of fire**.  
\*BS 4422-3 (ISO 8421-3)

**fire alarm system** Combination of **components** for giving an audible and/or other perceptible **alarm of fire**.  
*Note* The system can also initiate other ancillary action.  
BS 4422

**fire alarm system <automatic>** Fire alarm system containing **components** for automatically detecting a **fire**.  
BS 4422

**fire alarm system <manual>** Fire alarm system in which the **alarm** is initiated manually.  
*Fire Service Training Manual*

**fire alarm system <type>** Category of **fire alarm system** describing the systems function and/or extent of coverage.  
*HTM 82: Alarm and detection systems (Fire-code), 1992*

**fire alarm zone**

**fire detection zone** See **alarm zone** and **fire detection zone**.  
BS 5588-11

**fire and smoke control door** Doorset meeting the criteria appropriate for **fire** control and **smoke control door** assemblies.  
BS ISO TR 5925-2

**fire and smoke damper** Fire damper which when tested to specified conditions achieves the same standard of **fire resistance** in relation to integrity criterion, as the **element of building construction** through which the duct passes.

*Approved Document B (Fire safety) – Volume 2: Dwellings (2006 Edition)*

**fire appliance** Vehicle used or equipped for **firefighting** and/or **rescue**.  
BS EN 1846-1

**fire area** Geographic area covered by a **fire brigade** or **fire station** and for which they are responsible.  
ISO 8421-8

**fire audit** Systematic and, whenever possible, independent examination to determine whether standards of **fire safety** conform to those required in order to achieve the organization's **fire safety policy** and objectives.  
PAS 79

**fire barrier** **Separating element** which resists the passage of **flame** and/or heat and/or effluents for a period of time under specified conditions.  
BS EN ISO 13943

**fire beater** Implement used for manually beating out fires, chiefly in bush land or crops.  
ISO 8421-8

**fire behaviour** Change in, or **maintenance** of, the physical and/or chemical properties of an item and/or structure exposed to **fire**.  
*Note* This concept covers both **reaction to fire** and **fire resistance**.  
BS EN ISO 13943

**fire blanket** Flexible sheet of **material** intended to be used to **extinguish** small fires by smothering, or as a **protection** against radiant heat or small hot objects.  
BS 4422

**fire boat** River- or sea-going vessel whose primary purpose is **firefighting**.  
BS 4422

#### **fire break**

**fire stop** Barrier in the path of an advancing **fire**, created by counter firing, removal of **fuel** or wetting down of potential fuel.  
BS 4422

#### **fire break door**

**fire break shutter** Door or shutter having a specified **fire resistance**, used to cover **openings** in **compartment walls** or **compartment floors** and capable of closing automatically in the event of **fire**.  
BS 4422

**fire break floor(s)** See **compartment floor**.  
BS 4422

**fire break wall(s)** See **compartment wall**.  
BS 4422

**fire brigade** Organization with trained personnel, appliances and equipment for dealing with fires and other emergencies.  
ISO 8421-8

**fire brigade <private>** **Fire brigade** established and financed within an organization to provide **fire protection** to its own assets and personnel.  
BS 4422

**fire brigade <public>** **Fire brigade** controlled by statute, which provides **firefighting**, **rescue**, other emergency **services** and, in some **circumstances**, **fire prevention services** to a community.  
BS 4422

**fire brigade <works>** See **fire brigade <private>**.  
ISO 8421-8

**fire brigade access level** Level of a building to which the **fire brigade** has access for **firefighting** vehicles, and from which there

is entry to the building suitable for fire-fighting operations.

BS 4422

**fire brigade access window** Window specially designed to allow the access of the **fire brigade**.

\*BS 4422-6 (ISO 8421-6)

**fire brigade attendance time** Lapsed time between receipt of a report of a **fire** or other emergency and the arrival of **fire appliances** at the scene.

BS 4422

**fire brigade control room** Permanently staffed and fully equipped room in **fire brigade** premises in which **emergency calls** are received and subsequent action is taken to mobilize **firefighters**, appliances and equipment.

BS 4422

**fire brigade control unit** Fire appliance equipped as a mobile **control room** for use by the **officer in charge** at major incidents. Usually equipped with radio and other telecommunications equipment.

BS 4422

**fire brigade response time** Lapsed time between receipt of a report of **fire** or other emergency and the **fire appliances** leaving the **fire station**.

BS 4422

**fire brigade responsibilities** Activities of a **fire brigade** which may embrace **rescue** (which may include paramedics), **firefighting**, **salvage** and **fire prevention**.

ISO 8421-8

**fire call** Alarm of **fire** transmitted verbally or by telephone by a person to a fire service control room.

BS 4422

**fire classification** Standardized system of classifying **fires** in terms of the nature of the **fuel**.

*Note* See also **fire** <class A>; **fire** <class B>; **fire** <class C>; **fire** <class D> and **fire** <class F>.

BS 4422

**fire communications/alarm and detection**

Precautions which inform the occupants and **fire brigade** when a **fire** starts.

*HTM 82: Alarm and detection systems (Firecode)*. 1992.

*HTM 85: Fire precautions in existing hospitals (Firecode)*. 1994.

*HTM 86: Fire risk assessment in hospitals (Firecode)*. 1994.

*Firecode: Fire Practice Note 7: Fire precautions in patient hotels*. 1995.

**fire compartment** Enclosed space, which may be sub-divided, separated from adjoining spaces by **fire barriers**.

BS EN ISO 13943

**fire containment** Precautions which contain the **fire** to the smallest possible area, and control the threat to **life safety** and the extent of property damage.

BS 4422

**fire control plan** See **marine** <fire control plan>.

BS 4422

**fire damp** Flammable gas, consisting mainly of methane, found naturally in mines.

BS 4422

**fire damper** Mobile closure or **intumescent** device within a **duct**, which is operated automatically and is designed to prevent the passage of **fire** and which, together with its frame is capable of satisfying for a stated period of time the same **fire resistance** criterion for **integrity** as the element of the building construction through which the **duct** passes.

PAS 79

**fire damper actuating mechanism** Mechanism integral or directly associated with a **fire damper** which, when initiated by a fire

- damper release device, causes the movable **component** of a **damper** to change from the 'open' to the 'closed' position.  
**BS EN 1366-2**
- fire danger** Concept including both **fire hazard** and **fire risk**.  
**BS 4422**
- fire decay** Stage of **fire** development after a fire has reached its maximum intensity and during which the **heat release rate** and the temperature of the fire are decreasing.  
**FDIS 13943**
- fire department** See **fire brigade**.  
**ISO 8421-8**
- fire detection and alarm** Detection of a **fire** by occupants and/or mechanical device and visual, audible or some other method of alerting the occupants.  
**PD 7974-2**
- fire detection and alarm system, automatic**  
See **automatic fire detection and alarm system**.  
**\*BS 5839-6**
- fire detection system** System by which an **alarm of fire** initiated by a **fire detector** is given automatically at a central control panel.  
**BS 4422**
- fire detection zone** Geographical sub-division of the building such that detection of a **fire** within it will be indicated by the **fire detection system** separately from an indication of fire in any other sub-division.  
**BS 4422**
- fire detector** Part of a **fire detection system** containing at least one sensor which monitors a suitable physical and/or chemical phenomenon, in order to signal to the **fire alarm control and indicating equipment**.  
**BS 4422**
- fire detector <combustion gas>** **Fire detector** sensitive to the gaseous **products of combustion** and/or **thermal decomposition**.  
**BS 4422**
- fire detector <fixed sensitivity>** **Fire detector** in which, after the completion of the manufacturing process, the **response threshold** cannot be varied manually without giving a permanent indication of adjustment which will be clearly visible during servicing.  
**BS 4422**
- fire detector <flame>** **Fire detector** which responds to the radiation emitted by **flames**.  
**BS 4422**
- fire detector <heat>** **Fire detector**, which responds to an increase in temperature.  
**BS 4422**
- fire detector <line>** **Fire detector** that responds to the phenomenon monitored in the vicinity of a continuous **line**.  
**BS 4422**
- fire detector <locally resettable>** **Fire detector** which can be reset by a manual operation carried out at the fire detector.  
**BS 4422**
- fire detector <point>** **Fire detector** which responds to the phenomenon sensed in the vicinity of a fixed point.  
**BS 4422**
- fire detector <rate of rise>** **Fire detector** which initiates an **alarm** when the rate of change of the measured phenomenon with time exceeds a certain value, for a sufficient time.  
**BS 4422**
- fire detector <smoke>** **Fire detector** sensitive to aerosol **products of combustion** and/or **pyrolysis**.  
**BS 4422**
- fire division wall** Wall dividing two parts of a building vertically one from the other, and

having **fire resistance** sufficient to withstand the effects of a **fire** under specified conditions.

*Fire Prevention Guide 2: Fire Precautions in New Single-storey Spirit Storages and Associated Buildings. 1973.*

#### **fire door**

##### **fire door assembly**

**fire shutter** Doorset or shutter which, as installed in a building, is intended when closed to resist the passage of **fire** and/or gaseous **products of combustion** and is capable of meeting specified performance criteria.  
BS 4422

**fire door <self-closing>** Fire door fitted with a device which fully closes the door, overriding the resistance of any latch.  
BS 4422

#### **fire drill**

**evacuation drill** Rehearsal of the evacuation procedure involving participation of the occupants of the building.  
PAS 79

**fire effluent** Totality of gases, and/or aerosols (including suspended particles) created by **combustion** or **pyrolysis**.  
BS EN ISO 13943

**fire effluent decay characteristics** Physical and/or chemical changes in **fire effluent** due to time and transport.  
BS 4422

**fire effluent transport** Movement of **fire effluent** from the location of a **fire**.  
FDIS 13943

**fire engineered approach** Method of obtaining an effective solution by use of **fire safety engineering** principles.  
*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2000 Edition)*

**fire equipment sign** Safety sign that indicates the location or identification of **fire equipment** or how it should be used.  
PAS 79

**fire exposure** Extent to which persons, animals or items are subjected to the conditions created by **fire**.

BS EN ISO 13943

**fire extinguisher** See **extinguisher**.

BS 4422

**fire extinguisher <aerosol>** Small disposable container incorporating a valve and containing a **fire extinguishing medium** kept under greater than atmospheric pressure by means of a propellant. The contents are discharged when the valve is operated.

BS 6165

**fire extinguisher <foam, chemical>** See **foam fire extinguisher <chemical>**.

BS 5306-3

**fire extinguisher <foam, gas cartridge>**

See **foam fire extinguisher <mechanical, gas cartridge>**.

BS 5306-3

**fire extinguisher <foam, stored pressure>**

See **foam fire extinguisher <mechanical, stored pressure>**.

BS 5306-3

**fire extinguisher <gas cartridge, operated>**

**Extinguisher** in which the pressure for expulsion of the medium from the **body** of the **extinguisher** is produced by the opening at the time of use, of a compressed or liquefied gas cartridge.

ISO 8421-4

**fire extinguisher <powder, gas cartridge>**

**Extinguisher** containing powder that is expelled by pressure released from a **gas cartridge**.

\*BS 4422-4

**fire extinguisher <powder, stored pressure>**

**Extinguisher** containing powder that is expelled by the release of pressure stored within the **body**.

\*BS 4422-4

**fire extinguisher <stored pressure, operated>** Extinguisher in which the **extinguishing medium** is permanently stored with the propellant gas and thus constantly subject to its pressure.  
\*BS 4422-4

**fire extinguisher <transportable>** Fire extinguisher mounted on wheels or skids.  
ISO 8421-4

**fire extinguisher <water, gas cartridge>** Extinguisher from which the water is expelled by pressure released from a **gas cartridge**.  
BS 5306-3

**fire extinguisher <water, soda acid>** Extinguisher from which the water is expelled by pressure resulting from an acid and/or alkali reaction in the contents of the extinguisher.  
BS 5306-3

**fire extinguisher <water, stored pressure>** Extinguisher from which the water is expelled by the release of pressure stored within the **body**.  
BS 5306-3

**fire extinguishing concentration** See **extinguishing concentration <minimum>**.  
BS 4422

**fire extinguishing system** See **extinguishing system**.  
BS 4422

**fire extinguishment** Process by which all **combustion** is eliminated.  
FDIS 13943

**fire gases** Gaseous part of the **products of combustion**.

*Note 1* See also **fire effluent**.

*Note 2* In French the term 'gaz de combustion' also applies to engine exhaust gas and may then include particles.

BS EN ISO 13943

**fire ground** Area within which **fire brigade** operations are in progress.  
BS 4422

**fire growth** Stage of **fire** development during which the **heat release rate** and the temperature of the fire are increasing.  
FDIS 13943

**fire growth rate** Characteristic rate at which a **fire** is assumed to grow.  
DD 9999

**fire hazard** Potential for injury and/or damage from **fire**.  
BS 4422

**fire hazard identification** Process of recognizing that a **fire hazard** exists.  
PAS 79

**fire hazard room** Rooms or other areas which, because of their function and/or contents, present a greater **hazard of fire** occurring and developing than elsewhere.

*HTM 82: Alarm and detection systems (Fire-code). 1992.*

**fire hose reel** See **hose reel**.  
BS 4422

**fire hose station** Equipment which comprises a hose fitted with a **nozzle** and a **stop valve** for water supply and including a suitable form of support.  
ISO 8421-4

**fire house** **Fire station** which is normally unstaffed.  
BS 4422

**fire hydrant** Assembly contained in a pit or box below ground level and comprising a valve and outlet connection from a water supply main.  
BS 4422

**fire hydrant cover key** Tool used to lift the cover of certain types of **hydrant**.  
*Fire Service Training Manual*



**fire hydrant key and bar** Tool used to open up a **hydrant** and to turn on the valve.  
*Fire Service Training Manual*

**fire hydrant pit** Recess below the road or pavement level in which a **hydrant** is located.  
BS 4422

**fire integrity** Ability of a **separating element** when exposed to **fire** on one side, to prevent the passage of **flames** and hot gases or the occurrence of flames on the **unexposed side**, for a stated period of time in a standard **fire resistance** test.  
\*BS 4422-1 (ISO 8421-1)

**fire investigation unit** **Fire appliance** which carries a wide range of equipment for the purpose of determining the cause of a **fire**.  
BS 4422

**fire lift** Lift or elevator, either within a building with especially **protected structural enclosure**, or on the façade of a building and with machinery, power supplies and controls which can be switched for exclusive use by the **fire brigade** during an emergency.  
ISO 8421-2

**fire lift switch** Switch under protective security and at the **fire service access level** to bring a lift under the immediate control of the **fire service**.  
ISO 8421-2

**fire load** Quantity of heat which could be released by the **complete combustion** of all the **combustible materials** in a volume, including the facings of all bounding surfaces.

*Note 1* It is expressed in J.

*Note 2* **Fire load** may be based on effective, gross or **net heat of combustion** as required by the specifier.

BS EN ISO 13943

**fire load <effective>** **Fire load** within an **enclosure** or **compartment**, modified by

factors which take account of the **incomplete combustion** of **protected fire loads** and/or a reduction in the net quantity of **heat released** resulting from the presence of wet **materials**.  
BS 4422

**fire load <wood equivalent>** **Fire load** expressed as an equivalent mass of wood rather than in terms of its **calorific value**.  
BS 4422

**fire load density** **Fire load** per unit **floor area**.

*Note* It is expressed in  $\text{J m}^{-2}$ .

BS EN ISO 13943

**fire load density <effective>** **Fire load density** within an **enclosure** or **compartment** modified by factors that take account of the **incomplete combustion** of **protected fire loads** and/or a reduction in the net quantity of **heat released** resulting from the presence of wet **materials**.  
PD 7974-1

**fire load density <wood equivalent>** **Fire load density** expressed as an equivalent mass of wood per **unit floor area** rather than in terms of its **heat of combustion**.  
BS 4422

**fire main** System of pipes and valves provided to carry water for **firefighting** purposes.  
BS 4422

**fire microphone** Microphone for use by the **fire service** or other **responsible persons** as part of a **voice alarm system**.  
BS 4422

**fire model** Calculation method that describes a system or process related to **fire** development, including fire dynamics and the effects of fire.

*Note* See also **physical fire model** and **numerical fire model**.

FDIS 13943

**fire modelling** Simulation of some aspects of **fire** by mathematical or physical means.

BS 4422

**fire performance** Response of an item when exposed to a specific **fire**.

*Note* See also **fire behaviour**.

BS EN ISO 13943

**fire plume** Buoyant gas stream and any **materials** transported within it, above a **fire**.

*Note* See also **buoyant plume**.

FDIS 13943

**fire point** Minimum temperature at which a **material ignites** and continues to **burn** for a specified time after a standardized small **flame** has been applied to its surface under specified conditions.

*Note 1* See also **flash point**.

*Note 2* In some countries, the term **fire point** has an additional meaning: a location where **firefighting** equipment is sited which may also comprise a **fire alarm call point** and fire instruction notices.

*Note 3* It is measured in °C.

BS EN ISO 13943

**fire precautions** Physical, procedural and managerial measures taken to reduce the probability that a **fire** may occur, and to mitigate the effects of any fire that does occur.

PAS 79

**fire prevention** Measures taken to restrict the **risk** of an outbreak of **fire** and/or to limit its effect.

ISO 8421-1

**fire procedure** Pre-planned actions to be taken in the **event** of **fire**.

PAS 79

**fire procedure plan** Routine that details information and instructions for all persons present in a building so that they respond appropriately in the **event** of a **fire**.

BS 4422

**fire propagation** See **flame spread**.

FDIS 13943

**fire propagation index** Comparative measure of the contribution to the growth of **fire** of a **combustible material**.

PD 6512-3

**fire protecting suspended ceiling assembly** **Ceiling assembly** capable of contributing for a stated period of time to the overall **fire resistance** of the **floor** or structure above and/or its supporting members.

\*BS 4422-2

**fire protection** Measures taken in the design or equipment of buildings or other structures to reduce the danger from **fire**.

BS 4422

**fire protection <structural>** Features in a building's layout and/or construction which are intended to reduce the effects of a **fire**.

BS 4422

**fire protection material** **Material** that has been shown by **fire resistance** tests to be capable of remaining in position and providing adequate **thermal insulation** for the fire resistance period under consideration.

BS 5950-8

**fire protection measures** Design features, systems, equipment or structural measures to reduce danger to people and property by detecting, **extinguishing** or containing **fires**.

PAS 79

**fire protection system** Assembly of **fire control** or **firefighting** equipment (such as **extinguishing installations**, **smoke control doors**, **dampers** or fans) intended to reduce **fire risk** to people, property or the **environment**.

BS 4422

**fire protection system <active>** **Fire protection system** which in the **event** of **fire** can function only after its operation has

been either manually or automatically initiated.

BS 4422

**fire protection system <automatic>** Fire protection system able to function when its operation has been automatically initiated in response to the sensing of heat, flame or products of combustion.

BS 4422

**fire protection system <manual>** Fire protection system that functions only when its operation has been initiated manually.

BS 4422

**fire protection system <passive>** Fire protection system that carries out its function without requiring any manual or automatic initiation of its operation in the event of a fire.

BS 4422

**fire resistance** Ability of a test specimen to fulfil, for a stated period of time, the required criterion or criteria specified in a standard fire resistance test.

*Note 1* Typical criteria are: fire integrity, fire stability, and thermal insulation.

*Note 2* Fire resistant (*adjective*) refers only to this ability.

PAS 79

**fire resistance of a separating element**

Ability of an element to meet specified criteria of integrity, loadbearing capacity and thermal insulation in a standard fire resistance test.

BS 4422

**fire resistance performance** Combination of appropriate stability, integrity and insulation values respectively.

*Note* It is expressed in min.

BS 5268-4.2

**fire resistant** Possessing the ability to resist fire for a stated period of time under specified conditions.

BS 4422

**fire resistant glazing** Glazing system consisting of one or more transparent or translucent panes with a suitable method of mounting, e.g. frames, seals, fixing materials, etc., capable of satisfying the appropriate fire resistance criteria.

BS EN 1365-2

**fire resisting** Deprecated term. See fire resistant.

BS 4422

**fire resisting construction** See fire resistance.

BS 4422

**fire retardance** Deprecated term.

BS EN ISO 13943

**fire retardant** (*adjective*) Possessing the ability to suppress, reduce or delay the combustion of certain materials.

BS 4422

**fire retardant** (*noun*) Substance added, or a treatment applied, to a material in order to delay ignition or to reduce the rate of combustion.

*Note* The use of fire retardants does not necessarily suppress fire.

BS 4422

**fire risk** Combination of

- the probability of a fire; and
- a quantified measure of its consequence.

*Note* It is often calculated as the product of probability and consequence.

FDIS 13943

**fire risk assessment** Process of identification and evaluation of fire risk to people, property or the environment.

BS 4422

**fire risk assessor** Person who carries out, and documents, a fire risk assessment.

PAS 79

**fire risk curve** Graphical representation of fire risk.

*Note* It is normally a log/log plot of cumulative probability versus cumulative consequence.

FDIS 13943

**fire safety engineer** Person meeting specified standards of qualification and experience in **fire safety engineering**.

BS 4422

**fire safety engineering** Application of scientific and engineering principles to the **protection** of people, property and the **environment** from **fire**.

BS 4422

**fire safety induction training** Formal training, normally given to new employees, as soon as practicable after their employment, with the objective of imparting sufficient information on the relevant **fire risks**, **fire prevention** measures, **fire protection measures** and **fire procedures** in the building to ensure the **safety** of the employee from **fire**.

PAS 79

**fire safety management** **Maintenance** and application of procedures to achieve **fire safety objectives**.

*Note* Procedures include **fire protection measures**, **evacuation plans** and the training of occupants to use such measures and plans.

BS 4422

**fire safety manager** Person nominated to **monitor** and control **management of fire safety**.

PAS 79

**fire safety manual** Record of all design, procedural, **management** issues and **events** that relate to the **fire safety** of a building.

PAS 79

**fire safety objective** Desired **outcome** with respect to an unwanted **fire**, related to life safety, conservation of property, continuity

of business operations, **protection** of the **environment** and preservation of heritage.

FDIS 13943

**fire safety policy** Documented strategy that sets the standard of **fire safety** an organization is committed to maintaining.

PAS 79

**fire safety refresher training** Training given to employees periodically to ensure that they remain adequately aware of the **fire risks**, **fire prevention** measures, **fire protection measures** and **fire procedures** in the building.

PAS 79

**fire safety sign** Sign giving information about **fire precautions**, diagrammatically and/or by text.

BS 4422

**fire safety sign <self-contained>** **Fire safety sign** in which all the elements such as the battery, the lamp, the **control unit** and the test and **monitoring** facilities, where provided, are concealed within the housing or adjacent to it.

BS 4422

**fire safety sign <self-luminous>** **Fire safety sign** in which the text and/or graphics are illuminated without the use of a dedicated power supply.

BS 4422

**fire safety strategy** Combination of **fire safety** measures that has been shown by reference to prescriptive codes or a **fire** engineering study to be capable of satisfying the specified **fire safety objectives**.

PD 7974-0

**fire scenario** Qualitative description of the course of a **fire** with time, identifying key **events** that characterize the fire and differentiate it from other possible fires.

*Note* It typically defines the **ignition** and **fire growth** processes, the **fully developed fire** stage, the **fire decay** stage, and the

- environment** and systems that will impact on the course of the fire.  
FDIS 13943
- fire security routine inspection** See **routine inspection**.  
BS 4422
- fire-separating element** Compartment wall, compartment floor, cavity barrier and construction enclosing a **protected escape route** and/or a **place of special fire hazard**.  
*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*
- fire separation** Separation or **compartmentation** within a building or area, by construction, to restrict the spread of **fire**.  
BS 4422
- fire service access level** A level at which there is suitable entry to the building and to a **firefighting shaft** from an area to which **fire** service appliances have access.  
BS 5588-5
- fire severity** Capacity of a **fire** to cause damage.  
*Note* Methods of quantifying **fire severity** are usually based on the temperature of the fire as a function of time.  
FDIS 13943
- fire shutter** See **fire door**.  
BS 4422
- fire simulation** See **fire model**.  
BS EN ISO 13943
- fire situation** Stage in the development of a **fire**, characterized by the nature, severity and size of the thermal attack on the **products** involved.  
BS EN 13501-1
- fire size** Heat release rate of the **fire**.  
PD 7974-1
- fire stability <building element>** Ability to resist **collapse** for a stated period of time in a standard **fire resistance** test.  
*Note* The **building element** may or may not be loadbearing.  
FDIS 13943
- fire station** Building housing **fire brigade** appliances, equipment and personnel.  
BS 4422
- fire stop** Seal provided to close an imperfection of fit or design tolerance between elements or **components**, to restrict the passage of **fire** and **smoke**.  
BS 4422
- fire stopping** Seal provided to close an imperfection of fit or design tolerance between elements or **components** to restrict the passage of **fire** or heat with the object of maintaining the **fire resistance** of the elements.  
BS 4422
- fire storm** Air stream of enormous power and velocity with flying brands created by a **conflagration**.  
ISO 8421-8
- fire stream** See **jet**.  
ISO 8421-8
- fire stream <solid>** See **jet <solid>**.  
ISO 8421-8
- fire suppression system** System designed to control, suppress or **extinguish** a **fire**, via the use of water, chemical or **inert** gas, or other means.  
PD 7974-4
- fire telephone** Telephone provided exclusively for **fire** purposes.  
BS 4422
- fire telephone line** Telephone circuit reserved only for **fire alarm** transmission.  
BS 4422
- fire test** Procedure designed to measure either **fire behaviour** or the response of a **test specimen** to one or more aspects of **fire**.  
FDIS 13943

- fire trap** See **dead end**.  
ISO 8421-6
- fire tug** Standard tug boat which is additionally provided with **firefighting** equipment.  
BS 4422
- fire under control** See **stop message**.  
ISO 8421-8
- fire valve** Automatically operated fast-acting valve to shut off the supply of gas or oil to a heater in the **event** of **fire**.  
*Equipment/Space Heating: Hazard Classification*
- fire wall** See **thermal radiation screen**.  
BS 4422
- fire warden** Individual charged with specific responsibilities in the **event** of a **fire**, normally involving a check to ensure that a particular area of the building has been evacuated.  
PAS 79
- fire warning system** Means of alerting people to the existence of a **fire**.  
*Fire Safety – Risk Assessment*
- fire zone** Room or **compartment** in which the **fire** is assumed to occur for the purposes of design of **pressure differential systems**.  
\*BS 5588-4
- fire/smoke stopping** Seal provided to close an imperfection of fit or design tolerance between elements or **components** to restrict the passage of **fire**, heat and **smoke**.  
*Fire Precautions Act 1971: Guide to Fire Precautions in Existing Places of Work That Require a Fire Certificate. 1993.*
- firefighter** Active participating member of a **fire brigade**.  
ISO 8421-8
- firefighter <full time>** Person whose main occupation is that of **firefighter**.  
ISO 8421-8
- firefighter <part time>** See **firefighter <retained>**.  
ISO 8421-8
- firefighter <retained>** Person whose main occupation is other than that of a **firefighter** but who is employed as a firefighter on a part-time basis.  
ISO 8421-8
- firefighter <volunteer>** See **firefighter <retained>**.  
ISO 8421-8
- firefighter's axe** Small axe carried by **firefighters** on their belt.  
ISO 8421-8
- firefighter's boots** Waterproof safety boots which will not produce **sparks**.  
ISO 8421-8
- firefighter's gloves** Safety gloves designed to counter one or more **hazards**, e.g. electrical, chemical, heat, etc.  
ISO 8421-8
- firefighter's helmet** Headgear intended to ensure protection of the wearer's head against **hazards** which might occur during operations carried out by **firefighters**.  
BS 4422
- firefighter's protective clothing** Specific garments providing protection for the **firefighter**.  
BS 4422
- firefighters' elevator** See **fire lift**.  
ISO 8421-8
- firefighting** Taking suitable action to **extinguish a fire**.  
ISO 8421-8
- firefighting access** Approach facilities provided to enable the **fire brigade** personnel and equipment to gain access to, or within, the premises.  
BS 4422

- firefighting access lobby** Ventilated lobby having an adequate degree of **fire protection** into which a **firefighters'** lift and dry/wet **rising mains** discharge.  
ISO 8421-8
- firefighting lift** Lift with **fire protection measures**, including controls that enable it to be used under the direct control of the fire and rescue service in fighting a **fire**.  
PAS 79
- firefighting lift switch** Switch provided to bring a **firefighting lift** under the immediate control of the **fire brigade**.  
BS 4422
- firefighting lobby** Protected lobby providing access from a **firefighting stairway** to the accommodation area and to any associated **firefighting lift**.  
BS 4422
- firefighting shaft** Protected enclosure containing a **firefighting stairway**, **firefighting lobbies**, dry/wet rising water main and, if provided, a **firefighting lift** together with its machine room.  
PD 7974-5
- firefighting stairway** Protected stairway communicating with the accommodation area only through a **firefighting lobby**.  
BS 4422
- fireman's switch** Switch fitted externally to a building to enable **firefighters** to isolate electrical apparatus.  
BS 4422
- fireproof** See **fire resistant**.  
BS 4422
- fireworks** Devices or preparations of an explosive or **flammable** nature used for spectacular effects or display purposes.  
*Guide to Fire Precautions in Existing Places of Entertainment and Like Premises 1998.*
- first alarm** See **pre-determined attendance**.  
ISO 8421-8
- fixed fire extinguishing system** Fixed system consisting of a calculated supply of **extinguishing medium** connected to fixed **nozzle(s)** through which the medium is discharged to **extinguish a fire**, manually or automatically.  
ISO 8421-4
- fixed hose reel** See **hose reel <fixed>**.  
BS 4422
- fixed sensitivity detector** See **fire detector <fixed sensitivity>**.  
BS 4422
- fixed suction installation** See **suction installation <fixed>**.  
BS 4422
- fixity** Conditions at the edges, ends or supports of a **test specimen** through which the applied **test load** is either being applied or reacted either directly or by induced moments.  
BS 476-20
- flaked hose** Hose folded backwards and forwards on itself in a series of folds of equal length.  
BS 6391
- flame (noun)** Rapid, self-sustaining, sub-sonic propagation of **combustion** in a gaseous medium, usually with emission of light.  
FDIS 13943
- flame (verb)** Undergo **combustion** in the gaseous phase with emission of light.  
BS EN ISO 13943
- flame application time** Period of time for which the **ignition flame** is applied to the **test specimen** under specified conditions.  
BS EN ISO 15025
- flame arrester**
- flame trap** Device consisting of an **arrester element**, an **arrester housing** and associ-

ated fittings, used to prevent the passage of **flame** into a hazardous atmosphere.

BS 4422

**flame arrester element** Permeable matrix with any associated immediate mounting which under specified conditions will prevent the transmission of **flame**.

BS 4422

**flame arrester housing** Frame retaining the **arrester element** as a unit for mounting on the appropriate plant or apparatus **assembly**.

BS 7244

**flame detector** See **fire detector <flame>**.

BS 4422

**flame front** Boundary of **flaming combustion** at the surface of a **material** or propagating through a gaseous mixture.

BS EN ISO 13943

**flame height** The distance from the upper edge of the burner or burning **material** to the yellow tip of the **flame**.

BS ISO 11925-2

**flame mean persistence** Largest average **flame** persistence time, in seconds, of five flame exposures carried out under specified conditions, each flame exposure being the average of six determinations.

BS EN ISO 14935

**flame resistance** Deprecated term.

BS EN ISO 13943

**flame retardance** Property of a **material** whereby **flaming combustion** is slowed, terminated or **prevented**.

*Note 1* **Flame retardance** can be an inherent property of the basic **material** or it may be imparted by specific treatment.

*Note 2* The degree of flame retardance exhibited by a material during testing may vary with test conditions.

BS EN ISO 13943

**flame retardant** (*noun*) Substance added, or treatment applied, to a **material** in order to suppress or delay the appearance of a **flame** and/or reduce its propagation (spread) rate.

*Note 1* See also **fire retardant**.

*Note 2* The use of flame retardants does not necessarily suppress **fire**.

BS EN ISO 13943

**flame retarded** Treated with a **flame retardant**.

BS EN ISO 13943

**flame spread <lateral>** Lateral **flame spread** is the furthest extent of travel of a **sustained flame** under specified conditions.

BS EN 13501-1

**flame spread <vertical>** Vertical **flame spread** ( $F_v$ ) is the highest **point** reached by the **flame** tip under specified conditions.

BS EN 13501-1

**flame spread  $F_s$**  Propagation of a **fire** front.

BS EN ISO 13943

**flame spread rate** Distance travelled by a **flame front** during its propagation, divided by the time of travel, under specified conditions.

*Note* It is expressed in  $\text{ms}^{-1}$

BS EN ISO 13943

**flame spread time** Time taken by a **flame front** on a **burning material** to travel a specified distance on the surface, or to cover a specified surface area under specified conditions.

*Note* It is expressed in s.

BS EN ISO 13943

**flame trap** See **flame arrester**.

BS 4422

**flameless combustion** Combustion of a **material** without **flame**.

BS 4422



**flameover** **Flash-over** dominated by an increase in the production of **flammable gases** from surfaces exposed to **fire** radiation.

BS 4422

**flameproof** Deprecated term, except in the context of the **classification** of methods used to prevent **ignition** of **explosive atmospheres** by electrical equipment. See **flameproof enclosure** <electrotechnical>.

FDIS 13943

**flameproof enclosure** <electrotechnical>

Apparatus in which parts that can **ignite** an **explosive atmosphere** are placed in an **enclosure** which can withstand the pressure developed during an **explosion** of the atmosphere within the enclosure and which can prevent the transmission of the explosion to the atmosphere surrounding the enclosure.

FDIS 13943

**flameproof joint** Place where corresponding surfaces of two parts of an **enclosure** come together and prevent the transmission of an internal **explosion** to the **explosive atmosphere** surrounding the enclosure.

BS 4422

**flameproof joint <width of>** Shortest path through a **flameproof joint** from the inside to the outside of the **enclosure**.

BS 4422

**flame-retardant treatment** Process whereby improved **flame retardance** is imparted to a **material** or **product**.

BS EN ISO 13943

**flame-retarded fabric** Fabric which meets specified **fire performance** requirements and retains this performance after being subjected to appropriate wetting or cleansing procedures.

*Guide to Fire Precautions in Existing Places of Entertainment and Like Premises. 1998.*

**flaming** Undergoing **combustion** in the gaseous phase with the emission of light and heat.

BS 4422

**flaming** (*noun*) Continuation of the presence of a **flame** after its first appearance.

FDIS 13943

**flaming combustion** **Combustion** in gaseous phase, usually with emission of light.

BS EN ISO 13943

**flaming debris**

**flaming droplets** **Material** separating from a burning item during the **fire test** procedure and continuing to **flame**.

BS EN ISO 13943

**flaming ignition** Initiation of **sustained flaming**.

BS 4422

**flaming time** Time between the first appearance of a visible **flame** and its final extinction.

BS 4422

**flaming time of droplets <average>** Time during which droplets, released by a test piece, continue to **burn** after falling.

BS 4422

**flammability** Ability of a **material** or **product** to **burn** with a **flame** under specified conditions.

BS EN ISO 13943

**flammability classification of materials**

Recognition of the **ignition** and burning resistance characteristics of **materials** other than metal or ceramics.

\*BS EN 60950 (BS 7002)

**flammability index** Code describing the degree of **flammability**.

BS 4422

**flammability limit** See **flammable limit** <upper> and **flammable limit** <lower>.

FDIS 13943

**flammability temperature** Temperature of a **material** at which **combustion** is just supported under specified conditions.

BS 4422

**flammable** Capable of **flaming combustion** under specified conditions.

BS EN ISO 13943

**flammable atmosphere** See **explosive atmosphere**.

BS 4422

**flammable coating powder** Powder which may be **ignited** by an effective source of **ignition** and which continues to **burn** after removal of the source of ignition or may react in the form of an **explosion**.

BS EN 50177

**flammable gas**

**flammable vapour** Gas or vapour which, when mixed with air, can form an **explosive atmosphere**.

BS 4422

**flammable gas detector** Device to detect the presence of a **flammable gas** and air mixture **concentration** within a volume, in order to determine **explosion** potential.

BS 4422

**flammable limit <lower (LFL)>** Lowest **concentration** of a **flammable substance** in air within which a self-propagating **flame** can occur.

BS 4422

**flammable limit <upper (UFL)>** Highest **concentration** of a **flammable substance** in air within which a self-propagating **flame** can occur.

BS 4422

**flammable limits** Minimum and maximum **concentrations** of gas or vapour in air which can sustain a self-propagating **flame**.

BS 4422

**flammable liquid** Liquid capable of producing a **flammable vapour**.

BS 4422

**flammable liquid spraying material** Material which may be **ignited** by an effective source of **ignition** and which continues to

**burn** after removal of the source of ignition or may react in the form of an **explosion**.

BS EN 50176

**flammable material** Material which is **flammable** of itself, or is capable of producing a **flammable gas**, vapour or mist.

BS 4422

**flammable mist** Free suspension in air of droplets of a liquid whose vapour is **flammable**.

BS 4422

**flammable mixture**

**explosive mixture** Mixture with air of a **flammable material**, in the form of a gas, droplets or dust, which is within the **flammable range** and therefore capable of being **ignited**.

BS 5958-1

**flammable powder or flock** Powder or flock in a form which may readily catch **fire** after brief contact with a source of **ignition** and which continues to **burn** after removal of the source of ignition.

\*BS 6742-1 (EN 50050)

**flammable range** See **explosive range**.

BS 4422

**flammable substance** Substance in the form of gas, vapour, liquid, solid, or mixtures of these, able to undergo an exothermic reaction with air when **ignited**.

BS EN 1127-1

**flammable vapour** See **flammable gas**.

BS 4422

**flare stack** Duct and burner system used to **burn** unwanted **flammable gas** in a safe manner and discharge it into the **environment**.

BS 4422

**flash-back** Flash-over triggered by some change in **circumstances** which makes new supplies of oxygen available.

BS 4422

- flash fire** Burning of a **flammable vapour** cloud at a speed such that there is no significant over pressure ahead or behind the **flame front**.  
BS 4422
- flash point** Minimum temperature to which a **material** or a **product** must be heated for the vapours emitted to **ignite** momentarily in the presence of **flame** under specified conditions.  
*Note* It is expressed in °C.  
BS EN ISO 13943
- flash-ignition temperature (FIT)** Minimum temperature at which, under specified test conditions, sufficient **flammable gases** are emitted to **ignite** momentarily on application of a pilot **flame**.  
ISO 871
- flashing** Existence of **flame** repeated for very short periods of time on or over the surface of the **specimen**.  
BS EN ISO 13943
- flash-over** Transition to a **state** of total surface involvement in a **fire** of **combustible materials** within an **enclosure**.  
BS EN ISO 13943
- flash-over <electrotechnical>** Electrical discharge which occurs over the surface of a solid dielectric in a gaseous or liquid medium.  
FDIS 13943
- flashpoint (closed cup)** Minimum temperature to which a **product**, confined in a closed cup, must be heated for the vapours emitted to **ignite** momentarily in the presence of a **flame**, when operating under standardized conditions.  
BS 3900-A9 (BS 6664-2 ISO 1523)
- flat** **Dwelling**, forming part of a larger building, that has all its rooms on one level or not more than half a storey height apart.  
BS 5839-6
- floating barrage** Equipment used to hold back or confine the spread of a pollutant on the surface of water.  
ISO 8421-8
- flooding quantity** Mass or volume of **extinguishing medium** required to achieve the **design concentration** within the **protected** volume.  
BS 4422
- floor** Horizontal **separating element** of building construction which is loadbearing.  
BS EN 1634-1
- floor area** Area enclosed by the inner surfaces of a wall, including **internal walls**.  
PD 7974-5
- floor space factor** Estimated **floor area** per occupant in a specified type of occupancy.  
*Note* The total floor area divided by the **floor space factor** gives the number of persons who might need to use **escape routes**.  
BS 4422
- floor void** **Cavity** between a structural **floor** and a platform above, through which building **services** can pass.  
DD 9999
- flooring** Upper layer(s) of a **floor**, comprising any surface finish with or without an attached backing and with any accompanying underlay, interlayer and adhesives.  
BS EN 13501-1
- flow rate** Number of persons passing a **point** in a unit of time of specified path width.  
DD 9999
- flow velocity** Rate of water flow through a **check valve** expressed as the equivalent water velocity through a pipe of the same nominal size as the check valve.  
ISO 6182-6
- flue gases** Gaseous **products of combustion** together with excess air.  
BS 1846-1

**fluidic pressure controlled automatic release mechanism** Mechanism that holds and releases because of pressure or a change in pressure in a fluid.  
BS 5839-3

**fluoroprotein foam concentrate** See **foam concentrate <fluoroprotein>**.  
BS 4422

**flux profile** Curve relating **total heat flux** on the **specimen** plane to a distance from the zero **point**.

*Note* The zero point of the radiant **flux profile** is specified as the inner edge of the hottest side of the specimen holder.

BS EN ISO 9239-1

**fly gallery** Narrow balcony or gantry, usually running from front to back of the stage on one or both sides and occasionally continuing across the back wall, used for securing suspension **lines**, loading counterweights and operating suspension lines, and occasionally for rigging lighting equipment.  
BS 5588-6

**foam** See **extinguishing foam**.  
BS 4422

**foam <aspirated>** Foam produced by the intimate mixing of air and **foam solution** within the equipment.  
BS 4422

**foam <characteristic value>** Value declared by the **foam concentrate** supplier for the chemical and physical properties and the performances of the **foam** and **foam solution**.  
BS ISO 7203-1

**foam <chemical>** **Extinguishing foam** formed by the reaction of an alkaline salt solution with an acid solution in the presence of a **foam** stabilizing agent.  
BS 4422

**foam <extinguishing>** **Extinguishing medium** consisting of a mass of bubbles

mechanically or chemically formed by a liquid.

ISO 8421-4

**foam <finished>** See **foam <extinguishing>**.  
BS 4422

**foam <firefighting>** See **extinguishing foam**.  
BS 4422

**foam <gentle application>** Application of **foam** indirectly to the surface of a liquid **fuel** via a backboard, tank wall or other surface.  
\*BS ISO 7203-1

**foam <mechanical> generator** Device introduced into a **line** of hose for creating mechanical **foam**, which is discharged through a **branch**.  
*Fire Service Training Manual*

**foam <multiple jet inductor>** Device positioned at the **pump**, capable of inducing sufficient concentrate into the pump to supply one or more **foam branch** pipes.  
ISO 8421-8

**foam <non-aspirated>** Foam produced outside the equipment by the mixing of air and a spray of **foam solution**.  
BS 4422

**foam <physical>** See **foam mechanical**.  
BS 4422

**foam <rate of application>** **Rate of application** of the **foam solution** per unit area of **fire**.  
BS 4422

**foam <sub-surface application>** Introduction of **foam** below the surface of a **flammable liquid** so that it will rise to the surface and spread to provide an **extinguishing foam** layer.  
BS 4422

**foam branch** **Branch** fitted to the end of a **delivery hose** capable of aerating a **foam solution** within the equipment.  
BS 4422

**foam burnback time** Time taken for the complete or partial **burn** back of a **fire** covered by **foam**.

BS 4422

**foam compatibility** Capability of **foam** to remain effective when applied simultaneously with other **fire extinguishing** media (such as **extinguishing powder**) on a fire.

ISO 8421-4

**foam concentrate** Substance which, when mixed with water in the appropriate **concentration**, gives a **foam solution**.

BS 4422

**foam concentrate <alcohol resistant>** **Foam concentrate** suitable for the extinction of **fires** involving water miscible **fuel** (polar liquids) and other fires of fuels destructive to regular **foams**.

BS 4422

**foam concentrate <aqueous film forming (AFFF)>** **Foam concentrate** forming an aqueous film that floats on the surface of hydrocarbon liquids under specified conditions.

BS 4422

**foam concentrate <film-forming fluoroprotein (FFFP)>** **Fluoroprotein foam concentrate** which has the ability to form an aqueous film on the surface of some hydrocarbons.

BS 4422

**foam concentrate <fluoroprotein>** **Protein foam concentrate** with added fluorinated surface active agents.

BS 4422

**foam concentrate <multipurpose>** **Foam concentrate** suitable for the extinguishments of **fires** involving water miscible **fuels** (polar liquids) and hydrocarbons.

BS 4422

**foam concentrate <protein>** **Foam concentrate** derived from hydrolyzed protein **materials**.

BS 4422

**foam concentrate <synthetic>** **Foam concentrate** based on a mixture of hydrocarbon surface active agents and which may contain fluorocarbons with additional stabilizers.

BS 4422

**foam concentrate ratio** Ratio of the **foam concentrate** volume to the solution volume.

BS 4422

**foam container** Container to carry **foam concentrate**.

*Fire Service Training Manual*

**foam dam** Portable reservoir to provide a continuous supply of **foam concentrate** for pick-up tubes.

*Fire Service Training Manual*

**foam drainage time** Time taken for a specified percentage of the liquid content of a **foam** to drain out.

*Note* Foams are commonly specified by **25%** or **50% drainage times**.

BS 4422

**foam expansion ratio** Ratio of the volume of **foam** to the volume of **foam solution** from which it is made.

*Note* Foams are usually graded as low expansion (expansion ratio less than 20:1), medium expansion (expansion ratio between 20:1 and 200:1) and high expansion (expansion ratio greater than 200:1).

BS 4422

**foam extinguishing system** **Extinguishing system** containing **foam** as **extinguishing medium**.

BS 4422

**foam fire extinguisher** See **extinguisher**.

BS 4422

**foam fire extinguisher <chemical>** Fire extinguisher from which **chemical foam** is expelled when the chemical solutions, stored separately within the **body** of the **extinguisher**, are allowed to mix and react.  
ISO 8421-4

**foam fire extinguisher <mechanical, gas cartridge>** Fire extinguisher from which mechanical **foam** is expelled by pressure from a cartridge of compressed gas attached to or fitted into the **extinguisher**.  
*Fire Service Training Manual*

**foam fire extinguisher <mechanical, stored pressure>** Fire extinguisher from which mechanical **foam** is expelled by pressure stored within the **body** of the **extinguisher** as a whole.  
*Fire Service Training Manual*

**foam generator** Device positioned in a **line** of hose to produce a **foam solution** which is then aerated.  
BS 4422

**foam generator <high expansion>** Foam making **component** in which air is forced through a gauze screen that is sprayed with **foam solution** to make the foam.  
BS 4422

**foam inductor** Piece of equipment whereby **foam concentrate** is induced into the water stream.  
BS 4422

**foam inductor <multiple jet>** Device positioned at the **pump** and capable of inducing sufficient **foam concentrate** into the water stream to supply one or more **foam branches**.  
BS 4422

**foam inlet** Fixed equipment consisting of an inlet connection, fixed piping and a discharge **assembly**, enabling **foam** to be introduced into an enclosed **compartment**.  
BS 4422

**foam inlet adaptor** Adaptor fitted on fixed **foam inlets** to enable **foam branches** to feed into a fixed installation.  
*Fire Service Training Manual*

**foam making branch-pipe** See **foam branch**.  
BS 4422

**foam making equipment <self aspirating>** Foam making equipment in which air is induced by the discharge of **foam solution** from a **nozzle** or nozzles into the equipment (the induced air is mixed intimately with the foam solution within the equipment to produce the foam).  
BS 4422

#### **foam mechanical**

**foam physical** Foam formed by introduction of air or **inert** gas within a **foam solution**.  
BS 4422

**foam monitor** Fixed **branchpipe** mounted on a swivelling base, so that its greater output can be discharged without reaction on the operator. The base unit may be fixed at one place, or may be trolley-mounted or vehicle-mounted.  
BS 5306-0

**foam solution** Mixture of **foam concentrate** and water.  
BS 4422

**foam solution transit time** Time taken for the **foam solution** to flow through the pipe-work, from the **point** at which the **foam concentrate** is injected into the water stream to the point at which the air is injected into the foam solution to make the **foam**.  
BS 4422

**foam tender** Fire appliance wholly or mainly used for carrying **foam concentrate** and/or equipment.  
BS 4422

**forceful application** Application of **foam** to fall directly onto the surface of a liquid **fuel**.

\*BS ISO 7203-1

**Fourier transform infra-red spectroscopy (FTIR)** Analytical chemical technique in which a gaseous sample is subjected to excitation of molecular bonds by pulsed, broad-band infra-red radiation, and the Fourier transform mathematical method is used to obtain an absorption spectrum.

*Note* **FTIR** can be used for the simultaneous measurement of the **concentrations** of **component** gases in a gas mixture and is thus a useful method for the analysis of gaseous **fire effluent**.

*Note* See also **spectroscopy**.

FDIS 13943

**fractional effective concentration (FEC)** Ratio of the **concentration** of an **irritant** to that concentration expected to produce a specified effect on an exposed subject of average susceptibility.

*Note 1* As a concept, **FEC** may refer to any effect, including **incapacitation**, lethality or other endpoints.

*Note 2* When not used with reference to a specific irritant, the term **FEC** represents the summation of **FEC** values for all irritants in a **fire-generated** atmosphere.

*Note 3* It is dimensionless.

*Note 4* See also **F factor**.

FDIS 13943

**fractional effective dose (FED)** Ratio of the **exposure dose** for an **asphyxiant toxicant** to that exposure dose of the **asphyxiant** expected to produce a specified effect on an exposed subject of average susceptibility.

*Note 1* As a concept, **FED** may refer to any effect, including **incapacitation**, lethality or other endpoints.

*Note 2* When not used with reference to a specific asphyxiant, the term **FED** represents

the summation of **FED** values for all asphyxiants in a **combustion** atmosphere.

*Note 3* It is dimensionless.

FDIS 13943

**fractional irritant concentration (FIC)** **Concentration** of one or more **irritant** effluents present in a **fire** at any time divided by the exposure concentration required to obtain a defined toxic endpoint (**escape** impairment, **incapacitation** or death).

BS 4422

**frangible element** Single or laminated **material**, part or all of which will irreversibly fracture under pressure or impact.

BS 4422

**free LNG fire** **Fire** where **LNG** is in **free combustion**, not covered by any **foam**.

BS EN 12065

**free-hanging smoke curtain** **Smoke curtain** fixed only along its top edge.

PD 7974-2

**frequency** Probability that an **event** will happen over a period of time.

PD 7974-7

**friction loss** Pressure loss in a hose **line** due to friction between the flowing liquid and the **internal walls** of the hose.

BS 4422

**FTIR** See **Fourier transform infra-red spectroscopy**.

FDIS 13943

**fuel** Substance which can react exothermically with an **oxidizing agent**.

FDIS 13943

**fuel lean combustion** **Combustion** in which the **equivalence ratio** is less than unity.

*Note* In well-ventilated **fires**, the **fuel/air** mixture is fuel lean; and **complete combustion** will tend to occur.

FDIS 13943

**fuel load** Total amount of combustible material.

*Note* It is expressed in MJ

DD 9999

**fuel load density** Fuel load per unit area.

*Note* It is expressed in MJm<sup>-2</sup>

DD 9999

**fuel rich combustion** Combustion in which the equivalence ratio is greater than unity.

*Note* In ventilation-controlled fires, the fuel/air mixture is fuel rich, and relatively high concentrations of pyrolysis products and incomplete combustion gases will result.

FDIS 13943

**full fire development** Evolution of a fire to a state of full flaming of combustible materials.

BS EN ISO 13943

**fully developed fire** State of total involvement of combustible materials in a fire.

BS EN ISO 13943

**fully hydraulically calculated** See sprinkler <fully hydraulically calculated>.

BS 5306-2

**furnace closure** Suitable form of construction designed to fill the space between the permanent opening of the furnace and the test construction so that the specified furnace conditions are maintained for the duration of the test without interconnection between the test construction and the furnace closure and which has no significant effect on the behaviour of the test specimen.

BS 476-20

**fusible element sprinkler** See sprinkler <fusible link>.

BS 4422

**fusible link** Device that releases a component such as a fire damper or fire shutter at a set temperature.

*Note* This incorporates either a solder link or a frangible glass bulb.

DD 9999



# G

**gallery** Floor which is less than one-half of the area of the space into which it projects.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**gap <maximum experimental safe>** Maximum **gap** which has been found to prevent **ignition** of the most easily **ignited** external mixture when the most **incendive** mixture of the same **flammable material** is exploded inside a test vessel.

\*BS 5345-3

**gas cartridge <pressure container>** Pressure vessel that fits into, or is attached to, an **extinguisher** and that contains either compressed or liquefied gas that, on operation, is used to expel the **extinguishing medium**.

BS 5306-3

**gas container system** See **extinguishant <gas container system>**.

BS 5306-7

**gas protection suit** One piece gas-type suit, used in conjunction with or incorporating **breathing apparatus**, designed to be worn in a hostile atmosphere.

ISO 8421-8

**gas-sensing fire detector** See **fire detector <combustion gas>**.

BS 4422

**gasification** Transformation of a solid and/or liquid **material** to a gaseous **state**.

BS EN ISO 13943

**gasify** Transform a solid and/or liquid **material** into a gaseous **state**.

BS EN ISO 13943

**gentle application** See **foam <gentle application>**.

\*BS ISO 7203-1

**glass bulb sprinkler** See **sprinkler <glass bulb>**.

BS 4422

**glazed element** Building element with one or more (light transmissive) **panes**, that are built in a frame with fixings and seals.

BS EN 13501-2

**global discharge value** See **total discharge value**.

ISO 8421-6

**global equivalence ratio <bench-scale fire tests>** Mass lost from the **test specimen** divided by the mass of air in the system (closed systems) or introduced into the system (open systems) and divided by the stoichiometric **fuel/air** mass ratio.

*Note 1* It can be determined continuously or as a test average, depending on the instrumentation in place.

*Note 2* For gaseous fuels, an alternative expression of the **global equivalence ratio** can be based on the fuel/air volume ratio.

*Note 3* It is dimensionless.

*Note 4* See also **equivalence ratio**.

FDIS 13943

**global equivalence ratio <fire compartment tests>** Mass lost from the **combustible(s)** divided by the mass of air introduced into the **fire compartment** and divided by the stoichiometric **fuel/air** mass ratio.

*Note 1* It can be determined continuously or as a test average, depending on the instrumentation in place.

*Note 2* For gaseous fuels, an alternative expression of the **global equivalence ratio** can be based on the fuel/air volume ratio.

*Note 3* It is dimensionless.

*Note 4* See also **equivalence ratio**.

FDIS 13943

**glow** (*noun*) Visible light, other than from **flaming**, emitted by solid undergoing **combustion**.

ISO/DIS 9772

**glowing** Made luminous by heat.

*Note* See also **incandescence**.

BS EN ISO 13943

**glowing combustion** **Combustion** of a **material** in the solid phase without **flame** but with emission of light from the combustion zone.

*Note* See also **incandescence**.

BS EN ISO 13943

**glow-wire flammability index (GWFI)** Highest test temperature at which, during three subsequent tests, **flames** or **glowing** of the **specimen extinguish** within 30 s after removal of the **glow-wire** without **ignition** of the specified layer by burning drops or particles.

BS EN 60695-2-1/2 (IEC 60695-2-1/2)

**glow-wire ignition temperature (GWIT)**

Temperature which is 25 K higher than the maximum temperature of the tip of the **glow-wire** which does not cause **ignition** during three subsequent tests.

BS EN 60695-2-1/3 (IEC 60695-2-1/3)

**grades of release** Classification of the release of **flammable gas** or vapour into a **hazardous area** in terms of the probability of release.

*Note* Release may be graded as:

- continuous: release which is either continuous or is expected to occur for long periods during normal operation;
- primary: release which can be expected to occur periodically or occasionally during normal operation; or
- secondary: release which is not expected to occur in normal operation and, if it

does occur, is likely to do so only infrequently and for short periods.

BS 4422

**grid** Open framework of beams over a stage which is used (primarily) for the suspension of scenery and lighting equipment or to provide a platform for access to the pulleys for such suspension systems.

DD 9999

**grid system** See **sprinkler system <grid>**.

BS 4422

**grille** Security or protective mesh positioned over an **opening** to a **duct** or in a door to allow air input or extraction within a room or space.

DD 9999

**gross calorific potential** Calorific value of a **material** when the **combustion** is complete and any produced water is entirely condensed.

\*BS EN 13501-1

**gross heat of combustion** See **heat of combustion <gross>**.

BS EN ISO 13943

**gross volume of a protected enclosure**

**gross volume** Volume enclosed by the **building elements** around the **protected enclosure**, less the volume of any permanent impermeable building elements within the **enclosure**.

BS 4422

**ground storey** **Floor** which is situated at such a level or levels that any given **point** on its perimeter is at, or about, or not more than 1.2 m below, the level of the finished surface of the ground adjoining the building in the vicinity of that point.

BS 5588-1

**group <of an electrical apparatus for explosive atmospheres>** Classification of electrical apparatus related to the **explosive atmosphere** for which it is to be used.

*Note* Electrical apparatus for use in explosive gas atmospheres is divided into two groups:

- group I: electrical apparatus for mines susceptible to firedamp;
- group II: (which can be divided into sub-groups): electrical apparatus for places with an explosive gas atmosphere, other than mines susceptible to firedamp.

**BS EN 60079-14**

**group I apparatus** Electrical apparatus for mines susceptible to firedamp.

**BS EN 60079-14**

**group II apparatus** Apparatus for use in **potentially explosive atmospheres**, other than mines susceptible to firedamp.

**BS EN 50073**

# H

**habitable room** Room used, or intended to be used, for **dwelling** purposes.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**halon** Halogenated hydrocarbon **extinguishing medium**.

BS 4422

**halon explosion suppressant** Halogenated hydrocarbon with recognized **flame-extinguishing** properties.

\*BS 4422-7 (ISO 8421-7)

**halon fire extinguisher** Extinguisher containing a **halon** as **extinguishing medium**.

ISO 8421-4

**halyard** See **line**.

ISO 8421-8

**hand-controlled branch** **Branch** with the capability to stop or reduce the flow of water, which can be capable of delivering a **jet** or spray or both simultaneously.

BS 4422

**hazard** See **fire hazard**.

BS EN ISO 13943

**hazard <dust>** Presence, or **risk** of the presence, of a **combustible** mixture of dust and air.

BS 7535

**hazard component** Characteristic type of behaviour which is capable of contributing to a **fire hazard**.

BS 6336

**hazard departments** Units which contain high **fire loads** and/or significant **ignition sources**.

*HTM 82: Alarm and detection systems (Fire-code), 1992.*

**hazard zone** **Classification** within a **hazard area**, representing the probability of a **flammable gas** or vapour and air mixture being present.

*Note* **Hazard zones** may be classified as:

– **zone 0**: area in which an explosive gas/air mixture is continuously present, or present for long periods;

– **zone 1**: area in which an explosive gas/air mixture is likely to occur in normal operation;

– **zone 2**: area in which an explosive gas/air mixture is not likely to occur in normal operation, and if it does occur will only exist for a short time.

BS 4422

**hazardous area** Area in which **explosive atmospheres** are, or might be expected to be, present in quantities such as to require special precautions for the construction, installation and use of electrical apparatus.

BS 4422

**hazardous area <dust>** Area in which **combustible** mixtures of dust, in cloud or layer form, and air are, or may be expected to be, present in quantities such as to require special precautions for the construction and use of electrical apparatus.

BS 7535

**hazardous explosive atmosphere** **Explosive atmosphere** which, if it **ignites** will cause damage.

BS EN 1127-1

**heat activated sealing system** **Material**, or combination of materials, normally **intumescent** in nature, which, when heated, forms a seal which is able to restrict the egress of hot gases between two adjacent

surfaces, thus contributing to the **integrity** of an **assembly**.

BS 8214

**heat capacity** Amount of thermal energy required to raise the temperature of an object by one degree Kelvin.

*Note 1* The typical units are  $\text{JK}^{-1}$ .

*Note 2* See also **specific heat capacity**.

FDIS 13943

**heat detector** See **fire detector <heat>**.

BS 4422

**heat flow rate** Amount of thermal energy transferred per unit time.

*Note* The typical units are W.

FDIS 13943

**heat flux** Amount of thermal energy emitted, transmitted or received per unit area and unit time.

*Note* It is expressed in  $\text{Wm}^{-2}$ .

BS EN ISO 13943

**heat flux at X minutes (HF-X)** Total heat flux received by a specimen at the most distant spread of flame position observed during the first X minutes of a test.

*Note* It is measured in  $\text{kWm}^{-2}$ .

\*BS EN 13501-1

**heat for sustained burning** Product of the time from the start of exposure of a specimen to the arrival of the flame front at a specified position and the incident radiant heat flux corresponding to that position measured on a non-combustible calibration board.

*Note* It is expressed in  $\text{MJm}^{-2}$ .

BS ISO 5658-2

**heat of combustion** Thermal energy produced by combustion of unit mass of a given substance.

*Note* It is expressed in  $\text{Jkg}^{-1}$ .

BS EN ISO 13943

**heat of combustion <effective>** Heat released from a burning test specimen in a given time interval divided by the mass lost from the test specimen in the same time period.

*Note 1* It is the same as the net heat of combustion if all the test specimen is converted to volatile combustion products and if all the combustion products are fully oxidized.

*Note 2* The typical units are  $\text{kJg}^{-1}$ .

FDIS 13943

**heat of combustion <gross>** Heat of combustion of a substance when the combustion is complete and any produced water is entirely condensed under specified conditions.

BS EN ISO 13943

**heat of combustion <net>** Heat of combustion of a substance when the combustion is complete and produced water is in the vapour state under specified conditions.

*Note* The net heat may be calculated from the gross heat of combustion.

BS EN ISO 13943

**heat of gasification** Thermal energy required to change a unit mass of material from the condensed phase to the vapour phase at a given temperature.

*Note* The typical units are  $\text{kJg}^{-1}$ .

FDIS 13943

**heat release** Thermal energy produced by combustion.

*Note* The typical units are J.

FDIS 13943

**heat release rate** Rate of thermal energy production generated by combustion.

*Note* The typical units are W.

FDIS 13943

**heat stress** Conditions caused by exposure to elevated/reduced temperature, **radiant heat flux**, or combination of these factors.

*Note* These conditions can apply to people or occur in the **product** itself in its normal use or by external influence, (and can be adverse or not).

BS EN ISO 13943

**heat transfer index <flame>** Whole number calculated from the mean time in seconds to achieve a temperature rise under specified conditions.

BS EN 367

**height <of a building>** Distance of the surface of the highest **point** of the **floor** of the highest storey (excluding any such storey consisting exclusively of plant rooms) measured at the centre of that face of the building where the measurement is greatest from the level of the footway or paving in front of that face, or, if there is no such footway or paving, from the level of the ground.

BS 5588-7

**height <of an atrium>** Level of the surface of the highest **point** of the **floor** of the highest storey adjacent to the **atrium** measured from the level of the **atrium base**.

BS 5588-7

**high expansion foam** See **foam expansion ratio**.

BS 4422

**high expansion foam generator** See **foam generator <high expansion>**.

BS 4422

**high fire load area** Room or area which contains large amounts of **combustible materials** and thereby constitutes a **fire load** in excess of that normally found.

*Firecode: Fire Practice Note 4. Hospital Main Kitchens. 1994*

*Firecode: Fire Practice Note 5: Commercial Enterprises on Hospital Premises. 1992.*

**high fire risk area** See **area of higher fire risk**.

BS 4422

**high life risk area** Area in which persons may reside and are not all able to move unaided away from a **fire**, or undivided area in which more than 50 people normally congregate.

*Firecode: Fire Practice Note 4. Hospital Main Kitchens. 1994*

*Firecode: Fire Practice Note 5: Commercial Enterprises on Hospital Premises. 1992.*

**high pressure storage** Storage of gas extinguishant at ambient temperature.

BS 5306-4

**high rise <building>** Building of height greater than that which is subject to **floor** by **floor compartmentation**.

London District Surveyors Association

**high rise sprinkler system** See **sprinkler system <high rise>**.

BS 4422

**high temperature** Temperature representative of a standardized **fully developed fire** under specified conditions.

BS ISO TR 5925-2

**highly flammable liquid** Liquid having a **flash point** of less than 32°C (as measured by the Abel closed cup method).

Fire Certificates (Special Premises) Regulations 1976 (SI 1976/2003).

**high-stacked storage** Storage in which goods are held in high-piled free-standing blocks, or in blocks of stackable free-standing pallets.

BS 4422

**hold time** Period of time during which a **concentration** of **extinguishing medium** greater than the **fire extinguishing concentration** surrounds the **hazard**.

BS 4422

- holding capacity** Ability of a stair to hold a specified number of people during an **escape**.  
DD 9999
- holding force <of a door>** Force required to release a door when the **automatic release mechanism** is energized.  
BS 5839-3
- hole** Break in a **test specimen** at least 5 mm by 5 mm in size caused by melting, **glowing** or **flaming**. If the **hole** is crossed by any **material** it is described as discontinuous.  
BS 7175
- homogeneous product** **Product** consisting of a single **material**, having uniform density and composition throughout.  
\*BS EN 13501-1
- horizontal reach** Horizontal projection of an igniting **flame** with a burner in a horizontal position, measured as the distance between the tip of the burner and the extreme end of the yellow part of the flame when viewed in a dim light.  
BS EN 532
- hose <delivery>** Hose used to pass water under pressure, usually on the delivery side of a **pump**.  
BS 4422
- hose <suction>** Hose design to resist external pressure and used exclusively between the water supply and a **pump**.  
BS 4422
- hose adaptor** Fitting used for connecting lengths of hose which have dissimilar **couplings**.  
BS 4422
- hose bandage** Length of canvas, shaped like a bandage, used to temporarily stem a minor leak in a length of pressurized hose.  
ISO 8421-8
- hose bandage <metal>** Clamp-like piece of equipment used to temporarily stem a minor leak in a length of pressurized hose.  
ISO 8421-8
- hose becket** See **hose sling**.  
BS 4422
- hose branch holder** Metal spike with a fitting and with leather strap at the top used to permit charged hose and **branch** to be secured in position and left unattended.  
ISO 8421-8
- hose bridge** See **hose ramp**.  
BS 4422
- hose coupling** Means used to join two lengths of hose together or to connect other equipment to a hose.  
BS 4422
- hose coupling spanner** Tool for tightening or loosening **hose couplings**.  
ISO 8421-8
- hose coupling wrench** See **hose coupling spanner**.  
ISO 8421-8
- hose laying lorry** See **hose tender**.  
BS 4422
- hose ramp**
- hose bridge** Device to enable vehicles to pass over **delivery hose** without damage to the hose.  
BS 4422
- hose reel** **Firefighting** appliance consisting essentially of a reel with water supplied through the centre, semi-rigid hose, shut-off **nozzle** and, where required, a hose guide.  
BS 4422
- hose reel <automatic>** **Hose reel** fitted with an automatic inlet **stop valve**.  
BS 4422

**hose reel <equipment>** Hose reel mounted on a **fire appliance**.  
BS 4422

**hose reel <fire brigade>** Spool of small diameter non-mounted on a **fire appliance** and fitted with a **branch/nozzle** at the delivery end.  
ISO 8421-8

**hose reel <fixed>** Hose reel capable only of rotating in one plane with a hose guide adjacent to the reel.  
BS 4422

**hose reel <manual>** Hose reel fitted with a manual inlet **stop valve**.  
BS 4422

**hose reel <portable>** Small spool of connected lengths of small diameter **delivery hose** capable of being rapidly laid out manually.  
ISO 8421-8

**hose reel <swinging>** Hose reel capable of rotating in more than one plane and mounted on one of the following:  
– a swinging arm;  
– swinging pipe; or  
– swinging door.  
BS 4422

**hose reel <wheeled>** Large spool of connected lengths of ordinary **delivery hose** mounted on wheels and which can be detached from the **fire appliance**.  
ISO 8421-8

**hose reel branch** See **hose reel nozzle**.  
BS 4422

#### hose reel nozzle

**hose reel branch** Nozzle or **branch** fitted to the delivery end of a **hose reel**.  
BS 4422

#### hose sling

**hose becket** Rope or webbing sling used for securing hose on a ladder.  
BS 4422

#### hose tender

**hose laying lorry** **Fire appliance** used to carry and to lay out hoses.  
BS 4422

**hose wagon** See **hose tender**.  
ISO 8421-8

**hospital street** Main route of ingress and egress for staff, patients, visitors, supplies and **services** and constructed as a **compartment**.  
*HTM 82: Alarm and detection systems (Fire-code), 1992.*

**house in multiple occupation (HMO)** House that is occupied by persons who do not form a single **household**.  
BS 4422

**hybrid mixture** Mixture with air of **flammable substances** in different physical states.  
*Note* Examples for **hybrid mixtures** are mixtures of methane, coal dust and air or mixtures of gasoline vapour and gasoline droplets with air.  
BS 4422

**hydrant** See **fire hydrant**.  
BS 4422

**hydrant <ground>** Hydrant fitted with its operating means beneath a cover or plate at ground level, and permanently connected to a pressurized distribution main for use in **firefighting**.  
ISO 8421-8

**hydrant <pillar>** See **pillar hydrant**.  
ISO 8421-8

**hydrant outlet** Component of **fire hydrant** to which the **standpipe** is connected.  
\*BS 5306-1



**hydrant stand pipe** Piece of equipment used to extend the outlet of a **fire hydrant** to above the ground.

**BS 4422**

**hydraulic alarm <intermittent>** Sounding of an hydraulic water motor **alarm** going for intervals totalling less than the **alarm** period.

**BS 5306-2**

**hydraulic cutters** Hydraulically operated tool, using the scissor principle, and capable of cutting metal, plastics, etc.

**ISO 8421- 8**

**hydraulic platform** Fire appliance equipped with a hydraulically operated articulating boom with a cage or platform at the upper level and capable of rotating through 360°.

**BS 4422**

**hydraulic ram** Hydraulically operated tool, or combination of tools, using the ram principle and capable of spreading objects apart or lifting.

**ISO 8421- 8**

**hydraulic spreader** Hydraulically operated tool capable of spreading, lifting and pulling metal and masonry to facilitate the release of trapped victims.

**ISO 8421- 8**

**hydraulically calculated** See **sprinkler installation <hydraulically calculated>**.

**BS 4422**

**hyperventilation** Rate and/or depth of breathing which is greater than normal.

**FDIS 13943**

**'I' criterion** See **thermal insulation criterion 'I'**.  
BS 4422

**identification lamp** Coloured flashing light carried on top of a **fire appliance** to indicate that it is an emergency vehicle.  
ISO 8421-8

**identification signal** Signal received at the **call-out point** of a remote control system indicating that connection has been made with remote equipment. It does not indicate that the remote equipment is operating.  
*Fire Service Training Manual*

**ignitability** Measure of the ease with which an item can be **ignited**, under specified conditions.  
BS EN ISO 13943

**ignitable** Capable of being **ignited**.  
BS EN ISO 13943

**ignite** (*intransitive verb*) Catch **fire** with or without the application of an external heat source.  
BS EN ISO 13943

**ignite** (*transitive verb*) Initiate **combustion**.  
*Note* See also **light**.  
BS EN ISO 13943

**ignited** (*adjective*) State of an item undergoing **combustion**.  
BS EN ISO 13943

**ignition** Initiation of **combustion**.  
*Note* The term **ignition** in French has a very different meaning (**state of body combustion**).  
BS EN ISO 13943

**ignition <pilot>** Ignition by a separate **pilot ignition** source, of **flammable vapours** emitted from the **pyrolysis** of a heated **material**.  
BS 4422

**ignition <self>** Spontaneous **ignition** due to **self-heating**.  
BS 4422

**ignition <spontaneous>** Ignition of a heated **material** without any separate **pilot ignition** source.  
BS 4422

**ignition capable apparatus** Apparatus which, in normal operation, constitutes a source of **ignition** for a specified **explosive atmosphere**. This includes electrical apparatus not **protected**.  
BS EN 50016

**ignition point** See **minimum ignition temperature**.  
FDIS 13943

**ignition risk** Probability that **ignition** will result if a source of heat is allowed into close proximity or contact with a **combustible material**.  
BS 7177

**ignition source** Source of energy that initiates **combustion**.  
BS EN ISO 13943

**ignition temperature <minimum>** Minimum temperature at which **combustion** can be initiated under specified test conditions.  
*Note 1* It is expressed in °C.

*Note 2* The **minimum ignition temperature** implies thermal stressing to infinite time.  
BS EN ISO 13943

**ignition temperature <of a combustible gas or of a combustible liquid>** Lowest temperature of a heated wall, as determined under specified test conditions, at which the **ignition** of a **combustible** substance in the form of a gas or vapour mixture with air will occur.

BS EN 1127-1

**ignition temperature of a dust layer/cloud** Lowest temperature at which **ignition** occurs under defined test conditions of a **combustible dust** layer/cloud.

BS 7535

**ignition temperature of an explosive gas atmosphere** Lowest temperature of a heated surface at which, under specified conditions, the **ignition** of a **flammable gas** or vapour in contact with the surface will occur.

BS 4422

**ignition temperature of an explosive mixture** Temperature at which a mixture ignites under specified conditions.

\*BS 5501-1 (EN 50014)

**ignition time** Duration of exposure of a **test specimen** to a defined **ignition source** required for the initiation of **sustained combustion** under specified conditions.

FDIS 13943

**impaired escape capability** Effects on willingness and efficiency of **escape** actions, which may delay, slow or prevent evacuation.

FDIS 13943

**imposed load** Force applied to an item other than that associated with its own mass.

*Note* See also **loadbearing criterion 'R'**.

BS 4422

**imposed radiation** Radiation incident on a surface from a source other than that due to local burning; in particular that provided in a test to simulate nearby sources of heat.

BS 4422

**in line foam concentrate inducer** Equipment designed to induce **foam concentrate** into a water stream, usually positioned between the **pump** and the **branch** pipe.

ISO 8421-4

**in line foam maker <mechanical foam generator>** Apparatus which induces **foam concentrate** into a water stream to make **foam solution**, and then induces air under pressure to make **foam**.

ISO 8421-4

**in-cabinet fire protection system** Fire protection method specifically designed to detect, control or suppress potential or real **fires** in cabinets.

*Code of Practice for Design, Installation, Commissioning & Maintenance of Aspiring Smoke Detector (ASD) Systems. 2005. RC3e – Part 5 – Electronic Data Processing Equipment; in cabinet protection*

**incandescence** Emission of light produced by a **material** when intensely heated.

*Note 1* See also **glowing**.

*Note 2* It can be produced by materials in liquid or solid **states**, with or without **combustion**.

BS EN ISO 13943

**incapacitation** State of physical inability to accomplish a specific task.

BS 4422

**incendive** Having sufficient energy to **ignite** a **flammable mixture**.

*Safe Design and Use of Vent Collection Systems for Potentially Flammable Mixtures. 1994*

**incident heat flux density** Amount of energy incident per unit time on the **exposed face** of a **specimen**.

*Note* It is expressed in  $\text{kW m}^{-2}$ .

BS EN 367

**incident lighting** Flood lighting, either portable or fixed to a **fire appliance**, used to illuminate **fire brigade** operations.

ISO 8421-8

**increased safety 'e'** Type of protection in which additional measures are applied so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and **sparks** inside and on external parts of electrical apparatus which does not produce arcs or sparks in normal service.

*Note* Apparatus producing arcs or sparks in normal service is excluded by this definition.

BS EN 60079-7

**independent alternative escape route** One of two or more **escape routes**, each with its own **exit** and each of which is separate from the others.

BS 5588-1

**indicating equipment** Equipment that provides visual indication of any **alarm of fire** or **fault warning** signal received from **control equipment**.

BS 4422

**individual accepted risk** Measure of **fire risk** limited to **consequences** experienced by an individual and based on the individual's pattern of life.

FDIS 13943

**individual risk** Frequency at which an individual can be expected to sustain a given level of harm from the realization of specified **hazards**.

PD 7974-7

**Inert** (*adjective*) Incapable of supporting **combustion**.

BS 4422

**inert** (*verb*) Suppress or neutralize the ability of an atmosphere to support **combustion**.

BS 4422

**inert <rendering>** Suppression or neutralization of the ability of an atmosphere to support **combustion**.

ISO 8421-1

**inerting** Addition of **inert** substances to prevent **explosive atmospheres**.

BS EN 1127-1

**inerting concentration** Concentration of an **extinguishing medium** (usually gaseous) necessary to prevent **ignition** of a particular **material**.

BS 4422

**inerting system** System designed to introduce an adequate **concentration** of **inert** gas to prevent the **ignition** of an otherwise **explosive atmosphere**.

BS 4422

**inflammability** Deprecated term. See **flammability**.

BS EN ISO 13943

**inflammable** Deprecated term. See **flammable**.

FDIS 13943

**informative message** Situation report to fire control giving details of an occurrence and/or the progress of operation.

BS 4422

**inherently flame-retarded** Possessing throughout its mass the property of **flame retardance** without special treatment with **flame retardant**.

BS 4422

**inherently non-flammable material** Material which, although not **non-combustible** and not submitted to a flameproofing process nor provided with a **flame** resistant finish, is in fact **non-flammable** throughout its thickness.

London District Surveyors Association

**initiating event** Event that leads to other events and one or more **outcomes**.

PD 7974-7

**inlet box** See **box <inlet>**.  
BS 4422

**inner room** Room from which **escape** is possible only by passing through another room.  
BS 4422

**installation <alternate>** See **sprinkler installation <alternate>**.  
BS 4422

**installation <dry, pipe>** See **sprinkler installation <dry pipe>**.  
BS 4422

**installation <pre-action>** See **sprinkler installation <pre-action>**.  
BS 4422

**installation <recycling>** See **sprinkler installation <recycling>**.  
BS 4422

**installation <sprinkler>** See **sprinkler installation**.  
BS 4422

**installation <wet, pipe>** See **sprinkler installation <wet pipe>**.  
BS 4422

**insulated fire damper** Fire damper which satisfies both the **integrity** and **insulation** criteria for the specified **fire resistance** period.  
BS EN 1366-2

**insulated glazing** Fire resisting glazing which satisfies both the **integrity** and **insulation** criteria for the anticipated **fire resistance** period.  
BS EN 1364-3

**insulated wall** Wall, with or without glazing, which satisfies both **integrity** and **insulation** criteria for the anticipated **fire resistance** period.  
BS EN 1364-1

**insulation** Ability of a **specimen** of a **separating element** to restrict the temperature

rise of the **unexposed face** to below specified levels.

BS 476-20

**insulation criterion** Criterion by which the ability of a **separating element** to limit the temperature rise on the surface away from a **fire** is assessed.  
FDIS 13943

**integrated system** System comprising any combination of the following, which may share common facilities (such as hardware, **software** or transmission medium), but with at least one security system included:

- **fire detection and alarm**;
- personal attack **alarm**;
- intruder alarm;
- **hazard** warning;
- fixed fire extinguishing;
- public address;
- access control;
- closed circuit television;
- building and management system (BMS);
- heating and ventilation;
- energy management.

*Note* This list of terms may not be comprehensive.

BS 7807

**integrity <of a separating element>** See **fire integrity**.  
BS EN ISO 13943

**integrity criterion 'E'** Criterion by which the ability of a **separating element** to prevent passage of flames and hot gases is assessed.

*Note* See also **fire resistance**.

BS 4422

**intelligibility** Measure of the proportion of the content of a speech message that can be correctly understood.

*Note* Satisfactory **intelligibility** requires adequate **audibility** and adequate **clarity**.

BS 5839-8

**intermediate information and exit direction indicators** See **exit direction indicator**.

BS 4422

**intermediate-scale fire test** Test performed on an item of medium dimensions.

*Note* A test performed on an item of which the maximum dimension is between 1 m and 3 m is usually called 'an intermediate scale test'.

BS EN ISO 13943

**internal enclosed stairway** Stairway in a building, physically separated from the accommodation by construction elements (e.g. by walls, partitions, screens, etc.) which prevent smoke and/or hot gases from passing.

BS 4422

**internal non-substantial component** **Non-substantial component** that is covered on both sides by at least one **substantial component**.

BS EN 13501-1

**internal wall** Wall which provides **fire separation**. It may be exposed separately to a fire from either side.

BS EN 1364-1

**intrinsic safety** Protection technique based upon the restriction of electrical energy within apparatus and of interconnecting wiring, exposed to a **potentially explosive atmosphere**, to a level below that which can cause **ignition** by either sparking or heating effects. Because of the method by which **intrinsic safety** is achieved it is necessary to ensure that not only the electrical apparatus exposed to the potentially explosive atmosphere but also other electrical apparatus with which it is interconnected is suitably constructed.

\*BS 5345-4

**intrinsically safe circuit** Circuit in which the electrical energy is so restricted that no **spark** or thermal effect produced is capable

of causing **ignition** of a given **material** or atmosphere.

BS 4422

**intrinsically safe electrical apparatus** Electrical apparatus in which all the circuits are **intrinsically safe circuits**.

BS 4422

**intrinsically safe electrical system <electro-technical>** Assembly in which all electrical circuits that might be used in hazardous (classified) locations are **intrinsically safe circuits**.

\*BS 5501-9 (EN 50039)

**intumescence** Ability of a **material** to swell as a **reaction to fire**.

**intumescent** Possessing the property of swelling under the influence of heat to form a protective, usually carbonaceous mass with insulating and/or sealing properties.

BS 4422

**intumescent coating system** System comprising a primer, an **intumescent coating**, a **top sealer coat** and/or a decorative coat.

BS 8202-2

**intumescent seal** **Material** with the property of swelling or foaming when exposed to heat which is designed to maintain the **integrity** of a **fire separating element** at the position where **services** pass through.

*Note* See also **penetration seal**.

BS 4422

**ionization smoke detector** **Detector** sensitive to products of **combustion** capable of affecting ionizing currents within the **fire detector**.

BS 4422

**ironmongery <essential>** Items specified as essential to achieve **fire resistance performance** of a fire door.

BS 4422

**ironmongery <non-essential>** Items which are not required to achieve the **fire resistance performance** of a fire door but which if fitted might affect the performance.  
**BS 4422**

**irradiance <at a point on a surface>** Radiant flux incident on an infinitesimal element of the surface containing the **point** divided by the area of that element.  
**BS EN ISO 10093**

**irritant <pulmonary>** (*noun*) Gas or aerosol that stimulates nerve receptors in the lower respiratory tract which may result in breathing discomfort.

*Note* Examples of breathing discomfort are dyspnoea and an increase in respiratory rate. In severe cases, pneumonitis or pulmonary oedema (which may be fatal) may occur some hours after exposure.

**FDIS 13943**

**irritant <sensory/upper respiratory>** (*noun*) Gas or aerosol that stimulates nerve receptors in the eyes, nose, mouth, throat and respiratory tract, causing varying degrees of discomfort and pain with the initiation of numerous physiological defence responses.

*Note* Physiological defence responses include reflex eye closure, tear production, coughing, and bronchoconstriction.

**BS EN ISO 13943**

**iteration** Repeated calculation performed on discretized equations.

*Note* These are normally performed by taking the solution from one calculation, the previous iteration, as an input to the next iteration. This process is repeated many times over until the differences between successive iterations are acceptably small.

**PD 7974-2**

# J

**jack hammer** See **pneumatic drill**.  
ISO 8421-8

**jet** **Extinguishing medium**, usually water, leaving a **nozzle** as a continuous stream, **water spray**, or **water fog** (mist).  
BS 4422

**jet <solid>** Jet with almost parallel sides to obtain the largest range or force possible.  
BS 4422

**jet reaction**

**nozzle reaction** The force acting in the opposite direction to the water stream leaving the **nozzle**.  
BS 4422

**joint** place where corresponding surfaces of the different parts of an **enclosure** come together and where **flame** paths from inside to the outside of the enclosure may occur.  
\*BS 5345-3

**jumping cushion** Inflatable mattress used to break the fall of a person jumping from a height.  
ISO 8421-8

**jumping sheet** Sheet held by firefighters to catch or break the fall of a person jumping from a height.  
ISO 8421-8



# L

**ladder <extension>** Multi-section ladder, usually extended by means of a line.

ISO 8421-8

**ladder <folding>** See **ladder <pole>**.

ISO 8421-8

**ladder <hook>** Short ladder, fitted at its head with an arrangement to hook it over a window sill, parapet or other ledge, for the purpose of scaling a building.

ISO 8421-8

**ladder <pole>** Ladder with rounds hinged to the strings in such a way that the two strings can be folded together.

ISO 8421-8

**ladder <roof>** Ladder, similar in design to a hook ladder, used for scaling roofs.

ISO 8421-8

**ladder <rope>** Hanging ladder with two rope strings and rounds of wood or light metal.

ISO 8421-8

**ladder <round>** Horizontal components of a ladder, commonly known as rungs.

ISO 8421-8

**ladder <scaling>** Tapering sectional ladder, fitted with metal brackets on the strings, such that when several are joined together and roped they can be raised or lowered in restricted circumstances.

ISO 8421-8

**ladder <short>** Two-section ladder extended.

ISO 8421-8

**ladder <string>** Vertical components of a ladder which support the rounds.

ISO 8421-8

**landing valve** Assembly comprising a valve and outlet connection from a **rising main**.

BS 4422

**lantern-light** Construction standing above the surface of a **roof** and intended to admit light to the space below.

BS 5839-1

**large-scale fire test** Test, which cannot be carried out in a typical laboratory chamber, performed on an item of large dimensions.

*Note* A test performed on an item which the maximum dimension is greater than 3 m is usually called 'a large-scale test'.

BS EN ISO 13943

**latent heat of vaporization of water** Heat which is required to change water from a liquid to a gas.

*Note* It is measured in  $\text{MJ kg}^{-1}$ .

BS EN ISO 1716

**lateral spread of flame** Sideways progression of the **flame front**.

FDIS 13943

**LC<sub>50</sub>** See **lethal concentration 50 (LC<sub>50</sub>)**.

BS EN ISO 13943

**LCt<sub>50</sub>** See **lethal exposure dose 50 (LCt<sub>50</sub>)**.

BS EN ISO 13943

**leak sealing kit** Plugs, or bags, which may be inflatable, used to stop a leak.

ISO 8421-8

**length of flame path <width of joint>** Shortest distance, measured along the **flame path**, from the inside to the outside of a **flameproof enclosure**.

\*BS 5345-3

**lethal concentration 50 (LC<sub>50</sub>)** Concentration of toxic gas or fire effluent statistically calculated from concentration-response data to produce lethality in 50% of test animals of given species under specified conditions.

*Note* It is expressed in  $\text{g m}^{-3}$ .

BS EN ISO 13943

**lethal exposure dose (LCt<sub>50</sub>)** Result of the multiplication of the concentration of toxic gas or fire effluent with the exposure time (concentration  $\times$  time, *Ct*), causing lethality of 50% of test animals of given species under specified conditions.

*Note* It is expressed in  $\text{g min m}^{-3}$ .

BS EN ISO 13943

**lethal exposure time t<sub>L50</sub>** Duration of exposure to a fixed concentration of toxic gas or fire effluent, that causes death to 50% of a population of a given species.

BS EN ISO 13943

**level of exposure** Intensity, duration and extent of the thermal attack on a product.

BS EN 13501-1

**LFL** See flammable limit <lower (LFL)>.

BS 4422

**life and health hazard** Potential injury or loss of life to be expected from the effects of exposure to toxic effluent and heat in a fire.

BS 4422

**life and health risk** Expected extent of injury or loss of life from a fire, expressed in terms of probability as the product of:

- frequency of occurrence of an undesired event to be expected in a given technical operation or state; and
- life and health hazard.

BS 4422

**life gun** See line <rocket>.

ISO 8421-8

**life net** See jumping sheet.

ISO 8421-8

**life risk <from fire>** Probability that, if a fire occurs, an individual or individuals will suffer death or serious injury.

BS 6336

**life safety sprinkler system** See sprinkler <life safety>.

DD 9999

**lift control equipment** Electrical switches, door interlocks and apparatus associated with the operation and programming of the lift service.

BS 4422

**lift landing** Floor space from which the lift car is normally entered at each level.

BS 5588-5

**lift landing door** Hinged or sliding portion of a lift well enclosure at each landing that gives access to a lift car when open.

*Note* This is separate from the lift car door.

\*BS 5588-5

**lift machine** Unit, including the motor, that drives and stops the lift.

BS 5588-5

**lift warden** Person nominated to undertake duties in relation to the evacuation of dependent patients in case of fire by means of an escape bed lift installation. There are three types of lift warden each having separate duties, namely lift wardens (floor), lift wardens (control), and lift wardens (car).

*Firecode: Fire Practice Note 3: Escape Bed Lifts. 1987.*

**lift well** Space in which the lift and the counterweight (if any) move.

BS 5588-5

**lifting jack** Tool, operating on either the piston or scissors principle, primarily used for raising heavy objects in a vertical direction

ISO 8421-8

**light** (*transitive verb*) Initiate **combustion**.

*Note* See **ignite**.

BS EN ISO 13943

**light water foam** **Extinguishing medium** having the ability to assist water to float on the surface of **flammable liquids** and provide a seal to prevent re-ignition.

*Fire Service Training Manual*

**lighted**

**lit**

**alight** (*adjective*) State of an item after appearance and during persistence of **flame**.

BS EN ISO 13943

**lighting** (*noun*) (1) First appearance of **flame**.  
(2) Act of initiating **combustion**.

BS EN ISO 13943

**lighting <emergency>** See **emergency lighting**.

BS 4422

**limited flame spread index** Number indicating that a **material** or **material assembly** achieved a specified level.

BS EN 533

**limited release** Release of **flammable gas** or vapour, the maximum **flow rate** of which can be predicted.

BS EN 50016

**limiting oxygen concentration (LOC)** Maximum oxygen **concentration** in a mixture of a **flammable substance** and air and an inert gas, in which an **explosion** will not occur, determined under specified test conditions.

BS EN 1127-1

**limiting oxygen index (LOI)** Minimum **concentration** of oxygen in a mixture of oxygen and nitrogen that will just support **combustion** of a **material** under specified test conditions.

BS ISO 4880

**limiting temperature** Maximum permissible temperature of apparatus or parts of apparatus equal to the lower of the two temperatures determined by:

- the danger of **ignition** of the explosive gas atmosphere;
- the thermal **stability** of the **materials** used.

\*BS EN 50019

**line** Any length of rope used by a firefighter.

ISO 8421-8

**line <rescue>** Special **line** incorporating features designed to assist **rescue** with an **aerial appliance**.

ISO 8421-8

**line <rocket>** **Light line** attached to a rocket, designed to project the **line** across a chasm or river, etc.

ISO 8421-8

**line detector** See **fire detector <line>**.

BS 4422

**linear burning rate** Length of **material** burned per unit time under specified conditions.

*Note* It is expressed in  $\text{ms}^{-1}$ .

BS EN ISO 13943

**linear joint** Linear void having a length to width ratio of at least 10:1 between or within two juxtaposed elements.

*Note* Typical locations of **linear joints** include **floors**, the perimeter of floors, walls, **ceilings** and **roofs**.

BS EN 1366-4

**linear joint seal** System designed to maintain the fire separating function, and if relevant, to accommodate a specified degree of movement.

BS EN 1366-4

**lining material** **Material** incorporated in a building structure to form the **exposed surface** of a wall and **ceiling**.

*Fire and the Design of Educational Buildings. Building Bulletin 7. Sixth Edition. 1997*

**liquefied flammable gas** Substance which at a normal temperature and pressure would be a **flammable gas**, but which is in liquid form as a result of the application of pressure or refrigeration or both.  
**BS 4422**

**liquefied petroleum gas** Commercial butane, commercial propane or any mixture thereof.  
**Fire Certificates (Special Premises) Regulations 1976 (SI 1976/2003).**

**load level** Magnitude of a **test load** (mechanical actions) in relation to the **loadbearing capacity** of a member at normal temperature.

*Note* The loadbearing capacity of a member at normal temperature is determined by testing or calculation, taking into account the actual mechanical properties of the **loadbearing element** tested.

**BS EN 1363-1**

**loadbearing capacity** See **loadbearing criterion 'R'**.  
**FDIS 13943**

**loadbearing criterion 'R'** Ability of a **building element** or structure to sustain an applied load when exposed to **fire**.

*Note* This term is preferred to loadbearing capacity within the European Community. It is used by the European fire testing and fire construction industry and by those who use European standards both inside and outside the EC.

**FDIS 13943**

**loadbearing element** Element that is intended for use in supporting a load in a building and maintaining that support in the event of a **fire**.  
**BS EN 1363-1**

**loadbearing wall** Wall designed to support an applied load.  
**BS EN 1365-1**

**LOAEL** See **lowest observable adverse effect level (LOAEL)**.  
**BS 4422**

**lobby <ventilated>** **Protected lobby** provided with means of ventilation connected to the open air.  
**\*BS 4422-5 (ISO 8421-5)**

**lobby approach stairway** See **stairway <lobby approach>**.  
**BS 4422**

**LOC** See **limiting oxygen concentration (LOC)**.  
**BS 4422**

**local application extinguishing system** **Extinguishing system** consisting of a calculated supply of extinguishing media arranged to discharge directly on to an identified **hazard**.  
**BS 4422**

**local application nozzle** Nozzle which is designed to discharge a **jet of extinguishing medium** onto a **protected risk**.  
**BS 4422**

**locally resettable detector** See **fire detector <locally resettable>**.  
**BS 4422**

**LOI** See **limiting oxygen index (LOI)**.  
**BS 4422**

**loss prevention** Approach to **safety** distinguished by emphasis upon incorporating safety into the initial design.  
**BS 4422**

**loudspeaker zone** Part of the **area of coverage** of a **voice alarm system** to which information can be given separately from any other part.  
**BS 4422**

**low expansion foam** Foam having an expansion ratio of up to 20.  
*Note* See also **foam expansion ratio**.  
**ISO 8421-4**

**low mounted way guidance system** See way guidance system <low mounted>. BS 4422

**low pressure storage** Storage of gas extinguishant in pressure containers at a controlled low temperature of  $-18^{\circ}\text{C}$ . BS 5306-4

**lower explosion point** See explosion point <lower>. BS 4422

**lower explosive limit** See explosive limits <lower (LEL)>. BS 4422

**lower flammable limit** See flammable limit <lower (LFL)>. BS 4422

**lowest observable adverse effect level (LOAEL)** Lowest exposure dose of a chemical at which there are statistically or biologically significant increases in frequency or severity of adverse effects seen between the exposed population and its appropriate control. FDIS 13943

**low-rise system** See sprinkler system <low rise>. BS 4422

# M

**maintained emergency lighting** See **emergency lighting** <maintained>. **BS 4422**

**maintained emergency luminaire** See **emergency luminaire** <maintained>. **BS 4422**

**maintenance** Combination of all technical and administrative actions including supervision actions intended to retain a **product** in, or restore it to, a state in which it can perform a required function. **PD 7974-7**

**maisonette** Dwelling, forming part of a larger building, which includes rooms on two or more levels that are more than half a storey apart. **BS 5839-6**

**malicious ignition** Act of wilfully and maliciously setting **fire** to another person's property, or to one's own with the intention to defraud. **BS 4422**

**mall** Access route for pedestrians in a **shopping complex**. **BS 4422**

**mall exit** Final exit from a **mall**, or a **storey exit**, or an **exit** from a mall which leads directly to a storey exit or final exit by way of a **protected corridor**/passageway. **BS 4422**

**mall section** Length of **mall** between two mall exits. **BS 5588-10**

**management** Person or persons in overall control of the premises whilst people are present, exercising this responsibility either

in their own right, e.g. as the owner, or by delegation (of statutory duty). **PD 7974-6**

**management lighting** Part of the general lighting which in the absence of adequate daylight is intended for use during the whole time the public are on the premises. **BS 4422**

**management of fire safety** Tasks carried out by a defined person or persons with appropriate powers and resources to ensure that the **fire safety** systems, passive, active and procedural, within the building are working properly at all times. **DD 9999**

**managing fire safety** Whole process from the design throughout the life of a building that relates to those activities designed to ensure that the incidence of **fire** is minimized but that, when a fire occurs, appropriate **safety** systems, passive, active and procedural, are in place.

**mandatory sign** Safety sign that indicates that a specific course of action is to be taken. **BS 5499-5**

**manual call point** See **fire alarm manual call point**. **BS 4422**

**manual fire alarm system** System (not containing **fire detectors**) in which an **alarm of fire** may only be initiated manually. **ISO 7240-1**

**manual hose reel** See **hose reel** <manual>. **BS 4422**

**manual hose reel system** Manual **fire extinguishing system** consisting of a hose, stowed on a reel or rack, with a manually

operated discharge **nozzle** assembly, all connected by a fixed pipe to a supply of **carbon dioxide**.  
**BS 5306-4**

**manual hose reel system <gaseous>** **Fire extinguishing system** consisting of a hose, stowed on a reel or rack, with a manually operated discharge assembly, all connected by a fixed pipe to a supply of gaseous **extinguishant**.  
**BS 5306-0**

**manual only changeover device** See **automatic/manual changeover device**.  
**BS 4422**

**manual system** See **fire protection system <manual>**.  
**BS 4422**

**manufacturer's data** Data supplied by the manufacturer or supplier.  
**\*BS 5839-4**

**marine <'A' class division>** Bulkhead or deck constructed of steel or other **equivalent material** suitably stiffened and possessing 60 minutes resistance to the passage of **flame** and **smoke** including, where necessary, specified qualities of **insulation**.  
**\*BS 4422-9**

**marine <'B' class division>** Bulkhead, deck, **ceiling** or lining constructed of materials which are designated as **non-combustible** or, in certain circumstances, of **combustible materials**, it possesses 30 minutes resistance to the passage of **flame** only, and includes, where necessary, specified qualities of **insulation**.  
**\*BS 4422-9**

**marine <'C' class division>** Bulkhead, **ceiling** or lining constructed of **materials** which are designated as **non-combustible** and not required to possess any resistance to the passage of either **flame** or **smoke**.  
**\*BS 4422-9**

**marine <'F' class division>** (Applies to fishing vessels only.) Bulkhead, deck, **ceiling** or lining possessing 30 minutes resistance to the passage of **flame** only, including specified qualities of **insulation**.  
**\*BS 4422-9**

**marine <division>** Bulkhead, deck, **ceiling** or lining having a specified **fire performance** when tested in accordance with a specified standard.

*Note* Divisions can be classified according to their performance.

**BS 4422**

**marine <fire control plan>** Permanently exhibited plan displaying the **fire protection** facilities on board ship  
**BS 4422**

**marine <main horizontal zone>** Part of a ro-ro passenger ship incorporating special category spaces and/or ro-ro cargo spaces on one or more decks, the bulkheads and decks forming its boundaries being **'A' class divisions**.  
**BS 4422**

**marine <main vertical zone>** One of the sections of a ship in which the hull, superstructure and deckhouses are divided by **'A' class divisions**.  
**BS 4422**

**marine <main vertical zone bulkhead>** **'A' class division** forming an end of a **main vertical zone** in a ship.  
**BS 4422**

**marine <method IC>** System of protection in the accommodation and service spaces of cargo ships in which the bulkheads, **ceilings** and linings, other than those which are required to be **'A' class divisions** or **'B' class divisions**, are **'C' class divisions** with **smoke detectors** and manually operated call points fitted in corridors and stairways.  
**\*BS 4422-9**

**marine <method IIC>** System of **fire protection** in the accommodation and service spaces of cargo ships in which the bulkheads, **ceilings** and linings, other than those which are required to be '**A**' class divisions or '**B**' class divisions are permitted to be **combustible** provided that an automatic sprinkler, **fire detection** and **fire alarm system** is fitted in such spaces, the corridors and stairways being additionally fitted with **smoke detectors** and manually operated call points.  
\*BS 4422-9

**marine <method IIIC>** System of **fire protection** in accommodation and service spaces of cargo ships in which the bulkheads, **ceilings** and linings within limited areas bounded by '**A**' class divisions and/or '**B**' class divisions are permitted to be **combustible** provided that a fixed **fire detection** and **fire alarm system** is fitted in such spaces, the corridors and stairways being additionally fitted with **smoke detectors** and manually operated call points.  
\*BS 4422-9

**marine <protection method>** System of **fire protection** in the accommodation and service spaces of cargo ships in which the requirements for **fire resistance** of bulkheads, **ceilings** and linings are reduced provided that specified active **fire protection measures** are taken.

*Note* Protection methods can be classified.  
BS 4422

**marine <smoke detection cabinet>** Cabinet, within which samples of air drawn from holds are continuously monitored.  
BS 4422

**marine <stairway enclosure>** Space in a ship, having a **boundary** of specified **fire resistance**, protecting an **escape stairway**.  
BS 4422

**mass burning rate** Mass of **material** burned per unit time under specified conditions.

*Note* It is expressed in  $\text{kg s}^{-1}$ .

BS EN ISO 13943

**mass charge concentration <closed system>**

Mass of the **test specimen** placed in a combustion chamber divided by the chamber volume.

*Note* The typical units are  $\text{g m}^{-3}$ .

FDIS 13943

**mass charge concentration <open system>**

Mass of the **test specimen** divided by the total volume of air passed through the test apparatus.

*Note 1* The definition assumes that the mass is dispersed in the air flow uniformly over time.

*Note 2* The typical units are  $\text{g m}^{-3}$ .

FDIS 13943

**mass loss** Mass of **material** consumed or otherwise removed during burning.

BS 4422

**mass loss concentration <closed system>**

Mass of the **test specimen** consumed during **combustion** divided by the test chamber volume.

*Note* The typical units are  $\text{g m}^{-3}$ .

FDIS 13943

**mass loss concentration <open system>**

Mass of the **test specimen** consumed during **combustion** divided by the total volume of air passed through the test apparatus.

*Note 1* The definition assumes that the mass is dispersed in the air flow uniformly over time.

*Note 2* The typical units are  $\text{g m}^{-3}$ .

FDIS 13943

**mass loss rate** Mass of **material** lost per unit time under specified conditions.

*Note* It is expressed in  $\text{kg s}^{-1}$ .

BS EN ISO 13943



**mass optical density (MOD)** Measure of the degree of **opacity of smoke** in terms of weight loss of the **material** under the conditions of the test.

BS 4422

**master stream device** See **monitor**.

ISO 8421-8

**material** Single basic substance or uniformly dispersed mixture of substances, e.g. metal, stone, timber, concrete, mineral wool with uniformly dispersed binder or polymers.

BS EN 13501-1

**material alteration** Alteration that changes (usually lowering) the standard of **fire protection** originally provided.

PAS 79

**material conversion factor (MCF)** Numerical factor that should be used when the **minimum design concentration of carbon dioxide** for the **material at risk** exceeds 34%, to increase the basic quantity of **carbon dioxide** (as obtained by application of the **volume factor**) required for **protection** against **surface fires**.

BS 4422

**material of limited combustibility** **Material** meeting specified criteria of combustibility.

BS 4422

**maximum alarm load** Maximum electrical load imposed on the power supply to the **fire detection and alarm** system by the simultaneous operation of all alarm devices, any visible and audible indications at any **control and indicating equipment**, etc., when fire signals are generated by the maximum number of **detectors** that can simultaneously give them.

\*BS 5839-6

**maximum explosion pressure  $p_{max}$**  Maximum pressure occurring in a closed vessel dur-

ing the **explosion** of an **explosive atmosphere** determined under specified conditions.

BS 4422

**maximum foreseeable loss (MFL)** Estimate of the largest loss on a **site** (excluding a **catastrophic loss**) to be expected, presuming impairment and/or delay in the activation of the primary protection systems.

**maximum rate of explosion pressure rise**

Maximum rate of increase of pressure occurring in a closed vessel during the **explosion** of an **explosive atmosphere** under specified conditions.

BS 4422

**maximum transport time** Maximum time taken for aerosols to transfer from the furthest sampling **point** to the **detector** in an **aspirating detection system**.

BS 4422

**MCF** See **material conversion factor (MCF)**.

BS 4422

**MDL** See **minimum detection limit (MDL)**.

FDIS 13943

**mean maximum smoke density  $D_{mm}$**  Arithmetic mean of all five values of maximum **optical density <of smoke>** measured at one irradiance.

ISO/TR 5924

**mean time between failures (MTBF)** Total cumulative functioning time of a population divided by the number of failures.

PD 7974-7

**means of escape** Structural means whereby (in the **event of fire**) a safe route or routes is or are provided for persons to travel from any point in a building to a **place of safety**.

BS 4422

**measured free area** Area of natural heat and smoke exhaust ventilator, measured at its throat.

BS 4422

**measuring station** Equipment consisting of pipe system with an orifice plate or venturi and an air flow straightener (if any), installed between the **connecting duct** and the exhaust equipment to determine the volume **flow rate** of gases passing through a **damper** under test.  
BS ISO 10294-1

**mechanical foam <physical>** Foam formed by introduction of air or inert gas within a **foam solution**.  
ISO 8421-4

**mechanical response <building element>** Measure of **fire** induced changes to the deflection, stiffness and loadbearing capacity of **building elements** and the development of openings (cracks) in building elements during **fire exposure** as a result of the shrinkage or expansion of **materials**, spalling, or delamination.  
FDIS 13943

**mechanical smoke control** See **smoke control <mechanical>**.  
BS 4422

**medium expansion foam** Foam having an expansion ratio of between 20 and 200.  
*Note* See also **foam expansion ratio**.  
BS 4422

**medium expansion foam branchpipe** See **foam expansion ratio** and **foam branch**.  
BS 4422

**medium expansion foam monitor** See **foam expansion ratio**.  
BS 4422

**medium temperature** Average air temperature of  $200 \pm 20^\circ\text{C}$ .  
BS ISO/TR 5925-2

**melting behaviour** Phenomena accompanying the softening of a **material** under the influence of heat (including deforming and dripping, but not **flaming**).  
BS EN ISO 13943

**Method IC** See **marine <method IC>**.  
\*BS 4422-9

**Method IIC** See **marine <method IIC>**.  
\*BS 4422-9

**Method IIIC** See **marine <method IIIC>**.  
\*BS 4422-9

**mezzanine** Partial storey within another storey.  
*Note* In Scotland this is known as **gallery**.  
BS 5588-11

**mimic diagram** Diagrammatic representation of the building, carrying active indications which are directly related to the building layout and the indications of the **automatic fire detection and alarm system**.  
BS 4422

**minimum critical relative humidity <electro-technical>** Relative humidity that causes leakage current to exceed a defined level under specified test conditions.  
FDIS 13943

**minimum design concentration** Minimum **extinguishing medium concentration** given in the design specification.  
BS 4422

**minimum detection limit (MDL)** Theoretical lowest measurable **concentration**.  
FDIS 13943

**minimum ignition energy** Smallest quantity of energy that is capable of igniting a specified mixture of a **flammable material** with oxidant.  
BS 4422

**minimum ignition temperature** Minimum temperature at which **sustained combustion** can be initiated under specified test conditions.

*Note 1* The **minimum ignition temperature** implies the application of a thermal stress for an infinite length of time.

*Note 2* The typical units are  $^\circ\text{C}$ .

FDIS 13943

**minimum ignition temperature of a dust cloud** Lowest temperature of a hot surface on which the most **ignitable** mixture of the dust with air is ignited.  
BS EN 1127-1

**minimum ignition temperature of a dust layer** Lowest temperature of a hot surface at which **ignition** occurs in a dust layer under specified test conditions.  
BS EN 1127-1

**minimum ignition temperature of an explosive atmosphere** Ignition temperature of an explosive gas atmosphere or the **minimum ignition temperature** of a dust cloud under specified test conditions.  
BS 4422

**minimum ignition time** Duration of exposure of a **material** to a defined **ignition source** required for the initiation of **combustion** under specified conditions.

*Note 1* See also **ease of ignition** and **exposure time**.

*Note 2* It is expressed in s.

BS 4422

**mitigated LNG fire** Fire where the **combustion** of LNG is reduced by foam coverage.  
BS EN 12065

**mixed use building** Building where different parts are used for different purposes.  
PD 7974-1

**mobile home** Transportable unit of living accommodation that does not meet the requirements for construction and use of road vehicles but that retains means for mobility.  
BS 5839-6

**MOD** See **mass optical density (MOD)**.  
BS 4422

**modular system** Firefighting system consisting of distributed containers of **extinguishing medium**, in which each unit is

designed to protect a given volume and which in total provides cover for the whole **hazard**.  
BS 4422

**molten debris** Molten material separating from the **specimen** during the test procedure and falling from a burning item without **flaming**.  
BS 4422

**molten drips** (*noun*) Falling droplets of **material** which have been softened or liquefied by heat.

*Note* The droplets can be **flaming** or not flaming.

BS EN ISO 13943

**monitor** **Branch** mounted on a base so that its output can be discharged without reaction on the operator.  
BS 4422

**monitor <fixed>** **Monitor** which is permanently secured to a **fire appliance**, **fire boat**, **fire tug**, **turntable ladder**, **hydraulic platform** or building.  
BS 4422

**monitor <portable>** **Monitor** designed to stand on the ground or on a small trailer and which can be positioned anywhere on the **fire ground**.  
BS 4422

**monitor system** System of fixed piping with **nozzles** that can be manually directed and operated, locally and/or remotely.  
BS 4422

**monitored wiring** Wiring in which specified types of failure will result in a **fault warning**.  
BS 4422

**mounting box** Box not necessarily specifically designed for containing a manual fire alarm call point but into which a manual fire alarm call point can be fitted.  
BS 4422

**movement behaviour** Behaviour which enables occupants of a **built environment** to reach a **place of safety** or **safe refuge** once they have begun to evacuate.  
**FDIS 13943**

**movement capability** Maximum amount of movement a joint seal is able to tolerate, expressed as a percentage of the nominal width.

*Note* The **movement capability** is usually the same over the entire range of the nominal widths.

**BS EN 1366-4**

**movement time** Time needed for all of the occupants of a specified part of a **built environment** to move to an **exit** and pass through it and into a **place of safety**.  
**FDIS 13943**

**mullion** Vertical framing member separating and supporting two adjacent panes of glass or panels.  
**BS EN 1364-1**

**multiple storey building** Building comprising two or more storeys (irrespective of overall height), above or below ground with **fire separation** between storeys equivalent to **fire break floors**.  
**Technical Bulletin 29, Rules for Automatic Sprinkler Systems**

**multiple use building** Part of a building, or a whole building, that is used for different purposes at different times.  
**PD 7974-1**

**multipoint detector** **Detector** that responds to the phenomenon **monitored** in the vicinity of more than one compact sensor, such as thermocouples.  
**\*BS 4422-3 (ISO 8421-3)**

**multi-purpose foam concentrate** **Foam concentrate** suitable for the extinguishment of **fires** involving water miscible fuels (polar liquids) and hydrocarbons.  
**ISO 8421-4**

**multi-sensor detector** **Fire detector** which responds to more than one phenomenon of **fire**.  
**BS 4422**

**multi-sensor detector**  
**multi-criteria detector** **Detector** which responds to more than one phenomenon of **fire**.  
**BS EN 54-1**

**multi-state detector** **Fire detector** which gives one of a limited number (greater than two) of output **states** relating to 'normal' or **fire alarm** and other abnormal conditions.  
**BS 4422**

# N

**narcosis** Depression of the central nervous system causing reduced awareness and/or impaired physical capability, for example ability to **escape**.

*Note* In extreme cases, unconsciousness and finally death may occur.

BS EN ISO 13943

**narcotic** Toxicant causing **narcosis**.

BS EN ISO 13943

**natural smoke control** See **smoke control <natural>**.

BS 4422

**natural ventilation** Ventilation that is caused by buoyancy forces due to difference in density of the air because of the effects of temperature differences.

BS 4422

**net calorific value** See **heat of combustion**.

BS 4422

**net heat of combustion** See **heat of combustion <net>**.

BS EN ISO 13943

**net volume of a protected enclosure** **Gross volume** less the volume of any fittings, fixtures, or furniture in the **enclosure**, including any enclosed volume in, for example, closed cabinets or drawers.

BS 4422

**neutral pressure plane <in a building>** Level in a building at which the inside pressure is equal to the outside pressure.

BS 4422

**no observable adverse effect level (NOAEL)** **Exposure dose** of a chemical at which there are no statistically or biologically significant

increases in **frequency** or severity of adverse effects seen between the exposed population and its appropriate control.

*Note* Effects may be produced at this **exposure dose**, but they are not considered to be adverse.

FDIS 13943

**non-aspirated foam** See **foam <non-aspirated>**.

BS 4422

**non-combustible** Not capable of undergoing **combustion** under specified conditions.

BS 4422

**non-combustible material** Any **material** capable of satisfying the highest level of **reaction to fire performance**

BS 5588-1

**non-dedicated system** **Pressure differential system** that shares **components** with another system, such as an HVAC system.

\*BS 5588-4

**non-detachable detector** **Detector** not designed to be easily removed from its normal operating position for **maintenance** and servicing purposes.

BS 4422

**non-durably flame-retarded fabric** Fabric that has been chemically treated to render it flame-retardant but whose **fire retardance** might be adversely affected by wetting or cleansing procedures.

BS 4422

**non-essential ironmongery** See **ironmongery <non-essential>**.

BS 4422

**non-flame propagating trunking** Trunking that is liable to **ignite** as a result of applied flame, but in which the flame does not propagate and is extinguished within a limited time after the applied flame is removed.  
BS 4678-4

**non-flammable** Not capable of burning with a flame under specified conditions.  
BS EN ISO 13943

**non-hazardous area <dust>** Area in which **combustible dust**-air mixtures are not expected to be present in hazardous quantities and in which special precautions for the construction and use of apparatus are not required.  
BS 4422

**non-hazardous area <explosion>** Area in which **explosive atmospheres** are not expected to be present in hazardous quantities and in which special precautions for construction and use of apparatus are not required.  
BS 4422

**non-homogenous product** Product that does not satisfy the requirements of a **homogeneous product**. It is a product composed of one or more **components**, substantial and/or non-substantial.  
BS EN ISO 1716

**non-incendive part** Part with contacts for making and breaking a potentially **incendive** circuit where either the contacting mechanism or the **enclosure** in which the contacts are housed is so constructed that **ignition** of a prescribed **flammable gas** or vapour is prevented under specified operating conditions.  
BS 4422

**non-loadbearing wall** Wall designed not to be subjected to any load other than its own weight.  
BS EN 1364-1

**non-maintained emergency lighting** See **emergency lighting <non-maintained>**.  
BS 4422

**non-maintained emergency luminaire** See **emergency luminaire <non-maintained>**.  
BS 4422

**non-resettable (non-restorable) detector with exchangeable elements** Detector which, after response, requires the renewal of a **component** or components to restore it to its normal **state** of readiness to detect.  
ISO 7240-1

**non-resettable (non-restorable) detector without exchangeable elements** Detector which, after response, cannot be restored from its **alarm state** to its normal **state** of readiness to detect, and must be replaced.  
ISO 7240-1

**non-substantial component** Material that does not constitute a significant part of a **non-homogenous product**. A layer with a mass/unit area  $< 1.0 \text{ kg m}^{-2}$  and a thickness  $< 1.0 \text{ mm}$  is considered to be a **non-substantial component**.

*Note* Two or more non-substantial layers that are adjacent to each other (i.e. with no **substantial component(s)** in between the layers) are regarded as one **non-substantial component** when they collectively comply with the requirements for a layer being a non-substantial component.

BS EN ISO 1716

**non-volatile memory** Memory that does not require the presence of any energy source for the retention of its contents.  
BS EN 54-2

**normal condition** Condition of a **component** of a **fire alarm system** in which it is giving neither fault nor **fire** signals, but in which it has the ability to give a fault or fire signal should such an **event** occur.  
BS 4422

**normal electrical supply** Supply from which the electrical system is expected to obtain its power.  
BS 4422

**normal lighting** All permanently installed electric lighting operating from the normal supply, i.e. that source of electrical energy used to provide **normal lighting**, which in the absence of adequate daylight is intended for use during the whole time that the premises are occupied.

*Note* Also known as general lighting.

\*BS 5266-1

**normal loss expectancy (NLE)** Estimate of the largest loss on a **site** (excluding a **catastrophic loss**) to be expected, when all available means of **protection** function as expected.

**normal mode** State of a **self-contained emergency luminaire** which is ready to operate while the normal supply is on and in the case of a **normal supply failure**, the luminaire automatically changes over to the **emergency mode**.

BS 4422

**normal supply failure** Condition in which the **normal lighting** can no longer provide a minimum illuminance for emergency escape purposes and when the **emergency lighting** should become operative.

BS 4533-102.22 (EN 60598-2-22)

**normally occupied area** Area that is occupied by people during working hours.

BS 5306-5.2

**normally unoccupied area** Area, not occupied by people during working hours, that may be entered occasionally for brief periods.

BS 5306-5.1

**notional boundary** Boundary presumed to exist between buildings on the same **site**.

*Approved Document B (Fire safety) – Volume 1: Dwellings (2006 Edition)*

**notional floor level** Assumed **floor** level relative to the position of a **building element** in service.

BS EN 1363-1

**notional noise level** Noise level which is exceeded for 10% of the noisiest period.

*HTM 82: Alarm and detection systems (Fire-code), 1992.*

**notional yield** See **stoichiometric yield**.

FDIS 13943

**nozzle** Fitting at the delivery end of a hose or pipe which changes the cross sectional area and thereby changes the velocity of the **fire extinguishing medium**.

BS 4422

**nozzle man** See **branch man**.

ISO 8421-8

**nozzle reaction** See **jet reaction**.

ISO 8421-8

**numerical fire model** Mathematical representation of one or more of different interconnected phenomena governing the development of a **fire**.

BS 4422

# O

**obscuration of smoke** Reduction in the intensity of light due to its passage through **smoke**.

*Note 1* In practice, **obscuration of smoke** is usually measured as the transmittance which is normally expressed as a percentage.

*Note 2* Obscuration of smoke causes a reduction in **visibility**.

*Note 3* See also **extinction area <of smoke>**, **extinction coefficient <of smoke>**, **opacity of smoke**, **optical density <of smoke>**, and **specific optical density of smoke**.

FDIS 13943

**occupant(s) at special risk** Building occupant(s) who, as a result of their physical or mental state, age or location in the building, are at greater **risk** from **fire** than an able-bodied, fully alert adult, are afforded adequate **means of escape** and other **fire precautions**, whether on a short-term or long-term basis.

PAS 79

**occupant capacity** Maximum number of persons assumed to be present within an **enclosure** or **compartment** for the purposes of design.

BS 4422

**occupation density <theoretical>** Number of persons per area of the usable **floor** of a defined space for a given activity.

BS 4422

**officer in charge** Officer commanding a **fire station**, a **fire appliance**, or operations at the scene of a **fire** or other emergency.

ISO 8421-8

**oil absorbent blanket** Material that is oleophilic and hydrophobic, used to absorb a contaminant.

ISO 8421-8

**oil immersion 'o'** Type of protection in which the electrical apparatus or parts of the electrical apparatus are immersed in oil in such a way that an **explosive atmosphere** which may be above the oil or outside the **enclosure** cannot be **ignited**.

BS EN 50015

**opacity <smoke>** Common logarithm of the **opacity of smoke**  $\lg(I/T)$ .

BS ISO 4880

**opacity of smoke** Ratio of incident light intensity to transmitted light intensity through **smoke**, under specified conditions.

*Note 1* **Opacity of smoke** is the reciprocal of transmittance.

*Note 2* It is dimensionless.

*Note 3* See also **obscuration of smoke**.

BS EN ISO 13943

**open-ended pipework** Pipework between a valve (including a relief valve) and open **nozzles** which cannot be under a continuous pressure.

BS 5306-4

**open-plan dwelling** Dwelling in which the internal living arrangements are almost entirely undivided by partitions.

BS 5588-1

**open-sided car park** Car park that is not a **basement** storey; has **natural ventilation** not less than 5% of the **floor area** at that level of which at least half should be in two opposing walls.

DD 9999

**open spatial planning** Internal arrangement of a building in which more than one storey



- or level is contained in one undivided volume.  
DD 9999
- open storey planning <horizontal>** Planning where almost the whole floor area is undivided by partitions.  
BS 5588-11
- open test arrangement** Form of compartment which enables unrestricted ventilation to the fire throughout the duration of the test.  
BS 476-32
- open water** See static water supply.  
ISO 8421-8
- opening** Window, door or other aperture in an external wall or side of a building, and any part of an external wall which has a fire resistance less than that required by legislation.  
*Fire Prevention Guide 2: Fire Precautions in New Single-storey Spirit Storages and Associated Buildings. 1973.*
- operating system** Data that controls the operations carried out within a system, and which is not dependent on the configuration of any particular installation.  
\*BS 5839-4
- operational tactics** Appropriate application of personnel, appliance and equipment on the fire ground or at the scene of any other emergency.  
ISO 8421-8
- opposed components** Those components of a beam detector whose positions determine the optical path.  
BS 5839-5
- optical density <of smoke>** Measure of the attenuation of a light beam passing through smoke expressed as the common logarithm (i.e. logarithm to the base 10)  $I_g(I/T)$  of the opacity of smoke.  
BS EN ISO 13943
- optical path length** Total distance traversed by the wavefront between the transmitter and receiver.  
BS 4422
- optical (photoelectric) smoke detector** Detector sensitive to combustion products capable of affecting the absorption or scattering of radiation in the infrared, visible and/or ultraviolet region of the electromagnetic spectrum.  
BS 4422
- orientation** Plane in which the exposed face of a specimen is located during testing, either vertical or horizontally facing upwards.  
BS 476-15 (ISO 5660-1)
- orientation A** Has air flow perpendicular to both the waterway access and the plane of the frame arms and with the heat response element upstream of the frame arms.  
ISO/DIS 6182-7
- orientation B** Has air flow perpendicular to both the waterway access and the plane of the frame arms and with the heat response element downstream of the frame arms.  
ISO/DIS 6182-7
- outcome** Result of a chain of events.  
PD 7974-7
- outlet box** See box <outlet>.  
BS 4422
- overcladding** Addition of an external cladding to an existing building, usually to improve thermal protection or weather protection.  
DD 9999
- overcladding system** Protection system fixed to an external wall for weather protection.  
BS EN 1364-3
- overpressure relief** Provision for releasing excess pressurizing air from the pressurized space.  
\*BS 5588-4

**oxidation** Chemical reaction in which the proportion of oxygen or other electronegative element in a substance is increased.

*Note* In chemistry, the term has the broader meaning of a process which involves the loss of an electron or electrons from an atom, molecule or ion.

FDIS 13943

**oxidizing agent** Substance capable of causing **oxidation**.

*Note* **Combustion** is an **oxidation**.

FDIS 13943

**oxygen consumption principle** Proportional relationship between the mass of oxygen consumed during **combustion** and the heat released.

BS 4422

**oxygen index (OI)** Minimum **concentration** of oxygen in a mixture of oxygen and nitrogen that will just support **flaming combustion** of a **material** under specified test conditions.

*Note* It is expressed as a percentage.

BS 4422

# P

**pane** Single piece of glass.  
BS EN 1364-1

**panic bolt** Mechanism consisting of a minimum of two sliding bolt heads that engage with keepers in the surrounding **door frame** or **floor** for securing a door when closed; the mechanism can be released by hand or body pressure on a bar positioned horizontally across the inside face of the door.  
PAS 79

**panic latch** Mechanism for securing a door when closed; the latch bolt can be released by hand or body pressure on a bar positioned horizontally across the inside face of the door.  
PAS 79

**partition** Non-loadbearing element of a building construction designed to provide vertical **fire separation** when exposed to **fire** from one side.

*Note* The partition may incorporate either glazing or doors.

BS 476-22

**partition wall** Wall which sub-divides a **fire compartment**.  
BS 4422

**passive fire protection system** See **fire protection system <passive>**.  
BS 4422

**patient access areas** Those areas of a hospital to which patients have reasonable access either with or without supervision.  
*HTM 85: Fire precautions in existing hospitals (Firecode)*, 1994.

**pendent sprinkler** See **sprinkler <pendent>**.  
BS 4422

**penetrating component <for a conveyor system>** Elements such as cables, pneumatic and/or hydraulic pipes and a **conveyor system** which passes through a **separating element** and which may influence the performance of a **closure for a conveyor system** in relation to its **fire resistance**.  
BS EN 1366-7

**penetration** Aperture through a **fire separating element** for the passage of a service(s).  
Association for Specialist Fire Protection

**penetration seal** System used to maintain the **fire resistance** of a **fire separating element** at a position where there is provision for **services** to pass through the element.  
BS 4422

**penetration sealing system** Assembly consisting of a penetrating service or services and the **penetration seal**, materials or devices, together with any service supporting construction, designed to maintain the **integrity** and **insulation** performance of a **separating element**.  
BS EN 1366-3

**penetration time** Time at which **glowing** or **flaming** appears on the **unexposed side** of a **specimen** or the time at which the formation of holes or fissures or **collapse** of **specimen** occurs, whichever is the earliest.  
BS 4422

**performance based design** Design that is engineered to achieve specified objectives and **acceptance criteria**.  
FDIS 13943

**perimeter <of building>** Maximum aggregate plan area found by vertical projection onto a horizontal plane.

*Approved Document B (Fire safety) – Volume 1: Dwellings (2000 Edition)*

**permit to work** Document issued by an authorized person to permit work to be carried out safely in a defined area.

BS 4422

**personal distress signal unit** See **distress signal unit (DSU)**.

BS 4422

**personal protective equipment** Material or device worn or used to protect a **firefighter** from exposure or contact with any harmful **material** or **hazard**.

ISO 8421-8

**phased evacuation** Process by which different parts of a **built environment** are evacuated in a controlled sequence.

*Note 1* Those parts expected to be at greatest **risk** are evacuated first.

*Note 2* In a multi-storey building the initially evacuated floors are usually the fire floor, the floor immediately above, the **floor** immediately below, and all basement floors.

FDIS 13943

**physical fire model** Laboratory process, including the apparatus, the **environment** and the test procedure intended to represent a certain phase of a **fire**.

BS EN ISO 13943

**pike pole** See **ceiling hook**.

ISO 8421-8

**pillar hydrant** Hydrant comprising one or more outlet connections projecting above ground level and permanently connected to a pressurized distribution main for use in **firefighting**.

ISO 8421-4

**pilot(ed) ignition** Ignition of **combustible** gases or vapours by a secondary source of

energy, as by, for example, a **flame spark**, electrical arc or glowing wire.

BS EN ISO 13943

**pipe array** See **sprinkler <pipe array>**.

BS 4422

**place of relative safety** Place in which there is no immediate danger, but in which there might be future danger from **fire**.

BS 4422

**place of safety** Predetermined place in which persons are in no immediate danger from the effects of **fire**.

BS 4422

**place of ultimate safety** Place in which there is no immediate or future danger from **fire**.

BS 4422

**places of high fire hazard** Rooms or areas in a building which due to their function and/or content are more susceptible than usual to an outbreak of **fire**, or rapid spread of fire or **smoke**, in excess of that generally found within such locations.

*Note* Such places would include oil-fuel transformer and switchgear rooms, boiler rooms, storage spaces for **fuel** or other highly flammable substances, rooms that house a fixed internal combustion engine or other similar high **fire hazard**.

*Design Principles of Fire Safety*

**places of special fire hazard** Oil-filled transformer and switchgear rooms, boiler rooms, storage space for **fuel** or other highly **flammable substances**, and rooms housing a fixed internal combustion engine.

*Approved Document B (Fire safety) – Volume 1: Dwellings (2006 Edition)*

**platform floor** Access or raised **floor** supported by a structural floor, but with an intervening **concealed space** which is intended to house **services**.

*Approved Document B (Fire safety) – Volume 1: Dwellings (2000 Edition)*

- plinth** Form of standard **supporting construction** that reduces the height of an opening by raising the support base to accommodate the **test specimen**.  
BS EN 1364-1
- plume** See **fire plume**.  
FDIS 13943
- plume ignition** Inception of any **flame** in the **plume** above a **specimen**, sustained or transitory.  
BS 476-13 (ISO 5657)
- pneumatic drill** Heavy duty compressed air operated hammer action tool, with interchangeable cutting attachments, used for breaking concrete.  
ISO 8421-8
- point** **Component** connected to a **detection circuit** able to transmit, or receive information in relation to fire detection.  
BS EN 54-2
- point detector** **Detector** that responds to the phenomenon monitored in the vicinity of a compact sensor.  
BS 4422
- pool fire** Pool of **flammable liquid** burning with a **diffusion flame**.  
BS 4422
- portable extinguisher** See **extinguisher <portable>**.  
BS 4422
- portable manhole cover** Device used to stop a contaminant from entering the sewer system.  
ISO 8421-8
- portable pump** Self-contained pump and power unit capable of being manhandled.  
ISO 8421-8
- post-exposure time** Period of time after the **exposure time** during which the effects of exposure are assessed.  
FDIS 13943
- potentially explosive atmosphere** See **explosive atmosphere <potential>**.  
BS 4422
- powder explosion suppressant** Powder with recognized flame-extinguishing properties.  
\*BS 4422-7 (ISO 8421-7)
- powder extinguishing system** See **extinguishing system <dry powder>**.  
BS 4422
- powder filling 'q'** See **type of protection**.  
BS EN 50017
- powder fire extinguisher** See **extinguisher**.  
BS 4422
- powder suppressant** See **dry powder**.  
BS 4422
- powered smoke and heat exhaust ventilation** Ventilation resulting from the application of externally powered ventilators (e.g. fans) to exhaust smoky gases to be replaced at inlets by ambient air.  
PD 7974-2
- powered smoke curtain** See **smoke curtain <automatic>**.  
BS 4422
- ppm** Deprecated term. See **volume fraction <gas in a gas mixture>**.  
FDIS 13943
- ppm by volume** Deprecated term. See **volume fraction <gas in a gas mixture>**.  
FDIS 13943
- practical rate of application of a foam solution** **Rate of application** on unit areas as recommended by safety codes or manufacturers. The practical application rate is always higher than the critical application rate.  
ISO 8421-4

**pre-action sprinkler installation** See **sprinkler installation <pre-action>**.

BS 4422

**pre-alarm warning** Warning that the conditions sensed by a **fire detector** are approaching, but have not yet reached, the level at which an **alarm of fire** would be given.

BS 4422

**preburn time** Period of time between **ignition** of a **fire** and the commencement of **extinguishment**.

BS 5306-6.1

**pre-calculated sprinkler installation** See **sprinkler installation <pre-calculated>**.

BS 4422

**pre-determined attendance** Number and type of appliances scheduled by the **fire brigade** to form the initial response to the emergency.

BS 4422

**pre-determined attendance card** Card detailing the **pre-determined attendance**.

ISO 8421-8

**pre-determined fire plan** Pre-determined plan for firefighting and **rescue** operations at specific properties or locations.

ISO 8421-8

**predicted LC<sub>50</sub>** LC<sub>50</sub> value for the **fire effluent** from a burned **test specimen**, calculated from **combustion** atmosphere analytical chemical data of that fire effluent concentration that would yield a FED value equal to 1 within a specified **exposure time** and post-exposure time.

*Note* The typical units are g m<sup>-3</sup>.

FDIS 13943

**predicted toxic potency** Calculated value of the **toxic potency** of **fire effluent** from a burned **test specimen**.

*Note* The value is calculated from chemical analysis of the **fire effluent** and existing

**toxic potency** data for the relevant constituents.

FDIS 13943

**predictive test** Test of a composite of a cover with a standardized filling of known behaviour, or a filling with a standardized cover of known behaviour, such that the expected behaviour of a composite of the same cover with related fillings, or the same filling with related covers, can be predicted.

BS 4422

**pre-engineered system** Off-the-shelf fire-fighting system design consisting of a supply of **extinguishing medium** of specified capacity coupled to pipework with a balanced **nozzle** arrangement, capable of covering any space up to a specified maximum.

BS 4422

**pre-mixed flame** Flame in which **combustion** occurs in an intimate mixture of **fuel** and **oxidizing agent**.

*Note* See also **diffusion flame**.

FDIS 13943

**pre-movement behaviour** Behaviour occurring during the **pre-movement time**.

*Note* See also **recognition behaviour** and **response behaviour**.

FDIS 13943

**pre-movement time** Time period after an **alarm** or cue of **fire** is transmitted and before occupants begin to evacuate.

FDIS 13943

**presentation time** Interval between the time at which a warning of a **fire** is given and the time at which a person reaches a **place of safety** assuming **walking speed** is unrestricted.

PD 7974-6

**pressure containment lobby** Lobby provided at fire brigade **access level** to reduce the loss of pressure from a stair due to a **final exit** door being constantly open.

BS 4422

**pressure differential system** **Smoke control system** designed to minimize the spread of **smoke** from one part of a building to another by maintaining a pressure differential relative to the space containing the **fire**.  
BS 4422

**pressure differential system <dedicated>** **Pressure differential system** that does not share **components** with any other system.  
BS 4422

**pressurization** Method of protecting spaces against the ingress of **smoke** by maintaining a positive air pressure difference between the **protected spaces** and adjoining accommodation.  
BS 4422

**pressurized apparatus 'p'** See **grades of release**.  
BS 4422

**pressurized space** Space in which the air pressure is maintained at a higher value than that of the space containing the **fire**.  
BS 4422

**pre-wetting** Application of water to **fuel** surfaces that are in the path of an advancing **flame front**.  
FDIS 13943

**primary grade of release** See **grades of release**.  
BS 4422

**primary ignition source**

**primary source** **Ignition source** which impinges on the **specimen**.  
BS 4422

**primary sampling system** See **extinguisher**.  
BS 4422

**primary sealed stored pressure extinguisher** Stored pressure **extinguisher** in which the operating head and valves controlling the flow of extinguishing medium during discharge can be detached from the **body** of the

extinguisher without releasing propellant or medium, which are retained in the body by a closure that is ruptured on operation.  
BS 5306-3

**primary standard** Absolute standard to which other related calibrated measuring instruments can be traced.  
FDIS 13943

**priority signalling facility** Facility for transmitting an urgent calling signal to the distant end of a circuit.  
*Fire Service Training Manual*

**private wire circuit** Dedicated telephone circuit permanently connected between two or more points for transmission and reception of speech and/or data.  
*Fire Service Training Manual*

**probabilistic model** **Fire model** that treats phenomena as a series of sequential events or states, with mathematical rules to govern the transitions from one event to another and with probabilities assigned to each transfer point.

*Note* An example of a transition is that of **ignition** becoming **sustained combustion**.  
FDIS 13943

**probabilistic study** Methodology to determine statistically the probability and **outcome** of events.  
PD 7974-2

**probability distribution** Mathematical function expressing the probability attached to any value of a random variable.  
PD 7974-7

**process hazard** **Hazard** in an industrial process.  
BS 5306-0

**product** Material, element or **component** about which information is required.  
BS EN ISO 1182

**product of combustion** Solid, liquid and gaseous **material** resulting from **combustion**.

*Note 1* The **products** of combustion may include **fire effluent, ash, char, clinker** and/or **soot**.

*Note 2* See also **fire effluent**.

**BS 4422**

**progressive horizontal evacuation** Initial evacuation away from a **fire** into a **place of relative safety** on the same level.

**BS 4422**

**progressive smouldering** Self-propagating exothermic **oxidation** which is not accompanied by **flaming combustion**.

*Note* It may be accompanied by **glowing**.

**FDIS 13943**

**prohibition sign** **Safety sign** that indicates that specific behaviour is forbidden.

**BS 5499-5**

**property hazard** Potential loss of or damage to property to be expected from the effects of **fire**.

**BS 4422**

**property risk** Expected extent of loss of or damage to property due to **fire**, which can be expressed in terms of probability as the **product** of the frequency of occurrence of an undesired event to be expected in a given technical operation or state and the property hazard.

**BS 4422**

**proprietary packing block assemblies** Proprietary assemblies consisting of a frame and insert blocks, through which electrical cables and conduits containing electrical conductors pass, which have been tested to specified conditions for a period of two hours, and have prevented any direct **opening** being formed through which **flames** could pass.

**Fire Protection Association**

**protected** Enclosed (other than any part which is an **external wall** of a building) with fire-resisting construction.

**\*BS 5588-5**

**protected <from fire>** Provided with active and/or passive means by which the **risk** to life and/or property is reduced.

**BS 4422**

**protected area** Area giving an adequate degree of fire-resisting enclosure from other areas and from which there is alternative **means of escape**.

**\*BS 4422-6 (ISO 8421-6)**

**protected building** Building which is provided with an automatic fire detection and/or **extinguishing system**.

*Fire Prevention Guide 2: Fire Precautions in New Single-storey Spirit Storages and Associated Buildings. 1973.*

**protected circuit** Electrical circuit **protected** against external **fire**.

**BS 5588-10**

**protected corridor** See **protected lobby/corridor**.

**BS 4422**

**protected door** Fire door giving access to:

- a **protected zone**, including a **protected lobby**; or
- a firefighting shaft; or
- another **compartment**; or
- a **place of safety**; or
- an unenclosed external escape stair; or
- an open access balcony; or
- an **escape route** across a flat roof or access den.

**The Building (Scotland) Regulations 2004**

**protected enclosure** Any enclosure separated from adjoining accommodation spaces by fire-resistant construction, and having all communicating **openings** closed by fire doors, **fire dampers** or similar closures.

**BS 4422**



**protected entrance hall****protected entrance landing <in a dwelling>**

Circulation area consisting of a hall or space enclosed with **fire resistant** construction (other than any part which is an **external wall** of a building).

BS 4422

**protected equipment** See **explosion-protected apparatus**.

BS 4422

**protected escape route** See **escape route <protected>**.

BS 4422

**protected fire load** Quantity of **combustible** material that is unlikely to become fully involved in a **fire**, owing to:

- the characteristics of the **material**;
- the form in which the material is stored;
- the characteristics of any containers in which the material is stored;
- the presence of one or more **fire protection** systems.

BS 4422

**protected installation** Enclosed volume, protected by a fire detection and/or **extinguishing system**, in which equipment particularly sensitive to **fire** is installed.

BS 4422

**protected lobby/corridor** Circulation area consisting of a lobby or corridor enclosed with fire-resistant construction (other than any part that is an **external wall** of a building).

BS 4422

**protected opening** Opening in an internal **fire resistant** wall or **floor** which may be closed by doors, shutters, or other protection of a specified grade of **fire resistance**.

BS 4422

**protected premises** Premises or part of a premises provided with active and/or passive means by which the **risk** to life and/or property is reduced.

BS 4422

**protected route** Route, designated for use as an **escape route**, which is separated from the remainder of the building by **fire resistant** construction, kept clear of **combustible** items or **material**, and which leads to a **place of ultimate safety**.

BS 4422

**protected shaft** Shaft which enables persons, air or objects to pass from one **fire compartment** to another, and which is enclosed with fire-resistant construction.

BS 4422

**protected space** Space forming part of a **protected route**.

*Note* The space can be a corridor, lobby, stair or other construction.

BS 4422

**protected stairway** See **stairway <protected>**.

BS 4422

**protected zone** Area within a building that is **protected** from the effects of **fire** and **smoke**.

DD 9999

**protection** (1) Presence of one or more **detector(s)** able to initiate actions needed for the **safety** of life or property in the event of a **fire**.

(2) Provision of mechanical protection to prevent damage to system **components** from impact, abrasion, rodent attack, etc.

(3) Provision of **fire resistance** to prevent damage to system components from **fire** in their vicinity.

(4) Provision of electrical protection to prevent temporary or permanent disruption to the system due to over voltage, excessive current, high transient or radio-frequency interference, etc.

\*BS 5839-1

**protective system** Design units which are intended to halt incipient **explosions** immediately

and/or to limit the effective range of explosion flames and explosion pressures. **Protective systems** may be integrated into equipment or separately placed on the market for use as autonomous systems.

BS EN 1127-1

**protein foam concentrate** See **foam concentrate <protein>**.

BS 4422

**proximity firefighting** Specialized firefighting operations, which may include the activities of **rescue** and **fire** suppression at incidents involving very high levels of radiant, convective and contact heat, such as aircraft fires, bulk **flammable gas** and bulk **flammable liquid** fires. These operations are conducted close to the fire but do not involve fire entry.

BS EN 1486

**PSTN standby line** Secondary means of operating a call-out system by dialled-up connection on a **public switched telephone network (PSTN)**.

*Fire Service Training Manual*

**public common area** Common area which is intended for public use.

BS 5588-10

**public switched telephone network (PSTN)**

Switching system which allows public access to anyone connected to the national and international telephone network.

*Fire Service Training Manual*

**pulmonary irritancy** Action of **toxicants** on the lower respiratory tract which may result in breathing discomfort (e.g. dyspnoea, increase in respiratory rate).

*Note* In severe cases, pneumonitis or pulmonary oedema (which may be fatal) may occur some hours after exposure.

BS EN ISO 13943

**pulmonary irritant** See **irritant <pulmonary>**.

FDIS 13943

**pump <appliance>** Self-propelled appliance having a built-in **pump** with a minimum capacity of 2270 L/min. Carries a 10.5 m extension ladder and hose reel equipment with a minimum tank capacity of 364 litres of water.

*Fire Service Training Manual*

**pump <stirrup>** Portable, hand operated, double action **pump** with a short hose and **nozzle**.

ISO 8421-8

**pump <submersible>** Electrically operated **pump**, designed to operate under water, primarily used for pumping out **basements**, **ducts**, **sumps**, etc.

ISO 8421-8

**pump <trailer>** Self-contained **pump** and power unit mounted on a wheeled trailer.

ISO 8421-8

**pump capacity** Nominal output capacity of a **pump**, measured in litres per minute, at a given pressure.

ISO 8421-8

**pump escape** **Pump** (appliance) with a hose reel tank capacity of at least 455 litres and carrying a **wheeled escape**.

*Fire Service Training Manual*

**pump ladder** **Pump** (appliance) with a hose reel tank capacity of 455 litres and carrying a 13.5 m ladder.

*Fire Service Training Manual*

**pump primer** Mechanical device used to initiate the induction of water into a **pump** by the creation of a vacuum.

ISO 8421-8

**pumper** See **pumping appliance**.

ISO 8421-8

**pumping appliance** **Fire appliance** equipped with a **pump** and usually a water tank, hose, branches and other ancillary equipment required to **extinguish** fires.

ISO 8421-8

**punking** Propagation of a **smouldering** combustion front after removal of the **ignition source**.  
BS EN ISO 10093

**purpose group** Classification of a building according to the purpose to which it is intended to be put.  
DD 9999

**pyrolysis** Chemical decomposition of a substance by the action of heat.

*Note 1* The term is often used to refer to a stage of **fire** before **flaming combustion** has occurred.

*Note 2* In fire science no assumption is made about the presence or absence of oxygen.

FDIS 13943

**pyrolysis front** Boundary between the region of **pyrolysis** and the region of unaffected **material** at the surface of the material.  
FDIS 13943

**pyrometer** Sensing device used to measure temperatures within a burning room or area.  
ISO 8421-8

**pyrophoric material** **Material** capable of spontaneous **ignition** when brought into contact with air.  
BS EN ISO 13943

**pyrotechnics** Approved theatrical devices which contain **combustible** substances and oxidants which when **ignited** react either violently or slowly according to their mixture; they include **fireworks**, maroons, flash powder, smoke powder, percussion caps, safety cartridges, firearm blank cartridges, safety fuse and detonators.

*Guide to Fire Precautions in Existing Places of Entertainment and Like Premises. 1998.*

# Q

**quenching diameter** Diameter of the largest circular aperture which will prevent flashback of **flame**, in a pre-mixed and stationary gas mixture, at a given temperature and pressure.

*Note* It is customary to give values for the mixture having the minimum **quenching diameter**.

**BS 7244**

# R

**'R' criterion** See **loadbearing criterion 'R'**.  
BS EN ISO 13943

**radial gangway** Gangway at an angle to the rows of seating or a stepped gangway in tiered seating.  
BS 5588-6

**radiant exitance** Quotient of the radiant flux leaving an element of the surface divided by the area of that element.  
BS 4422

**radiant heat flux** Power per unit area emitted, transferred or received in the form of heat radiation.  
BS ISO 9239-1

**radiation detector** Portable device used to detect and measure the presence of alpha, gamma, beta and neutron ionizing radiation.  
ISO 8421-8

**radiative heat transfer** Transmission of heat by electromagnetic radiation.  
FDIS 13943

**radio-linked system** Fire alarm system in which some or all of the interconnections between **components** are made by radio links.  
\*BS 5839-1

**radiometer** Instrument that converts **radiant heat flux** into an electrical signal.  
FDIS 13943

**rate of application** See **foam <rate of application>**.  
BS 4422

**rate of application, critical** Minimum theoretical **rate of application** of **foam solution** to a **fire** which will **extinguish the fire**.  
\*BS 4422-4

**rate of burning**  
**burning rate** Deprecated terms. See **area burning rate, linear burning rate, mass burning rate, flame spread rate, heat release rate** as appropriate.  
BS EN ISO 13943

**rate of combustion** Mass rate at which **fuel** is combusted.  
BS 4422

**rate of heat release** See **heat release rate**.  
BS EN ISO 13943

**rate of rise detector** See **fire detector <rate of rise>**.  
BS 4422

**rate of spread of flame** For a gas: rate of spread of the **flame front** in the gas.  
For a solid: rate of spread of the **flame** on the surface of a solid.  
\*ISO 3261

**RDD** See **required delivered density (RDD)**.  
FDIS 13943

**reaction to fire** Response of a **material** in contributing by its own decomposition to a **fire** to which it is exposed, under specified conditions.  
BS 4422

**read-only memory** Memory whose contents can only be programmed during manufacture or altered by a special external programming device.  
\*BS 5839-4

**real scale fire test** Fire test which simulates a given application, taking into account the real scale, the real way of working or installation and the **environment**.

*Note* Such a test normally assumes that the **products** will be used according to the conditions laid down by the specifier and/or in accordance with the normal practice.

BS EN ISO 13943

**recognition behaviour** Behaviour occurring during the time period after an **alarm** or cue of **fire** is transmitted and before occupants begin to respond.

*Note* See also **pre-movement behaviour** and **response behaviour**.

FDIS 13943

**reduced explosion pressure** Pressure generated by an **explosion** in a vessel **protected** by either **explosion relief** or **explosion suppression**.

BS 4422

**reduced radiation** Radiation of an LNG fire covered with a layer of **foam**.

*Note* The value of this radiation varies as a function of the thickness of the foam.

BS EN 12065

**redundancy** Provision of more than one means of achieving a function.

PD 7974-7

**reel and valve sub-assembly** That part of a **fire hose reel** assembly consisting of a reel, automatic inlet **stop valve** (if fitted) and the connection to the reel, but excluding semi-rigid hose, **shut-off nozzle** and connectors or **couplings**.

BS EN 671-1

**reference fire scenario** Fire scenario used as the basis of a **fire test** which is intended to reproduce specific aspects of a **fire** in the **built environment**.

FDIS 13943

**reference scenario** Hazard situation used as a reference for a given test method or classification system.

BS EN 13501-1

**reflective protective clothing for specialized firefighting** Protective clothing designed to provide protection against high levels of radiant, convective, and contact heat, relying on the ability of the outer **materials** to reflect intense radiant heat, and appropriate for specialized firefighting operations.

BS EN 1486

**refuge** Area that is both separated from a **fire** by **fire resistant** construction and provided with a safe route to a **place of ultimate safety**, thus constituting a temporarily safe space for disabled persons to await assistance for their evacuation.

BS 4422

**registered call** Call made on a **car control station** or from a landing call button that is accepted by the **control equipment**.

\*BS 5588-5

**release rate** Quantity of gas or vapour emitted per unit time from the **source of release**.

BS EN 60079-10

**relevant boundary** Boundary used to assess the **separation** of buildings, which might be an actual boundary or a **notional boundary** satisfying specified criteria.

BS 4422

**reliability** Ability of an item to perform a required function under stated conditions for a stated period of time.

PD 7974-7

**remote centre** Premises, remote from those in which the **alarm** systems are fitted, where the information concerning the state of alarm systems is collected for display or for onward transmission.

BS 4422

**remotely resettable (restorable) detector**

Resettable detector that can be restored to its normal state of readiness to detect by an operation carried out remotely from the detector.

ISO 7240-1

**replacement air** Air entering a **compartment** to replace exhausted hot **smoke**.

BS 4422

**required delivered density (RDD)** Volumetric **flow rate** of water per unit area, applied uniformly to the top surface of a burning fuel array, sufficient to cause the **heat release rate** of the **fire** to decay to a defined low level.

*Note* The typical units are  $\text{mm min}^{-1}$ .

FDIS 13943

**required safe escape time (RSET)** Calculated time available between **ignition** of a **fire** and the time at which occupants in a specified space in a building are able to reach a **place of safety**.

*Note* A temporary place of safety may be represented by a **protected escape route** or other form of **protected compartment**. An ultimate place of safety would be outside the building at a safe distance from it.

PD 7974-6

**rescue** Taking appropriate measures for the removal of persons from dangerous situations during firefighting and other emergency operations.

ISO 8421-8

**rescue axe** Specially designed multi-purpose tool used for piercing, cutting and prying metal or breaking and removing glass.

ISO 8421-8

**rescue sling** Special sling used for lowering persons. It has two loops connected to a steel rim by which it is attached to a **turntable ladder** rescue line. Sometimes used as

an alternative to spliced legs on a lowering line.

*Fire Service Training Manual*

**rescue tender <truck>** See **emergency tender**.

BS 4422

**resettable (restorable) detector** Detector which, after response and on cessation of the conditions that caused the response, may be restored from its alarm state to its normal state of readiness to detect, without the renewal of any **component**.

ISO 7240-1

**residual content of extinguishing medium** See **extinguishing medium <residual content>**.

BS 4422

**residual holding force** Force required to release a door when the **automatic release mechanism** is de-energized.

BS 4422

**residual section** Section of the uncharred timber calculated to remain after a given period of exposure to specified fire conditions.

BS 4422

**resistant to ignition** Does not undergo **progressive smouldering, ignition** or **flaming ignition**.

BS 4422

**response behaviour** Behaviour occurring after occupants recognize **alarms** or cues of **fire**, and begin to respond to them, but before they begin to evacuate.

*Note* See also **pre-movement behaviour** and **recognition behaviour**.

FDIS 13943

**response threshold** **Smoke** or **gas concentration** at which a **fire detector** changes to its **alarm condition**.

BS 4422

- response time (North America)** See **fire brigade attendance time**.  
ISO 8421-8
- response time index (RTI)** Measure of **sprinkler** sensitivity expressed as  $RTI = tu^{0.5}$ , where  $t$  is the time constant of the heat responsive element and  $u$  is the gas velocity.  
BS 4422
- response time, fire brigade** See **fire brigade response time**.  
BS 4422
- responsible person** (1) Person having control of the premises, whether as occupier or otherwise, or any person delegated by the person having control of the premises to be responsible for the **fire alarm system** and the **fire procedures**.  
BS 4422
- responsible person** (2) Person on whom legislation imposes a requirement for the **fire risk assessment**.  
PAS 79
- rest mode** State of a **self-contained emergency luminaire** which is extinguished while the normal supply is off.  
BS 4533-102.22 (BS EN 60598-2-22)
- restraint** Conditions at the edges, ends or supports of a **test specimen** through which the movement of the **specimen** is constrained.  
BS 4422
- resuscitation** Restoration of respiration and heartbeat to a person.  
ISO 8421-8
- resuscitation equipment** Apparatus for supplying oxygen, for artificial respiration and aspiration.  
ISO 8421-8
- return air grille** Grille connected to the **ductwork** system through which air is extracted from a room or space.  
BS 5588-9
- re-usable fire blanket** **Fire blanket** that is suitable for re-use after cleaning or washing.  
BS 4422
- revealed fault** Fault, the occurrence of which is obvious by termination of the ability of the affected item to perform a required function.  
PD 7974-7
- ring fire main system** Water main which encircles a building or series of buildings or other associated **fire risks** and which feeds **fire hydrants, rising mains**, etc.  
BS 4422
- rising main** Vertical pipe installed in high buildings for the supply of water for fire-fighting.  
BS 4422
- rising main <dry>** Fixed and rigid pipe installed permanently in a building and intended for connection of **fire brigade** hoses, in order to be charged at the moment of use.  
ISO 8421-4
- rising main <wet>** Fixed and rigid pipe, installed permanently in a building and which is connected to a water supply for the supply of water to the **fire brigade** nozzles.  
ISO 8421-4
- risk** Probability of occurrence of a **hazard** causing harm and the degree of the severity of the harm.  
PD 7974-7
- risk <societal accepted>** See **societal accepted risk**.  
FDIS 13943
- risk acceptance** Decision to accept an estimated level of **fire risk**, based on either compliance with **acceptance criteria** or an explicit decision to modify those criteria.  
FDIS 13943
- risk assessment** Process of estimating the likelihood of occurrence of specific undesirable events and the severity of the harm



- or damage caused, together with a value judgement concerning the significance of the results.  
*Good Practice and Pitfalls in Risk Assessment*
- risk individual accepted** See **individual accepted risk**.  
FDIS 13943
- risk of fire spread** Probability of a fire, once started, growing to a size and character that could produce **life risk** or **property risk** or both.  
BS 4422
- risk profile** Means of categorizing the **fire risks** for a range of occupancies based on the **occupancy profile** and the **fire growth rate**.  
DD 9999
- risk to life and health** Expected extent of injury or loss of life from a **fire**, defined in terms of probability as the **product** of:  
– **frequency** of occurrence of an undesirable event to be expected in a given technical operation or state; and  
– **hazard** to life and health.  
PD 7974-7
- roof** Horizontal or sloped **separating element** of building construction which is load-bearing.  
BS EN 1365-2
- roof construction with a glazed element**  
**Roof** construction with one opening in which a **glazed element** is fitted, with or without shared **transoms** or **mullions**.  
BS EN 1365-2
- roof screen** See **smoke baffle**.  
BS 4422
- roof vent** See **smoke vent**.  
BS 4422
- roof, resistant to external fire spread** **Roof** and **covering** to resist both **penetration** by external **fire** and **flame spread** over the external surface.  
ISO 8421-2
- room <access>** See **access room**.  
ISO 8421-6
- room <inner>** See **inner room**.  
BS 4422
- room protection** Provision of room fire detection and/or a **fire extinguishing system** within a room, **floor void** or **ceiling void**.  
BS 6266
- rosette (sprinkler rosette)** Plate covering the gap between a **suspended ceiling** and the shank or body of a **sprinkler** projecting through it.  
\*BS 4422-4
- routine fire procedures** Steps to be taken by people on the outbreak of a **fire**.  
\*BS 4422-1 (ISO 8421-1)
- routine inspection** Check, at regular intervals of the **fire prevention** and **fire protection** arrangements.  
BS 4422
- RSET** See **required safe escape time (RSET)**.  
PD 7974-6
- RTI** See **response time index (RTI)**.  
BS 4422
- running card** See **pre-determined attendance card** instruction.  
ISO 8421-8
- running data** Data that is either generated internally by the system (such as the readings of sensors) or is entered manually to initiate test or disablement functions.  
\*BS 5839-4
- running-call facility** Facility at a **fire station** which enables a running caller to give an **alarm of fire**.  
*Fire Service Training Manual*

# S

**safe condition sign** Safety sign that provides information about safe conditions.

PAS 79

**saferefuge** Temporary location which is free from immediate danger from the effects of fire.

*Note* It is, for example, a place where a wheelchair user can wait in relative safety for further assistance. It can also be a waiting area in high-rise buildings which gives people a chance to rest before continuing their escape to a place of safety.

FDIS 13943

**safety** Freedom from an unacceptable risk of harm.

PD 7974-7

**safety belt** Special belt, with a snap hook, used by a firefighter as a safety measure to prevent falling.

ISO 8421-8

**safety colour** Colour to which a specific health or safety meaning or purpose is assigned.

\*BS 5378-1

**safety curtain** Fire curtain used to separate a stage from an auditorium.

BS 4422

**safety extra low voltage (SELV)** Extra low voltage in a circuit that is isolated from the supply mains by means such as a safety transformer or converter with separate windings.

\*BS 5839-4

**safety harness** Special harness with a snap hook, used by a firefighter as a safety measure to prevent falling.

ISO 8421-8

**safety lighting** See **standby lighting**.

BS 4422

**safety shut-off device** Device for automatically shutting off fuel flow or other energy supply in order to avoid dangerous conditions.

BS 4422

**safety sign** Sign that gives a message about health or safety by a combination of geometric form, safety colour and symbol or text (i.e. words, letters, numbers) or both.

\*BS 5378-1

**salvage** Taking appropriate measures to mitigate damage caused by the effects of fire or firefighting.

BS 4422

**salvage tender** See **damage control unit**.

ISO 8421-8

**satellite luminaire** See **emergency luminaire <satellite>**.

BS 4422

**satellite station** Remote centre having facilities for both transmission to an alarm receiving centre and on-demand display of information.

BS 4422

**scenario** Set of circumstances and/or an order of events in a fire incident that are feasible and reasonably foreseeable.

PD 7974-7

**scorch (verb)** Modify the surface of material by limited carbonization due to heat.

BS EN ISO 13943

**scorching <smell of>** Smell of an object which has been scorched.

\*ISO 3261

- screening test** Preliminary test used for ascertaining whether an item is likely to exhibit (or not) certain characteristics according to a standardized test method.  
BS EN ISO 13943
- search distance** Distance which has to be travelled by a searcher within a **zone** in order to determine visually the position of a **fire**.  
BS 5839-1
- seat of fire** Location of the maximum intensity of a **fire**, usually as shown by the point of maximum damage.  
BS 4422
- seat of flame** Flame location at the leading edge of the affected area.  
BS 4422
- seaway** Minimum distance between the front of one row of seats and the back of the row in front.  
BS 4422
- second alarm et seq** See assistance message.  
ISO 8421-8
- secondary grade of release** See grades of release.  
BS 4422
- secondary ignition source** Ignition source which does not impinge on the **specimen**, and where a secondary means is used to initiate **ignition**.  
BS 4422
- secondary sampling system** System where the air sampling points are sited and spaced as if they are point type smoke detectors.  
*Code of Practice for Design, Installation, Commissioning & Maintenance of Aspirating Smoke Detector (ASD) Systems. 2005.*
- secondary standard** Standard instrument with a **calibration** traceable to a **primary standard**.  
FDIS 13943
- sector** Geographical sub-division of premises protected by an **alarm** system.  
BS 4422
- sector valve** Valve used to direct a gaseous **extinguishing medium** into a particular section of pipework.  
BS 4422
- security system <integrated>** System in which more than one security system share common facilities (such as hardware, **software** or transmission medium), or in which one or more security systems share common facilities with non-security systems.  
BS 4422
- self-aspirating foam making component** Foam-making **component** in which air is induced by the discharge of **foam solution** from a **nozzle** or nozzles within the equipment. The induced air is mixed intimately with the foam solution within the equipment to produce the **foam**.  
BS 5306-6.2
- self-aspirating foam making equipment** See foam making equipment <self aspirating>.  
BS 4422
- self-closing device** Device that is capable of closing a **fire door** from any angle and against any latch fitted to the door.  
*Fire Safety – Risk Assessment*
- self-closing fire door** See fire door <self-closing>.  
BS 4422
- self-contained emergency luminaire** See emergency luminaire <self-contained>.  
BS 4422
- self-contained fire alarm** See fire alarm <self contained>.  
BS 4422
- self-contained fire safety sign** See fire safety sign <self-contained>.  
BS 4422

- self-contained smoke alarm** See **smoke alarm**.  
BS 4422
- self-extinguish** Cease **combustion** without being affected by any external agent.  
FDIS 13943
- self-extinguishability** Deprecated term.  
BS EN ISO 13943
- self-extinguishing** Deprecated term.  
BS EN ISO 13943
- self-heating** Rise in temperature in a **material** resulting from an exothermic reaction within the material.  
BS EN ISO 13943
- self-heating <electrotechnical>** Heat generated by a powered electrotechnical **product** resulting in a rise in temperature in the product.  
BS EN ISO 13943
- self-ignition** **Spontaneous ignition** resulting from **self-heating**.  
BS EN ISO 13943
- self-ignition of dust in bulk** **Ignition** of dusts caused by the rate of heat generation from **oxidation** and/or decomposition reactions of the dust being greater than the rate of heat loss to the surroundings.  
BS EN 1127-1
- self-ignition temperature** Deprecated term. See **spontaneous ignition temperature (SIT)**.  
BS EN ISO 13943
- self-luminous fire safety sign** See **fire safety sign <self-luminous>**.  
BS 4422
- self-propagation of flame** Propagation of a **flame front** after the removal of any applied energy source.  
BS EN ISO 13943
- self-resetting (self-restoring) detector** **Resettable detector** that will automatically restore itself to its normal state of readiness to detect.  
ISO 7240-1
- self-supporting ceiling** **Ceiling** with a span from wall to wall, without any additional **suspension devices**.  
BS EN 1364-2
- sensitivity analysis** Calculation of changes in outputs for variations of an input parameter of interest.  
PD 7974-4
- sensory irritancy** Action of **toxics** on the eyes and/or upper respiratory tract causing a painful sensation, either by a direct stimulus of specialized receptors or as a result of tissue damage.  
BS EN ISO 13943
- sensory irritant** See **irritant <sensory/upper respiratory>**.  
FDIS 13943
- separated part of a building** Form of compartmentation in which a part of a building is separated from another part of the same building by a **compartment wall**.  
*Firecode: Fire Practice Note 4, Hospital Main Kitchens. 1994*
- separating device** Arrangement used to separate a continuous **conveyor system** penetrating an **opening** in a fire resisting **separating element** to allow a closure to fully advance to its closed position.  
BS EN 1366-7
- separating element** Constructional element that is intended to prevent the spread of **fire** between two adjacent areas of a building.  
*Note* A **separating element** will be required to satisfy specified criteria of **integrity**, **insulation** and (where applicable) **load-bearing capacity**.  
BS 4422

**separating wall** Wall, with or without glazing, provided within a building or between adjoining buildings to prevent the transfer of **fire** from one side to the other.  
**BS EN 1365-1**

**separation** Physical distance between the opposed components.  
**BS 5839-5**

**service duct** Enclosure for the accommodation of building **services**.  
*Firecode: Fire Practice Note 4. Hospital Main Kitchens. 1994*

**service pressure** See **sprinkler <service pressure>**.  
**BS 4422**

**service pressure <of an extinguisher>** **Equilibrium pressure** developed within the **body** of the **extinguisher** when it is filled to its maximum recommended charge and its maximum admissible temperature.  
**ISO 8421-4**

**service shaft** Vertical **enclosure** for the accommodation of building **services**.

**services** Cables, conduits, pipes, chimneys, ducts, trunking, air ventilation systems, fire rated ventilation ducts or fire rated **service ducts** and shafts.  
**Association for Specialist Fire Protection**

**sheltered housing** Blocks of **flats** and/or **maisonettes**, with each **dwelling** incorporating its own cooking and sanitary facilities, designed specifically for persons who might require assistance, e.g. elderly people, and where some form of assistance is available at all times.

*Note 1* This should not be taken as implying that assistance need be provided on the premises.

*Note 2* **Sheltered housing** usually includes amenities common to all occupiers such as lounges, guest rooms, etc.

**BS 5588-1**

**shockwave** Pressure pulse formed by an **explosion** in which a sharp discontinuity in pressure is created as the wave travels through a fluid medium at greater than sonic velocity.  
**BS 4422**

**shopping complex** Structural combination of a number of commercial premises that includes areas providing common access for the public, principally for shopping purposes.  
**BS 5588-10**

**shopping complex <covered>** **Shopping complex** that includes a covered **mall** in which:

- more than 15 m of the length of the mall is covered by a bridge or **roof**; or
- where the mall has an open slot above it, more than 50% of its plan area is obscured; or
- at least 25% of its plan area is obscured by a **roof**, **floor**, bridge, **gallery** or **canopy**.

**DD 9999**

**shopping complex <uncovered>** **Shopping complex** that does not include a covered **mall**.  
**DD 9999**

**shunt system** System in which branch **ductwork**, instead of making a direct connection to the main ductwork, turns through an angle and runs parallel to the main ductwork for a specified distance before turning into and connecting with the main ductwork.  
**BS 5588-9**

**shut-off nozzle** **Component**, at the end of a hose, used to direct and control the discharge of water.  
**BS 4422**

**significant finding** Feature of the premises, from which the **fire hazards** and persons at **risk** are identified.  
**Guide to Fire Risk Assessment**

**silencing** Operation to switch off the audible signal of a sounding device which is capable of being automatically resounded.  
**BS 4422**

**simple lobby** Lobby that does not give direct access to lifts, shafts or **ducts** that could constitute a significant leakage path for **smoke** to spread to other storeys within a building. A **simple lobby** may either be unventilated or naturally ventilated.

*Note* A lobby connected to a lift, well or other shaft is still a simple lobby if all such shafts are pressurized.

\*BS 5588-4

**simultaneous evacuation** Evacuation procedure in which all parts of a building are evacuated following the giving of a common **alarm of fire**.  
**BS 4422**

**single loop system** See **sprinkler installation <single loop>**.  
**BS 4422**

**single-pressure system** **Pressure differential system** in which the air supply to a **pressurized space** or extraction from a **depressurized space** is designed to operate only in an emergency.  
**\*BS 5588-4**

**single stage evacuation** Arrangement whereby the **fire alarm system** installed into a building is configured in order to facilitate the immediate evacuation of all its occupants in the event of fire.  
**London District Surveyors Association**

**single-stage pressurization system** **Pressure differential system** designed to work only in an emergency.  
**BS 4422**

**site <of a building>** Land occupied by the building up to the boundaries with land in other ownership.  
**Approved Document B (Fire safety) – Volume 1: Dwellings (2006 Edition)**

**site specific data** Alterable data required for the **fire alarm control and indicating equipment** to operate in a defined system configuration.  
**BS EN 54-2**

**slave luminaire** Luminaire supplied from a central emergency power source and not having its own internal secondary supply.  
**BS 4422**

**sliding pole** Fixed pole used by **firefighters** for rapid descent from the upper floors of a **fire station**.  
**BS 4422**

**slop over** Condition that occurs when a **water spray** (or **foam**) is applied to the surface of a burning liquid that has developed a hot **zone** beneath the surface at a temperature in excess of 100°C. On passing through this **zone**, the water boils and expands suddenly, causing some of the **flammable liquid** to pour over the rim of the tank.  
**BS 4422**

**small fire** Fires in the following locations:

- single derelict building;
- single building under demolition;
- single tree;
- outdoor **fires** confined to: grassland, heathland, railway embankments, stubble, fences or hedges, hoardings, derelict cars, refuse, refuse containers, lamp standards, telegraph poles, road furniture, road surfaces and verges;
- chimneys.

**Home Office Report – Arson Working Group**

**small fire attack** Thermal attack produced by a small **flame** like a match or lighter.  
**BS EN 13501-1**

**small scale fire test** **Fire test** performed on an item of small dimensions.

*Note* A test performed on a **specimen** of which the maximum dimension is less than 1 m is usually called 'a small-scale test'.

**BS EN ISO 13943**

**smoke** Visible part of **fire effluent**.

BS 4422

**smoke alarm** Device containing within one housing all the **components**, except possibly the energy source, necessary for detecting **smoke** and for giving an audible **alarm**.

\*BS 5839-1

**smoke baffle ceiling screen**

**roof screen** Vertical sub-division fitted internally to the **roof** (or **ceiling**) to create an obstacle to lateral flow of **smoke** and **fire gases**.

BS 4422

**smoke clearance system** Smoke control system designed to remove **fire effluent** following a **fire** and used at the discretion of the fire service to assist **firefighting** operations.

BS 4422

**smoke compartment** Region of **roof** or **ceiling void** isolated from other areas, by building structures and/or purpose-made screens designed to prevent the flow of **smoke** from the **compartment**.

BS 4422

**smoke control** Measures to control the spread or movement of **smoke** and **fire gases** during a **fire** within a building.

BS 4422

**smoke control <mechanical>** Smoke control with the help of mechanical means.

BS 4422

**smoke control <natural>** Smoke control mainly with the help of the buoyant force of hot **fire gases**.

BS 4422

**smoke control door** Doorset designed to reduce the rate of spread or movement of **smoke** during a **fire**.

\*BS 4422-5 (ISO 8421-5)

**smoke control zone** Sub-division of a building for **smoke control** purposes.

BS 4422

**smoke curtain** Curtain that is fixed into position, or moves from a retracted position to its operational position when activated by **smoke detector** or other means, in order to restrict the movement of **smoke** in a **fire**.

BS 4422

**smoke curtain <automatic>** Curtain that moves from its retracted position to its operational position when activated by a **smoke detector** or other means.

*Note* Drop curtains are mounted horizontally and lower to the operational position, by power of gravity.

BS 4422

**smoke curtain/screen** That part of a **smoke control** system to create ceiling **compartments** from which **smoke** and hot gases can be extracted.

BS 4422

**smoke damper** See **damper <smoke>**.

\*BS 4422-5 (ISO 8421-5)

**smoke detection cabinet** See **marine <smoke detection cabinet>**.

BS 4422

**smoke detector** See **fire detector <smoke>**.

BS 4422

**smoke dilution** **Smoke control** achieved by mixing the smoky gases with enough clean air to achieve less hazardous conditions.

BS 4422

**smoke ejector** See **smoke extractor**.

BS 4422

**smoke exhaust fan** Fan used to remove **smoke** and hot gases in the event of **fire**.

\*BS 4422-5 (ISO 8421-5)

**smoke exhaust ventilation system** **Smoke control** system designed to remove a sufficient volume of **smoke** to minimize the possibility of inter-connected spaces becoming untenable as a result of the spread of smoke.  
**BS 4422**

**smoke explosion** Explosion of a mixture of **flammable fire gases** (pyrolyzed **fuel** and partial **combustion products**) and air.  
*Note* A particular case of a backdraught.  
**PD 7974-2**

**smoke extraction** Measures taken to remove **smoke** and hot gases from a building.  
**\*BS 4422-5 (ISO 8421-5)**

**smoke extraction duct** Duct used for the extraction of **smoke** in case of fire and designed to provide a degree of **fire resistance**.  
**BS EN 1366-8**

**smoke extraction system** System consisting of **smoke outlet**, **smoke extractor**, switch, etc. permanently installed in a building for the purpose of clearance of smoke.  
**\*BS 4422-5 (ISO 8421-5)**

**smoke extractor** Equipment providing a mechanical means of removing **smoke** from a building or other structure involved in **fire**.  
**BS 4422**

**smoke hazard** Potential for injury and/or damage from **smoke**.  
**BS EN 13501-1**

**smoke layer** Vertical distance from the 'centroid' of the extraction points (where the horizontal or vertical plane) or the initial exhaust point for ducted systems to the bottom of the **smoke layer**.  
**\*BS 4422-5**

**smoke layering** Stratification of **smoke** within a room or space caused by thermal effects in the absence of turbulence.  
**ISO 8421-5**

**smoke leakage** Ability of an element of construction to reduce the passage of hot and/or cold gases or **smoke** from one side of the element to the other to below specified levels.  
**BS EN 1363-1**

**smoke obscuration** Reduction in the intensity of light due to its passage through **smoke**.  
*Note 1* In practice **smoke obscuration** is usually expressed as a percentage.  
*Note 2* This phenomenon induces a reduction in **visibility**.  
**BS EN ISO 13943**

**smoke opacity** See **opacity of smoke**.  
**FDIS 13943**

**smoke outlets** Readily breakable panels in walls or **floors** which can be broken to release **smoke** and **fire gases** from a building involved in **fire**.  
**BS 4422**

**smoke production** Amount of **smoke** which is produced in a **fire** or **fire test**.  
*Note 1* The typical units are  $\text{m}^2$ .  
*Note 2* See also **extinction area <of smoke>**.  
**FDIS 13943**

**smoke production rate** Amount of **smoke** produced per unit time in a **fire** or **fire test**.  
*Note 1* It is calculated as the **product** of the volumetric **flow rate** of smoke and the **extinction coefficient** of the smoke at the point of measurement.  
*Note 2* The typical units are  $\text{m}^2 \text{s}^{-1}$ .  
**FDIS 13943**

**smoke reservoir** Volume provided for the collection of **smoke** resulting from a **fire**.  
**BS 4422**

**smoke retarding construction** Construction intended to retard the passage of **smoke**.  
**BS 5588-7**



**smoke shaft** Shaft provided to remove **smoke** in the event of **fire**.  
\*BS 4422-2

**smoke stopping** Seal provided to close an imperfection of fit or design tolerance between elements or **components** to restrict the passage of **smoke**.  
BS 4422

**smoke transfer duct** Channel/**duct** utilized to move **smoke** from a stagnant region within the **smoke layer** to another part of that layer.  
BS 4422

**smoke vent** **Opening** in the enclosing walls or **roof** of a building, intended to release heat and **smoke** in the event of **fire**, automatically or manually opened.  
BS 4422

**smoke ventilator <automatic>** Ventilator that is installed into a building and is designed to open automatically after the outbreak of **fire** to allow **smoke** and **fire gases** to escape.  
BS 4422

**smoke ventilator <automatic powered>** Powered ventilator that is installed into a building and is designed to open automatically after the outbreak of **fire**, to allow **smoke** and **fire gases** to be extracted.  
BS 4422

**smoke ventilator <manual>** Fixed controlled ventilator which can be operated to release **smoke** and hot gases from a building involved in **fire**.  
ISO 8421-5

**smoke venting** Practice of creating **openings** in a building to facilitate the relief of **smoke** and hot gases during firefighting operations.  
BS 4422

**smoke zone** See **smoke control zone**.  
BS 4422

**smoulder** To **burn** slowly without **flame**.

*Note 1* The difference between **scorching** and **smouldering** is quite distinct and whether or not smouldering has commenced can be ascertained by quickly withdrawing the **material** from the guard at the end of 10 seconds' exposure. If smouldering has started it will be seen that a hole has formed in the material and that the edge of the hole glows red.

*Note 2* See also **smouldering**.

BS 1945

**smouldering** **Combustion** of a **material** without **flame** and without light being visible.

*Note 1* **Smouldering** is generally evidenced by an increase in temperature and/or by effluent.

*Note 2* See also **glowing combustion**.

BS 7974

**smouldering fire** Slow, low-temperature, flameless form of **combustion** sustained by the heat evolved when oxygen directly attacks the surface of condensed-phase **fuel**.

*Note* A **smouldering fire** is generally made evident by an increase in temperature and/or by **smoke**.

\*DD 240-1

**soak time** Period after a **fire alarm system** has been commissioned, but prior to hand-over, during which the system's performance in relation to false alarms and faults is monitored.

BS 5839-1

**social alarm system** System that provides facilities for **alarm** initiation, signal transmission, alarm reception, reassurance and assistance, for use by elderly and other persons considered to be living at **risk**.

BS 5839-6

**societal accepted risk** Measure of **fire risk** combining **consequences** experienced by every affected person and group.

FDIS 13943

**societal risk** Relationship between frequency of occurrence and the number of people in a given population suffering from a specified level of harm from the realization of specified **hazards**.

PD 7974-7

**software** Data required for the operation of a program-controlled system.

\*BS 5839-4

**soot** Particulate matter produced and deposited during or after **combustion**.

*Note* **Soot** usually consists of finely divided particles, mainly carbon, produced by the incomplete combustion of organic **materials**.

BS EN ISO 13943

**sound detector** Sound sensitive device used to locate trapped casualties.

ISO 8421-8

**source of release** Point or location from which a **flammable gas**, vapour, or liquid may be released into the atmosphere such that an explosive gas atmosphere could be formed.

BS EN 60079-10

**spark** (*noun*) Incandescent particle.

FDIS 13943

**spark <electrotechnical>** (*noun*) Luminous discharge resulting from the dielectric breakdown of a gas between two electrodes.

FDIS 13943

**special protection 's'** See **type of protection**.

BS 4422

**specialized firefighting** Firefighting operations involving approach or **entry firefighting**.

BS 4422

**specific extinction area of smoke** Extinction area of **smoke** produced by a **test specimen** in a given time period divided by

the mass lost from the test specimen in the same time period.

*Note* The typical units are  $\text{m}^2 \text{g}^{-1}$ .

FDIS 13943

**specific heat capacity** Heat capacity per unit mass.

*Note* The typical units are  $\text{J g}^{-1} \text{K}^{-1}$ .

FDIS 13943

**specific optical density of smoke** Optical density of **smoke** multiplied by a geometric factor.

*Note 1* The geometric factor is  $V/AL$ , where  $V$  is the volume of the test chamber,  $A$  is the area of the **exposed surface** of the **test specimen**, and  $L$  is the light path length.

*Note 2* The use of the term 'specific' does not denote 'per unit mass' but rather denotes a quantity associated with a particular test apparatus and exposed surface area of test specimen.

*Note 3* It is dimensionless.

FDIS 13943

**specimen** Representative piece of the **product** which is to be tested together with any **substrate** or treatment. This may include an air gap.

BS 476-13 (ISO 5657)

**spectroscopy** Study of spectra, especially to determine the chemical composition of substances and the physical properties of atoms, molecules, and ions.

FDIS 13943

**spill fire** Fire resulting from the **ignition** of an unconfined spillage of **flammable liquid** onto a flat or nearly flat surface.

BS 4422

**spill plume** Vertically rising **plume** resulting from an initially horizontally flowing **smoke layer** encountering a free edge.

PD 7974-2

**splice** Connection or junction between or within the length of a **linear joint seal**.

BS EN 1366-4

**spontaneous combustion** Deprecated term. See **self-ignition**.

BS EN ISO 13943

**spontaneous ignition** See **auto-ignition**.

FDIS 13943

**spontaneous ignition temperature (SIT)**

See **auto-ignition temperature**.

BS EN ISO 13943

**sprayer** See **sprinkler <sprayer>**.

BS 4422

**sprayer <high-velocity>** Open **nozzle** used to **extinguish** fires of high **flashpoint** liquids.

BS 5306-2

**sprayer <medium-velocity>** **Sprayer** of sealed or open type used to control fires of lower **flashpoint** liquids and gases, or to cool surfaces.

BS 5306-2

**spread of flame** See **surface spread of flame**.

BS 4422

**sprinkler** Thermosensitive device designed to react at a predetermined temperature by automatically releasing a stream of water and distributing it in a specified pattern and quantity over a designated area.

BS 4422

**sprinkler <actual delivered density (ADD)>**

Measured volumetric **flow rate** of water per unit area from **sprinklers** that is delivered near the base of a **fire plume** for a specific fire **heat release rate**.

*Note* It is measured in  $\text{mm min}^{-1}$ .

FDIS 13943

**sprinkler <assumed maximum area of operation (AMAO)>** Maximum area over

which, it is assumed for design purposes, **sprinklers** will operate in a **fire**.

BS 4422

**sprinkler <assumed maximum area of operation, hydraulically most favourable location>**

Location in a **sprinkler** array of an **AMAO** of specified shape at which the water supply pressure required to give the specified **sprinkler design density** is the minimum.

BS 4422

**sprinkler <assumed maximum area of operation, hydraulically most unfavourable location>**

Location in a **sprinkler** array of an **AMAO** of specified shape at which the water supply pressure required to give the **sprinkler design density** is the maximum.

BS 4422

**sprinkler <concealed>** Recessed **sprinkler** having a cover plate that disengages when heat is applied.

BS 4422

**sprinkler <conventional>** **Sprinkler** that gives a spherical pattern of discharge.

BS 4422

**sprinkler <cut-off>** **Sprinkler** protecting a door or window between two areas, only one of which is protected by sprinklers.

BS 4422

**sprinkler <deluge installation>** Installation or tail-end extension fitted with open **sprayers** and a control arrangement so that an entire area is sprayed with water on operation of the installation.

BS 4422

**sprinkler <detector>** Sealed **sprinkler** mounted on a pressurized pipeline used to control a **deluge valve**.

\*BS 4422-4

**sprinkler <domestic>** Sprinkler that is designed for service in **dwelling** houses, flats and transportable homes.  
Technical Bulletin 14

**sprinkler <drop>** Vertical pipe feeding a **sprinkler distribution pipe** or range pipe.  
BS 4422

**sprinkler <dry>** Component consisting of a **sprinkler** head and a **drop** pipe which contains pressurized air and incorporates a **closing device**.  
ISO 8421-4

**sprinkler <dry pendent pattern>** Unit comprising a **sprinkler** and dry **drop** pipe unit with a valve, at the head of the pipe, held closed by a device maintained in position by the sprinkler head valve.  
BS 4422

**sprinkler <dry upright pattern>** Unit comprising a **sprinkler** and dry rise pipe unit with a valve, at the base of the pipe, held closed by a device maintained in position by the sprinkler head valve.  
BS 4422

**sprinkler <early suppression>** System performance whereby the first few **sprinklers** to operate are able to provide sufficient water to the **fire** early enough such that the fire is promptly reduced to an acceptable level, if not extinguished.  
BS 4422

**sprinkler <early suppression, fast response>**

**ESFR sprinkler** Device designed to react to a **fire** by automatically releasing a stream of water and distributing it in a specified pattern and density over a designated area so as to promptly reduce the fire to an acceptable level.

*Note* See also **sprinkler <early suppression>**.

BS 4422

**sprinkler <end-centre array>** Pipe array with range pipes on both sides of a **sprinkler distribution pipe**.  
BS 4422

**sprinkler <end-side array>** Pipe array with range pipes on one side only of a **sprinkler distribution pipe**.  
BS 4422

**sprinkler <flat spray>** Sprinkler which has a paraboloid water distribution directed towards the ground while some of the water sprays the **ceiling**, and which directs from 60% to 80% of the total water flow initially in a downward direction.  
ISO 8421-4

**sprinkler <flush pattern>** Pendent **sprinkler** for fitting partly above, but with the thermosensitive element below, the lower plane of the **ceiling**.  
BS 4422

**sprinkler <fully hydraulically calculated>** Term applied to pipework or installation in which all the pipework downstream of the main installation **control valve** set is sized.  
BS 5306-2

**sprinkler <fusible link>** Sprinkler which opens when a **component** provided for the purpose melts.  
BS 4422

**sprinkler <glass bulb>** Sprinkler which opens under the influence of heat by the **bursting** of a liquid filled glass bulb.  
BS 4422

**sprinkler <gridded configuration pipe array>** Pipe array in which water can flow to each **sprinkler** by more than one route.  
BS 4422

**sprinkler <horizontal>** Sprinkler arranged in such a way that the water stream is

- directed horizontally against the distribution plate.  
**BS 4422**
- sprinkler <intermediate>** Sprinkler installed below, and additional to, the **roof** or **ceiling sprinklers**.  
**BS 4422**
- sprinkler <jockey pump>** Small **pump** used to replenish minor water loss, to avoid starting an automatic booster or **suction pump** unnecessarily.  
**BS 4422**
- sprinkler <life safety>** Sprinkler systems forming an integral part of measures required for the protection of life.  
**BS 5306-2**  
**DD 9999**
- sprinkler <multiple control>** Valve, normally held closed by a temperature sensitive element, suitable for use in a **deluge system** or for the operation of a pressure switch.  
**BS 4422**
- sprinkler <node>** Point in pipework at which pressure(s) and flow(s) are calculated and which is used as a datum point for the purpose of hydraulic calculations.  
**BS 4422**
- sprinkler <open>** Sprinkler not sealed by a temperature-sensitive element.  
**BS 4422**
- sprinkler <pendent>** Sprinkler designed to be installed in such a way that the water stream is directed downwards against the distribution plate.  
**BS 4422**
- sprinkler <pipe array>** Pipework feeding a group of **sprinklers**.  
**BS 4422**
- sprinkler <recessed>** Sprinkler in which all or part of the heat sensing element is above the plane of the **ceiling**.  
**BS 4422**
- sprinkler <residential>** Sprinkler giving an outward and downward water discharge and suitable for use in a domestic or residential occupancy.  
**BS 4422**
- sprinkler <roof or ceiling>** Sprinkler protecting the **roof** or **ceiling**.  
**BS 5306-2**
- sprinkler <service pressure>** Static water pressure at the inlet to a **sprinkler check valve**.  
**BS 4422**
- sprinkler <sidewall pattern>** Sprinkler having a deflector plate designed to discharge most of the water away from the nearby wall in a pattern resembling one quarter of a sphere, with a small portion of the discharge directed at the wall behind the sprinkler.  
**BS 4422**
- sprinkler <spray>** Sprinkler which has a paraboloidal water distribution directed towards the ground and which directs from 80% to 100% of the total water flow initially in a downward direction.  
**BS 4422**
- sprinkler <sprayer>** Sprinkler that gives a downward conical-pattern discharge.  
**BS 4422**
- sprinkler <suction pump>** Automatic pump supplying water to a **sprinkler system** from a suction tank, river, lake or canal.  
**BS 4422**
- sprinkler <tail-end extension>** Extension to a wet pipe **sprinkler installation** such that the extension can be either dry pipe or alternate.  
**BS 4422**

**sprinkler <terminal main configuration>**

Pipe array with only one water supply route to each range pipe.

BS 4422

**sprinkler <terminal range configuration>**

Pipe array with only one water supply route from a **sprinkler distribution pipe**.

BS 4422

**sprinkler <trunk main>** Pipe connecting two or more water supply pipes to the installation main **sprinkler control valve** set(s).

BS 4422

**sprinkler <upright>** Sprinkler designed to be installed in such a way that the water stream is directed upwards against the distribution plate.

BS 4422

**sprinkler accelerator** Device that reduces the delay in operation of a dry **alarm valve**, or composite alarm valve when in dry mode, by early detection of the drop in air pressure when a **sprinkler** operates.

BS 4422

**sprinkler activation area** Total planned area over which **sprinklers** are designed to operate.

*Note* The typical units are m<sup>2</sup>.

FDIS 13943

**sprinkler alarm test valve** Valve through which water can be drawn to test the operation of the **sprinkler water motor alarm** and/or of any associated electric **fire alarm**.

BS 4422

**sprinkler alarm valve** Valve of the check type designed to permit flow of water to a **sprinkler system** and to provide an **alarm** under flow conditions.

BS 4422

**sprinkler alarm valve clapper valve**

**clapper assembly** Parts of the valve which prevent water flowing in the reverse direction.

ISO 8421-4

**sprinkler alarm valve <alternate>** An **alarm valve** suitable for a wet, dry or alternate installation.

\*BS 4422-4

**sprinkler alarm valve <composite>** Assembly of two alarm valves, suitable for wet, dry or alternate installations.

\*BS 4422-4

**sprinkler alarm valve <dry>** Alarm valve suitable for a dry installation; and/or in association with a wet alarm valve, for an alternate installation.

BS EN 12845

**sprinkler alarm valve <pre-action>** Alarm valve suitable for a pre-action installation.

BS EN 12845

**sprinkler alarm valve <recycling>** Alarm valve suitable for a recycling installation.

BS 5306-2

**sprinkler alarm valve <wet>** Alarm valve suitable for a wet installation.

BS EN 12845

**sprinkler alarm valve compensator**

**auxiliary check valve** External or internal device used to balance small increases of water pressure in order to minimize false alarms.

ISO 8421-4

**sprinkler alarm valve retard chamber** Volumetric device designed to minimize false **alarms** due to surges and fluctuations in **sprinkler system** water supplies.

ISO 8421-4

**sprinkler alarm valve water motor alarm**

Local hydraulically actuated device which provides a local audible **alarm** as a result of flow through the **sprinkler alarm valve**.

ISO 8421-4

**sprinkler alarm valve water motor transmitter flow switch**

Local hydraulically actuated device which generates an electrical contact signal for a remote **alarm** as a

result of flow through in a **sprinkler alarm valve** system.  
ISO 8421-4

**sprinkler application rate** Volumetric flow rate of water, per unit area, from operating sprinklers.

*Note 1* Also called **sprinkler density** or discharge density for horizontal surfaces or, more generally, **surface density**.

*Note 2* The typical units are  $\text{mm min}^{-1}$ .

FDIS 13943

**sprinkler arm pipe** Pipe, other than the last section of a range pipe, feeding a single sprinkler.

BS 4422

**sprinkler booster pump** Automatic pump supplying water to a **sprinkler system** from an elevated private reservoir or a town main.

BS 4422

**sprinkler branch system** See **sprinkler system** <branch>.

BS 4422

**sprinkler check valve** Valve that permits flow of water in one direction only.

BS 4422

**sprinkler control valve** Valve which can be opened or closed to regulate the flow of water to all or part of a **sprinkler installation**.

BS 4422

**sprinkler deluge valve** Valve suitable for use in a deluge installation.

BS 5306-2

**sprinkler density** **Sprinkler application rate** on horizontal surfaces.

FDIS 13943

**sprinkler design density** Measured volumetric **flow rate** of water from **sprinklers**, per unit area, that is delivered in the absence of a fire.

*Note* The typical units are  $\text{mm min}^{-1}$ .

FDIS 13943

**sprinkler design point** Point on a **sprinkler distribution pipe** of a **pre-calculated sprinkler installation**, downstream of which pipework is sized from tables and upstream of which pipework is sized by hydraulic calculation.

BS 4422

**sprinkler distribution pipe** Pipe feeding one or more range pipes.

BS 4422

**sprinkler drencher** Device used to distribute water over a surface to provide protection against **fire exposure**.

BS 4422

**sprinkler exhauster** Device to exhaust the air from a dry or alternate installation to atmosphere on **sprinkler** operation to give more rapid operation of the **sprinkler alarm valve**.

BS 4422

**sprinkler flow switch** Device which generates an electrical signal for a remote **alarm** as a result of a flow in a **sprinkler system**.

BS 4422

**sprinkler installation** Part of a **sprinkler system** comprising a set of installation main **control valves**, the associated downstream pipes, fittings and **sprinklers**.

BS 4422

**sprinkler installation <alternate>** **Sprinkler installation** in which the pipework is selectively charged with either water or air according to the ambient temperature expected.

BS 4422

**sprinkler installation <dry pipe>** **Sprinkler installation** in which the pipework is charged with air under pressure.

BS 4422

**sprinkler installation <hydraulically calculated>** Pipework which has been sized by calculation of the pressure drops resulting from expected maximum **flow rates**.

*Note* Installations in which all the pipework downstream of the main **sprinkler control valves** is so calculated may be referred to as being **fully hydraulically calculated**.

BS 4422

**sprinkler installation <pre-action>** Dry (or alternate in dry mode) installation in which the **sprinkler alarm valve** can be opened by an independent **fire detection system** in the **protected area**.

BS 4422

**sprinkler installation <pre-calculated>** Pipework which has been sized by reference to standard set of tables relating to **hazard classification**.

BS 4422

**sprinkler installation <recycling>** **Pre-action sprinkler installation** in which the **sprinkler alarm valve** can be opened and closed by a heat detection system.

BS 4422

**sprinkler installation <single loop>** Pipework system for a **sprinkler installation** in which the **sprinkler distribution pipe** forms a closed loop.

BS 4422

**sprinkler installation <staggered layout>** **Sprinkler** layout in which the sprinklers on each range pipe are displaced by one half pitch relative to those on the next range pipe(s).

BS 4422

**sprinkler installation <standard layout>** Rectilinear layout of **sprinklers**, with the sprinklers aligned perpendicularly to the run of the range.

BS 4422

**sprinkler installation <wet pipe>** **Sprinkler installation** in which the pipework is always charged with water.

BS 4422

**sprinkler range pipe** Pipe feeding **sprinklers** either directly or through short **arm pipes**.

BS 4422

**sprinkler stop valve** Manually operated valve for controlling the flow of water into installation pipework.

BS 4422

**sprinkler system** Entire means of providing sprinkler protection in premises, comprising one or more **sprinkler installations**, the pipework to the installations, and the water supply/supplies, except town mains and bodies of water such as lakes or canals.

BS 4422

**sprinkler system <alternate>** **Sprinkler system** in which the pipes are charged with water during periods where there is no risk of freezing and with air during periods where there is risk of freezing.

ISO 8421-4

**sprinkler system <branch>** System in which the range pipes are supplied from one end only and by a single secondary or principal pipe.

BS 4422

**sprinkler system <dry pipe>** **Sprinkler system** in which the pipes are normally charged with air to avoid the **risk** of water freezing or evaporation in the pipes.

ISO 8421-4

**sprinkler system <grid>** Pipework system for a **sprinkler installation** in which the range pipes are supplied from both ends.

BS 4422

**sprinkler system <high rise>** **Sprinkler system** in which the highest **sprinkler** is more



- than 45 m above the lowest sprinkler or the sprinkler pumps, whichever is the lower.  
**BS 4422**
- sprinkler system <life safety>** Sprinkler system forming an integral part of measures required for the **protection** of life.  
**BS 4422**
- sprinkler system <low rise>** Sprinkler system in which the highest **sprinkler** is not more than 45 m above the lowest sprinkler or the sprinkler pumps, whichever is the lower.  
**BS 4422**
- sprinkler system <pressure>** Static water pressure at the outlet of a **sprinkler check valve**.  
**BS 4422**
- sprinkler system <wet pipe>** Sprinkler system in which the pipes are constantly charged with water.  
**ISO 8421-4**
- sprinkler water motor alarm** Hydraulically actuated device which provides a local audible **alarm** as a result of flow through the **sprinkler alarm valve**.  
**BS 4422**
- sprinkler yoke (arms)** Part of a **sprinkler** that retains the heat-sensitive element in loadbearing contact with the sprinkler head valve.  
**BS 5306-2**
- sprinkler zone** Sub-division of an installation, fitted with a subsidiary **stop valve** or multiple control.  
**BS 4422**
- stability** See **fire stability <building element>**.  
**FDIS 13943**
- stabilized burning** Steady burning of a **flame** stabilized at or close to the flame arrest element.  
**BS 4422**
- stack pressure**
- stack effect** Pressure difference caused by the differences in density of two interconnected columns of air at different temperatures.  
**BS 4422**
- staff alarm** Restricted **alarm of fire** given to certain staff following the operation of an automatic **fire detector**, to permit investigation prior to evacuation.  
**BS 4422**
- staged alarm system** Alarm system in which two or more stages of alarm (such as 'alert' and 'evacuate') can be given within a given area.  
**BS 4422**
- staggered sprinkler layout** See **sprinkler installation <staggered layout>**.  
**BS 4422**
- stairway <enclosed>** Stairway physically separated from the accommodation through which it passes by walls, **partitions**, screens, etc. so as to prevent the passage of **smoke** and/or **fire gases**, but not necessarily a **protected stairway**.  
**BS 4422**
- stairway <external>** Stairway in the open air separated from the building by a **fire-resistant structure**.  
**BS 4422**
- stairway <firefighting>** Protected stairway designed for use by the **fire brigade** to obtain access to a building for **firefighting** purposes and which can be provided with **firefighting access** lobbies.  
**BS 4422**
- stairway <lobby approach>** Stairway separated from the accommodation space in a building by **protected** lobbies.  
**BS 4422**
- stairway <open>** Stairway which is not enclosed, within a building.  
**BS 4422**

**stairway <protected>** Stairway which discharges through a **final exit** to a **place of safety** (including any **exit** passageway between the foot of the stair and the final exit) and which is adequately enclosed with **fire resistant** construction.

BS 4422

**stairway enclosure** Space in a ship having a **boundary** division of specified **fire resistance** and protecting an **escape stairway**.

BS 4422

#### **standard flame**

**standardized test flame** Flame having specified characteristics.

BS 4422

**standard sprinkler layout** See **sprinkler installation <standard layout>**.

BS 5306-2

**standard substrate** **Product** which is representative of the **substrate** used in **end-use applications**.

BS EN 13501-1

**standard supporting construction** Form of construction used to close off the furnace and to support the **loadbearing wall** being tested, and which has known resistance to thermal distortion.

BS EN 1366-3

#### **standby lighting**

**safety lighting** Part of a **lighting** system which might be provided to enable normal activities to continue or to be safely terminated after failure of the **normal lighting**.

BS 4422

**standby supply** Electricity supply, commonly from a rechargeable battery, which is automatically connected when the normal supply fails.

BS 4422

**standpipe** Pipe used on a **fire hydrant** to bring the outlet above the ground level.

BS 4422

**state** Outputs of a **detector**.

\*BS 5839-1

**static detector** **Fire detector** which initiates an **alarm** when the magnitude of the measured phenomenon exceeds a static or fixed value, for a specified time.

BS 4422

**static water supply** Water source capable of providing a large volume of water for **fire brigade** purposes.

BS 4422

**steady state design** Design solutions which are time invariant, i.e. hot gas layer **depth** and temperature remain constant over time.

*Note* These are usually based upon the **design fire** burning steadily at its largest size.

PD 7974-2

**stirrup pump** See **pump <stirrup>**.

ISO 8421-8

**stochastic model** Methodology for evaluating, in probabilistic terms, the **outcome** of **events** as a function of time.

PD 7974-7

**stoichiometric combustion** **Combustion** in which the **equivalence ratio** is equal to unity.

FDIS 13943

**stoichiometric mixture** Mixture of chemical reactants having proportions in accordance with the equation for a specified chemical reaction.

FDIS 13943

**stoichiometric yield** **Yield** of a **combustion product** in **stoichiometric combustion**.

FDIS 13943

**stop message** Report indicating that a **fire** is **extinguished** to the degree that further spread is not expected.

BS 4422

**stop valve** Manually operated valve for controlling the flow of water in pipework.

BS 4422

**storage hazard** General dangers of storage of goods, having regard to their **fire** grading, **flammability**, method of packing, storage, etc.

BS 4422

**stored pressure fire extinguisher** See **fire extinguisher <stored pressure, operated>**.

ISO 8421-4

**stored pressure system** Extinguishing system in which the propellant gas is stored within, and permanently pressurizes, the container(s) for the **extinguishing medium**.

BS 4422

**storey exit** See **exit <storey>**.

BS 4422

**strainer <suction hose>** Filter connected to the end of a suction hose to prevent debris, etc., entering the pump.

BS 4422

**streamform branch** Short **branch** with an internal central tube and guide veins to reduce turbulence in the water.

*Fire Service Training Manual*

**structural critical temperature** Temperature at which a structural element is assumed to be unable to support the applied load.

BS 4422

**structural fire protection** See **fire protection <structural>**.

BS 4422

**structural frame** Arrangement of structural materials and/or elements combined to form a building or a part thereof which has been designed to fulfil a loadbearing function.

PD 7974-3

**sub-compartment** Area into which the building can be divided to reduce **travel distance**

and which provides resistance to **fire** for a specified period of time.

*HTM 85: Fire precautions in existing hospitals (Firecode)*. 1994.

**sub-compartment wall** Fire-resisting wall used to separate one **sub-compartment** from another and having a minimum period of resistance.

*HTM 85: Fire precautions in existing hospitals (Firecode)*. 1994.

**substantial component** Material that constitutes a significant part of a **non-homogeneous product**. A layer with a mass/unit area  $\geq 1.0 \text{ kg m}^{-2}$  and a thickness  $\geq 1.0 \text{ mm}$  is considered to be a **non-substantial component**.

BS EN ISO 1182

**substrate** Material which is used or is representative of that used immediately beneath a surface in end-use.

*Note* Examples are plasterboard beneath a wall **covering**, and fibre cement board beneath a floor covering.

FDIS 13943

**sub-system** That part of an integrated security system which performs an individual function such as **alarm of fire**, intruder **alarm**, building **management**.

BS 4422

**suction filter** See **suction screen**.

ISO 8421-8

**suction installation <fixed>** Fixed pipe incorporating a suction strainer and **fire brigade** installation located at a **static water supply**.

BS 4422

**suction pump** See **sprinkler <suction pump>**.

BS 4422

**suction screen** Filter fitted to the inlet of a pump as an additional precaution against debris entering the pump.

ISO 8421-8

**suitable for sprinkler use** Term applied to equipment or **components** accepted by the authorities as suitable for a particular application in a **sprinkler system**, either by particular test or by compliance with specified general criteria.

BS 5306-2

**super irritant** Deprecated term.

FDIS 13943

**super toxicant** Deprecated term.

FDIS 13943

**superpressurization** Addition of a gas to an **extinguishant** container, to achieve the required pressure for proper system operation.

\*DD 233

**supplementary sign** Sign with text only that may be used in conjunction with a **safety sign** in order to provide additional information.

\*BS 5378-1

**supply grille** Grille or diffuser connected to **ductwork** system and through which air is discharged into a room or space.

BS 4422

**suppression system** System designed for the active stabilization, reduction or elimination of **flame spread** or **heat release** or **smoke production**.

FDIS 13943

**surface burn** Combustion limited to the surface of a **material**.

BS EN ISO 13943

**surface density <sprinklers>** See **sprinkler application rate**.

FDIS 13943

**surface fire** Fire involving **flammable liquids**, gases or solids not subject to **smouldering**.

*Note* See also **surface flash**.

BS 4422

**surface flash** Movement of **transient flame** over the surface of a **material** without **ignition** of its basic structure.

*Note 1* See also **surface burn**.

*Note 2* If the surface burn occurs simultaneously or sequentially with **surface flash**, it is not considered as a part of surface flash.

*Note 3* This period of time is usually shorter than 1 s.

BS EN ISO 13943

**surface spread of flame** Propagation of **flame** away from the source of **ignition** across the surface of a liquid or a solid.

BS 4422

**surfactant** Surface-active agent, i.e. a chemical that reduces the surface tension of water.

BS 5306-0

**surfactant fluorinated** Particular type of **surfactant** that gives greater reduction of surface tension of water.

BS 5306-0

**suspended ceiling** Ceiling which is suspended from a supporting construction.

BS EN 1364-2

**suspended ceiling <fire protecting>** **Suspended ceiling** which contributes to the **fire resistance** of the **floor** or **roof** above.

BS 4422

**suspended open cell ceiling** Ceiling of regular open-cell construction through which water from **sprinklers** can be discharged freely.

BS 5306-2

**suspension device <duct>** Component used for suspending and fixing a **duct** from a **floor** or supporting a duct from a wall.

BS EN 1366-8

**sustained combustion** Combustion of a **test specimen** which persists for longer than a defined period of time.

*Note* The defined period of time varies across different standards, but it is usually of the order of 10 s.

FDIS 13943

**sustained flame** Flame, on or over the surface of a **test specimen**, which persists for longer than a defined period of time.

FDIS 13943

**sustained flaming** Continuous **flaming** for a period of time greater than 10 s.

BS EN 13501-1

**sustained ignition** Deprecated term.

FDIS 13943

**sustained surface ignition** Inception of a **flame** on the surface of a **specimen** which is still present at the next application of the pilot flame.

BS 476-13 (ISO 5657)

**swinging hose reel** See **hose reel** <swinging>.

BS 4422

**symbol** Pictorial representation used on a **safety sign**.

\*BS 5378-1

**synthetic foam concentrate** See **foam concentrate** <synthetic>.

BS 4422

**system monitoring** Automatic checking of a **fire alarm system** for **integrity** throughout its control-data paths.

BS 5839-8

**system pressure** See **sprinkler system pressure**.

BS 4422

**system type** See **fire alarm system** <type>.

*HTM 82: Alarm and detection systems (Fire-code). 1992.*

# T

**$t_{L50}$  (lethal exposure time)** Duration of exposure, to a fixed **concentration** of toxic gas or **fire effluent** that causes death to 50% of a population of the given species.

BS EN ISO 13943

**tail-end alternate wet and dry pipe extension** See **sprinkler <tail-end extension>**.

BS 4422

**tail-end dry extension** See **sprinkler <tail-end extension>**.

BS 4422

**tank chamber** Fire-resistant **compartment** enclosing a tank or tanks.

BS 4422

**technical specification** Standard or a **European Technical Approval** Guide.

*Note* It is the document against which compliance can be shown in the case of a standard and against which an **assessment** is made to deliver the **European technical approval**.

*Approved Document B (Fire safety) – Volume 1: Dwellinghouses (2006 Edition)*

**temperature classification** Equipment for use in **potentially flammable atmospheres** that enables equipment to be selected so that the maximum surface temperature of the apparatus is below the **ignition temperature** of the gas or vapour.

**Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972 (SI 1972/917)**

**temperature control system** Heat control system using the principles of **smoke** exhaust ventilation, so as to reduce gas temperatures in a **smoke layer** and to permit the use of

construction/glazing which, whilst capable of preventing the passage of smoke, are not **fire-resistant**.

BS 4422

**temperature–time curve <standardized>**

Time-related variation of temperature prescribed in a specified way during a standard **fire resistance** test.

BS 4422

**tenability criteria** Maximum exposure to **hazards** from a **fire** that can be tolerated without violating **safety** goals.

PD 7974-6

**tenability limit** Maximum exposure to physical **fire** parameters that a person can tolerate without **incapacitation**.

BS 4422

**test fire rating** Designation of the largest test **fire** that an **extinguisher extinguishes** when tested in a specified manner.

BS 4422

**test frame** Frame containing a test construction for the purposes of mounting onto a furnace.

BS EN 1363-1

**test load** Load applied to a **test specimen**.

BS EN 1363-1

**test specimen** Item subjected to a procedure of **assessment** or measurement.

*Note* In a **fire test** the item may be a **material, product, component**, element of construction, or any combination of these. It may also be a sensor which is used to simulate the behaviour of a product.

FDIS 13943

**thermal conductivity** Parameter related to the rate at which heat flows through a **material**.

*Note 1*  $k = Qd/At\theta$ , where  $k$  is the **thermal conductivity**,  $Q$  is the amount of heat that flows in time,  $t$ , through a **material** of thickness,  $d$ , and cross-sectional area,  $A$ , and which has a temperature difference,  $\theta$ , across it, and where no heat is exchanged with the surroundings.

*Note 2* The typical units are  $\text{W m}^{-1} \text{K}^{-1}$ .

FDIS 13943

**thermal decomposition** Process whereby the action of heat or elevated temperature on an item causes changes to the chemical composition.

*Note* This is different from **thermal degradation**.

BS EN ISO 13943

**thermal degradation** Process whereby the action of heat or elevated temperature on an item causes a loss of one or more properties e.g. physical, mechanical or electrical.

*Note* This is different from **thermal decomposition**.

BS EN ISO 13943

**thermal diffusivity** Thermal conductivity divided by the **product** of density and **specific heat capacity**.

*Note 1* It is a parameter used in the calculation of heat transfer through solids.

*Note 2* The typical units are  $\text{m}^2 \text{s}^{-1}$ .

FDIS 13943

**thermal imaging camera** Portable device which detects infra-red radiation and displays it as a thermal image.

BS 4422

**thermal inertia** Product of **thermal conductivity**, density and **specific heat capacity**.

*Note 1* When a **material** is exposed to a **heat flux**, the rate of increase of surface

temperature depends strongly on the value of the **thermal inertia** of the **material**. The surface temperature of a material with a low thermal inertia rises relatively quickly when it is heated, and vice versa.

*Note 2* The typical units are  $\text{J}^2 \text{s}^{-1} \text{m}^{-4} \text{K}^{-2}$ .

FDIS 13943

**thermal initiation time** Time during which energy deposited by the **spark** accumulates in a small volume of gas around it without significant thermal dissipation.

*Note* For times shorter than the **thermal initiation time** the total energy deposited by the spark will determine whether or not **ignition** occurs. For increasingly longer times, the power or rate at which energy is deposited becomes the determining factor for ignition.

BS 6656

**thermal insulation** **Material** used for the confinement of heat to a particular location.

FDIS 13943

**thermal insulation <fire resistance>** Ability of a **separating element**, when exposed to **fire** on one side, to resist the transmission of heat.

*Note* See also **fire resistance**.

FDIS 13943

**thermal insulation criterion 'I'** Criterion, determined from the results of a **fire resistance** test, by which the ability of a **separating element** to prevent the passage of heat is assessed.

*Note* See also **fire resistance**.

BS 4422

**thermal radiation** Transfer of thermal energy by electromagnetic waves.

BS EN ISO 13943

**thermal radiation screen** Wall or screen erected in the open air to avoid **risk** of radiated heat from or to building, structure, plant or piece of apparatus.

BS 4422

**thermal release mechanism** **Thermally actuated device** designed to respond to a rise in temperature of the surrounding air, and release a **fire damper** blade(s) at a predetermined temperature. It can interface with mechanical, electrical, electronic, or pneumatically operated mechanisms which are positioned integrally or remotely from the device.

BS EN 1366-2

**thermal response** Temperature profile within an object resulting from an applied **heat flux**.

FDIS 13943

**thermal response factor (Hp/A)** Measure of heat sink by the ratio of section perimeter to cross-sectional area.

BS 8202-2

**thermally actuated device** Device which performs a **fire** related action (such as a **fire damper** closing mechanism) when the temperature in the vicinity of the device rises to a predetermined value.

BS 4422

**thermally thick solid behaviour** Negligible temperature rise on one face of a solid while **heat flux** is applied to the opposite face.

*Note* This behaviour depends on the **exposure time**, the level of heat flux, and **material** properties of the solid.

FDIS 13943

**thermally thin solid behaviour** Negligible temperature gradient within a solid while **heat flux** is applied.

*Note* This behaviour depends on the **exposure time**, the level of heat flux, and **material** properties of the solid.

FDIS 13943

**thermic lance** Device using oxygen to achieve **high temperature** for cutting metal or concrete.

BS 4422

**thin film** Discrete surface layer or coating having a thickness less than or equal to 50 µm.

BS 4422

**third party fire risk assessor** **Fire risk assessor** who is not an employee of the **responsible person**.

PAS 79

**time available for escape** See **available safe escape time (ASET)**.

FDIS 13943

**time dependent design** Design solutions based upon time-dependent input parameters.

*Note* Usually these are designed to maintain safe conditions for a specific time, e.g. time required for people to reach a **place of safety**.

PD 7974-2

**time equivalent** **Duration** of exposure to specified **fire test** conditions.

PD 7974-3

**time of flame application** See **duration of flame application**.

BS 4422

**time-related system** System in which the response or sensitivity of **detectors** is changed with the time of day.

BS 5839-1

**time required for escape** See **required safe escape time (RSET)**.

FDIS 13943

**time to alarm** Calculated time between the **ignition** of a **fire** and the time at which the **alarm** is given.

PD 7974-1

**time-temperature curve <standardized>** See **temperature-time curve <standardized>**.

BS 4422



**time-temperature function** See **temperature-time curve** <standardized>.

\*ISO 3261

**TNT equivalent**

**explosive yield** Amount of TNT (trinitrotoluene) which would produce the same damage effects as those of the **explosion** under consideration. For non-dense phase explosions the equivalence has meaning only at a considerable distance where the nature of the **blast wave** arising is comparable with that of TNT.

Institution of Chemical Engineers

**tolerable <fire risk>** Level acceptable to the organization, taking into account the requirements of fire safety legislation, the **fire safety policy** of the organization, nature of the building, the **fire hazards** in the building, the nature of the occupants, the cost of additional **fire precautions** and any other relevant factors.

PAS 79

**top sealer coat** Material applied to the surface of an **intumescent** coating as a **protection** against **environmental** degradation.

BS 4422

**total discharge value** Maximum number of persons that can evacuate a building through all available **exits** within a given time.

\*BS 4422-6 (ISO 8421-6)

**total flooding** Act of filling a volume with an **extinguishing medium** (such as gas or **high expansion foam**) in order that **fire** can be suppressed within that volume.

BS 4422

**total flooding extinguishing system** See **extinguishing system** <total flooding>.

BS 4422

**total flooding nozzle** Nozzle which is designed to produce homogeneous distribution of **halon** or **carbon dioxide** throughout a **protected enclosure**.

BS 4422

**total flooding system** Firefighting system arranged to discharge **extinguishant** into an enclosed space to achieve the appropriate **design concentration**.

*Note* See also **extinguishing system** <total flooding>.

BS ISO 14520-1.

**total heat flux** Sum of **convective heat flux** and **radiant heat flux**.

FDIS 13943

**toxic hazard** Potential for harm resulting from exposure to toxic **combustion products**.

*Note* See also **fire hazard**, **fire risk** and **toxic risk**.

BS EN ISO 13943

**toxic potency** Measure of the amount of **toxicant** required to elicit a specific toxic effect.

*Note* The smaller the amount required, the greater the **toxic potency**.

BS EN ISO 13943

**toxic potency factor** Number relating to the **toxicity** of a **material** to that of wood, when tested under identical test conditions which are representative of the actual **fire** conditions.

BS 4422

**toxic potential dose** Toxic potential **concentration** multiplied by the time over which it is measured and summed throughout the **duration** of the **fire**; and which provides an estimate of the dose available to a potential victim in the fire.

BS 4422

**toxic potential mass** Product of **mass loss** and **toxic potency factor** in a **fire**.

*Note* **Toxic potential mass** is an indication of the potential toxic effect of a fire, expressed as the mass of **material** of normal **toxicity** consumed in the fire.

DD 180

**toxic risk** Result of the multiplication of

- the probability of occurrence of a **toxic hazard** to be expected in a given technical operation or **state**; and
- the consequence or extent of injury to be expected on the occurrence of a toxic hazard.

*Note* The **toxic risk** is a part of the **fire risk**.

BS EN ISO 13943

**toxicant** Substance which causes an adverse effect upon a living organism.

BS EN ISO 13943

**toxicity** Ability of a substance to produce adverse effects upon a living organism.

BS EN ISO 13943

**tracking** <electrotechnical> Progressive formation of conducting paths, which are produced on the surface and/or within a solid insulating **material**, due to the combined effects of electric stress and electrolytic contamination.

*Note 1* It is also known as **arc tracking**.

*Note 2* See also **tracking resistance** <electrotechnical>.

FDIS 13943

**tracking resistance** <electrotechnical> Ability of a **material** to withstand a test voltage, under specified conditions, without **tracking** and without the occurrence of a **flame**.

*Note* See also **electrical tracking resistance**.

BS EN ISO 13943

**trailer pump** See **pump** <trailer>.

**transfer grille** Fixed grille not connected to the ductwork system providing for the free transfer of air between adjacent rooms and/or spaces.

BS 5588-9

**transient flame** **Flame**, on or over the surface of a **test specimen**, which persists for a period of time of not more than 4 s.

*Note* See also **surface flash** and **sustained flame**.

FDIS 13943

**transient ignition**

**transitory ignition** Occurrence of **transient flame** after the withdrawal of the **ignition source**.

*Note* See also **ignition** and **flashing**.

BS 4422

**transitory flaming** Existence of **flame** on or over the surface of the **specimen** for a period of time longer than that of **surface flash** but shorter than that of **sustained flaming**.

*Note* This period of time is usually greater than 1 s and shorter than 10 s.

BS EN ISO 13943

**transitory surface ignition** Inception of any **flame** at the surface of the **specimen** which is not sustained until the next application of the pilot flame.

BS 4422

**transmittance through smoke** Ratio of transmitted **light** intensity through **smoke** to incident light intensity, under specified conditions.

*Note 1* **Transmittance through smoke** is the reciprocal of **opacity of smoke**.

*Note 2* It is dimensionless and is usually expressed as a percentage.

FDIS 13943

**transom** Horizontal framing member separating and supporting two adjacent **panes** of glass or panels.

BS EN 1365-2

**transport time** Time for aerosols to travel from a sampling **point** to a **fire detector**.

BS 4422

**transportable fire extinguisher** See *extinguisher <transportable>*.

BS 4422

**transverse gangway** Flat gangway parallel to rows of seating.

BS 4422

**travel distance <escape from fire>** Distance that needs to be travelled by a person from any **point** within a **built environment** to the nearest **exit**, having regard to the layout of walls, **partitions** and fittings.

FDIS 13943

**travel time** Time needed, once movement towards an **exit** has begun, for all the occupants of a specified part of a building to reach a **place of safety**.

BS 4422

**trial design** Group of fire safety measures which, in the context of the building parameters, might meet the specified **fire safety objectives**.

PD 7974-0

**trigger device** Device capable of being operated automatically or manually to initiate an **alarm**, e.g. a **detector**, a **fire alarm manual call point** or a pressure switch.

BS 4422

**trunk main** See *sprinkler <trunk main>*.

BS 4422

**turntable ladder** **Fire appliance** equipped with a mechanically operated sectional extending ladder, usually hydraulically operated, capable of rotating through 360° about a vertical axis.

BS 4422

**two-pressure system** **Pressure differential system** in which a continuous low level of operation is provided as part of the normal ventilation system, with provision for increasing the pressure differential in an emergency.

\*BS 5588-4

**two-stage alarm system** **Fire alarm system** in which initially the **alarm** is given only in a restricted part of the premises, with an alert signal being given in the remainder of the premises.

BS 4422

**two-state detector** **Fire detector** which gives one of two output **states** relating to either 'normal' or '**fire alarm**' conditions.

BS 4422

**type of protection** Classification of methods used to prevent **ignition** of **explosive atmospheres** by electrical equipment.

*Note* The **classifications** include:

- Type 'd': **flameproof enclosure**. Apparatus in which parts that can **ignite** an **explosive atmosphere** are placed in an **enclosure** which can withstand the pressure developed during an **explosion** of the atmosphere within the enclosure and which can prevent the transmission of the explosion to the atmosphere surrounding the enclosure.
- Type 'e': (applied only to apparatus which in normal service produces no arcs or **sparks**, and will have no parts exceeding a specified **limiting temperature**). Additional measures to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks during the service life of the apparatus.
- Type 'I': **intrinsic safety**. Apparatus in which the contained energy is such that no **spark** or thermal effect produced under specified test conditions (which include normal operation and specific fault condition) is capable of causing **ignition** of a given **explosive atmosphere**. This **type of protection** will normally place consequent requirements on associated apparatus and connecting cables.
- Type 'm': encapsulation electrical apparatus in which any part which could **ignite** an **explosive atmosphere** by either sparking or heating is enclosed in a com-

- pound in such a way that this explosive atmosphere cannot be ignited.
- Type ‘n’: electrical apparatus such that, in normal operation, it is not capable of igniting a surrounding **explosive atmosphere**, and in which a fault capable of causing **ignition** is not likely to occur.
  - Type ‘o’: oil immersion electrical apparatus which, wholly or in part, is immersed in a protective liquid in such a way that an **explosive atmosphere** which can be above the liquid or outside the **enclosure** cannot be **ignited**.
  - Type ‘p’: **pressurization** electrical apparatus whose **enclosure** is filled with a protective gas maintained at a higher pressure than that of the surrounding atmosphere.
  - Type ‘q’: powder filling electrical apparatus whose **enclosure** is filled with a **material** in a finely granulated **state** to that, at the intended conditions of service, any arc, **spark** or **high temperature** occurring within the enclosure will not **ignite** the surrounding atmosphere.
  - Type ‘s’: special **protection** electrical apparatus that, by its nature, does not comply with the constructional or other requirements specified for apparatus with established types of protection, but which, nevertheless, can be shown, where necessary by test, to be suitable for use in **hazardous areas** prescribed **hazard zones**.

**BS 4422**

# U

**UEL** See **explosive limits <upper (UEL)>**.  
BS 4422

**UFL** See **upper flammability limit (UFL)**.  
FDIS 13943

**ullage** Vertical distance or free volume between the liquid surface in an open vessel and the rim of the vessel.  
BS 4422

**ultimate stability failure** Change in the **test specimen** which is of sufficient magnitude to result in its rupture or **collapse** after a very short period of time in a standard **fire resistance** test.  
BS EN ISO 13943

**unacceptable hazard** Degree of **hazard** that is regarded by society in general as too great to be allowed to occur repeatedly.  
BS 4422

**unbalanced system** See **extinguishing system <unbalanced>**.  
BS 4422

**uncovered shopping complex** **Shopping complex** that does not include a covered mall.  
BS 5588-10

**unexposed side** Face of the element which is remote from **fire** in a **fire test** of a **separating element**.  
BS 4422

**uninsulated fire damper** **Fire damper** which satisfies the **integrity** criteria for the anticipated **fire resistance** period, but which provides not more than 5 min **insulation**.  
BS EN 1366-2

**uninsulated glazing** **Fire resistant glazing** which satisfies the **integrity** and, where

required, the radiation criteria for the anticipated **fire resistance** period but which is not intended to provide **insulation**.  
BS EN 1365-2

**uninsulated wall** Wall, with or without glazing, which satisfies the **integrity** and, where required, the radiation criteria for the anticipated **fire resistance** period, but which is not intended to provide **insulation**.

*Note* Such a wall may consist entirely of uninsulated fire resistant panels.  
BS EN 1364-1

**uninterruptible power supply (UPS)** Device that provides emergency backup power, by way of a charged battery or a generator.  
*Building Material and Operations RC3f Part 6: Protection against Electrical Disturbance*

**unit** Premises in individual occupancy which forms part of a **shopping complex**.  
*Note* This includes all shops and any other business premises serviced by a **mall** or walkway, but does not include places of **assembly**, blocks of offices, hotels or **dwelling accessible** from a **shopping complex**.  
BS 5588-10

**unit exit** Termination of an **escape route** from within a **unit**. This may be a **point** at which persons enter a common area.  
BS 5588-10

**unprotected area** Part of a side or **external wall** of a building having a lower **fire resistance** than that required for elements of structure of the building, or clad with **combustible material** such that if **ignited** it would produce significant **thermal radiation**.  
BS 4422

**unprotected corridor** Corridor which may form part of an **escape route**.

*Fire and the Design of Educational Buildings. Building Bulletin 7. Sixth Edition. 1997*

**unprotected zone** Part of an **escape route**, which is separated by walls, glazed screens or any other permanent form of demarcation from any space intended for human occupation, including a **protected zone**.

**The Building (Scotland) Regulations 2004**

**unventilated floor and roof assembly** Assembly in which the **cavity** between the **floor** or **roof soffit** and the **suspended ceiling** is entirely surrounded by barriers which have the effect of restricting the transfer of **fire gases**.

**BS 4422**

**upper explosion limit (UEL)**

**upper explosive limit** See **explosive limit <upper (UEL)>**.

**BS 4422**

**upper explosion point** See **explosion point <upper>**.

**BS 4422**

**upper flammability limit (UFL)** Maximum **concentration** of **fuel** vapour in air above which propagation of a **flame** will not occur in the presence of an **ignition source**.

*Note* The **concentration** is usually expressed as a **volume fraction** at a defined temperature and pressure, and expressed as a percentage.

**FDIS 13943**

**upright sprinkler** See **sprinkler <upright>**.

**BS 4422**

**user** Person(s) responsible for or having effective control over fire safety provisions adopted in or appropriate to the premises or the building.

**BS 4422**

# V

**V-0 class material** Material that, when tested in accordance with specified conditions, may **flame** or **glow** but will **extinguish** in an average period of time not exceeding 5 s; **glowing** particles or **flaming drops** released do not **ignite** surgical cotton.

\*BS EN 60950

**V-1 class material** Material that, when tested in accordance with specified conditions, may **flame** or **glow** but will **extinguish** within an average period of time not exceeding 25 s; **glowing** particles or **flaming drops** released do not **ignite** surgical cotton.

\*BS EN 60950

**V-2 class material** Material that, when tested in accordance with specified conditions, may **flame** or **glow** but will **extinguish** within an average period of time not exceeding 25 s; **glowing** particles or **flaming drops** released may **ignite** surgical cotton.

\*BS EN 60950

**5V class material** Material that, when tested in accordance with specified conditions, may **flame** or **glow** but will **extinguish** within a prescribed period of time; **glowing** particles or **flaming droplets** do not **ignite** surgical cotton.

\*BS EN 60950

**valve <alarm test>** See **sprinkler alarm test valve**.

BS 4422

**valve <check>** See **sprinkler check valve**.

BS 4422

**valve <stop>** See **sprinkler stop valve**.

BS 4422

**valve operated stored pressure extinguisher** Stored pressure **extinguisher** in which a

single valve serves both to retain the propellant and **extinguishing medium** before operation of the **extinguisher**, and to control the flow of medium during discharge.

BS 5306-3

**vaporizing liquid fire extinguisher <gas cartridge>** Fire **extinguisher** containing a vaporizing liquid which is expelled by pressure from a cartridge of compressed gas attached to or fitted into the **extinguisher**.

*Fire Service Training Manual*

**vaporizing liquid fire extinguisher <stored pressure>** Fire **extinguisher** containing a vaporizing liquid which is expelled by pressure stored within the **body** of the **extinguisher**.

*Fire Service Training Manual*

**vapour cloud explosion (VCE)** **Explosion** in the open air of a cloud made up of a mixture of a **flammable gas** or vapour with air.

BS 4422

**vent** A window, rooflight, door, louvre, **grille** or other device either open or capable of being opened, to permit the passage of air between a part of the building and the external air.

DD 9999

**virtual origin** Point or line from which **plume** appears to have emerged.

*Note* It can be above or below the real **fire** source depending on its buoyancy and momentum.

PD 7974-2

**visibility** Maximum distance at which an object of defined size, brightness and contrast can be seen and recognized.

FDIS 13943

**vision panel** Transparent panel in a wall or door of an **inner room** enabling the occupant to become aware of a **fire** in the access area during the early stages.

*Fire Safety – Risk Assessment*

**vitiated air** Air in which the oxygen content has been reduced as a result of **combustion**.  
**DD 9999**

**voice alarm system** Sound distribution system that provides means for automatically broadcasting speech messages and warning signals.  
**BS 4422**

**volatile memory** Memory that requires the presence of an energy source for the retention of its contents.

*Note* Some types of memory can retain their contents for a limited period without power. Unless the period for which the contents can be kept exceeds 6 months without the use of power external to the memory, the memory is considered as volatile.

\***BS 5839-4**

**volume factor** Numerical factor that, when applied to the volume of an **enclosure**, indicates the basic quantity of **carbon dioxide** required for **protection** against **surface fires**.  
**BS 4422**

**volume fraction <gas in a gas mixture>**

Ratio of:

- the volume that the gas alone would occupy at a defined temperature and pressure, to:
- the volume occupied by the gas mixture at the same temperature and pressure.

*Note 1* The **concentration** of a gas at a temperature,  $T$ , and a pressure,  $P$ , can be calculated from its **volume fraction** (assuming ideal gas behaviour) by multiplying the volume fraction by the density of the gas at that temperature and pressure.

*Note 2* Unless stated otherwise, a temperature of 298 K and a pressure of 1 atm are assumed.

*Note 3* It is dimensionless and is usually expressed in terms of  $\mu\text{L L}^{-1}$  ( $=\text{cm}^3\text{ m}^{-3}=10^{-6}$ ), or as a percentage.

**FDIS 13943**

**volume yield** Volume, at 298 K and 1 atm, of a **component** of **fire effluent** divided by the **mass loss** of the **test specimen** associated with the production of that volume.

*Note* The typical units are  $\text{m}^3\text{ g}^{-1}$ .

**FDIS 13943**



# W

**walking speed** Unrestricted speed of movement of a person.

PD 7974-6

**walking time** Time taken for person to walk from their starting position to the nearest **exit**, assuming **walking speed** is unrestricted.

PD 7974-6

**warden** A person appointed to undertake prescribed duties leading to the effective and orderly evacuation of all or part of the premises in **event of fire**.

BS 4422

**warning device** Device that gives an indication at the **protected** location that an **alarm condition** has occurred at the protected location.

\*BS 4737-2

**warning sign** **Safety sign** that gives warning of a **hazard**.

BS 4422

**water extinguishing system** See **extinguishing system <water>**.

BS 4422

**water fire extinguisher** Fire extinguisher containing water with or without additives as **extinguishing medium**.

ISO 8421-4

**water fire extinguisher <gas cartridge>** Fire extinguisher in which the water is expelled by pressure from a cartridge of compressed gas attached to or fitted into the **extinguisher**.

*Fire Service Training Manual*

**water fire extinguisher <soda acid>** Fire extinguisher from which the medium is

expelled by gas pressure from an acid/alkali reaction in the contents of the **extinguisher**.

*Fire Service Training Manual*

**water fire extinguisher <stored pressure>**

Fire extinguisher from which water is expelled by pressure stored within the **body** of the **extinguisher** as a whole.

*Fire Service Training Manual*

**water flow indicator** Device, electrical or mechanical which indicates a water flow.

BS 4422

**water fog** Water discharged from a **nozzle** in finely dispersed form (mist) at high pressure, used to rapidly absorb heat, eject **smoke** and minimize water damage.

BS 4422

**water fog nozzle** Hand-controlled **nozzle** which produces water in finely dispersed (mist) form, generally at high pressure.

BS 4422

**water relay <pumping>** Transfer of water to the **fire ground** from a remote water supply by the interposing of intermediate pumps in the hose **line**.

BS 4422

**water relay <shuttle>** Transport of water to the **fire ground** from a remote water supply using water tankers.

BS 4422

**water spray** Water discharged from a **nozzle** in dispersed form used to obtain maximum spread of the **extinguishing medium**.

BS 4422

**water spray projector** Nozzle fitted to a water pipe and designed to produce a high pressure **water spray**.

BS 4422

**water spray projector system** System of water pipes fitted with water spray projectors and the means of bringing them into operation.

BS 4422

**water spray system** System, similar in principle to a **sprinkler system**, that is designed to **extinguish flammable liquid fires**, or to provide cooling to an exposed area likely to be subjected to intense heat radiation from a neighbouring fire.

BS 4422

**water tender** Self-propelled appliance having a built-in pump, water tank and extension ladder, respectively of specified throughput, capacity and length.

BS 4422

**water tender escape** Water tender carrying a **wheeled escape**.

BS 4422

**water tender ladder** Water tender carrying a 30.5 m ladder.

*Fire Service Training Manual*

**way guidance** Low mounted luminous tracks positioned on **escape routes** in combination with **exit marking** and intermediate direction indicators along the route, provided for use when the supply to the **normal lighting** fails, which do not rely on an electrical supply for their luminous output.

*Fire Safety – Risk Assessment*

**way guidance system** System of markers or indicators provided to delineate the designated **escape routes**.

*Note* The guidance provided should be such that persons are not left in doubt as to the route to be followed.

BS 4422

**way guidance system <low mounted>**

**Way guidance system** designed to be seen below **smoke** level.

BS 4422

**wet riser** Vertical pipe installed in a building for firefighting purposes fitted with **landing valves** at specified **points** and permanently charged with water from a pressurized supply.

BS 4422

**wheeled escape** Wheeled extending ladder, usually mounted on a **fire appliance** from which it can be removed and manoeuvred into position for **rescue** or **fire-fighting** purposes.

BS 4422

**wicking** Transmission of a fluid through or over a particulate or fibrous **material** by capillary action.

BS EN ISO 13943

**width <doorway>** Clear width of a doorway when the door is open, but ignoring small obstructions such as door hardware which do not intrude more than 100 mm into the doorway.

BS 4422

**width <escape route>** Clear width of a corridor or other designated **escape route**, measured at 1500 mm above **floor** level, defined by walls or other fixed obstructions, but ignoring small obstructions such as door hardware which do not intrude more than 100 mm.

BS 4422

**width <stairway>** Clear width of a stairway measured between the walls or balustrades, maintained clear for a vertical distance of two metres measured from the pitch **line** or landing **floor** level, but ignoring small obstructions such as door hardware, handrails, etc. which do not intrude more than 100 mm.

BS 4422

**width of flameproof joint** See **flameproof joint**, width of.

BS 4422

**winch <hand operated>** Manually operated winch, capable of very fine adjustment, used in **rescue** situations such as realignment of steering wheels, car seats or stabilizing a vehicle.

ISO 8421-8

**winch <mechanical>** Power-operated winch driven by the road engine or electrically.

ISO 8421-8

**working fly gallery** Fly gallery, usually the lowest if more than one gallery is provided,

which is likely to be occupied, during performances, by staff operating suspension lines.

BS 5588-6

**worst case scenario** Set of credible conditions that, when taking account of the building, its contents and occupants, gives rise to the highest level of **fire risk**.

PD 7974-0

# Y

**yield <combustion product>** Mass of a **combustion product** generated during **combustion** divided by the **mass loss** of the **test specimen**.

*Note* It is dimensionless.

**FDIS 13943**

# Z

**zero point of specimen** Point of initiation of **flaming combustion**.

\*BS ISO 9239-1

**zone** See **alarm zone, detection zone, hazard zone, smoke control zone, sprinkler zone**.

BS 4422

**zone 0** Area in which an explosive gas atmosphere is present continuously or for long periods.

BS EN 60079-10

**zone 1** Area in which an explosive gas atmosphere is likely to occur in normal operation.

BS EN 60079-10

**zone 2** Area in which an explosive gas atmosphere is not likely to occur in normal operation and, if it does occur, is likely to do so only infrequently and will exist for a short period only.

*Note* Indications of the **frequency** and - occurrence and **duration** may be taken from codes relating to specific industries or applications.

BS EN 60079-10

**zone indicator** Part of **indicating equipment** which visually indicates the **zone** of origin of an **alarm of fire** or **fault warning**.

\*BS 4422-3 (ISO 8421-3)

**zone model** Theoretical simulation of the whole system characterizing the **enclosure fire** by a series of relatively few separable **component** processes. Each component is represented by an equation or estimation formula.

PD 7974-2

**zoned smoke control** System that combines **depressurization** of the **smoke control zone** containing the **fire** and **pressurization** for all contiguous spaces requiring **protection**.

BS 4422



# Acronyms used in Fire Safety

<b>Acronym</b>	<b>Full Name</b>
ABI	Association of British Insurers
ABE	Association of Building Engineers
ABFT	Association of British Fire Trades
ABTT	Association of British Theatre Technicians
AC	Audit Commission
ACAS	Advisory, Conciliation and Arbitration Service
ACF	Arson Control Forum
ACoP	Approved Code of Practice
ADB	Approved Document B
AENOR	Asociación Española de Normalización (Spanish national standards body)
AFA	Automatic Fire Alarm
AFD	Automatic Fire Detection
AFFF	Aqueous Film Forming Foam
AFS	Auxiliary Fire Service
ALG	Association of London Government
AMAO	Assumed Maximum Area of Operation
ANSI	American National Standards Institute
APFO	Association of Principal Fire Officers
APPFSG	All Party Parliamentary Fire Safety Group
APPLG	All Party Parliamentary Lighting Group
ASET	Available Safe Escape Time

---

ASFP	Association for Specialist Fire Protection
ASH	Action on Smoking and Health
ASRO	Romanian Standards Association (Romanian national standards body)
ASTM	American Society for Testing and Materials
BAFE	British Approvals for Fire Equipment
BASA	British Automatic Sprinkler Association
BASMP	Institute for Standards, Metrology and Intellectual Property of Bosnia (Bosnian CEN Partner Standardization Body)
BCGA	British Compressed Gases Association
BCSF	Business and Community Safety Forum
BD	Buildings Division
BDAG	Building Disaster Assessment Group
BFPSA	British Fire Protection Systems Association Ltd
BFTA	British Fire Trades Association
BHA	British Hospitality Association
BHSEA	Birmingham Health, Safety and Environment Association
BLEVE	Boiling Liquid Expanding Vapour Explosion
BNFL	British Nuclear Fuels Ltd
BRAC	Building Regulations Advisory Committee
BRANZ	Building Research Association of New Zealand
BRE	Building Research Establishment
BRTF	Better Regulation Task Force
BS	British Standard
BSAC	Building Standards Advisory Committee (Scottish)
BSI	British Standards Institution (UK national standards body)
BSIF	British Safety Industry Federation
BVPI	Best Value Performance Indicator
BWF	British Woodworking Federation



---

CAB	Citizens' Advice Bureau(x)
CACFOA	Chief and Assistant Chief Fire Officers Association
CBI	Confederation of British Industry
CBRN	Chemical Biological Radiological Nuclear
CCAAct 2004	Civil Contingency Act 2004
CEA	Cinema Exhibitors Association
CEA	Comite Europeen des Assurances
CEFIC	European Chemical Industry Council
CEN	European Committee for Standardization
CEN/MC	European Committee for Standardization Management Centre
CFA	Combined Fire Authority
CFBAC	Central Fire Brigades Advisory Council
CFO	Chief Fire Officer
CFS	Community Fire Safety
CharM	Loughborough University Centre for Hazard and Risk Management
CHCS	Chemical Hazards Communications Society
CIA	Chemical Industries Association
CIF	Construction Industry Federation
CIMAH	Control of Industrial Major Accident Hazards (superseded by COMAH)
CISRR	Cranfield Institute for Safety, Risk and Reliability
CNI	Czech Standards Institute (Czech Republic national standards body)
COBRA	Cabinet Office Briefing Room A (Emergency Planning)
COMAH	Control of Major Accident Hazards (supersedes CIMAH)
CORGI	The Council for Registered Gas Installers
COSHH	Control of Substances Hazardous to Health
COSIA	Convention of Scottish Local Authorities
CPA	Comprehensive Performance Assessment
CPD	Construction Products Directive (89/106/EEC)

---

CPIG	Crown Premises Inspection Group
CRD	Civil Resilience Directorate
CSDF	Cold Storage and Distribution Federation
CTIF	International Technical Committee for the Prevention and Extinction of Fire
CYS	Cyprus Organization for Standardisation (Cypriot national standards body)
DA	Domestic Affairs Committee
DAV	Date of Availability of a European standard
DCLG	Department for Communities and Local Government
DCMS	Department for Culture Media & Sport
DCOI	Dear Chief Officer letter
DD	Draft for Development
DfES	Department for Education and Skills
DfT	Department of Transport
DG ENTR	European Commission Enterprise Directorate-General
DG SANCO	European Commission Directorate-General Health and Consumer Protection
DIN	Deutsches Institut für Normung e.V. (German national standards body)
DoH	Department of Health
DoW	Date of withdrawal of conflicting national standards
DS	Dansk Standard (Danish national standards body)
DSEAR	Dangerous Substances and Explosives Atmospheres Regulations
DSSU	State Committee of Ukraine on Technical Regulation and Consumer Policy (Ukrainian CEN partner standardization body)
DTI	Department for Trade and Industry
EA	Environment Agency
EC	European Commission
ECA	Electrical Contractors Association

---

ECD	Engineering Council Division
EFRA	European Flame Retardant Association
ELOT	Hellenic Organization for Standardization (Greek national standards body)
EN	European Norm
EN Eurocode	Version of Eurocode approved by CEN as a European Standard
ENV	European pre-standard
ENV Eurocode	Version of Eurocode published by CEN as a pre-standard (ENV for subsequent conversion into an EN)
EOS	Egyptian Organization for Standardization and Quality (Egyptian CEN partner standardization body)
EOTA	European Organisation for Technical Approval (Article 9.2 of the CPD)
EP	European Parliament
ERA	English Regional Assembly
ESCIFS	European Sectorial Committee on Fire and Security
ESFR	Early Suppression Fast Response
ESP	Electronic Surge Protection
ETA	European Technical Approval
ETAG	European Technical Approval Guideline
EU	European Union
EVS	Estonian Centre for Standardisation (Estonian national standards body)
FASET	Fall Arrest Safety Equipment Training
FBE	Foundation for the Built Environment
FBU	Fire Brigades Union
FDR1	Fire Damage Report 1
FDR2	Fire Damage Report 2
FDR3	Fire Damage Report 3
FEJ	<i>Fire Engineers Journal</i>

---

FETA	Fire Extinguishing Trades Association
FEU	Fire Experimental Unit
FFFP	Film-Forming Fluoroprotein
FFVMA	Firefighting Vehicle Manufacturers' Association
FHSD	Fire Health and Safety Directorate
FHSDS	Fire Health and Safety Directorate Secretariat
FIC	Fire Industry Confederation
FIFireE	Fellow of the Institution of Fire Engineers
FLSP	Fire Legislation Safety and Pensions Division
FLSP	Fire Legislation Safety and People Division
FM	Factory Mutual
FOA	Fire Officers Association
FP	Fluoroprotein Foam
FPA	Fire Protection Association
FPA 1971	Fire Precautions Act 1971
FPS	Firefighters Pension Scheme
FPWR	Fire Precautions (Workplace) Regulations
FRA	Fire and Rescue Authority
FRD	Fire Research Division
FRD	Fire Resilience Directorate
FRGGSA	Fire Resisting Glass and Glazed Systems Association
FRS	Fire Research Station (now part of BRE)
FRSIT	Fire and Rescue Service Improvement Team
FRSUG	Fire and Rescue Statistics User Group
FSAB	Fire Safety Advisory Board
FSB	Federation of Small Businesses
FSC	Fire Service College
FSDG	Fire Safety Development Group
FSE	Fire Safety Engineering

---

FSec	Fire Service Emergency Cover
FSED	Fire Service Effectiveness Division
FSEG	Fire Safety Engineering Group
FSI	Flame Spread Index
FSI	Fire Service Inspectorate, properly Her Majesty's Fire Service Inspectorate
FSIG	Fire Service Implementation Group
FSIT	Fire Service Improvement Team
FSNBF	Fire Services National Benevolent Fund
FSRD	Fire Statistics and Research Division
FSSAA	Fire Service Sports and Athletics Association
FSUG	Fire Statistics User Group – see also FRSUG
FSYTA	Fire Service Youth Training Association
GMHC	Greater Manchester Hazards Centre Ltd
HASTAM	Health and Safety Technology and Management Ltd
HASWA	Health and Safety at Work Act
HBFSC	Historic Buildings Fire Safety Committee
HEN	Harmonised European standard for a construction product (to enable CE marking)
HF	The Hazards Forum
HMFSI	Her Majesty's Fire Service Inspectorate (see FSI)
HMO	House in Multiple Occupation
HR	Human Resources
HSC	Health and Safety Commission
HSE	Health and Safety Executive
HSENI	Health and Safety Executive for Northern Ireland
HTM	Health Technical Memorandum
IACSC	International Association of Cold Storage Contractors
IBC	International Building Code

---

IBN or BIN	Institut Belge de Normalisation Belgisch Instituut voor Bormalisatie (Belgian national standards body)
ICA	Industry Committee on Emergency Lighting
ICC	International Code Council
ICE	Institute of Civil Engineers
ICEL	Industry Committee for Emergency Lighting
ICPT	Innovative Construction Products and Techniques Group
ID	Interpretative Documents (Article 11 of the CPD)
IEC	International Electrotechnical Commission
IEE	Institution of Electrical Engineers
IFC	International Fire Code
IFE	Institution of Fire Engineers
IFEDA	Independent Fire Equipment Distributors Association
IGE	Institution of Gas Engineers
IIRSM	International Institute of Risk and Safety Management
INORPI	National Institute for Standardization and Industrial Property (Tunisian CEN partner standardization body)
IOSH	Institution of Occupational Safety and Health
IPDS	Integrated Personal Development System
IPMS	Integrated Personnel Management System
IPQ	Instituto Português da Qualidade (Portuguese national standards body)
IRMP	Integrated Risk Management Plans
ISC	International Safety Council
ISO	International Organization for Standardization
ISSM	Institution for Standardization of Serbia and Montenegro (Serbian and Montenegro CEN partner standardization body)
IST	Icelandic Standards (Icelandic national standards body)
LAPS	Local Authority Partnership Schemes

LB	London Borough
LFEPA	London Fire and Emergency Planning Authority
LGA	Local Government Association
LGLF	Local Government Licensing Forum
LP	Legislative Programme
LPCB	Loss Prevention Certification Board
LPS	Loss Prevention Standard
LPS	Lightning Protection System
LST	Lithuanian Standards Board (Lithuanian national standards body)
LVS	Latvian Standards (Latvian national standards body)
MCA	Maritime and Coastguard Agency
MHSW	Management of Health & Safety at Work Regulations
MIFireE	Member of the Institution of Fire Engineers
MSA	Maritime Safety Agency
MSA	Malta Standard Authority (Maltese national standards body)
MSZT	Hungarian Standards Institute (Hungarian national standards body)
NACAB	National Association of Citizens' Advice Bureaux
NAD	National Application Document for the use of ENV Eurocodes at the national level
NAFO	National Association of Fire Officers
NAO	National Audit Office
NARC	National Access and Rescue Centre
NAW	National Assembly for Wales
NCEC	National Chemical Emergency Centre
NCFSC	National Community Fire Safety Centre
NCVO	National Council of Voluntary Organisations
NDP	Nationally Determined Parameter
NEMA	National Electrical Manufacturers' Association

---

NEN	Nederlands Normalisatie-instituut (Netherlands national standards body)
NFPA	National Fire Protection Association
NFSN	National Fire Sprinkler Network
NH&SGC	National Health and Safety Groups Council
NHS	National Health Service
NICEIC	National Inspection Council for Electrical Installation Contractors
NII	Nuclear Installations Inspectorate
NIST	National Institute for Standards and Technology
NJC	National Joint Council for Local Authorities' Fire Brigades
NRCC	National Research Council of Canada
NRPB	National Radiological Protection Board
NSAI	National Standards Authority of Ireland (Irish Republic national standards body)
NSB	National Standards Body (CEN member)
ON	Österreichisches Normungsinstitut (Austrian national standards body)
PASG	Performance Assessment Steering Group
PCT	Primary Care Trust
PD	Published Document
PF	Practitioners Forum
PFI	Public Finance Initiative
PFPF	Passive Fire Protection Federation
PKN	Polish Committee for Standardization (Polish national standards body)
PMDU	Prime Minister's Delivery Unit
PPD	Public Procurement Directives
PPG 21	Planning Policy Guidance
PSA	Public Service Agreement
PSA	Photoluminescent Signs Association



---

REPPIR	The Radiation (Emergency Preparedness and Public Information) Regulations
RFU	Retained Fire-fighters Union
RIA	Regulatory Impact Assessment
RIBA	Royal Institute of British Architects
RICS	Royal Institute of Chartered Surveyors
RICS BCF	Royal Institute of Chartered Surveyors Building Control Forum
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
RIFA	Rail Industry Fire Association
RMB	Regional Management Board
RMFA	Remotely Monitored Fire Alarm System
RoSPA	Royal Society for the Prevention of Accidents
RR(FS)O	Regulatory Reform (Fire Safety) Order
RRA	Regulatory Reform Act
RSA	Residential Sprinkler Association
RSET	Required Safe Escape Time
RSL	Registered Social Landlord
RTA	Road Traffic Accident
RTI	Response Time Index
Russia	Federal Agency on Technical Regulating and Metrology (Russian Federation CEN partner standardization body)
SBS	Small Business Service
SCA	Smoke Control Association
SCC	Standing Committee on Construction (Articles 19 & 20 of the CPD)
SCOFF	Standing Committee on Flammability of Furniture
SCOFS	Sectorial Committee on Fire Safety
SDA	Service Delivery Agreement
SDAP	Sustainable Development Action Plan

---

SEE	Service de l'Énergie de l'État Organisme Luxembourgeois de Normalisation (Luxembourg national standards body)
SEJD	Scottish Executive Justice Department
SEU	Social Exclusion Unit
SFPE	Society of Fire Protection Engineers
SFS	Suomen Standardisointiliitto r.y. (Finnish national standards body)
SIS	Swedish Standards Institute (Swedish national standards body)
SIST	Slovenian Institute for Standardization (Slovenian national standards body)
SN	Standard Norge (Norwegian national standards body)
SNV	Schweizerische Normen-Vereinigung (Swiss national standards body)
SSA	Standard Spending Assessment
SUTN	Slovak Standards Institute (Slovakian national standards body)
TRADA	Timber Research and Development Association
TUC	Trades Union Congress
UBC	Uniform Building Code
UKAS	United Kingdom Accreditation Service
UL	Underwriters Laboratories
UNI	Ente Nazionale Italiano di Unificazione (Italian national standards body)
USAR	Urban Search and Rescue
VCS	Voluntary and Community Sector
VESDA	Very Early Smoke Detection Apparatus
WAG	Welsh Assembly Government

# Bibliography

## Standards

- \*BS 476-3:1975, *Fire tests on building materials and structures — Part 3: Classification and method of test for external fire exposure to roofs*
- BS 476-10:1983, *Fire tests on building materials and structures — Part 10: guide to the principles and application of fire testing*
- BS 476-12:1991, *Fire tests on building materials and structures — Part 12: Method of test for ignitability of products by direct flame impingement*
- BS 476-13:1987 (ISO 5657:1986), *Fire tests on building materials and structures — Method of measuring the ignitability of products subjected to thermal irradiance*
- BS 476-15:1993 (ISO 5660-1:1993), *Fire tests on building materials and structures — Method for measuring the rate of heat release of products*
- BS 476-20:1987, *Fire tests on building materials and structures — Part 20: Method for determination of the fire resistance of elements of construction (general principles)*
- BS 476-22:1987, *Fire tests on building materials and structures — Part 22: Methods for determination of the fire resistance of non-loadbearing elements of construction*
- BS 476-32:1989, *Fire tests on building materials and structures — Part 32: Guide to full scale fire tests within buildings*
- BS 1846-1:1994, *Glossary of terms relating to solid fuel burning equipment — Domestic appliances*
- BS 1945:1971, *Specification for fireguards for heating appliances (gas, electric and oil-burning)*
- BS 3900-A9:1986 (BS 6664-2:1986 ISO 1523:1983), *Methods of test for paints — Determination of flashpoint (closed cup equilibrium method — Flashpoint of petroleum and related products — Part 2: Method for determination of flashpoint (closed cup equilibrium method)*
- BS 4422:2005, *Fire — Vocabulary*
- \*BS 4422-1:1987 (ISO 8421-1:1986), *Glossary of terms associated with fire — Part 1: General terms and phenomena of fire*
- \*BS 4422-2:1971

---

\* This Standard has now been withdrawn.

- \*BS 4422-2:1990, *Glossary of terms associated with fire — Part 2: Structural fire protection*
- \*BS 4422-3:1990 (ISO 8421-3:1989), *Glossary of terms associated with fire — Part 3: Fire detection and alarm*
- \*BS 4422-4:1994, *Glossary of terms associated with fire — Part 4: Fire extinguishing equipment*
- \*BS 4422-5:1989 (ISO 8421-5:1988), *Glossary of terms associated with fire — Part 5: Smoke control*
- \*BS 4422-6:1988 (ISO 8421-6:1987), *Glossary of terms associated with fire — Evacuation and means of escape*
- \*BS 4422-7:1988 (ISO 8421-7:1987), *Glossary of terms associated with fire — Explosion detection and suppression means*
- \*BS 4422-9:1990, *Glossary of terms associated with fire — Part 9: Marine terms*
- BS 4533-102.22:1990 (EN 60598-2-22:1990), *Luminaires — Part 102: Particular requirements — Section 102.22 Specification for luminaires for emergency lighting*
- BS 4678-4:1982, *Cable trunking — Part 4: Specification for cable trunking made of insulating material*
- \*BS 4737-1:1986, *Intruder alarm systems in buildings — Part 1: Specification for installed systems with local audible and/or remote signalling*
- \*BS 4737-2:1986, *Intruder alarm systems — Specification for installed systems for deliberate operation*
- BS 5041-4:1975, *Fire hydrant systems equipment — Part 4: Specification for landing valves for dry risers*
- BS 5041-5:1974, *Fire hydrant systems equipment — Part 5: Specification for boxes for foam inlets and dry riser inlets*
- \*BS 5266-1:1998, *Emergency lighting — Part 1: Code of practice for the emergency lighting of premises*
- BS 5266-2:1998, *Emergency lighting — Part 2: Code of practice for electrical low mounted way guidance systems for emergency use*
- BS 5268-4.2:1990, *Structural use of timber — Part 4: Fire resistance of timber structures — Section 4.2 Recommendations for calculating fire resistance of timber stud walls and joisted floor constructions*
- BS 5306-0:1986, *Fire extinguishing installations and equipment on premises — Guide for the selection of installed systems and other fire equipment*
- \*BS 5306-1:1976, *Fire extinguishing installations and equipment on premises — Part 1: Hydrant systems, hose reels and foam inlets*
- BS 5306-2:1990, *Fire extinguishing installations and equipment on premises — Part 2: Specification for sprinkler systems*
- \*BS 5306-3:2000, *Fire extinguishing installations and equipment on premises — Part 3: Maintenance of portable fire extinguishers — Code of practice*

---

\* This Standard has now been withdrawn.

- BS 5306-3:2003, *Fire extinguishing installations and equipment on premises — Part 3: Code of practice for the inspection and maintenance of portable fire extinguishers*
- BS 5306-4:2001, *Fire extinguishing installations and equipment on premises — Part 4: Specification for carbon dioxide systems*
- BS 5306-5.1:1992, *Code of practice for fire extinguishing installations and equipment on premises — Part 5: Halon systems — Section 5.1 Specification for halon 1301 total flooding systems*
- BS 5306-5.2:1984, *Code of practice for fire extinguishing installations and equipment on premises — Part 5: Halon systems — Section 5.2: Halon 1211 Total flooding systems*
- BS 5306-6.1:1988, *Fire extinguishing installations and equipment on premises — Part 6: Foam systems — Section 6.1 Specification for low expansion foam systems*
- BS 5306-6.2:1989, *Fire extinguishing installations and equipment on premises — Part 6: Foam systems — Section 6.1 Specification for low expansion foam systems*
- BS 5306-7:1988, *Fire extinguishing installations and equipment on premises — Part 7: Specification for powder systems*
- \*BS 5345-3:1979, *Code of practice for selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosive processing and manufacture) — Part 3: Installation and maintenance requirements for electrical apparatus with type of protection 'd'. Flame-proof enclosure*
- \*BS 5345-4:1977, *Code of practice for selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosive processing and manufacture) — Part 4: Installation and maintenance requirements for electrical apparatus with type of protection 'i'. Intrinsically safe electrical apparatus and systems*
- \*BS 5345-5:1983, *Code of practice for selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres (other than mining applications or explosive processing and manufacture) — Part 5: Installation and maintenance requirements for electrical apparatus protected by pressurization 'p' and by continuous dilution, and for pressurized rooms*
- \*BS 5378-1:1980, *Safety signs and colours — Part 1: Specification for colour and design*
- \*BS 5396:1976, *Specification for seamless steel CO containers for fixed fire-fighting installations on ships*
- BS 5446-1:2000, *Fire detection and fire alarm devices for dwellings — Part 1: Specification for smoke alarms*
- BS 5499-5: 2002, *Graphical symbols and signs — Safety signs, including fire safety signs — Part 5: Signs with specific safety meanings*

---

\* This Standard has now been withdrawn.

- \*BS 5501-1:1997 (EN 50014:1977), *Electrical apparatus for potentially explosive atmospheres — Part 1: General requirements*
- \*BS 5501-9:1982 (EN 50039:1980), *Electrical apparatus for potentially explosive atmospheres — Part 9: Specification for intrinsically safe electrical systems 'I'*
- BS 5502-23:2004, *Buildings and structures for agriculture — Part 23: Fire precautions — Code of practice*
- BS 5588-1:1990, *Fire precautions in the design, construction and use of buildings — Part 1: Code of practice for residential buildings*
- \*BS 5588-4:1998, *Fire precautions in the design, construction and use of buildings — Part 4: Code of practice for smoke control using pressure differentials*
- \*BS 5588-5:1991, *Fire precautions in the design, construction and use of buildings — Part 5: Code of practice for firefighting stairs and lifts*
- BS 5588-5:2004, *Fire precautions in the design, construction and use of buildings — Part 5: Access and facilities for fire-fighting*
- BS 5588-6:1991, *Fire precautions in the design, construction and use of buildings — Part 6: Code of practice for places of assembly*
- BS 5588-7:1997, *Fire precautions in the design, construction and use of buildings — Part 7: Code of practice for the incorporation of atria in buildings*
- BS 5588-8:1999, *Fire precautions in the design, construction and use of buildings — Part 8: Code of practice for means of escape for disabled people*
- BS 5588-9:1999, *Fire precautions in the design, construction and use of buildings — Part 9: Code of practice for ventilation and air conditioning ductwork*
- BS 5588-10:1991, *Fire precautions in the design, construction and use of buildings — Part 10: Code of practice for shopping complexes*
- BS 5588-11:1997, *Fire precautions in the design, construction and use of buildings — Part 11: Code of practice for shops, offices, industrial, storage and other similar buildings*
- BS 5722:1991, *Specification for flammability performance of fabrics and fabric combinations used in nightwear garments*
- \*BS 5810:1979, *Code of practice for access for the disabled to buildings*
- \*BS 5839-1:1988, *Fire detection and alarm systems for buildings — Part 1: Code of practice for system design, installation and servicing*
- BS 5839-1:2002, *Fire detection and fire alarm systems for buildings — Part 1: Code of practice for system design, installation, commissioning and maintenance*
- BS 5839-3:1988, *Fire detection and alarm systems for buildings — Part 3: Specification for automatic release mechanisms for certain fire protection equipment*
- \*BS 5839-4:1988, *Fire detection and alarm systems for buildings — Part 4: Specification for control and indicating equipment*
- BS 5839-5:1988, *Fire detection and alarm systems for buildings — Part 5: Specification for optical beam smoke detectors*

---

\* This Standard has now been withdrawn.

- \*BS 5839-6:1995, *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 5839-6: 2004, *Fire detection and fire alarm systems for buildings — Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings*
- BS 5839-8:1998, *Fire detection and fire alarm systems for buildings — Part 8: Code of practice for the design, installation, commissioning, and maintenance of voice alarm systems*
- BS 5950-8: 2003, *Structural use of steelwork in building — Code of practice for fire resistant design*
- BS 5958-1:1991, *Code of practice for control of undesirable static electricity — Part 1: General considerations*
- BS 6165:2002, *Specification for small disposable fire extinguishers of the aerosol type*
- BS 6266:2002, *Code of practice for fire protection for electronic equipment installations*
- BS 6336:1998, *Guide to the development of fire tests, the presentation of test data and the role of tests in hazard assessment*
- BS 6391:1983, *Specification for non-percolating layflat delivery hoses and hose assemblies for fire fighting purposes*
- BS 6656: 2002, *Assessment of inadvertent ignition of flammable atmospheres by radio-frequency radioation — Guide*
- \*BS 6742-1:1987 (EN 50050:1986) *Electrostatic painting and finishing equipment using flammable materials — Part 1: Specification for hand-held spray guns and associated apparatus*
- BS 7175:1989, *Methods of test for the ignitability of bedcovers and pillows by smouldering and flaming ignition sources*
- BS 7177:1996, *Specification for resistance to ignition of mattresses, divans and bed bases*
- BS 7244:1990, *Specification for flame arresters for general use*
- \*BS 7346-2:1990, *Components for smoke and heat control systems — Part 2: Specification for powered smoke and heat exhaust ventilators*
- BS 7346-3:1990, *Components for smoke and heat control systems — Part 3: Specification for smoke curtains*
- \*BS 7525:1992, *Specification for flammability of air cleaner elements for internal combustion engines*
- BS 7535:1992, *Guide to the use of electrical apparatus complying with BS 5501 or BS 6941 in the presence of combustible dusts*
- BS 7807:1995, *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*

---

\* This Standard has now been withdrawn.

- BS 7899-1:1997, *Code of practice for assessment of hazard to life and health from fire. General guidance*
- BS 7974:2001, *Application of fire safety engineering principles to the design of buildings — Code of practice*
- BS 8202-2:1992, *Coatings for fire protection of building elements — Part 2: Code of practice for the use of intumescent coating systems to metallic substrates for providing fire resistance*
- BS 8214:1990, *Code of practice for fire door assemblies with non-metallic leaves*
- BS EN 2:1992, *Classification of fires*
- \*BS EN 3-3:1996, *Portable fire extinguishers — Part 3: Construction, resistance to pressure, mechanical tests*
- BS EN 3-7:2004, *Portable fire extinguishers — Part 7: Characteristics, performance requirements and test methods*
- BS EN 54-1:1996, *Fire detection and fire alarm systems — Part 1: Introduction*
- BS EN 54-2:1998, *Fire detection and fire alarm systems — Part 2: Control and indicating equipment*
- BS EN 54-4:1998, *Fire detection and fire alarm systems — Part 4: Power supply equipment*
- BS EN 367:1992, *Protective clothing — Protection against heat and fire — Method for determining heat transmission on exposure to flame*
- BS EN 532:1995, *Protective clothing — Protection against heat and flame — Test method for limited flame spread*
- BS EN 533:1997, *Protective clothing — Protection against heat and flame — Limited flame spread materials and material assemblies*
- BS EN 671-1:2001, *Fixed fire fighting systems — Part 1: Hose systems — Hose reels with semi-rigid hose*
- BS EN 671-2:2001, *Fixed fire fighting systems — Part 2: Hose systems — Hose systems with lay-flat hose*
- BS EN 1047-1:2005, *Secure storage units — Part 1: Classification and methods of test for resistance to fire — Data cabinets and diskette inserts*
- BS EN 1102:1996, *Textiles and textile products — Burning behaviour — Curtains and drapes — Detailed procedure to determine the flame spread of vertically oriented specimens*
- BS EN 1127-1:1998, *Explosive atmospheres — Part 1: Explosion prevention and protection — Basic concepts and methodology*
- BS EN 1363-1:1999, *Fire resistance tests — Part 1: General requirements*
- BS EN 1364-1:1999, *Fire resistance tests for non-loadbearing elements — Part 1: Walls*
- BS EN 1364-2:1999, *Fire resistance tests for non-loadbearing elements — Part 2: Ceilings*

---

\* This Standard has now been withdrawn.



- BS EN 1364-3:2006, *Fire resistance tests for non-loadbearing elements — Part 3: Curtain walling. Full configuration (complete assembly)*
- BS EN 1365-1:1999, *Fire resistance tests for loadbearing elements — Part 1: Walls*
- BS EN 1365-2:2000, *Fire resistance tests for loadbearing elements — Part 2: Floors and roofs*
- BS EN 1366-1:1999, *Fire resistance tests for service installations — Part 1: Fire resistance tests for service installations — Ducts*
- BS EN 1366-2:1999, *Fire resistance tests for service installations — Part 2: Fire dampers*
- BS EN 1366-3:2004, *Fire resistance tests for service installations — Part 3: Penetration seals*
- BS EN 1366-4:2006, *Fire resistance tests for service installations — Part 4: Linear joint seals*
- BS EN 1366-7:2004, *Fire resistance tests for service installations — Part 7: Conveyor systems and their closures*
- BS EN 1366-8:2004, *Fire resistance tests for service installations — Part 8: Smoke extraction ducts*
- BS EN 1486:1997, *Protective clothing for fire-fighters — Test methods and requirements for reflective clothing for specialized fire-fighting*
- BS EN 1634-1:2000, *Fire resistance tests for door and shutter assemblies — Part 1: Fire doors and shutters*
- BS EN 1846-1:1998, *Firefighting and rescue service vehicles — Part 1: Nomenclature and designation*
- BS EN 2310:1991, *Test methods for the flame resistance rating of non-metallic materials*
- BS EN 12065:1998, *Installations and equipment for liquefied natural gas — Testing of foam concentrates designed for generation of medium and high expansion foam and of extinguishing powders used on liquefied natural gas fires*
- BS EN 12101-2:2003, *Smoke and heat control systems — Part 2: Specification for natural smoke and heat exhaust ventilators*
- BS EN 12101-6:2005, *Smoke and heat control systems — Part 6: Specification for pressure differential systems — Kits*
- BS EN 12845:2004, *Fixed firefighting systems — Automatic sprinkler systems — Design, installation and maintenance*
- \*BS EN 13501-1:2002, *Fire classification of construction products and building elements — Part 1: Classification using test data from reaction to fire tests*
- BS EN 13501-1:2007, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*
- BS EN 13501-2:2003, *Fire classification of construction products and building elements. Classification using data from fire resistance tests, excluding ventilation services*

---

\* This Standard has now been withdrawn.

- BS EN 13501-3:2005, *Fire classification of construction products and building elements — Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire dampers*
- BS EN 25923:1994 (ISO 5923:1989), *Fire extinguishing media — Carbon dioxide*
- \*BS EN 50014:1998, *Electrical apparatus for potentially explosive atmospheres — General requirements*
- BS EN 50015:1998, *Electrical apparatus for potentially explosive atmospheres — Oil immersion 'o'*
- BS EN 50016:2002, *Electrical apparatus for potentially explosive atmospheres. Pressurized apparatus 'p'*
- BS EN 50017:1998, *Electrical apparatus for potentially explosive atmospheres — Powder filling 'q'*
- \*BS EN 50019:2000, *Electrical apparatus for potentially explosive atmospheres — Increased safety 'e'*
- BS EN 50073:1999, *Guide for selection, installation, use and maintenance of apparatus for the detection and measurement of combustible gases or oxygen*
- BS EN 50176:1997, *Automatic electrostatic spraying installations for flammable liquid spraying material*
- BS EN 50177:2006, *Automatic electrostatic spraying equipment for flammable coating powder*
- BS EN 60079-7:2007, *Explosive atmospheres — Part 7: Equipment protection by increased safety 'e'*
- BS EN 60079-10:2003, *Electrical apparatus for explosive gas atmospheres — Part 10: Classification of hazardous areas*
- BS EN 60079-14:2003, *Electrical apparatus for explosive gas atmospheres — Part 14: Electrical installations in hazardous areas (other than mines)*
- BS EN 60695-2-1/2:1996 (IEC 60695-2-1/2:1994), *Fire hazard testing — Part 2: Test methods — Section 1/sheet 2: Glow-wire flammability test on materials*
- BS EN 60695-2-1/3:1996 (IEC 60695-2-1/3:1994), *Fire hazard testing — Part 2: Test methods — Section 1/sheet 3: Glow-wire ignitability test on materials*
- BS EN 60695-4:2006, *Fire hazard testing — Part 4: Terminology concerning fire tests for electrotechnical products*
- \*BS EN 60950:1992 (BS 7002:1992), *Specification for safety of information technology equipment, including electrical business equipment*
- \*BS EN 60950:2002, *Safety of information technology equipment*
- BS EN ISO 1182:2002, *Reaction to fire tests for building products — Non-combustibility test*
- BS EN ISO 1716:2002, *Reaction to fire tests for building products — Determination of the heat of combustion*

---

\* This Standard has now been withdrawn.

- BS EN ISO 9239-1:2002, *Reaction to fire tests — Part 1: Horizontal surface spread of flame on floor-covering systems — Determination of the burning behaviour using a radiant heat source*
- BS EN ISO 10093:1999, *Reaction to fire tests for building products — Determination of the heat of combustion*
- BS EN ISO 13943:2000, *Fire safety — Vocabulary*
- BS EN ISO 14935:1999, *Petroleum and related products — Determination of wick flame persistence of fire-resistant fluids*
- BS EN ISO 15025:2002, *Protective clothing — Protection against heat and flame — Method of test for limited flame spread*
- BS ISO 4880:1997, *Burning behaviour of textiles and textile products — Vocabulary*
- BS ISO 5658-2:1996, *Reaction to fire tests — Spread of flame — Lateral spread on building products in vertical configuration*
- \*BS ISO 7203-1:1995, *Fire extinguishing media — Part 1: Foam concentrates — Specification for low expansion foam concentrates for top application to water-immiscible liquids*
- \*BS ISO 9239-1:1997, *Reaction to fire tests. Horizontal surface spread of flame on floor-covering systems — Part 1: Flame spread using a radiant heat ignition source*
- BS ISO 9239-1:2002, *Reaction to fire tests — Part 1: Horizontal surface spread of flame on floor-covering systems — Determination of the burning behaviour using a radiant heat source*
- BS ISO 10294-1:1996, *Fire-resistance tests — Part 1: Fire dampers for air distribution systems — Test method*
- BS ISO 11925-2:1997, *Reaction to fire tests — Ignitability of building products subjected to direct impingement of flame — Part 2: Single flame source test*
- BS ISO 14520-1:2006, *Gaseous fire-extinguishing system — Physical properties and system design — Part 1: General requirements*
- BS ISO TR 5925-2:1997, *Fire tests — Part 2: Smoke control door and shutter assemblies — Commentary on test method and test data application*
- BS ISO TR 9122-2:1990, *Toxicity testing of fire effluents — Part 2: Guidelines for biological assays to determine the acute inhalation toxicity of fire effluents (basic principles, criteria and methodology)*
- DD 180:1989, *Guide for the assessment of toxic hazards in fire in buildings and transport*
- \*DD 233:1996, *Code of practice for gaseous fire fighting systems*
- \*DD 240-1:1997, *Fire safety engineering in buildings — Part 1: Guide to the application of fire safety engineering principles*
- DD 9999:2005, *Code of practice for fire safety in the design, construction and use of buildings*

---

\* This Standard has now been withdrawn.

- FDIS 13943, *Fire safety — Vocabulary*  
ISO/DIS 6182-7  
ISO/DIS 9772  
ISO 704:2004, *Terminology work — Principles and methods*  
ISO 871:2006, *Plastics — Determination of ignition temperature using a hot-air furnace*  
ISO 1087-1:2000, *Terminology work — Vocabulary — Part 1: Theory and application*  
\*ISO 3261:1975, *Fire tests — Vocabulary*  
ISO 6182-6:2006, *Fire protection — Automatic sprinkler systems — Part 6: Requirements and test methods for check valves*  
ISO 6182-7:2004, *Fire protection — Automatic sprinkler systems — Part 7: Requirements and test methods for early suppression fast response (ESFR) sprinklers*  
ISO 7240-1:2005, *Fire detection and alarm systems — Part 1: General and definitions*  
ISO 8421-1:1987, *Fire protection — Vocabulary — Part 1: General terms and phenomena of fire*  
ISO 8421-2:1987, *Fire protection — Vocabulary — Part 2: Structural fire protection*  
ISO 8421-3:1989, *Fire protection — Vocabulary — Part 3: Fire detection and alarm*  
ISO 8421-4:1990, *Fire protection — Vocabulary — Part 4: Fire extinction equipment*  
ISO 8421-5:1988, *Fire protection — Vocabulary — Part 5: Smoke control*  
ISO 8421-6:1987, *Fire protection — Vocabulary — Part 6: Evacuation and means of escape*  
ISO 8421-8:1990, *Fire protection — Vocabulary — Part 8: Terms specific to fire-fighting, rescue services and handling hazardous materials*  
ISO 10241:1992, *International terminology standards — Preparation and layout*  
ISO/TR 5924:1989, *Fire tests — Reaction to fire — Smoke generated by building products (dual-chamber test)*  
PAS 79:2005, *Fire risk assessment — Guidance and a recommended methodology*  
PD 6512-3, *Use of elements of structural fire protection with particular reference to the recommendations given in BS 5588 “Fire precautions in the design and construction of buildings” — Part 3: Guide to the fire performance of glass*  
PD 7974-0:2002, *Application of fire safety engineering principles to the design of buildings — Part 0: Guide to design framework and fire safety engineering procedures*  
PD 7974-1:2003, *Application of fire safety engineering principles to the design of buildings — Part 1: Initiation and development of fire within the enclosure of origin (Sub-system 1)*  
PD 7974-2:2002, *Application of fire safety engineering principles to the design of buildings — Part 2: Spread of smoke and toxic gases within and beyond the enclosure of origin (Sub-system 2)*  
PD 7974-3:2003, *Application of fire safety engineering principles to the design of buildings — Part 3: Structural response and fire spread beyond the enclosure of origin (Sub-system 3)*

---

\* This Standard has now been withdrawn.

- PD 7974-4:2003, *Application of fire safety engineering principles to the design of buildings — Part 4: Detection of fire and activation of fire protection systems (Sub-system 4)*
- PD 7974-5:2002, *Application of fire safety engineering principles to the design of buildings — Part 5: Fire service intervention (Sub-system 5)*
- PD 7974-6:2004, *The application of fire safety engineering principles to fire safety design of buildings — Part 6: Human factors — Life safety strategies — Occupant evacuation, behaviour and condition (Sub-system 6)*
- PD 7974-7:2003, *Application of fire safety engineering principles to the design of buildings — Part 7: Probabilistic risk assessment*

## Other publications

- Approved Document B (Fire safety) – Volumes 1 and 2* (2000 and 2006 Editions).  
<http://www.planningportal.gov.uk/england/professionals/en/1115314683674.html>
- Approved Document M – Access to and Use of Buildings*. 2006. ISBN 978-1859462119.  
<http://www.planningportal.gov.uk/england/professionals/en/4000000000988.html>
- Building Materials and Operations RC3f Part 6: Protection against Electrical Disturbance*. Fire Protection Association
- Code of Practice for Design, Installation, Commissioning & Maintenance of Aspirating Smoke Detector (ASD) Systems*. 2005. Fire Industry Association.
- Common Position of the Construction Unit of DG Enterprise*. Commission DG Enterprise
- Design Principles of Fire Safety*. London. The Stationery Office Ltd. ISBN 978-0117530454
- Equipment/Space Heating: Hazard Classification*. Loss Prevention Certification Board
- Fire and the Design of Educational Buildings. Building Bulletin 7. Sixth Edition*. 1997. The Stationery Office Ltd. ISBN 0 11 270585 5
- Fire Certificates (Special Premises) Regulations. 1976 (SI 1976/2003). London: The Stationery Office Ltd.
- Fire Precautions Act 1971: Guide to Fire Precautions in Existing Places of Work That Require a Fire Certificate*. 1993. The Stationery Office Ltd. ISBN 978-0113410798
- Fire Prevention Guide 2: Fire Precautions in New Single-storey Spirit Storages and Associated Buildings*. 1973. Home Office/Scottish Office & Health Department. ISBN 0 11 430433 6.
- Fire Safety – Risk Assessment*. London: The Stationery Office Ltd.
- Fire Service Manual: Fire Service Technology, Equipment and Media – Fire Service Equipment – Inspection and Testing of Equipment Vol 1*. London: The Stationery Office Ltd. ISBN 978-0113412747
- Fire Service Training Manual*. 1994. London: The Stationery Office Ltd.

- Firecode: Fire Practice Note 3: Escape Bed Lifts*. 1987. London: The Stationery Office Ltd. ISBN 0 11 321112 0.
- Firecode: Fire Practice Note 4: Hospital Main Kitchens*. 1994. London: The Stationery Office Ltd. ISBN 0 11 3217137
- Firecode: Fire Practice Note 5: Commercial Enterprises on Hospital Premises*. 1992. London: The Stationery Office Ltd. ISBN 0 11 321493 6.
- Firecode: Fire Practice Note 7: Fire precautions in patient hotels*. 1995. London: The Stationery Office Ltd. ISBN 0 11 321769 2.
- Firecode: Fire Practice Note 8: Atria on Hospital Premises*. 1995. London: The Stationery Office Ltd.
- Good Practice and Pitfalls in Risk Assessment*, Research Report 151. 2003. Health & Safety Executive. ISBN 0 7176 2732 2
- Guide to Fire Precautions in Existing Places of Entertainment and Like Premises*. 1998. Home Office/Scottish Office & Health Department. ISBN 0 11 340907 9.
- Guide to Fire Risk Assessment*. London: The Stationery Office Ltd.
- Guide to Terminology*. 2001. Heidi Suonuuti. Tekniikan Sanastokeskus.
- Highly Flammable Liquids and Liquefied Petroleum Gases Regulations 1972 (SI 1972/917). London: The Stationery Office Ltd.
- Home Office Report – Arson Working Group. London: The Stationery Office Ltd.
- HTM 81: Fire precautions in new hospitals (Firecode)*. 1996. London: The Stationery Office Ltd. ISBN 0 11 322249 1.
- HTM 82: Alarm and detection systems (Firecode)*. 1992. London: The Stationery Office Ltd. ISBN 0 11 322045 6.
- HTM 85: Fire precautions in existing hospitals (Firecode)*. 1994. London: The Stationery Office Ltd. ISBN 0 11 321733 1.
- HTM 86: Fire risk assessment in hospitals (Firecode)*. 1994. London: The Stationery Office Ltd. ISBN 0 1132173 4.
- LPS 1182-2.1, *Requirements and tests for LPCB approval of fixed fabric smoke curtains, fixed metal smoke curtains and powered smoke curtains*. 2005. Loss Prevention Certification Board.  
<http://www.redbooklive.com>
- Occupational Storage Hazards – Prevention and Control of Dust Explosions*. Loss Prevention Certification Board
- Post-War Building Studies No. 20: Fire Grading of Buildings: Part I. General Principles and Structural Precautions*. 1946. HMSO.  
[http://www.mace.manchester.ac.uk/project/research/structures/strucfire/DataBase/References/HMSO%2046\\_Fire%20grading%20of%20buildings%20Part%201.pdf](http://www.mace.manchester.ac.uk/project/research/structures/strucfire/DataBase/References/HMSO%2046_Fire%20grading%20of%20buildings%20Part%201.pdf)
- RC3e – Part 5 – Electronic data processing equipment; In cabinet protection*. Fire Protection Association
- Safe Design and Use of Vent Collection Systems for Potentially Flammable Mixtures*. 1994. Health and Safety Executive.

The Building (Scotland) Regulations 2004.

[http://www.sbsa.gov.uk/tech\\_handbooks/th\\_pdf\\_2007/Non-domestic\\_2007.pdf](http://www.sbsa.gov.uk/tech_handbooks/th_pdf_2007/Non-domestic_2007.pdf)

Technical Bulletin 14. Fire Protection Association

Technical Bulletin 29, Rules for Automatic Sprinkler Systems. Fire Protection Association

The Construction Products Directive (Council Directive 89/106/EEC).

<http://ec.europa.eu/enterprise/construction/internal/cpd/cpd.htm>







## Contains over 2,000 definitions of current fire terminology.

This book brings together the key published definitions of fire and fire safety terminology, creating a definitive catalogue of fire terms. British Standards and associated documents carry their own terms and definitions but in some cases define the same term with slight or substantial differences. This dictionary amalgamates these varying definitions into single, composite definitions and supplements further terms - widely used in the industry.

The terms explained cover the whole spectrum of fire safety in all its applications. This includes testing for both fire resistance and reaction to fire; passive and active fire protection systems and fire safety engineering principles to the design of buildings. The book supports all British Standards and the many other Published Documents which support the British Standards and European Standards codes of practice and related documents.

### About the authors

Peter Hodgson has worked in various fire and fire safety fields for 40 years. For the past twenty years Peter has been involved in the development of fire and graphical symbols standards and is currently Chairman of the BSI Committee responsible for fire terminology. Peter is also a member of the International Standards Organization Working Group dealing with fire terminology.

For nearly 30 years, Dr. S D Christian worked at the Home Office in the Fire and Emergency Planning Directorate. During this time he assisted in the drafting of many guidance documents in support of the fire safety legislation in the United Kingdom. He has served as the Home Office representative on many BS Technical Committees that were responsible for preparing national technical standards on fire safety. He now retains a personal membership on these Technical Committees as a co-opted expert. He regularly attends meetings of the European and International Standards Committees either as an individual expert or part of the UK delegation and currently chairs the European Technical Committee CEN TC/127 – Fire Safety in Buildings.

BSI order ref: BIP 2125

BSI  
Group Headquarters  
389 Chiswick High Road  
London W4 4AL

[www.bsi-global.com](http://www.bsi-global.com)

