PAS 79:2012

Fire risk assessment – Guidance and a recommended methodology

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Publishing and copyright information

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Contents

Foreword

Publishing information

The development of this Publically Available Specification (PAS) was facilitated by British Standards Limited and published under licence from The British Standards Institution. It came in to effect on 31 August 2012.

This PAS was first prepared in 2005 in association with C.S. Todd & Associates Ltd, with the support and encouragement of the Institution of Fire Engineers and the Northern Ireland Fire Safety Panel, which represents building control and licensing authorities in Northern Ireland, and the Northern Ireland Fire and Rescue Service. It was first reviewed in 2007. That revision and this current revision were, again, drafted by C.S. Todd & Associates Ltd.

Acknowledgement is given to the following organizations that were consulted in the development of this Publicly Available Specification:

Association of Building Engineers (ABE)
British Approvals for Fire Equipment (BAFE)
British Broadcasting Corporation (BBC)
Chief Fire Officers' Association (CFOA)
Fire Industry Association (FIA)
Fire Protection Association (FPA)
Institution of Fire Engineers (IFE)
Institute of Fire Prevention Officers (IFPO)
Institute of Fire Safety Managers (IFSM)
Northern Ireland Fire Safety Panel
Odeon Cinemas Limited

Acknowledgement is given to the following BSI Committees that were consulted in the development of this Publically Available Specification:

FSH/14 Fire precautions in buildings
FSH/0 Fire co-ordination
FSH/24 Fire safety engineering
HS/1 Occupational health and safety management

Supersession

This is a revision of PAS 79:2007, which is withdrawn.

Information about this document

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This is a full revision of the document, and introduces the following principal changes.

- The technical content has been subject to amendment in the light of experience in the use of PAS 79.
- There is new guidance on the role of codes or practice and guidance documents as a basis for determining the appropriate fire precautions.
- There is new guidance on the approach that should be adopted in determining the appropriate fire precautions for existing buildings that do conform to current codes of practice applicable to new buildings (e.g. under current building regulations).
- A new annex contains a competence standard for fire risk assessors, developed and agreed by stakeholders in the fire safety profession.
- Changes to, and publication of various new, British Standards have been taken into account.

Use of this document

As a code of practice, this Publicly Available Specification takes the form of guidance and recommendations. It should not be quoted as if it were a specification, and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this Publicly Available Specification is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the drafting of this Publicly Available Specification that the execution of its provisions will be entrusted to appropriately qualified

and competent people, for whose use it has been produced.

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This Publicly Available Specification is not intended to constitute a textbook on fire safety, and it should not be regarded as a substitute for knowledge of fire safety principles and the practical use and application of fire protection measures or an understanding of the premises, their features, usage and occupancy. In carrying out the fire risk assessment, there is likely to be a need for reference to other codes of practice and guidance documents on specific aspects of fire prevention, fire protection and management of fire safety, a number of which are listed in the Bibliography. Moreover, this PAS is not intended to provide guidance on the detailed requirements of the relevant fire safety legislation. Such guidance can be found in the relevant Government guidance documents listed in the Bibliography.

Presentational conventions

The provisions in this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in italic type, and does not constitute a normative element.

It is envisaged that, when a fire risk assessment is audited for compliance with this Publicly Available Specification, the audit will be based on the recommendations only.

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

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

Commentaries are provided at the start of each clause and give background information to the subsequent recommendations within each clause.

Contractual and legal considerations

In England and Wales, Article 9 of the Regulatory Reform (Fire Safety) Order 2005 (the "Fire Safety Order") [3] requires that the responsible person, on whom the Fire Safety Order imposes requirements, must make a suitable and sufficient assessment of the risks to which relevant persons are exposed for the purpose of identifying the general fire precautions he needs to take to comply with the requirements and prohibitions imposed on him by or under the Fire Safety Order. (For the purpose of the Fire Safety Order, "relevant persons" are any person who is or may be lawfully on the premises, and also any person in the immediate vicinity of the premises who is at risk from a fire on the premises, other than firefighters at the time of a fire.)

The same duty is imposed on every person, other than the responsible person, who has, to any extent, control of the premises so far as the duty relates to matters within his control. (This would normally include, for example, the landlord or managing agent of commercial premises in multiple occupation.)

The above risk assessment is commonly described as a fire risk assessment. Guidance on the requirements of the Fire Safety Order, and on the fire risk assessment required by it, is produced by the Department for Communities and Local Government (DCLG) [8–18]. The guidance in this Publicly Available Specification is more detailed in respect of the fire risk assessment process than that published by the DCLG, but does not conflict with that guidance. However, the Government guidance documents provide more detailed technical information on the fire safety measures to meet legislation.

In Scotland, the duty to carry out a fire risk assessment is imposed on every employer by section 53(2)(a) of the Fire (Scotland) Act 2005 [4]. The Act requires that the risk assessment identifies any risks to the safety of the employer's employees in respect of harm caused by fire in the workplace. Section 54(2)(a) of the Act also imposes a duty, on any person who has control to any extent of relevant premises, to carry out a fire risk assessment, and this risk assessment must identify any risks to the safety of relevant persons in respect of harm caused by fire in the relevant premises; relevant

persons is defined in much the same manner as it is defined in the Fire Safety Order in England and Wales. In Scotland, further requirements in respect of the fire risk assessments required by the Fire (Scotland) Act are imposed by the Fire Safety (Scotland) Regulations 2006 [5]. Guidance on the requirements of this legislation, and the fire risk assessment required by it, is published by Scottish Government [19].

In Northern Ireland, the requirements for fire risk assessments are identical to those in Scotland, but are imposed by Articles 25(2)(a) and 26(2)(a) of the Fire and Rescue Services (Northern Ireland) Order 2006 [6]. Further requirements in respect of the fire risk assessments are imposed by the Fire Safety Regulations (Northern Ireland) 2010. [7].

Fire and rescue authorities can advise on the fire safety legislation that applies to any premises, and on means for compliance. If in doubt regarding the requirements of legislation, consultation with the fire and rescue authority is strongly recommended. Advice can also be obtained from a suitably qualified and experienced fire risk assessor or fire safety practitioner. A number of bodies maintain a register of persons who they consider competent to carry out fire risk assessments. These include relevant professional bodies and certification bodies accredited by UKAS to provide assessment and certification services. Registration of a fire risk assessor on such a register can give the dutyholder confidence in the education, training and experience of the fire risk assessor to those who wish to use the fire risk assessor's services.

UKAS is the sole national accreditation body recognized by government to assess, against internationally agreed standards, organizations that provide certification, testing, inspection and calibration services.

This Publicly Available Specification does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

This Publicly Available Specification is not to be regarded as a British Standard.

Compliance with a Publicly Available Specification cannot confer immunity from legal obligations.

Attention is drawn to the legislation described in this Foreword and to guidance produced by the Department for Communities and Local Government, Scottish Government and the Department of Health, Social Services and Public Safety (in Northern Ireland).

Introduction

Employers and other persons who have control of premises are required by legislation to carry out an assessment of the fire risks to occupants of premises, and other people in the vicinity of the premises, to ensure that these people are safe from fire and its effects. The Regulatory Reform (Fire Safety) Order 2005 [3] requires that, in England and Wales, the risk assessment is "suitable and sufficient". This assessment is usually referred to as a "fire risk assessment". For the purposes of this Publicly Available Specification, a fire risk assessment carried out in the structured manner described herein will be referred to as "the fire risk assessment".

The person on whom a duty is imposed to carry out the fire risk assessment is described in different ways in different legislation across the UK. For example, in England and Wales, the Regulatory Reform (Fire Safety) Order describes the person as the "responsible person", whereas this term is not used elsewhere in the UK. Moreover, this duty can be imposed on more than one person within the same premises (e.g. in premises in multiple occupation, the duty may be imposed on every tenant, the landlord and the managing agents). In this PAS, the term "dutyholder" is used to describe any person on whom the relevant fire safety legislation (see **3.76**) imposes a requirement to carry out a fire risk assessment.

Since legislation also requires "suitable and sufficient" assessments to ensure that organizations comply with health and safety legislation, an organization could choose to carry out, and document, a single combined health, safety and fire risk assessment. In practice, this approach is normally only adopted in the case of very small premises, and most organizations choose to carry out a separate fire risk assessment, independent of their health and safety risk assessment. The reason for this is that, for most premises, different skills, experience and expertise are required for each of the two forms of risk assessment.

The term "suitable and sufficient" is not defined in legislation. Moreover, the relevant fire safety legislation requires that the "significant findings" of the risk assessment, and any group of persons "especially at risk", be recorded if the organization employs five or more people (in the entire organization, and not just in the premises in question), or if legislation requires licensing, registration or certification of the premises, or if an alterations notice (requiring that the relevant enforcing authority is notified of proposals to carry out certain alterations to the premises) is in force. Again, the terms "significant findings" and "especially at risk" are not defined in the relevant legislation. However, the 'significant findings' should indicate measures taken and measure that will be taken for compliance with the legislation. Nevertheless, it follows that the adequacy of any fire risk assessment is a matter for subjective judgement. This can lead, and has led, to inconsistency in interpretation, creating some difficulties for organizations, their advisers and enforcing authorities. These difficulties have been exacerbated, even for fire safety specialists, by a distinct move, in recent years, towards "risk-proportionate" fire precautions, and away from the more traditional "prescriptive" approach in which there was often a more rigid application of codes of practice without full consideration of fire risk.

This shift was designed to be beneficial to those who own and manage premises, since it provides a better match between risk and precautions, more akin to that found in the field of general health and safety. It therefore precludes unnecessary expenditure in circumstances in which the risk does not justify it. Equally, it ensures adequate protection (possibly to an even higher standard than applied under prescriptive codes) when warranted by the fire risk. Ultimately, the final arbiter as to whether fire precautions satisfy legislation can, however, only be the Courts.

There is, therefore, no single correct or incorrect method of carrying out and recording the significant findings of a fire risk assessment. Rather, there are many approaches that can lead to a suitable, and satisfactorily documented, fire risk assessment, which, at first sight at least, bear little similarity. Nevertheless, the prerequisites for a suitable and sufficient fire risk assessment are implicit in legislation, and, accordingly, close scrutiny of most adequate fire risk assessments will reveal consideration of many common factors.

This Publicly Available Specification does not purport to contain a methodology or documentation that is necessarily superior to all others. It is designed to satisfy requirements of current fire safety legislation. The fire risk assessment methodology is intended to facilitate protection of people from fire. Guidance on fire precautions to protect property, and to protect against

interruption to business, from fire can be obtained from property insurers, and many suitably qualified and experienced fire safety consultants can advise on these issues as well as on life safety.

The objectives of this Publicly Available Specification are:

- to provide organizations and their advisers with a methodology for meeting their legislative responsibilities to undertake fire risk assessments;
- to assist non-fire specialists with a framework for assessment of fire risk, albeit that an underpinning knowledge of fire safety principles will be required in order to carry out the fire risk assessment described in this Publicly Available Specification;
- to promote better understanding of fire risks and fire safety by organizations and non-fire specialists;
- to enable common relevant terminology to be adopted by those who carry out fire risk assessments;
- to provide an understanding of the principles and scope of fire risk assessments;
- to establish a pragmatic, holistic and risk-proportionate approach towards assessment of fire prevention measures, fire protection measures and management of fire safety, for the purpose of conducting fire risk assessments;
- to establish a satisfactory basis for documentation of fire risk assessments;
- to provide a benchmark for a suitable and sufficient fire risk assessment;
- to promote a consistent approach to carrying out and documenting a fire risk assessment that will be accepted by enforcing authorities.

This PAS is largely consistent with the approach to fire risk assessment set out in Government guidance documents on the relevant fire safety legislation. These guidance documents not only explain the legal requirements in respect of fire risk assessment, but give technical guidance on compliance with the legislation. However, in the particular area of fire risk assessment, this PAS expands on the advice in the Government guidance documents.

1 Scope

This Publicly Available Specification gives guidance and corresponding examples of documentation for undertaking, and recording the significant findings of, fire risk assessments in premises and parts of premises for which fire risk assessments are required by legislation. It is not applicable in the case of a single-family private dwelling, or necessarily applicable to premises during the construction phase[1] but is applicable to vacant premises, for which a fire risk assessment is required. The methodology is intended to provide a structured approach to fire risk assessment for people with knowledge of the principles of fire safety; it is not intended as a guide to fire safety.

The recommended approach to carrying out fire risk assessments is intended to determine the risk-proportionate fire precautions required to protect premises occupants including employees, contractors, visitors and members of the public and to protect people in the immediate vicinity of the premises. The fire risk assessment is not necessarily sufficient to address the safety of firefighters in the event of a fire on the premises.

The recommended methodology is not intended to address protection of property (the premises and their contents) or the environment, or to address protection of a business, process or activity against interruption. Premises with special hazards, with the potential for high risk to life (e.g. chemical or nuclear hazards), will require consideration of additional factors associated with these hazards and their means of control, and are beyond the scope of this document. However, in all such cases, this PAS might form the basis for development of an appropriate fire risk assessment process and the documentation of the significant findings of the process.

[1)] Fire risk assessments are, however, required, for example, in the case of common parts of houses in multiple occupation and blocks of flats in England and Wales, and for licensed houses in multiple occupation in Scotland. This PAS is applicable to such fire risk assessments. Fire risk assessments are also required for construction sites. Nevertheless, fire risk assessments for construction sites are outside the scope of this PAS, as many of the matters relating to management of fire safety, which are addressed in this PAS, will not be applicable to a construction site.

2 Normative references

The following referenced documents are indispensable for the application of this document. The latest edition of the referenced documents (including any amendments) applies.

BS 4422, *Fire – Vocabulary*

BS EN ISO 13943, *Fire safety – Vocabulary*

3 Terms and definitions

For the purposes of this PAS, the terms and definitions given in BS 4422 and BS EN ISO 13943 and the following apply.

3.1 access room

room that forms the only escape route from an inner room (see **3.58**)

3.2 action plan

measures, including management procedures, identified in the course of a fire risk assessment that need to be implemented to ensure that the required level of fire safety is achieved or maintained

NOTE *The required standard of fire safety will normally be defined within the organization's fire safety policy, but will never be of a lower standard than that required by legislation.*

3.3 alarm receiving centre (ARC)

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

3.4 alternative escape routes

escape routes sufficiently separated either by direction and space, or by fire-resistant construction, intended to ensure that should one be affected by fire the other will still be available

3.5 automatic door release mechanism

device that can be used for holding a door in the open position, against the action of a door closer, and automatically releasing under specified conditions

3.6 available safe egress time (ASET)

time available between ignition of a fire and the time at which tenability criteria are exceeded in a specific space in a building

NOTE *To ensure the safety of occupants, the escape time (see **3.21**) needs to be shorter than the ASET.*

3.7 class A fires

fires involving solid materials, usually of an organic nature, in which combustion normally takes place with the formation of glowing embers

NOTE *These are normally carbonaceous fires.*

3.8 class B fires

fires involving liquids or liquefiable solids

3.9 class C fires

fires involving gases

3.10 class D fires

fires involving metals

3.11 class F fires

fires involving fats and cooking oils

3.12 combustible

capable of burning in the presence of oxygen

3.13 compartmentation

subdivision of a building by fire-resisting walls and/or floors for the purpose of limiting fire spread within the building

3.14 competent person

person, suitably trained and qualified by knowledge and practical experience, and provided with the necessary instructions, to enable the required task(s) to be carried out correctly

NOTE *The relevant fire safety legislation requires nomination of various competent persons to carry out a number of different defined tasks.*

3.15 dead end

area from which escape from fire is possible in one direction only, or in directions less than 45 degrees apart that are not separated by fire-resisting construction

3.16 dry fire main

water supply pipe installed in a building for fire-fighting purposes, fitted with inlet connections at the fire and rescue service access level, and with landing valves at specified points, which is normally dry but is capable of being charged with water, usually by pumping from fire and rescue service appliances

3.17 dutyholder

person on whom legislation imposes a requirement to carry out a fire risk assessment

NOTE 1 *The term "dutyholder" only has meaning within this PAS, and is used for convenience; it is not a term used in this context within fire safety legislation, in which the dutyholder could be a number of different parties according to circumstances, e.g. in England and Wales, the responsible person, to which the Regulatory Reform (Fire Safety) Order makes reference, is one such dutyholder.*

NOTE 2 *The dutyholder can be determined from the relevant fire safety legislation.*

NOTE 3 *The dutyholder is normally an organization, such as an employer, rather than a specific named person.*

NOTE 4 *There might be more than one dutyholder within any premises. For example, in multi-tenanted office premises, normally each tenant, and the landlord or managing agents, will be dutyholders.*

3.18 emergency escape lighting

part of the emergency lighting that provides illumination for the safety of people leaving a location or attempting to terminate a potentially dangerous process before doing so

3.19 emergency lighting

lighting provided for use when the supply to the normal lighting fails

3.20 escape route

route forming part of the means of escape from any point in a building to a final exit

3.21 escape time

time from ignition until the time at which all the occupants of a building, or a specified part of a building, are able to reach a place of safety

3.22 evacuation lift

lift that may be used for the evacuation of disabled occupants in a fire under the direction of management or firefighters

3.23 false alarm

fire signal resulting from a cause(s) other than fire

3.24 final exit

termination of an escape route from a building, giving direct access to a street, passageway, walkway or open space, and sited to enable the rapid dispersal of persons from the vicinity of a building so that they are no longer in danger from fire and/or smoke

3.25 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

3.26 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

3.27 fire/smoke damper

combined fire and smoke damper

NOTE *See fire damper (**3.26**) and smoke damper (**3.79**).*

3.28 fire door

door or shutter provided for the passage of people, air or objects which, together with its frame and furniture 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 to those ends

3.29 fire drill (evacuation drill)

rehearsal of the evacuation procedure involving participation of the occupants of a building

3.30 fire equipment sign

safety sign that indicates the location or identification of fire equipment or how it should be used

3.31 fire exposure

extent to which people, animals or items are subjected to the conditions created by fire

3.32 fire-fighting 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

3.33 fire hazard

source, situation or unsafe act with potential to result in a fire

NOTE *Examples of fire hazards include ignition sources, accumulation of waste that could be subject to ignition and disposal of a lit cigarette close to combustible materials.*

3.34 fire hazard identification

process of recognizing that a fire hazard exists and defining its characteristics

3.35 fire load

quantity of heat that could be released by the complete combustion of all the combustible materials in a volume, including the facings of all bounding surfaces

3.36 fire precautions

physical, procedural and managerial measures taken to reduce the likelihood of ignition occurring and/or to mitigate the consequences if ignition does occur

3.37 fire prevention measures

measures to prevent the outbreak of fire

3.38 fire procedure

pre-planned actions to be taken in the event of fire

3.39 fire protection measures

design features, systems, equipment or structural measures to reduce danger to people and property if fire occurs

NOTE *Examples of such measures include means of detecting, extinguishing or containing fires.*

3.40 fire resistance

ability of an item to fulfil for a stated period of time the required load-bearing capacity and/or integrity and/or thermal insulation, and/or other expected duty specified in a standard fire resistance test

3.41 fire risk

combination of the likelihood of the occurrence of fire and consequence(s) (number and severity of injuries) likely to be caused by a fire

NOTE *In the context of this PAS, the relevant consequences of a fire are, therefore, those involving injury to people, as opposed to damage to property.*

3.42 fire risk assessment

process of identifying fire hazards and evaluating the risks to people arising from them, taking into account the adequacy of existing fire precautions, and deciding whether or not the fire risk is acceptable without further fire precautions

NOTE 1 *A fire risk assessment is a legal requirement for virtually all non-domestic premises, and for certain multiple-occupancy dwellings and parts of such dwellings.*

NOTE 2 *Where the fire risk is not acceptable without further fire precautions, a fire risk assessment includes an action plan that sets out reasonably practicable measures to reduce the risk.*

3.43 fire risk assessor

person who carries out, and documents the significant findings of, a fire risk assessment

NOTE *It is essential that the fire risk assessor is a competent person (see **3.14**), and the fire risk assessor has a duty of care to the dutyholder on which legislation imposes a requirement for the fire risk assessment. However, the ultimate responsibility for the adequacy of the fire risk assessment rests with the dutyholder (which could be an organization – see **3.17** and related notes) rather than with the fire risk assessor (see Clause **6**).*

3.44 fire safety engineer

person suitably qualified and experienced in fire safety engineering

3.45 fire safety engineering

application of scientific and engineering principles to the protection of people, property and the environment from fire

3.46 fire safety induction training

formal training, normally given verbally 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 employees from fire

NOTE *Fire safety induction training also assists in preventing employees from inadvertently putting other occupants of the premises at risk from fire.*

3.47 fire safety management

task(s) carried out by a defined individual or individuals 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

3.48 fire safety manager

person nominated to monitor and control the management of fire safety

3.49 fire safety manual

record of all design, procedural and management issues and events that relate to the fire safety of a building

3.50 fire safety objective

specified (or specifiable) goal intended to be achieved by a fire protection measure(s)

3.51 fire safety policy

documented strategy that sets the standards of fire safety that an organization is committed to maintaining

NOTE *For example, the starting point of a fire safety policy is expected to be that the organization complies with all legislative requirements in respect of fire safety.*

3.52 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

3.53 fire scenario

detailed description of conditions, including environmental conditions, of one or more stages from before ignition to after completion of combustion in an actual fire at a specific location

3.54 fire stopping

sealing or closing an imperfection of fit between elements, components or constructions of a building, or any joint, so as to restrict penetration of smoke and flame through the imperfection or joint

3.55 fire warden

individual charged with specific responsibilities in the event of fire, normally involving a check to ensure that a particular area of the building has been evacuated

3.56 ignition

initiation of combustion

3.57 ignition source

source of energy that initiates combustion

3.58 inner room

room from which the only escape route is through another room

NOTE *The room that provides the escape route from an inner room is known as an access room (see **3.1**).*

3.59 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

3.60 maintained emergency lighting

lighting system in which all emergency lighting lamps are illuminated at all material times

3.61 mandatory sign

safety sign that indicates a specific course of action is to be taken

3.62 manual call point

component of a fire detection and fire alarm system that is used for the manual initiation of a fire alarm signal

3.63 material alteration

alteration that changes (usually lowering or with the potential to lower) the standard of fire protection originally provided

3.64 means of escape

structural means whereby a safe route in the event of fire is provided for persons to travel from any point in a building to a place of ultimate safety (see **3.72**) (without external assistance)

3.65 non-combustible

not capable of undergoing combustion under specified conditions

3.66 non-maintained emergency lighting

lighting system in which all emergency lighting lamps are illuminated only when the supply to the normal lighting fails

3.67 occupant(s) especially at 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 afforded adequate means of escape and other fire precautions, whether on a short-term or long-term basis

3.68 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, which can be released by hand or body pressure on a bar positioned horizontally across the inside face of the door

3.69 panic latch

mechanism for securing a door when closed, with a latch bolt that can be released by hand or body pressure on a bar positioned horizontally across the inside face of the door

3.70 phased evacuation

system of evacuation in which different parts of the building are evacuated in a controlled sequence of phases, those parts of the building expected to be at greatest risk being evacuated first

3.71 place of relative safety

place in which there is no immediate danger, but in which there could be future danger, from the effects of fire

3.72 place of ultimate safety

place in which there is no immediate or future danger from fire or the effects of fire

3.73 products of combustion

solid, liquid and gaseous materials resulting from combustion

3.74 protected (corridor, route or staircase)

corridor, route or staircase enclosed in fire-resisting construction

3.75 refuge

area that is both separated from a fire by fire-resisting construction and provided with a safe route to a storey exit, thus constituting a temporarily safe space for disabled occupants to await assistance for their evacuation

NOTE 1 *Refuges are relatively safe waiting areas for short periods. They are not areas where disabled occupants should be left indefinitely until rescued by the fire and rescue service or until the fire is extinguished. It is the organization's responsibility to provide assistance, and the arrangements for this should be incorporated within the premises' fire procedures. (This should not be confused with the use of refuges in progressive horizontal evacuation, e.g. in hospitals from which people might not need to escape, but from where there is the potential for further escape should that become necessary.)*

NOTE 2 *In Scotland, a refuge is now generally known as a "temporary waiting space" (TWS).*

3.76 relevant fire safety legislation

(in England and Wales) Regulatory Reform (Fire Safety) Order 2005 [3]

(in Scotland) combination of the Fire (Scotland) Act 2005 (as amended) [4] and the Fire Safety (Scotland) Regulations 2006 [5]

(in Northern Ireland) Fire and Rescue Services (Northern Ireland) Order 2006 [6], together with the Fire Safety Regulations (Northern Ireland) 2010 [7]

3.77 safe condition sign

safety sign that provides information about safe conditions

NOTE *A fire exit sign is an example of a safe condition sign.*

3.78 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

NOTE *The term "smoke alarm" is normally reserved for devices intended for domestic use.*

3.79 smoke damper

mechanical device which, when closed, prevents smoke passing through an aperture within a duct or structure

NOTE *In particular premises, smoke dampers might be automatically operated, or only manually operated, or a combination of the two, and their normal position might be either open or closed.*

3.80 sprinkler system

a system comprising thermosensitive devices designed to react at a pre-determined temperature by automatically releasing a stream of water and distributing it in a specified pattern and quantity over a designated area

3.81 structural fire protection

features in layout and/or construction that are intended to reduce the effects of a fire

3.82 third-party fire risk assessor

independent fire risk assessor, who is not an employee of the dutyholder, but who is contracted to carry out a fire risk assessment on behalf of a dutyholder on whom legislation imposes a requirement for a fire risk assessment

NOTE *A fire safety consultant is an example of a third-party fire risk assessor.*

3.83 tolerable level (of fire risk)

level at, or close to, that acceptable to a dutyholder, taking into account the requirements of fire safety legislation), the nature of the premises, the fire hazards in the premises (see **3.33**), the nature of the occupants, the cost of additional fire precautions and any other relevant factors

3.84 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 walls, partitions and fixings

3.85 voice alarm system

sound distribution system that broadcasts speech messages and/or warning signals in an emergency

3.86 wet fire main

water supply pipe installed in a building for fire-fighting purposes and permanently charged with water from a pressurized supply, fitted with landing valves at specific points

4 The concepts of fire risk and fire hazard

*COMMENTARY ON CLAUSE **4***

i. *It is important that, in the fire risk assessment, confusion does not result from loose, inexact or conflicting use of terminology. Particular care needs to be taken to avoid improper use of the terms "fire hazard" (see **3.33**) and "fire risk" (see **3.41**). BS 4422 defines a fire hazard as potential for injury and/or damage from fire. In the field of health and safety, BS 18004 defines a hazard as a source, situation or act with a potential for harm in terms of human injury or ill health, or a combination of these. In this PAS, a fire hazard is defined as a source, situation or act with potential to result in a fire. Thus, the presence of uncontrolled fire hazards affects the likelihood of fire, rather than the consequences of fire. This is consistent with both BS 4422 and BS 18004.*

ii. *BS 4422 defines fire risk as the product of the probability of occurrence of a fire to be expected in a given technical operation or state, and the consequence or extent of damage to be expected on the occurrence of fire. Accordingly for the purpose of this PAS, fire risk is defined as the combination of the likelihood of the occurrence of fire and consequence(s) (number and severity of injuries) likely to be caused by a fire. This, again, is consistent with the broader concept of risk in the field of general health and safety.*

iii. *This clear distinction between fire hazard and fire risk is of great value in any analytical approach to fire safety, but particularly in a fire risk assessment. It can be considered that fire risk is the product of multiplying the probability of fire by a measure of the consequences of fire if it does occur. Thus, for example, even though the likelihood of fire occurring might be low, the fire risk could still be high as a result of potential for serious injury to occupants in the event of fire. For example, the potential for serious injury could result from inadequate provision of fire exits and/or inadequate means of giving warning to people in the event of fire. Such circumstances would be likely to be regarded intuitively, even by a layman, as high risk, and accordingly this definition of fire risk is likely to be relatively intuitive even to non-fire specialists.*

Recommendations

4.1 In the fire risk assessment, care should be taken to distinguish clearly between the concepts of fire hazard and fire risk.

4.2 In the fire risk assessment, the terms "fire hazard" and "fire risk" should only be used in a context consistent with definitions **3.33** and **3.41**.

4.3 In documenting the significant findings of a fire risk assessment (see Clause **10**), there should be distinct, and separate consideration of, fire hazards, situations and measures that affect the consequences of fire, such as fire protection measures (see **3.39**) and the overall fire risk.

NOTE *Examples of fire hazards include ignition sources, accumulation of waste that could be subject to ignition, and disposal of a lit cigarette close to combustible materials.*

5 Principles and scope of fire risk assessments

*COMMENTARY ON CLAUSE **5***

i. *The fire risk assessment is a systematic and structured assessment of the fire risk (see Clause **4**) in the premises for the purpose of expressing the current level of fire risk, determining the adequacy of existing fire precautions (see **3.36**) and determining the need for, and nature of, any additional fire precautions. Any such additional fire precautions required are set out in the action plan (see **3.2**), which forms part of the documented fire risk assessment (see Clause **10**). The objective of the action plan is to set out measures that will ensure that the fire risk is reduced to, or maintained at, a tolerable level (see **3.83**).*

ii. *The fire risk assessment needs to be a genuine and open-minded approach to the assessment of fire risk and fire precautions. It is not, for example, appropriate to use the fire risk assessment to justify a decision regarding fire precautions that has already been made, or to justify significant departures from universally recognized good practice.*

iii. *It follows from the definition of fire risk that the fire risk assessment involves consideration of relevant fire hazards and the means for their elimination or control, i.e. fire prevention measures. This contrasts with the approach adopted in now repealed fire safety legislation, which tended to concentrate on fire protection measures (see **3.39**), rather than fire prevention measures (see **3.37**).*

iv. *This approach to fire risk assessment tends to parallel that adopted in health and safety risk assessments, whereby the objective of the risk assessment is not limited to merely preventing harm to people as a result of a hazard, but begins with endeavours to eliminate or reduce the hazard itself. Thus, the fire risk assessment begins with endeavours to reduce the likelihood of fire. In this sense alone, fire risk assessment is a more holistic approach to control of fire risk than that adopted under earlier legislation.*

v. *The likelihood of fire is rarely reduced to zero. Accordingly, there is normally need for fire protection measures, such as means of escape (see **3.64**), measures that assist in the use of escape routes (see **3.20**), means of giving warning of fire and means for fighting fire. However, fire protection measures, by definition, only have a bearing on fire safety after fire has occurred and, therefore, fire prevention has failed.*

vi. *Most of the visible fire precautions in premises are fire protection measures, and it is with these measures that the fire safety provisions within building regulations are primarily concerned. However, in modern premises, the risk to people (and property) from fire is often governed more by the quality of fire safety management (see **3.47**) than the level of fire protection. Indeed, significant factors in most non-domestic, multiple fatality fires, particularly those involving, say, ten deaths or more, are failures in fire safety management, rather than failures in the design of premises or fire protection measures.*

vii. *Thus, in contrast with the approach to compliance with building regulations, it is absolutely essential that every fire risk assessment gives thorough attention to fire safety management and, therefore, to matters such as the fire safety strategy for the premises, fire procedures (see **3.38**), staff training , fire drills, testing and maintenance of fire protection equipment, inspection of means of escape, etc. Good fire safety management also contributes to the prevention of fire by incorporating policies and measures that reduce the likelihood of fire.*

viii. *It follows, therefore, that the fire risk assessment can only validly be carried out on premises that are in use, so that the actual working conditions, practices and procedures can be taken into account. The fire risk assessment required by the relevant fire safety legislation (see **3.76**), to which this PAS refers, cannot be carried out at the design stage of new premises, nor is it a means for snagging fire precautions in newly constructed premises prior to occupation. Parts of the fire risk assessment can be used for such a purpose, in order to review fire protection measures at the design stage, and to ensure the premises, once constructed, are safe for occupation, but such an exercise would not constitute a suitable and sufficient fire risk assessment, as management issues and operational issues cannot be properly addressed.*

ix. *The fire prevention measures, fire protection measures and components of fire safety management can be considered as variables, the standard of which can be reduced or increased, according to the fire risk, in order to provide an integrated package of measures that limits fire risk to a tolerable level. However, some factors that have a major impact on fire risk are not variable, but are "given" factors for the premises in question. Usually, basic information on such factors can be considered as significant findings of the fire risk assessment, and accordingly, such information needs to be recorded.*

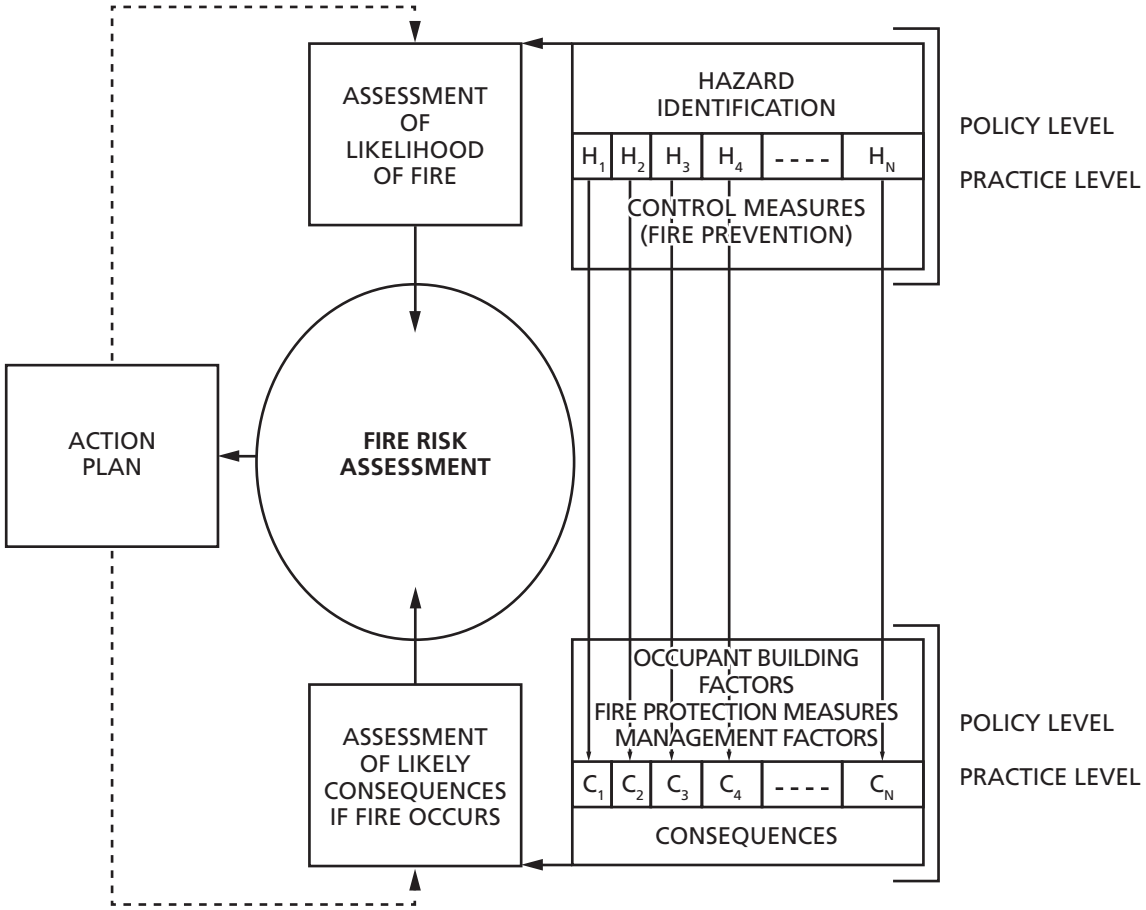
Such factors include, but are not limited to:

a) *the height of the premises (e.g. single storey or multi-storey, low rise or high rise, the presence of basements);*
b) *the construction of the premises [e.g. largely non-combustible (see **3.65**) or mainly combustible (see **3.12**)];*
c) *the activities and processes carried out on the premises [e.g. handling of highly flammable materials, creation of combustible wastes, use of ignition sources (see **3.57**)];*
d) *the complexity of the premises (e.g. simple, straightforward escape routes or complex, convoluted internal layout);*
e) *the approximate floor area of the premises;*
f) *the approximate number of occupants of the premises;*
g) *the maximum numbers of members of the public likely to be present (unless small in number);*
h) *the nature of the occupants (e.g. young or old, disabled or able-bodied);*
i) *the familiarity of the occupants with the premises (e.g. fully familiar, slightly familiar or totally unfamiliar);*
j) *the state (or likely state) of the occupants (e.g. awake or asleep, alert or under the influence of alcohol or drugs);*
k) *the history of fires on the premises; and*
l) *the incidence of arson and vandalism in the surrounding areas.*
m) *Although the above factors cannot (or cannot readily) be changed, their effect on fire risk (primarily as a result of their effect on the consequences of a fire) needs to be taken into account in the fire risk assessment, so that they are reflected in the level of fire risk expressed in the fire risk assessment. The level of fire precautions then needs to be proportionate to the level of risk.*

x. *Since the likelihood (i.e. probability) of fire and the consequences of fire, if it does occur, are largely independent factors (see Clause **4**), they need to be considered separately in the fire risk assessment (see Figure 1). For example, in single-storey, open plan premises with an abundance of readily available fire exits, a high probability of fire (e.g. as a result of numerous small fires in an industrial process) does not imply serious consequences to occupants (in terms of injury) in the event of fire.*

xi. *On the other hand, in large, multi-storey premises with minimal fire load (see **3.35**) and few ignition sources (e.g. a store for metal components), if there are inadequate means of escape and inadequate means of warning people in the event of fire, the consequences to occupants in the event of fire could be serious. It should, equally, be noted that, in each of these examples, poor standards of fire safety management could affect both the probability of fire and the consequences of fire.*

Figure 1 – Schematic of fire risk assessment process



xii. *Once the level of fire risk is determined, any need for improvements in fire precautions can be identified. The separate consideration of probability of fire and consequences of fire is then of value, since, if the fire risk is unacceptably high, the source(s) of the high fire risk can be identified by separating the fire risk into its two component factors. It can then be determined whether the problem is primarily one of high likelihood of fire, necessitating fire prevention measures in the action plan, or serious consequences in the event of fire, necessitating fire protection measures, or a combination of the two.*

xiii. *The determination of the likelihood of fire, the consequences of fire, and hence the fire risk, can normally be subjective in nature, and will not normally be quantified numerically. Numeric methods, including calculation of probabilities and use of fire scenarios (see **3.53**), need normally only be used in specialist industries (such as the chemical industry) with potential for very high fire risk, or be used in the formulation of designs based on complex fire safety engineering (see **3.45**). Moreover, care is necessary to ensure that simple points schemes, which purport to evaluate fire risk numerically, are not misleading (see Clause **18**).*

xiv. *Equally, if significant capital expenditure on fire precautions is recommended in the action plan (see **3.2**), it needs to be possible to justify the expenditure by articulation of a realistic and credible scenario, in which unacceptable fire risk to occupants would occur. In such cases, it is not, for example, acceptable simply to justify significant capital expenditure on the basis of a departure from current guidance or practice, particularly in the case of premises designed and constructed prior to the introduction of such guidance or practice.*

xv. *Where, originally, the premises have been designed by a competent fire engineer on the basis of fire safety engineering (e.g. complex premises, such as a large shopping centre), and have been approved under relevant building regulations, it is not generally necessary to check*

this design from first principles in the course of the fire risk assessment. It is, however, necessary to ensure that features and facilities that form part of the design are being properly maintained and managed.

xvi. *The action plan (see Clause **19**) needs to contain measures that are reasonably practicable, risk-proportionate and normally prioritized, while resulting in compliance with legislation and the organization's fire safety policy (see **3.51**). The nature of the measures specified needs to be such that they are likely to receive acceptance by management and other occupants who might be affected by them.*

Recommendations

5.1 The fire risk assessment should only be carried out when premises are in normal use. If, in the case of new or refurbished premises, there is a need to carry out a fire risk assessment before the premises are fully occupied and in normal use, a further fire risk assessment should be carried out soon after the premises are in normal use.

***NOTE** Where any premises stand unoccupied, the dutyholder still has a responsibility, under the relevant fire safety legislation, to ensure that a fire risk assessment is carried out.*

5.2 Every documented fire risk assessment should explicitly set out the significant findings of the assessment, including information on the following matters:

a) brief detail or brief description of the principal dutyholder;
b) the height of the uppermost storey of the premises, or part of the premises, that are the subject of the fire risk assessment, or the number of storeys above and below ground;
c) brief details of construction, with information about any aspects that make a significant contribution to risk;
d) the activities and processes carried out on the premises and any significant changes due to the time of day;
e) approximate number of occupants;
f) whether the premises will be occupied by members of the public (or a significant number of persons unfamiliar with the design and layout), and, if so, the approximate number of members of the public (if known);
g) approximate floor area of the premises, or a typical floor of the premises, or part of the premises, that are the subject of the fire risk assessment;
h) in the case of premises in multiple occupation, the nature of the other occupancies (if known);
i) occupants especially at risk (see **3.67**) in the event of fire (e.g. sleeping occupants, disabled occupants, those working in remote areas and young persons);
j) any fires that have occurred in recent years (if known);
k) any further relevant information that has a bearing on fire risk (other than the information described in **5.3**) or on the validity of the fire risk assessment;
l) information on any enforcement, alterations, or prohibition notices that apply to the premises.

***NOTE** An alterations notice is a notice that may be issued by an enforcing authority under the relevant fire safety legislation, requiring the enforcing authority to be notified of proposals to carry out alterations to the premises.*

5.3 Within every documented fire risk assessment, it should be clear that appropriate consideration has been given to the following matters, regarding which there should be, at least, basic information and, where relevant, comment:

a) fire hazards and means for their elimination or their control;
b) maintenance of fire protection measures;
c) relevant aspects of fire safety management.

5.4 Every documented fire risk assessment should contain an expression of the level of fire risk, determined from the information recommended in **5.2** and **5.3**.

***NOTE** The level of fire risk may normally be expressed subjectively (e.g. trivial, tolerable, moderate, substantial, intolerable).*

5.5 Every documented fire risk assessment should contain an action plan (see Clause **19**), unless it is expressly confirmed within the fire risk assessment that no additional fire precautions are necessary.

6 Responsibility for adequacy of the fire risk assessment

*COMMENTARY ON CLAUSE **6***

i. *Regardless of whether the fire risk assessment is carried out by, for example, staff of an organization, or by a third-party fire risk assessor (see **3.82**), the ultimate responsibility for the adequacy of the fire risk assessment rests with a dutyholder (see **3.17**), namely the person defined by legislation as responsible for ensuring that the fire risk assessment is carried out and that the fire precautions are adequate.*

ii. *In a workplace, this dutyholder will be the employer, but, in addition, other persons, such as those having control of the premises, might also be required to carry out a fire risk assessment. For example, in some premises, such as commercial premises in multiple occupation, the landlord or managing agent might also have responsibilities under legislation, and, in order to discharge their duty, they might also need to carry out a fire risk assessment to determine the adequacy of those fire precautions for which they are responsible (e.g. fire precautions in the common parts and fire protection systems that are premises-wide, such as the premises' fire alarm system). It will also be necessary to ensure adequate cooperation amongst dutyholders to verify that, jointly, they coordinate the measures required to satisfy legislation.*

iii. *It is important that any person on whom the duty to carry out a fire risk assessment is imposed understands and acknowledges their responsibility for the fire risk assessment, as this, again, is in contrast with earlier legislation, with which the person might be more familiar.*

iv. *Under traditional legislation, the principal responsibility for judging the adequacy of existing fire precautions, and for determining the requisite additional fire precautions, rested with the fire and rescue authority. This has led to an inappropriate attitude of reliance on the fire and rescue authority by those who own, operate or occupy premises. This attitude is out of keeping with the modern principle in the health and safety field that those who create risks (e.g. by virtue of operating premises or processes in the premises) have prime responsibility for taking action to mitigate them. Thus, application of prescriptive norms for fire precautions by the fire and rescue authority has proved not to be conducive to proactive fire safety management, which is the key to effective control of fire risk.*

v. *The fire risk assessment constitutes an underpinning for an organization's self-compliance with fire safety legislation and the organization's fire safety policy. It is essential that the organization does not treat the fire risk assessment as a mere formality, or treat the documented fire risk assessment as a formal document that is an end in itself and that is simply stored away until the fire and rescue authority request sight of it.*

vi. *Where, within an organization, there is a competent person (see **3.14,** Clause **7** and Annex A), able to carry out the fire risk assessment, it is appropriate for that person to carry out, or oversee any third party that carries out the organization's fire risk assessments. If fire risk assessments are carried out by a third party, such as a consultant, it is essential that the organization for whom the fire risk assessment is carried out understands the role of the third party and the resulting risk assessment; the role is to facilitate the fire risk assessment and to advise on fire precautions, but the responsibility for the adequacy of the fire risk assessment and adequacy of fire precautions rests with the organization. It is the responsibility of the organization to ensure that whoever carries out the fire risk assessment is competent (see Clause **7** and Annex A), as its "ownership" remains with the organization.*

vii. *Notwithstanding the above, if a third-party fire risk assessor (such as a consultant) carries out a fire risk assessment that is, subsequently, deemed (e.g. by a Court) to have been inadequate at the time it was carried out, such as to, thereafter, place occupants of the premises at risk of serious injury or death in the event of fire, the fire risk assessor might then be exposed to civil or criminal liability. This is because, if, under a contract, a person has responsibility for the safety of premises, they can be regarded as "a person having control of the premises", on whom the relevant fire safety legislation (see **3.76**) imposes duties in respect of the fire risk assessment. This situation might, for example, arise if the fire risk assessor were seriously negligent in the scope of the matters considered in the fire risk assessment, their endeavour to obtain relevant information, or their examination of fire precautions (including managerial issues, such as evacuation procedures and staff training). Equally, it is not expected that, in the fire risk assessment to which this PAS applies, intrusive investigations of structural fire precautions (e.g. involving opening up of*

*the structure or removal of ceilings) and testing of active fire protection measures (see **3.39**) are carried out (see also Clause **15**).*

viii. *Where the fire risk assessment is carried out for an organization by a third party, it is essential that the organization buys into the fire risk assessment from the outset. This means that the organization will need to provide information and support for whoever carries out the fire risk assessment, as much of the essential information required in order to carry out the fire risk assessment will reside within the organization and cannot be obtained by a third party without the organization's cooperation. The organization will also need to give practical support to the fire risk assessor (see **3.43**) by ensuring that the fire risk assessor has access to appropriate people from whom information is to be obtained and has sight of relevant documentation, and by facilitating access to all areas of the premises.*

ix. *Where practicable, to ensure acceptance of the action plan, the recommendations in the action plan need, in the course of the fire risk assessment, to be discussed with the management of the premises in question to ensure that the documented fire risk assessment is delivered to the appropriate person(s), namely the person(s) on whom the findings impact and who can arrange for implementation of the action plan. The "ownership" of the fire risk assessment will then continue throughout the life of the premises, so that, for example, the fire risk assessment is subject to review at an appropriate frequency and when changes take place (see Clause **20**).*

Recommendations

6.1 Where legislation imposes a requirement on any dutyholder for a fire risk assessment to be carried out, it should be clearly understood by the dutyholder that the responsibility for the adequacy and accuracy of the fire risk assessment, and of the information contained therein, rests with that dutyholder, rather than with the fire risk assessor, regardless of whether the fire risk assessor is an employee of the organization or a third party (e.g. a consultant). However, there is also a legal responsibility on the part of the fire risk assessor in contract law; criminal responsibility might also arise on the part of the fire risk assessor under the relevant fire safety legislation if the fire risk assessor is deemed to be a "person having control" as a result of a responsibility under a contract for the safety of the premises.

6.2 Where, within an organization, an employee of the organization is competent to carry out the fire risk assessment, where practicable that person should carry out, or oversee any third party that carries out, the organization's fire risk assessment.

6.3 The dutyholder should take all reasonable steps to ensure that every fire risk assessor who carries out fire risk assessments on their behalf is competent to carry out this task, regardless of whether the fire risk assessor is an employee of the dutyholder or a third party, such as a consultant (see Clause **7** and Annex A).

6.4 The dutyholder should ensure that the fire risk assessor has access to appropriate people and relevant documentation, is provided with all relevant information and has access to all areas of the relevant premises, or part of the premises, at the time of the fire risk assessment, particularly if the fire risk assessment is carried out by a third party.

6.5 The dutyholder should ensure that the documented fire risk assessment is studied carefully by appropriate people in the organization to confirm the accuracy of documented information, to understand the contents, particularly the fire hazards, fire safety measures and any shortcomings in fire protection measures or fire safety management, and to implement the action plan.

6.6 After the fire risk assessment has been carried out, it should be subject to regular review, particularly when changes that could affect fire risk occur or when there is any other reason to suspect that the fire risk assessment is no longer valid (see Clause **20**).

7 Competence of fire risk assessors

*COMMENTARY ON CLAUSE **7***

i. *The fire risk assessment, and its periodic review (see Clause **20**), is a foundation for continued adequacy of fire precautions on an ongoing basis, after compliance with building regulations. It is, therefore, essential that fire risk assessments are only carried out by a competent person (see **3.14**). Legal liability may arise on the part of the dutyholder and the fire risk assessor if a fire risk assessment is not suitable and sufficient. If the inadequacy of the fire risk assessment puts one or more relevant persons at risk of serious injury or death in the event of fire, an offence is committed by the dutyholder. The same offence could also be committed by the fire risk assessor.*

ii. *Competence does not necessarily depend on the possession of specific qualifications, although such qualifications might contribute to the demonstration of competence. In the case of small simple premises, where the fire risk assessor might, for example, be an employee of the occupier, it is possible that, provided the fire risk is relatively low, the following attributes of the fire risk assessor might be sufficient in conjunction with a study of suitable guidance documents:*

   a) *an understanding of relevant current best fire safety practices in premises of the type in question;*
   b) *an awareness of the limitations of the fire risk assessor's own experience and knowledge;*
   c) *a willingness and ability to supplement existing experience and knowledge, when necessary, by obtaining external help and advice.*

iii. *Higher risk or more complex premises will require a higher level of knowledge and experience on the part of the fire risk assessor. For complex premises, there will be a need for the specific applied knowledge and skills of an appropriately qualified specialist. In such cases, evidence of specialist training and experience, or membership of a professional body, can enable competence to be demonstrated.*

iv. *Significant experience of inadequate fire risk assessments, carried out by those who are not competent to do so, has, since the introduction of new fire safety legislation in Great Britain in 2006, caused increasing concern amongst regulators, enforcing authorities and the fire safety profession. As a result, a "Competency Council" was formed in 2010 with the objective of setting a competence standard for third-party fire risk assessors, who carry out fire risk assessments for clients on a commercial basis. Members of the Competency Council comprise representatives from central government, the Chief Fire Officers' Association (CFOA), the professional bodies within the fire safety profession, relevant trade associations and other relevant stakeholders. In 2011, the Competence Council published their competence standard for fire risk assessors. The intention is that this standard, which is reproduced with permission of the Competence Council as Annex A to this PAS, will provide a basis for consistent evaluation of the competence of fire risk assessors by those professional bodies engaged in registration of competent fire risk assessors, and by third-party certification bodies, who operate certification schemes for fire risk assessors.*

v. *In general, other than in the case of simple, low risk premises, fire risk assessors, particularly those offering their services on a commercial basis (e.g. consultants), need:*

   a) *a good understanding of the legislation under which the fire risk assessment is required;*
   b) *a sound underpinning combination of education, training, knowledge and experience in the principles of fire safety;*
   c) *an understanding of fire development and the manner in which people behave when exposed to fire;*
   d) *training and/or experience in carrying out fire risk assessments;*
   e) *an understanding of the fire hazards, fire risks and occupants especially at risk from fire that are likely to occur in the premises, or part of the premises, for which the fire risk assessment is carried out.*

vi. *In the context of the above list, education is likely to involve formal education of a relatively academic nature, often culminating in a qualification (although not necessarily to degree level). Training involves training of a practical nature, often given on the job. Knowledge can be obtained by academic study, training, working alongside others, short courses, continuing professional development or any combination of two or more of these.*

vii. *It is not implied that education, training and experience in the principles of fire safety need each be extensive, provided that the combination of each results in adequate knowledge. Moreover, a high level in respect of any one of these might compensate for a lower level in another.*

viii. *A number of bodies maintain a register of persons who they consider competent to carry out fire risk assessments. These include relevant professional bodies and certification bodies, accredited by UKAS to provide assessment and certification services. Registration of a fire risk assessor on such a register can give the dutyholder confidence in the education, training and experience of the fire risk assessor to those who wish to use the fire risk assessor's services.*

Recommendations

7.1 All fire risk assessments should be carried out by a competent person (see **3.14** and Annex A).

7.2 The fire risk assessor need not possess any specific academic qualifications but should:

a) understand the relevant fire safety legislation;
b) have a thorough knowledge and understanding of the Government guidance document relevant to the premises in question;
c) have appropriate education, training, knowledge and experience in the principles of fire safety;
d) have an understanding of fire development and the behaviour of people in fire;
e) understand the fire hazards, fire risks and relevant factors associated with occupants especially at risk within premises of the type in question;
f) understand the causes of fire and means for their prevention;
g) understand the design principles of fire protection measures;
h) have appropriate training and/or experience in carrying out fire risk assessments.

8 Benchmark standards for assessment of fire precautions

*COMMENTARY ON CLAUSE **8***

i. *The assessment of fire precautions in the fire risk assessment does not merely involve rigid comparison of existing fire precautions with standards set out in prescriptive codes of practice. Similarly, the action plan is not based on rigid adherence to prescriptive norms found in codes of practice. To adopt such an approach would not necessarily result in risk-proportionate fire precautions.*

ii. *Nevertheless, in assessing or formulating measures to eliminate or control fire hazards (see **3.33**), it will often be appropriate, in the case of certain fire hazards, such as potential electrical faults, to adopt guidance in recognized codes of practice. This will particularly be the case where these codes of practice are well established, universally recognized, produced by authoritative bodies with specialist knowledge regarding the hazard in question, and based on sound scientific or engineering principles (as opposed to arbitrary judgements).*

iii. *Thus, for example, in considering the fire hazard created by defective electrical wiring, it will normally be appropriate to control the hazard by inspection and testing of the fixed electrical installation in accordance with BS 7671 and with guidance produced on this subject by the Institution of Engineering and Technology. It would normally be inappropriate for the fire risk assessor to advocate control measures that conflict with such guidance.*

iv. *However, in the case of other fire hazards, such as use of portable heaters or control of combustible waste, the knowledge, experience and judgement of the fire risk assessor will be much more important. Although there is ample guidance on such matters in various publications, the guidance is less universally recognized, more general in nature and not exactly applicable in every situation.*

v. *In the case of fire protection measures, a plethora of codes of practice exist. In the case of some specific fire protection systems, a single, universally-accepted code of practice exists and is based on sound engineering principles. This is the case in respect of, for example, fire detection and fire alarm installations (BS 5839-1) and automatic sprinkler installations (BS EN 12845). These codes of practice are invariably adopted in the design of new installations.*

vi. *In many codes of practice, certain parameters specified in the codes, such as the sound pressure levels of a fire alarm system or the illuminance levels of emergency escape lighting, are acknowledged to be relatively arbitrary in nature. Thus, minor variations from numerically expressed limitations or performance levels need not necessarily have any significant effect on fire risk. Nevertheless, where the action plan includes recommendations for upgrading any aspect of the relevant system (e.g. improvement in the sound pressure levels of a fire alarm system or the illuminance levels of an emergency escape lighting installation), it will be appropriate to adopt the relevant recommendations of the appropriate code of practice within the action plan.*

vii. *Traditionally, the design of various other fire protection measures, specified within the relevant code of practice, is often based more on custom and practice, and on arbitrary recommendations, than on scientific and engineering principles. Moreover, various conflicting recommendations often occur within different codes of practice on the same subject, such as those relating to structural fire protection (see **3.81**). In addition, sometimes different recommendations apply to new and existing premises. For example, recommendations within guidance that supports building regulations often differ from recommendations within guidance that supports legislation applicable to existing premises. Typically, guidance on fire protection measures for new premises (e.g. guidance that supports building regulations) is more onerous than guidance on fire precautions in existing premises (e.g. guidance that supports the relevant fire safety legislation). This makes rigid adherence to any particular code of practice even less appropriate. It also means that guidance that supports building regulations in respect of new premises might be unduly onerous to apply for the purposes of a fire risk assessment for existing premises, constructed before the introduction of the current building regulations.*

viii. *A classic example of this concerns means of escape (see **3.64**). For example, different maximum travel distances (see **3.84**) are recommended in different codes of practice dealing with different premises, and even in different codes of practice that can be applied to the same premises. Yet, travel distance is a fundamental component in the design of means of escape. Similar variations exist in the more detailed recommendations of various codes of practice.*

ix. *This has led to a school of thought amongst some experts that the application of prescriptive codes of practice within the fire risk assessment is inappropriate. However, while there is a need for risk-proportionate fire precautions, rather than rigid application of prescriptive norms, it should be borne in mind that prescriptive codes of practice have achieved their objective; for example, it is rare for multiple fatality deaths to occur in non-domestic premises that conform to the relevant prescriptive code of practice, unless a number of failures in fire safety management have occurred.*

x. *This might be as a result of the continual development of the well-established codes of practice over many years, and of the fact that, when any long-standing code of practice has been found to be deficient following a major fire disaster, the code of practice has been "patched" to address the deficiency. After many revisions and "patches", prescriptive codes of practice arguably result in a level of fire precautions that is sufficient to reduce fire risk to a tolerable level, and in fire protection measures that are relatively forgiving in the event of inadequate fire prevention measures and shortcomings in fire safety management.*

xi. *However, although it has always been intended that codes of practice be flexible in their application, there is a perception (sometimes, but not always, correctly) that there has been inflexible application of codes of practice. This has arguably tended to result in unnecessary restrictions on the design and use of premises, and in over-extensive fire precautions.*

xii. *The "one size fits all" nature of prescriptive codes can also result in lower standards of fire protection measures than warranted by the fire risk. An example of this is the assumption within many codes of practice that automatic fire detection is never necessary in premises in which no one sleeps, other than as compensation for reduction or variation in the standards of other fire protection measures, to operate other fire protection measures or for protection of inner rooms. However, the fire risk assessment might well determine that there is a need for some automatic fire detection in such premises. It should also be noted that prescriptive standards can become outdated and fire protection measures designed in accordance with such standards might not be sufficient.*

xiii. *At the design stage of premises, the alternative to application of all recommendations within a prescriptive code of practice is the application of fire safety engineering (see **3.45**), usually in conjunction with many, but not all, of the recommendations from the codes of practice. However, formulation of fire protection measures from a first principles approach to fire safety, for example using fire safety engineering, is complex, time consuming and demands the expertise of specialists, such as a fire safety engineer (see **3.44**). It is not usually an appropriate approach to the fire risk assessments required by legislation, albeit that the principles of fire safety engineering, applied subjectively, can be relevant.*

xiv. *For example, when fire occurs, a key factor in the safety of occupants is the escape time (see **3.21**). Control of maximum travel distance and minimum exit widths, using the same figures for all premises of the same purpose group, is an imprecise way of ensuring that escape time is suitably limited, and only addresses the time between response of occupants to an alarm signal and the point at which they reach a place of relative safety (often described as "evacuation time"). This approach ignores time for detection of fire, the subsequent time interval before an alarm signal is given to occupants and the time for occupants to recognize the alarm signal. Moreover, it takes no account of the time for occupants to respond to the fire alarm signal (which can sometimes be longer than the combination of all other time intervals and the evacuation time).*

xv. *However, calculation or prediction of these time intervals is extremely difficult. Furthermore, a knowledge of escape time in isolation is of little value. It is more appropriate to compare escape time with the ASET (see **3.6**), which is the time between ignition and the occurrence of untenable conditions that would result in serious injury or death of occupants.*

xvi. *This PAS is intended to be suitable for use by, for example, fire risk assessors with a background in application or enforcement of traditional prescriptive fire protection codes of practice. Accordingly, it is assumed that published guidance will be a starting point or benchmark for assessment of the adequacy of fire precautions in the premises. It is, however, further assumed that the fire risk assessor is capable of exercising judgement to determine whether the recommendations of such guidance should be relaxed, or added to, in order to determine the appropriate level of fire precautions and to formulate a risk-proportionate action plan. Appropriate guidance is given in subsequent clauses.*

xvii. *Nevertheless, it is also expected that a competent fire risk assessor will not simply apply guidance and codes of practice "blindly", without proper consideration of the risk. Guidance on the relevant fire safety legislation makes it clear that the guidance is not intended to be applied prescriptively.*

xviii. *Moreover, in Scotland, a Determination by the Chief Inspector of Fire and Rescue Authorities, in respect of a dispute between a dutyholder and the enforcing authority, has reinforced this point. Although such Determinations only apply to the specific case, the Determination makes the following general points:*

"While it is totally appropriate to compare existing fire safety measures against suitable benchmarks, using these benchmarks as prescriptive standards is inappropriate. The benchmarks in the Scottish Government's guides are not meant to be prescriptive or minimum standards to be applied. This is stated in each guide and was specifically reinforced in Scottish Fire and Rescue Service Circular 17/2007 which says 'the benchmarks in the sector specific guides are not designed to be used as prescriptive standards'."

Recommendations

8.1 Assessment of fire precautions should take into account guidance within relevant, recognized codes of practice, particularly those produced by the relevant Government departments in support of the relevant fire safety legislation, albeit that rigid, prescriptive application of these is not appropriate. While fire precautions recommended in the action plan should also take account of such codes of practice, the recommendations in the action plan should be risk-proportionate, which might necessitate measures of a standard below or above that specified in the relevant code of practice.

NOTE *Different guidance documents apply to England and Wales, Scotland and Northern Ireland.*

8.2 Departures from the recommendations of recognized codes of practice should be based on the judgement of the fire risk assessor, and should take into account relevant fire safety, or fire safety engineering, principles.

NOTE *It is of benefit, particularly to those who subsequently audit the fire risk assessment, such as enforcing authorities, if significant departures from recognized codes of practice, deemed acceptable by the fire risk assessor, are recorded and, preferably, justified in the documented fire risk assessment (see Clause **10**). It is then clear that there has been appropriate consideration of the matter and that it has not simply been overlooked.*

9 Assessment of premises design and fire precautions that do not conform to current standards

*COMMENTARY ON CLAUSE **9***

i. *Often, the design of premises for which a fire risk assessment is to be carried out, and the design, or extent, of the fire precautions in the premises, does not conform to current standards as set out in either guidance for new premises (e.g. in England and Wales, Approved Document B) or Government guidance on compliance with the relevant fire safety legislation in existing premises.*

ii. *For example, there may have been significant changes to guidance on means of escape since the premises were constructed; a common example of this is high-rise blocks of flats constructed during the 1960s or 1970s. Alternatively, there may have been major changes in guidance on the design of one (or more) of the fire protection systems; for example, prior to 2002, it was acceptable for the wiring of fire detector circuits in conventional fire alarm systems to be non-fire resisting.*

iii. *Guidance on the extent to which a fire protection measure is provided might also have changed. Indeed, it might even be the case that a fire protection system that is now required by legislation was not required at the time that the premises were constructed. For example, prior to 1988, compliance with BS 5839-1 did not necessitate the provision of fire detectors in hotel bedrooms, while, in Scotland, the requirement to provide sprinkler protection of care homes was first introduced into the Building (Scotland) Regulations in 2004.*

iv. *It is not necessarily (and is often not) the case that failure to comply with current guidance necessitates upgrading of fire precautions to meet current standards, particularly those imposed in the design of new premises under building regulations. It is almost a truism that standards, in their development over a period of time, improve standards of safety, but this does not necessarily imply that older standards are unsafe.*

v. *In some cases, upgrading to current standards need, in any case, not just fail to meet the test of reasonable practicability (see Clause **19**); upgrading might be architecturally impossible. For example, in England and Wales, Approved Document B advocates that, in the design of a new block of flats with a single staircase, the maximum travel distance between a flat entrance door and a stairway should not exceed 7.5 m; in many older blocks of flats, the travel distance is several times this figure and cannot normally be reduced. In rare cases (such as cross-ventilation within the common parts of blocks of flats), a previously required measure that has been compromised by occupants is not now, in any case, regarded as necessary, because a different design approach is now adopted.*

vi. *It is an inherent part of the risk assessment process in such cases, to determine whether departures from current guidance, including guidance that supports the relevant fire safety legislation, create sufficient risk to warrant upgrading of fire precautions to current standards. Obviously, this involves subjective judgements, but a departure from prescriptive guidance is not, alone, sufficient justification for upgrading work.*

vii. *Figure 2 is designed to assist in a logical approach in the case of older premises, constructed before recognized current guidance was published. The first step is to consider whether the fire precautions satisfy the standards applicable at the time of construction. This might bring to light original premises defects. More likely, it might identify aspects in which, perhaps over many years, the originally required fire precautions have been compromised.*

viii. *In such cases, the first measures that need to be specified in the action plan are measures to restore the original standard. An exception to this is where the original standard is no longer applied. (For example, if, in a flat within an office block in England or Wales, provided as overnight accommodation for visiting staff, self-closing devices have been removed from internal doors, it might not be necessary to restore these, as Approved Document B no longer advocates these as necessary for compliance with current building regulations.)*

ix. *The next step is that, having confirmed that the premises met the original standard (or having recommended measures to restore that standard), it should be confirmed whether the premises would meet the current standards. Sometimes,*

even though the premises were constructed before these standards were introduced, as it happens, they do actually conform to current standards.

x. *The crux of the fire risk assessment process is often to determine whether departures from current standards create unacceptable risk (i.e. does the departure from current standards really matter to any degree). Obviously, extremes exist in this respect. For example, a hotel constructed in the 1970s, and certificated under the then current Fire Precautions Act, would arguably not have been required to be provided with any automatic fire detection whatsoever. Today, such a situation would be regarded as very high risk, and there would be a need to recommend the installation of automatic fire detection as an urgent priority (with interim measures if the premises are to be occupied by sleeping guests).*

xi. *On the other hand in 1999, the level of illuminance of emergency escape lighting on defined escape routes, specified in the relevant British Standard, was increased by a factor of five in the process of European harmonization. As noted in Clause **15**, the original level of illuminance of a system installed prior to 1999 might remain acceptable until a new system is installed, in which case the current standard would be adopted.*

xii. *Between these two extremes there are many "shades of grey". In making judgements, all the circumstances of the case need to be taken into account. For example, in the case of a care home for partially-sighted people, upgrading of an old emergency escape lighting system to meet the current standards of illuminance might be appropriate.*

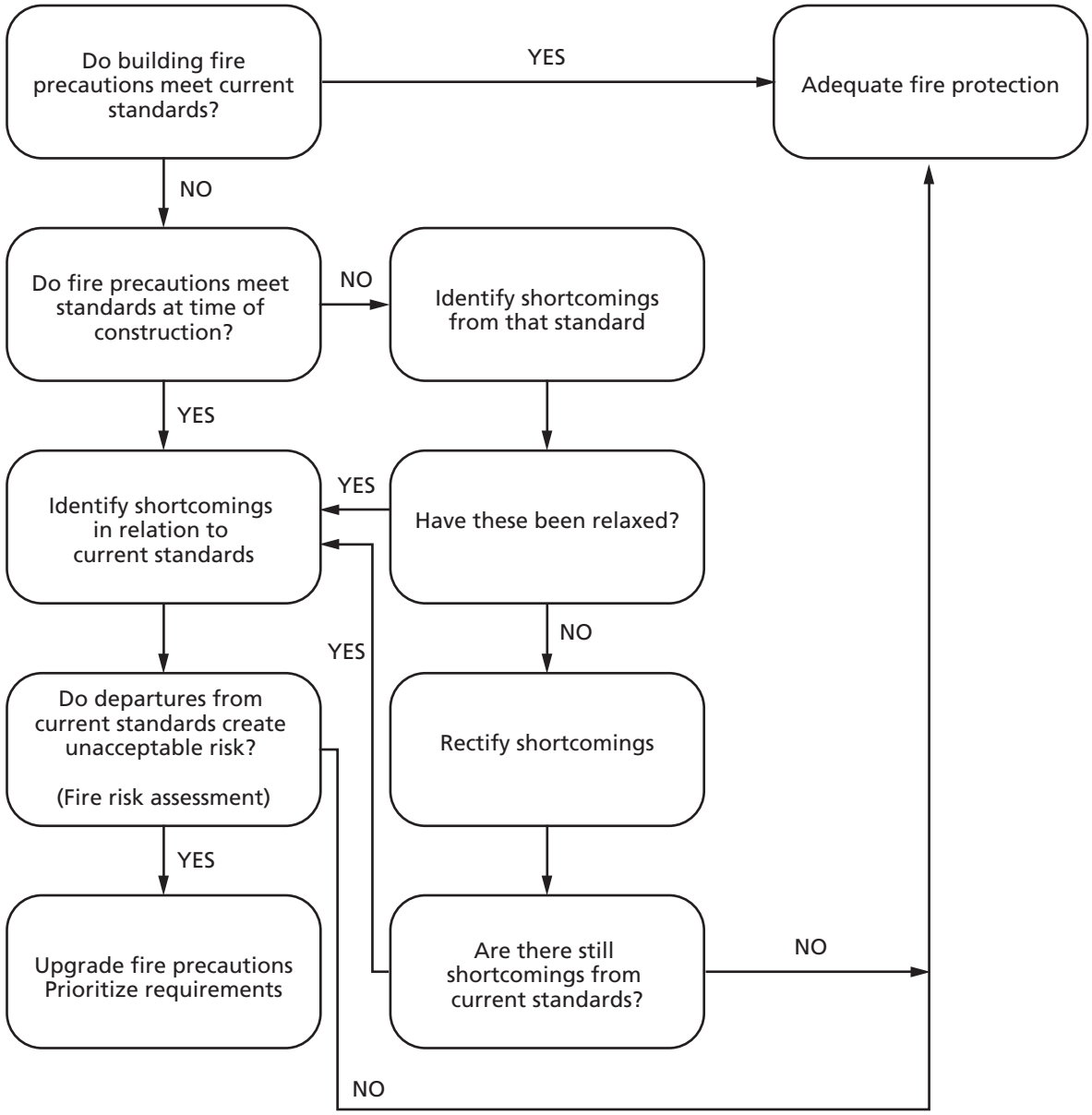
xiii. *A common perplexity relates to the fitting of intumescent strips and smoke seals to fire resisting doorsets that were manufactured or installed before the strips and seals were considered necessary. Again, extremes will exist, with careful judgement on reasonable practicability for all cases between these extremes. In a care home in which it is known that evacuation of residents via escape corridors will take a prolonged period of time, the retrofitting of the strips and seals to bedroom doors might be one of several possible mitigating measures. However, in cellular office premises with extensive automatic fire detection, fitting of intumescent strips and smoke seals to the doors of stairways might be regarded by the fire risk assessor, in many circumstances, as unnecessary. Sometimes, where upgrading is not reasonably practicable, it is appropriate to acknowledge the departure from current standards, so that at some future time (e.g. when refurbishment takes place), the current standard can be adopted.*

Recommendations

9.1 In carrying out a fire risk assessment of premises constructed many years ago, before the introduction of current standards, the fire risk assessor should have at least a basic understanding of the original standards applicable to the premises at the time of construction.

9.2 In formulating an action plan for the premises described in **9.1**, the fire risk assessor should follow the logic set out in Figure 2. It should not be assumed that prescriptive application of current standards is necessary, but, where the original standard is considered to create significant risk, measures that are reasonably practicable should be recommended in the action plan.

Figure 2 – Decision Tree for action plan when existing premises do not comply with current standards



10 Documentation of fire risk assessments

*COMMENTARY ON CLAUSE **10***

i. *There is no single correct means of documenting the fire risk assessment, nor are there specific, definitive requirements within legislation for the content of a documented fire risk assessment, only that the "significant findings" and any group of occupants especially at risk be recorded. The fire risk assessor therefore needs to make a judgement as to what constitutes "significant findings" and occupants especially at risk.*

ii. *See Clause **5** for the information that needs to be taken into account in the fire risk assessment and the matters on which judgements need to be made. Such information needs to be documented, along with other relevant factual information (e.g. managerial responsibility for fire safety). In the case of certain matters, particularly the "given" factors taken into account in assessment of the fire risk (see Commentary on Clause **5**), information about the factors (e.g. number of storeys of the premises) needs to be recorded.*

iii. *In the case of other matters, such as certain fire protection measures (e.g. emergency escape lighting), it might be sufficient to acknowledge that appropriate consideration has been given to the matter (see **5.3**), without necessarily recording descriptive information about it. Indeed, unnecessary detail might not be conducive to ensuring that the appropriate person(s) study the document properly or take note of significant findings. However, for example, if the design of a fire precaution (such as means of escape) departs significantly from a recognized norm, but the departure is considered acceptable by the fire risk assessor, it is of value to document the justification for this. It is also relevant to record measures that need to remain in place to address specific risks or to compensate for shortcomings in other fire protection measures.*

iv. *It should be stressed that, since the purpose of a fire risk assessment is to lead to the safety of occupants of the premises from fire, the important issues are the scope of the fire risk assessment, the competence with which relevant matters have been considered and the content of the documented significant findings; the format of the record is then very much a secondary consideration, though there needs to be evidence for those who audit the fire risk assessment (e.g. an enforcing authority) that the requirements of the relevant fire safety legislation have been addressed when the fire risk assessment was carried out. In this connection, objections to any specific format are not legitimate.*

v. *One suitable format for documentation is given in Annex B to this PAS. However, as there is evidence to suggest that PAS 79 is becoming, to some extent, an industry standard, it needs to be noted that Annex B is informative, not normative. Accordingly, provided the recommendations in the PAS, including those within the normative annex, are followed, there will be compliance with this PAS.*

Recommendations

10.1 A documented fire risk assessment should conform to the recommendations given in **5.2** to **5.5**.

***NOTE** Annex B contains a pro forma that is considered to be a suitable and sufficient means for documenting the fire risk assessment. The pro forma contained in Annex B is only a model, in that, if completed by a competent person (see Clause **7** and Annex B), the scope of the documented fire risk assessment will normally conform to the recommendations of this PAS. Equally, the format of a documented fire risk assessment may vary from that shown in Annex B, provided that all recommendations of this PAS are satisfied.*

10.2 In the case of persons especially at risk, sufficient information should be recorded about the nature of that risk to enable verification as to whether measures to address the risk are in place. For example, it is not sufficient to record the presence of disabled people without some reference to the nature of their disabilities; deaf and hard of hearing people, for example, need different provisions for their safety than persons with impaired mobility. This principle is particularly important in the case of premises in which the majority of occupants are disabled people (e.g. a care home).

10.3 If any fire protection measure obviously and significantly departs from the standard recommended in a relevant guidance document or prescriptive code of practice, but no upgrading of the measure is recommended in the action plan, the acceptance of the existing standard should be justified within the documented fire risk assessment.

***NOTE** The departures to which **10.3** refers are primarily those affecting provisions for means of escape and functional aspects of fire protection systems; it is not, for example, intended that justification of the continued use of a fire alarm system or emergency escape lighting system designed in accordance with a superseded standard would normally be necessary.*

10.4 The fire risk assessment should record the name of the fire risk assessor(s), the date(s) on which the fire risk assessment was carried out and the name(s) of the principal person(s) with whom there was consultation (e.g. for supply of relevant information) at the time of the fire risk assessment.

10.5 The fire risk assessment should record any significant areas of the premises to which access was not possible at the time of the fire risk assessment.

10.6 The fire risk assessment should record the date by which it should be subject to review (see Clause **20**).

11 Nine steps to fire risk assessment

*COMMENTARY ON CLAUSE **11***

i. *To promote a structured approach to fire risk assessment (see Clause **5**), this PAS sets out nine steps in the fire risk assessment process, somewhat akin to the five steps to risk assessment often adopted in a health and safety risk assessment. Some guidance documents suggest five steps in a fire risk assessment; this PAS is consistent with such guidance, but merely breaks down the process into more detail. The number of steps defined is irrelevant; the important matter is that an appropriately structured approach is adopted and that all relevant issues are addressed.*

1) *The first step is to obtain relevant information about the premises, the processes carried out on the premises, and the occupants of the premises. Information about previous fires is also of value, particularly where the organization has multiple sites with common operations. This information is described in Clause **5** as the "given" factors in the fire risk assessment. Much of the relevant information can usually be obtained by interviewing a relevant representative(s) of the management, prior to carrying out a physical inspection of the premises. At that stage, it is important that relevant information is obtained about the occupants of the premises, particularly those especially at risk in the event of fire. For example, in a residential care home it would be necessary to obtain information about the residents' disabilities, so that the effect of these on evacuation time can be considered.*
2) *The second step is fire hazard identification (see **3.34**) and the determination of existing measures for the elimination or control of the identified fire hazards. This will normally involve a combination of interviewing the management and inspection of the premises.*
3) *The third step is to make a (subjective) assessment of the likelihood of fire. This will be based primarily on the findings of step two (see Figure 1). However, the assessment of the likelihood of fire will also take into account any relevant information obtained in step one.*
4) *The fourth step is to determine the physical fire protection measures (see **3.39**), relevant to protection of people in the event of fire. The relevant information can, again, be obtained partly from the initial discussion with management, but will, primarily, be obtained by inspection of the premises, so that the standard of fire protection can be determined.*
5) *The fifth step is to determine relevant information about fire safety management (see **3.47**). This will, primarily, involve discussion with management, but might also involve examination of documentation, such as records of testing, maintenance, training, drills, etc.*
6) *The sixth step is to make a (subjective) assessment of the likely consequences to occupants in the event of fire (see Figure 1). This assessment needs to take account of the fire risk assessor's opinion of the likelihood of various fire scenarios (see **3.53**), the extent of injury that could occur to occupants in these scenarios, and the number of people affected. This assessment is principally based on the fire risk assessor's findings in steps four and five, but will take account of information obtained in the first step.*
7) *The seventh step is to make an assessment of the fire risk and to decide if the fire risk is tolerable (see Figure 1). The fire risk is assessed by combining the likelihood of fire and the consequences of fire (see Clause **18**).*
8) *The eighth step is to formulate an action plan (see **3.2**), if this is necessary to address shortcomings in fire precautions in order to reduce the fire risk. Even if fire risk is assessed as tolerable, there is often a need for minor improvements in fire precautions. (See Clause **19** for formulation of an action plan.)*
9) *Thereafter, in the ninth step, the fire risk assessment is subject to periodic review (see Clause **20**). Review of the fire risk assessment is necessary after a period of time defined in the fire risk assessment, or at an earlier time if changes take place, or if there are other reasons to suspect that the fire risk assessment is no longer valid, such as if a fire has occurred.*

ii. *The nine steps set out in this clause, while in a logical, structured order, are not necessarily set out in the chronological order in which the steps are carried out on site. For example, some information relevant to control of fire hazards, the determination of fire protection measures and the management of fire safety is normally most appropriately obtained in a single meeting that is held prior to inspection of the premises.*

Recommendations

11.1 In all fire risk assessments carried out in accordance with this PAS, the fire risk assessor should explicitly take the following nine steps:

NOTE 1 *Explicitly, in this context, means that in the documented fire risk assessment it should be clear that each of the nine steps has been taken by the fire risk assessor.*

a) obtain information on the premises, the processes carried out on the premises and the people present, or likely to be present, on the premises (see Clause **12**);

NOTE 2 *The relevant fire safety legislation requires that consideration be given to the risk to people in the immediate vicinity of the premises from fire, as well as risk to people within the premises.*

b) identify the fire hazards and means for their elimination or control (see Clause **13**);

c) assess the likelihood of fire, at least in subjective terms (see Clause **14**);

d) determine the fire protection measures currently in the premises (see Clause **15**);

e) obtain relevant information about fire safety management (see Clause **16**);

f) make an assessment of the likely consequences to people in the event of fire, at least in subjective terms (see Clause **17**);

g) make an assessment of the fire risk (see Clause **18**);

h) formulate and document an action plan, in which recommended actions are prioritized (other than in the case of an action plan comprising only minor matters that can be actioned without delay (see Clause **19**);

i) define the date by which the fire risk assessment should be reviewed (see Clause **20**).

11.2 The fire risk assessment should be reviewed after a period of time defined in the fire risk assessment, or such earlier time as significant changes take place or there are other reasons to suspect that the fire risk assessment is no longer valid (see Clause **20**).

12 Relevance of information about the premises, the occupants and the processes

*COMMENTARY ON CLAUSE **12***

i. *The commentary on Clause **5** sets out various "given" factors that have a major impact on fire risk. It is relevant to document information about these factors in the fire risk assessment. The manner in which the factors should be taken into account in the fire risk assessment process is discussed in this clause.*

ii. *Firstly, the number of floors below ground and the number of floors above ground need to be determined. In assessing the fire risk, it needs to be borne in mind that basements can present particular difficulties for fire-fighting and, hence, rescue. Mitigating factors would be, for example, low population within basement floors, occupation only, or primarily, by trained staff, and the presence of fire protection measures, such as automatic sprinkler protection, automatic fire detection and means for removal of smoke.*

iii. *Deep basements can result in somewhat prolonged evacuation times for occupants, as is also the case in high buildings. In the latter case, rescue by the fire and rescue service is more difficult from floors above the height of normal fire and rescue service ladders and even more difficult in the case of very tall buildings with floors beyond the reach of a turntable ladder or hydraulic platform. The time for occupants to descend staircases can be quite significant. Again, robust protection of staircases, automatic fire detection and automatic sprinkler protection mitigate the risk.*

iv. *Floor area, on each floor, is also a relevant factor to consider. Evacuation of a very large floor area is likely to take longer than evacuation of a much smaller floor area, and the number of occupants is likely to be greater. Where floor space factors have been used to determine the number of occupants, the factors and calculations should be included in the assessment. Similarly, complex escape routes might take longer to negotiate than simple ones. Consideration also needs to be given to the construction of the premises. This can have an effect on fire development, particularly if combustible building construction is likely to be involved in the fire prior to evacuation of occupants.*

v. *The general use to which the premises are put (the occupancy) is also relevant. From a knowledge of the occupancy, conclusions can normally be drawn regarding the activities carried out, the nature and state of occupants, whether members of the public are on the premises, etc. These are relevant factors in the assessment of fire risk.*

vi. *A further important consideration is the maximum number of occupants that can reasonably be expected at any one time. It is important that the number recorded in the fire risk assessment is a reasonably foreseeable maximum, so that it forms a basis for any calculations of required exit capacity, etc. (see Clause **15**).*

vii. *Where practicable, it is of value for the number of occupants to be subdivided into employees and members of the public. Employees can be, and are more likely to be, trained in procedures to follow in the event of fire, and they are normally familiar with the premises. On the other hand, members of the public are likely to be unfamiliar with the premises and will not have received any formal instruction in fire procedures, etc. This has a bearing on the likely consequences in the event of fire. The ratio of staff to members of the public can also have a bearing on the effectiveness of evacuation procedures, particularly where the members of the public might need assistance or shepherding to evacuate. Other occupants to whom consideration might be necessary include cleaners, contractors, visitors, etc.*

viii. *Particular account needs to be taken of occupants who could be especially at risk in the event of fire.*

***NOTE 1** Attention is drawn to the relevant fire legislation, which requires that, other than in the case of certain very small businesses, fire risk assessments record any group of persons especially at risk.*

ix. *Particular care needs to be taken to ensure that due account is taken of disabled occupants, who are often especially at risk in the event of fire in view of the possible need for assistance with evacuation or special warning of fire. All forms of disability need to be considered, including mobility impairment, deafness, blindness, learning difficulties and mental illness.*

x. *In certain premises, such as residential care homes, great care is necessary to ensure that due account is taken of the effect of the physical and mental capacity of occupants, and, the assistance required for their evacuation, on the evacuation time and the appropriate evacuation strategy. Temporary disability can also result in the need for a special evacuation strategy. In the case of mobility impaired occupants, account also needs to be taken of the need for any active and passive fire protection measures to protect the escape routes for these occupants for sufficient time for them to reach a place of relative (or ultimate) safety (see **3.71** and **3.72**).*

xi. *It is also appropriate to regard sleeping occupants as especially at risk in the event of fire. They are less likely to be aware of the fire, might not be roused immediately by the fire alarm signal, might be disorientated when first aroused from sleep (particularly if under the influence of alcohol or drugs) and might be reluctant to evacuate. Generally, in premises that incorporate sleeping accommodation, there will be a need for a high standard of automatic fire detection and emergency escape lighting (see Clause **15**).*

xii. *It is also possible that occupants working alone in remote areas of the premises could be especially at risk in the event of fire. Their location at the time of a fire might be unknown to other occupants of the premises, and there might be no one to assist them if they were trapped by the fire or overcome by smoke. If, for example, people were working on the roof of the building, the fire alarm signal might not be sufficiently audible and their means of escape might be restricted.*

xiii. *Other occupants especially at risk include any occupants for whom immediate escape might not be possible, who might not be adequately warned of fire, etc. For example, it is not unknown for cleaners, or others, working on the premises during the night, to have restricted means of escape, which might not be acceptable.*

xiv. *The most important purpose of considering and recording occupants especially at risk in the event of fire is to ensure that adequate provisions are in place to protect such occupants from fire. Having recorded such occupants within the fire risk assessment, it needs to be clear within the documented significant findings that there are provisions to ensure the safety of these occupants.*

xv. *Young persons (e.g. those under 18 years of age) need special consideration. Their inexperience, lack of awareness of risks and immaturity makes them especially at risk from fire.*

***NOTE 2** Attention is drawn to the relevant fire safety legislation, which requires that, in carrying out a fire risk assessment, particular account should be taken of various factors relating to the risk to young persons from fire.*

xvi. *It is relevant to take account of any fire, however small, that is known to have occurred within recent years. Factors to consider include the circumstances of the fire, including the cause, and any remedial action taken to prevent a reoccurrence. Information of this type can be of use in identifying fire hazards that would not, otherwise, be obvious from an inspection of the premises. Where fire risk assessments are carried out throughout the estate of one organization, review of the fire loss experience throughout the estate can sometimes reveal significant trends or identify remedial action that might be appropriate throughout all premises to rectify a latent hazard.*

Recommendations

12.1 In carrying out the fire risk assessment, the fire risk assessor should take account of the information described in **5.2**.

12.2 While it is not normally necessary to document the manner in which every factor to which **12.1** refers affects the fire risk assessment, there should normally be explicit information within the assessment regarding appropriate measures to protect occupants who are especially at risk in the event of fire.

13 Identification of fire hazards and means for their elimination or control

*COMMENTARY ON CLAUSE **13***

i. *In this step of the fire risk assessment, the fire risk assessor identifies all reasonably foreseeable and significant fire hazards and examines the measures in place for their elimination or control. By definition, this means considering potential ignition sources (see **3.57**), as well as situations and unsafe acts that have the potential to result in a fire. It is necessary, therefore, for the fire risk assessor to be aware of the common causes of fire in the type of premises under assessment, and to have an understanding of the work processes on the premises under assessment, as well as an understanding of the policies and procedures that contribute to prevention of fire. At the conclusion of this step of the fire risk assessment, the fire risk assessor will normally be in a position to assess the likelihood of fire (see Clause **14**).*

ii. *It is assumed that the fire risk assessor is already familiar with the common causes of fire and is either aware of recognized good practice in the elimination or control of fire hazards [i.e. is aware of recognized fire prevention measures (see **3.37**)], or has access to appropriate codes of practice. Normally, the documented fire risk assessment comprises a pro forma, which incorporates a prompt-list of fire hazards that need to be considered in the fire risk assessment. A suitable prompt-list of fire hazards, typical measures for their elimination or control, and relevant codes of practice that give further guidance, is set out in Annex C.*

iii. *The list of fire hazards in the prompt-list in Annex C is not necessarily exhaustive, and other fire hazards might need to be considered, particularly those relating to specific work processes carried out on the premises. For example, significant ignition sources, perhaps associated with mechanical, chemical or electrical processes, might be identified in the fire risk assessment, and care needs to be taken to ensure that any unacceptable practices or measures for control of such ignition sources are identified, and, where relevant, are recorded within the documented fire risk assessment (see Clause **10**). It might also be appropriate to record relevant control measures. On the other hand, fire hazards with negligible potential for harm need not be documented or given further consideration.*

iv. *It should also be noted from the definition of fire hazard (see **3.33**) that fire hazards are not limited to ignition sources per se. Various situations and unsafe acts can constitute fire hazards. For example, combustible storage or rubbish does not, in itself, constitute a source of ignition. However, if, for example, the storage or rubbish is positioned close to the windows of premises, it might be ignited maliciously, or accidentally by discarded cigarettes or matches (e.g. if a designated smoking area were located in close proximity), and the resultant fire could then spread into the premises via the windows. Such a situation would, therefore, constitute a fire hazard.*

v. *It is often appropriate to consider the means for control or elimination of fire hazards in two distinct phases, which can be regarded as policy and practice. For example, in the case of a fire hazard created by faulty electrical appliances, one control measure might be a policy that portable electrical appliances are subject to periodic inspection and testing. The "practice" stage comes when the premises are inspected and observations can be made as to whether there is adherence to the policy. It might then be found that, for example, some appliances are overlooked in the programme of inspection and testing, or it might be noted that, contrary to policy, some staff bring their own electrical appliances, such as radios, heaters, fans, etc, into the workplace, without these appliances being subject to inspection or test.*

vi. *In carrying out the fire risk assessment, there is a need to consider any effects of dangerous substances, such as highly flammable materials, oxidising agents or materials that promote very rapid fire development, on the risk from fire. In particular, such substances need to be considered in relation to the general fire precautions, such as means of escape, fire warning arrangements, fire suppression systems, fire extinguishing appliances and emergency procedures.*

Recommendations

13.1 The fire risk assessment should address means for elimination or control of, at least, the common causes of fire, and shortcomings in such measures should be addressed within the action plan (see Clause **19**).

13.2 Specific causes of fire that should be considered in every fire risk assessment include malicious ignition, electrical faults, smoking, cooking (if any is carried out), inadequate control over the use of portable heaters, contractors' activities and "hot work", inadequate maintenance of heating installations, and lightning.

NOTE *It is possible that there will be a need for consideration of other fire hazards, including those associated with work processes and energy-using appliances. However, the relevant fire safety legislation excludes from the definition of general fire precautions (in England and Wales), and the definition of fire safety measures (in Scotland and Northern Ireland), "process fire precautions", namely special, technical and organizational measures required in work processes to reduce the likelihood of fire or the intensity of fire, provided that such measures are required by health and safety legislation. In this connection, work processes includes work involving, or in connection with, the use of plant or machinery and the use or storage of dangerous substances (as defined in the relevant fire safety legislation). However, the effects of use or storage on the general fire precautions (fire safety measures) that are within the scope of the relevant fire safety legislation still needs to be taken into account.*

13.3 Consideration of fire hazards should not be limited to those comprising specific sources of ignition. Situations, such as poor housekeeping and unsafe acts, that could lead to a fire should also be taken into account.

14 Assessment of the likelihood of fire

*COMMENTARY ON CLAUSE **14***

i. Once all relevant fire hazards have been identified, and measures for their control or elimination have been determined, the fire risk assessor is in a position to make an assessment of the likelihood of fire. It would be possible, in theory, to associate a likelihood of fire with each of the identified fire hazards. However, this would make the fire risk assessment process unnecessarily complex and unduly lengthy. Usually, it is sufficient to consider the overall likelihood of fire on the premises; this may be regarded as the summation of likelihoods of fire associated with each and every one of the fire hazards identified.

ii. The likelihood of fire need not, and usually cannot, be expressed in a meaningful numeric manner, such as in terms of a statistical probability of fire. All that is required is a subjective judgement that classifies likelihood of fire into one of several predetermined categories. Since the assessment of these factors is subjective, the use of numbers to express likelihood of fire does not confer any greater accuracy to the assessment of fire risk.

iii. The predetermined categories of likelihood of fire may be described in the form of words, such as "low", "medium" and "high", or in the form of numbers (e.g. 1, 2 and 3), but there will be a need for at least three categories. However, if likelihood is expressed in the form of numbers, care is necessary to ensure that it is not implied, for instance, that a likelihood of "2" indicates that fire is twice as likely to occur compared to a likelihood of "1".

iv. There is no upper limit to the number of categories of likelihood that can be adopted in the fire risk assessment process. However, if too many categories are adopted, the distinctions between categories will be meaningless. Moreover, if the same fire risk assessment process is then applied to numerous different buildings (e.g. within the estate of a single organization), particularly by different fire risk assessors, assessments of likelihood of fire are likely to be inconsistent, and the benefits of comparing the fire risk in different buildings (e.g. for the purpose of prioritizing improvements on a building-by-building basis) will then be lost.

*v. If likelihood of fire is judged to be typical for premises of the type in question, it is normally appropriate to ascribe to the premises the middle category of the predetermined categories of likelihood of fire. Higher categories can then be used to indicate serious shortcomings in elimination or control of fire hazards (i.e. fire prevention), while lower categories can be used in cases where the likelihood of fire is abnormally low (e.g. because the premises are secure and not normally occupied). Minor shortcomings in fire prevention measures need not be regarded as changing the category ascribed to the premises, but need to be addressed in the action plan (see Clause **19**).*

Recommendations

14.1 In the process of every fire risk assessment, an assessment should be made of the likelihood of fire. It is usual and acceptable for the likelihood of fire to be expressed subjectively (e.g. "low", "normal" or "high").

14.2 If, in the fire risk assessment methodology adopted, likelihood of fire is expressed in terms of one of several predetermined categories, the number of predetermined categories should be an odd number, so that the middle category can be adopted for premises that are typical for premises of the type and occupancy in question. The number of predetermined categories should be at least three, but may be more than three.

15 Assessment of fire protection measures

*COMMENTARY ON CLAUSE **15***

General

i. *In this step of the fire risk assessment, consideration is given to those physical measures incorporated within the premises that are intended to mitigate the consequences of fire (and, hence, limit fire risk) in terms of harm to occupants of the premises in the event of fire. These measures are, by definition, fire protection measures, and their effect is to limit fire exposure (see **3.31**). Particular care needs to be taken where dangerous substances, as defined in the relevant fire safety legislation, are present; their presence may influence the need for, and nature of, fire protection measures.*

ii. *Once fire occurs, the first requirement is to warn people, who can then use suitably designed means of escape (see **3.64**). To enable people to use the means of escape safely and efficiently, there will often be a need for suitable signs and for emergency escape lighting (see **3.18**). Harm to occupants might also be mitigated, and safe escape facilitated, by appropriate measures to control or extinguish the fire (whether by use of portable fire extinguishers or hose reels by occupants, or by activation of an automatic fire suppression system, such as an automatic sprinkler system). In some premises, there is also a need for access for, assistance to, or protection of, firefighters in the event of fire.*

iii. *It follows, therefore, that the fire risk assessor needs to take account of, and assess the adequacy of, the fire protection measures recommended in **15.1**.*

iv. *Adequacy of the engineering design, installation and commissioning of fire protection systems can often be certified by organizations that are themselves third-party certificated as competent in their specialist field by an appropriate third-party certification body. More generally, there is a need for all fire protection systems to be designed, installed, commissioned and maintained by engineers competent in this specialist field.*

v. *Fire development and spread can be passively limited by fire protection measures (see **3.39**), such as fire-resisting walls and floors (over and above any required to protect means of escape), which can be used to subdivide the premises into a number of separate fire compartments [e.g. to satisfy the requirements of building regulations for compartmentation (see **3.13**)]. It will often be relevant, therefore, for the fire risk assessor to take account of such fire-resisting construction and to consider its maintenance [e.g. the adequacy of fire stopping (see **3.54**)], often by inspecting sample areas of construction. The spread of fire can also be actively limited by means for fighting fire, such as fire extinguishing appliances or automatic fire suppression systems.*

vi. *On the other hand, fire development can be assisted by, for example, flammable linings on walls or ceilings, or by readily flammable furniture, furnishings, and by the accumulation of combustible material, including waste material. The fire risk assessor needs to take into account the presence and location of these features, and, sometimes, their physical state. For example, damage to upholstered furniture can result in exposure of foam fillings, which might be easily ignited and result in rapid development of fire.*

vii. *Since the earliest effect of fire on premises occupants is often loss of visibility on escape routes as a result of smoke, there is also a need to take account of measures to limit spread or build-up of smoke. These can range from fire doors (see **3.28**) to active smoke control systems, such as those designed to extract smoke or to maintain a positive pressure within escape routes to prevent the ingress of smoke.*

viii. *In the sections of commentary that follow, the key fire protection measures that affect the consequences of fire are considered separately. The factors are not, however, independent. In assessing the likely consequences of fire (see Clause **17**), a judgement needs to be made regarding the effect of each of the fire protection measures discussed below, and of a number of the management issues discussed in Clause **16**, on the escape time (see **3.21**) or on the ASET (see **3.6**).*

Fire detection and warning

ix. *The arrangements for detection of fire and the means for then warning occupants of the premises need to be considered. Fire can be detected by people or by automatic fire detectors. If people are present in the area of fire origin, they normally detect fire before it is detected automatically by, for example, smoke or heat detectors.*

x. *Traditionally, therefore, automatic fire detection has only been considered necessary in the following premises and situations:*

- *a) premises in which people sleep (e.g. hotels, boarding houses, hostels, residential care premises and hospitals);*
- *b) covered shopping complexes, and large or complex places of public assembly;*
- *c) premises with phased evacuation (see **3.70**);*
- *d) as compensation for a reduction in the standards of certain other fire protection measures below the norms prescribed in prescriptive codes of practice [e.g. extended travel distances (see **3.84**) or reduction in the fire resistance of construction protecting escape routes];*
- *e) in lieu of vision between an inner room (see **3.58**) and its associated access room;*
- *f) as a means of operating other fire protection systems (e.g. automatic closure of fire doors, automatic release of electronically locked doors, or initiation of smoke control systems).*

xi. *In general, therefore, automatic fire detection has not traditionally been considered necessary in common places of work where no one sleeps (e.g. offices, shops, factories and warehouses) and most other non-residential premises (e.g. libraries, schools and community premises), except for the purpose of property protection. Normally, if automatic fire detection is not required for compliance with current building regulations, it is unusual (but not unknown) for the fire risk assessment to identify a requirement for automatic fire detection. However, this could arise, for example, from a low level of occupancy of an area of the premises, from which there could be extensive fire spread before detection.*

***NOTE 1** Attention is drawn to guidance that supports national building regulations (e.g. in England and Wales, Approved Document B [20]) and to guidance that relates to existing buildings (e.g. in England and Wales, "Fire safety risk assessment" [8–18]).*

xii. *Notwithstanding the above, since the fire risk assessment does not involve rigid application of guidance or prescriptive codes of practice (see Clause **8**), it is appropriate to consider whether particular circumstances dictate the need for automatic fire detection in premises in which such detection was traditionally deemed unnecessary. Such circumstances might be related to likely shortcomings in the reliability of management standards or fire procedures, levels of surveillance that are unusually low for an occupancy of the type in question, or processes that constitute an abnormal fire hazard for the occupancy. For example, even if people detect a fire before an automatic fire detector does so, there is often a delay before they operate the fire alarm system, albeit that the delay might be reduced by training and fire drills (see Clause **16**); automatic fire detection might then reduce the overall delay between ignition and giving warning to occupants.*

xiii. *Moreover, since the fire risk assessment involves a holistic assessment of fire precautions, rather than independent prescription of a number of fire protection measures in isolation, there is sometimes scope, in the fire risk assessment, for greater use of automatic fire detection to compensate for existing standards of structural fire precautions that are lower than the prescribed norm.*

xiv. *Where automatic fire detection is considered necessary, the areas in which it is installed, and the types of detection used, need to take into account the objective of the fire detection and the importance of avoiding false alarms (see **3.23**). A system that produces too many false alarms can result in a reduction in the level of fire safety, as people then become reluctant to evacuate when the evacuation signal is given. A high number of false alarm calls might also bring the premises into conflict with policies of many fire and rescue services relating to their operational responses to firm alarm signals.*

xv. *In some occupancies (e.g. student halls of residence), the provision of smoke detectors, rather than heat detectors, in bedrooms might cause an untoward level of false alarms, such that, in providing enhanced protection for the occupant of the room of fire origin, complacency as a result of false alarms would create a risk to other occupants. It is appropriate for the fire risk assessment to take account of this, particularly as the relevant fire safety legislation requires that*

collective protective measures are given priority over individual protective measures.

xvi. *Systems installed prior to 2002 might not conform in full to current standards, particularly in respect of certain aspects of engineering design. In many cases, this is perfectly acceptable, but it is expected that new systems and new work associated with the modification of existing systems, recommended in the action plan, will conform to current standards.*

***NOTE 2** Guidance on types of fire detectors, their application and limitation of false alarms is given in BS 5839-1.*

***NOTE 3** Normally, domestic smoke alarms (see **3.78**) are unsuitable for non-domestic premises, and any use of these devices would need to be fully justified in the fire risk assessment. Domestic smoke alarms are also unsuitable for installation in the common parts of purpose-built blocks of flats (though, normally, the provision of a fire detection and fire alarm system in the common areas is unnecessary and inappropriate). Domestic smoke alarms are suitable for small houses in multiple occupation, but for large premises of this type a fire detection and fire alarm system complying with BS 5839-1 is necessary.*

xvii. *If the fire risk assessment considers the provision of automatic fire detection necessary, to compensate for standards of other fire protection measures that are below the relevant norm, the fire risk assessor needs to ensure that early detection is sufficient to compensate for this. As a minimum, this will necessitate a subjective consideration of likely fire scenarios. In such a case, the fire risk assessor will normally need significant experience in the practice of fire safety, or might need specialist advice. The automatic fire detection will need to conform to current recommendations, at least in terms of types of fire detectors and their location. The fire risk assessor will need to specify carefully the areas of the premises in which any additional detectors should be provided.*

***NOTE 4** The relevant recommendations are those in BS 5839-1 referring to Category L5 systems, which are those where the areas in which automatic fire detection is provided are tailor made to achieve a specific fire objective.*

xviii. *Most premises in which automatic fire detection is not required need a manual ("break glass") electrical fire alarm system, so that the fire alarm can be raised by anyone who discovers a fire. Only in very small premises will word of mouth (i.e. shouting "Fire") or mechanical devices, such as rotary gongs, be a sufficient means of giving warning to other occupants. As part of the fire risk assessment, it needs to be determined whether the number and siting of manual call points (see **3.62**) are sufficient, on the basis that it should not be possible to leave any storey of the premises, or leave the premises by means of a final exit (see **3.24**), without passing at least one manual call point. Additional manual call points might be necessary in close proximity to areas of high fire hazard.*

xix. *Consideration might need to be given to the nature of fire warning signals. Usually, these are given by bells or electronic sounders. However, a voice alarm system (see **3.85**) might be more appropriate, or even necessary, in some premises, such as those in which the public are present in large numbers and premises with phased evacuation. In a fire risk assessment, it might also be appropriate to take account of the fact that the presence of a voice alarm system can reduce evacuation time.*

xx. *If it has been identified in the fire risk assessment that deaf or hard of hearing occupants are, or are likely to be, present in the premises, consideration needs to be given to means for warning them in the event of fire. This might simply comprise suitable managerial arrangements, but could necessitate flashing beacons or even special means of warning, such as vibrating pagers.*

xxi. *Although a facility can be provided for fire alarm signals to be transmitted automatically to an alarm receiving centre (see **3.3**) from where the fire and rescue service is summoned, this is not normally necessary for the purpose of life safety. However, there are certain occupancies in which the early summoning of the fire and rescue service is so critical, and staff levels at certain times might be so low, that there is an advantage in such a facility. Examples include certain residential care premises and hospitals.*

***NOTE 5** This is not intended to imply that the evacuation strategy in residential care premises should rely on assistance from the fire and rescue service for evacuation of residents.*

xxii. *Normally, the fire risk assessment considers the functionality of a fire detection and fire alarm system, but it does not involve any detailed engineering evaluation of the system.*

*It needs, however, to be confirmed that the fire detection and fire alarm system is subject to routine testing and maintenance, so that faults and major shortcomings are identified by this means (see Clause **16**). Moreover, it is normally appropriate for the fire risk assessor to consider whether the fire alarm signal is likely to be audible in all relevant areas of the premises, based on a visual inspection of the locations of sounders or loudspeakers, even though shortcomings are normally identified by routine testing. The fire risk assessment might then recommend, within the action plan, that an engineering evaluation, including measurement of sound pressure levels in "suspect" areas, be carried out.*

Means of escape

xxiii. *In considering the likely consequences of fire, the fire risk assessor needs to consider the likely effects of fire on escape routes (see **3.20**) during the escape time (see **3.21**), taking into account the time for detection of fire and raising the alarm (see Commentary on Clause **15**, Fire detection and warning). This requires a thorough evaluation of means of escape.*

xxiv. *If the means of escape conform to the requirements of modern building regulations, or if the building conforms to the conditions shown in a fire certificate issued in the lattermost years of previous legislation, it is unlikely that a need for major improvements will be identified in the fire risk assessment. Thus, again, suitable benchmark standards for means of escape include guidance that supports legislative requirements for fire safety in existing buildings.*

xxv. *However, means of escape are just one of the fire protection measures that affect the consequences of fire and, hence, the fire risk. Therefore, a departure from one or more recommendations given in the relevant codes of practice regarding means of escape might be acceptable when all other fire precautions are taken into account. Such other fire precautions include early warning of fire, rapid response to the warning by occupants and measures to increase the ASET. Departures from traditionally quoted travel distances and exit widths could also have arisen when the premises were designed if the designer used the advanced approach given in BS 9999. Where the premises are complex and departures from conventional design principles are significant, there might be a need for a fire engineering solution of the type to which BS 7974 is relevant.*

xxvi. *The first effect of a fire on the safety of occupants is often the presence of smoke in escape routes. This results in loss of or reduction in, visibility. Thus, in general, adequate means of escape are provided if people can immediately, or within a short distance of travel, turn their back on any fire and move to a final exit (see **3.24**) along smoke-free escape routes.*

xxvii. *Five critical factors in the assessment of means of escape are therefore:*

- *a) the maximum distance occupants have to travel to reach a place of relative or ultimate safety (see **3.71** and **3.72**), such as an exit to a protected stairway (see **3.74**), or to a final exit (see **3.24**);*
- *b) the avoidance of long dead ends (see **3.15**) in which escape is possible in only one direction;*
- *c) the number, distribution and widths of storey exits and final exits;*
- *d) the means for protecting escape routes from ingress or build-up of smoke that prevent occupants' escape;*
- *e) the ability of occupants to use the escape routes.*

xxviii. *It can normally be anticipated that occupants with disabilities are, or are likely to be, present on the premises, and consideration needs to be given to arrangements for their evacuation in the event of fire. In most multi-storey premises, designated refuges (see **3.75**) are likely to be necessary as temporary waiting spaces, and there will be a need for arrangements to assist mobility-impaired occupants to escape from the refuges using staircases and/or specially designated evacuation lifts (see **3.22**) or fire-fighting lifts (which can be used to evacuate disabled people by people in the premises at least until arrival of the fire and rescue service).*

xxix. *Disabled evacuation strategy should not rely on rescue of disabled people by the fire and rescue service. Assistance with their evacuation is provided by persons within the premises. A two-way speech communications system within the refuge might be necessary so that disabled persons can make their presence known and receive reassurance. It might also be necessary for fire doors to be held open by automatic door release mechanisms (see **3.5**) to make the premises more accessible for mobility-impaired people.*

xxx. *The subject of design of means of escape is outside of the scope of this PAS. It is assumed that the fire risk assessor has sufficient knowledge of the principles of means of escape to assess the adequacy of the means of escape in the premises in question. Moreover, the number of component factors that need to be considered is greater than in the case of other fire protection measures. Accordingly, Annex D sets out the key factors to consider when assessing means of escape.*

xxxi. *There is commonly a need for fire doors to be held in the open position, but to self-close automatically on operation of the fire alarm system. Similarly, there is often a perceived need for electronic locking of fire exit doors, which are unlocked automatically on operation of the fire alarm system. The reliability of the arrangements for automatic operation of door release mechanisms and electronic locks in the event of fire needs to be considered in the fire risk assessment; electronic locks, particularly those of an electromechanical nature, can potentially introduce an additional risk, and the potentially conflicting requirements of security and fire safety need to be carefully balanced (guidance is given in BS 7273-4).*

Signs and notices

xxxii. *In order for occupants, particularly those who are unfamiliar with the premises, to use the premises safely, there is normally a need to provide fire exit signs to direct people towards alternative means of escape. It is, therefore, important to consider the adequacy of such signage in the fire risk assessment.*

***NOTE 6** It is a requirement of the Health and Safety (Safety Signs and Signals) Regulations 1996 [22] that these signs incorporate the appropriate pictogram. Guidance on escape route signs is given in BS 5499-4.*

xxxiii. *In the course of the fire risk assessment, there is also a need to consider whether other forms of fire safety signs and notices are necessary, and whether those provided are adequate. Examples include:*

*a) other safe condition signs (see **3.77**) (e.g. indicating use of escape hardware);*

b) signs on fire doors, indicating the need for the doors to be kept shut, kept locked shut or kept clear (in the case of automatically closing fire doors), as appropriate;

*c) other mandatory signs (see **3.61**), such as those indicating the need to keep a fire exit clear;*

*d) fire equipment signs (see **3.30**), primarily where, for example, fire extinguishers or hose reels are hidden from direct view;*

e) "no smoking" signs;

f) fire procedure notices.

Emergency escape lighting

xxxiv. *If escape routes require artificial illumination, there is a need to consider whether emergency escape lighting is necessary. It is not appropriate to assume that the absence of a recommendation for emergency escape lighting in the appropriate guidance documents implies that, in all circumstances, emergency escape lighting is unnecessary.*

***NOTE 7** Attention is drawn to guidance documents that support building regulations (e.g. in England and Wales, Approved Document B [20]) for guidance on the need for emergency escape lighting in new buildings.*

xxxv. *In the fire risk assessment, a judgement is necessary as to the likelihood that:*

a) fire will cause failure of the normal lighting on any part of the escape route before all occupants have escaped from the area; and

b) the loss of normal lighting will result in injury to occupants as they endeavour to evacuate the premises.

Factors to consider, therefore, are:

1) the length and complexity of the escape routes;

2) the familiarity of the occupants with the premises;

3) the measures to control the development of fire;

4) the measures to provide early warning of fire;

5) the presence of borrowed light (e.g. from street lighting);

6) the hours of work in the premises;

7) the presence of sleeping occupants, for whom emergency escape lighting is normally necessary;

8) the presence of windowless areas.

9) *If a judgement is made that emergency escape lighting is not necessary in circumstances in which it would normally be recommended in guidance or prescriptive codes of practice, it is appropriate for this to be justified in the documented fire risk assessment (see Clause **10**).*

xxxvi. *Normally, the fire risk assessment does not involve any detailed engineering evaluation of an emergency escape lighting system. However, it is important to confirm that the system is subject to routine testing and maintenance, so that faults and major shortcomings are identified by this means (see Clause **16**).*

xxxvii. *Moreover, if emergency escape lighting is considered necessary, it is normally appropriate for the fire risk assessor to consider whether the extent of an existing system is sufficient, based on a visual inspection of the areas of coverage and the provision of luminaires, and whether the duration for which emergency escape lighting can be provided is adequate. There will also be a need to consider whether maintained emergency lighting (see **3.60**) is provided where required, or whether non-maintained emergency lighting (see **3.66**) is sufficient. The fire risk assessment might, nevertheless, recommend, within the action plan, that an engineering evaluation be carried out, including verification of the adequacy of levels of illuminance. It is also normally appropriate to confirm that there are suitable facilities for routine testing of the installation.*

xxxviii. *In many cases, an existing emergency escape lighting system will not conform in full to current recommendations (e.g. in respect of illuminance levels), particularly if the system was installed some years prior to 1999. This might be perfectly acceptable, but it is appropriate for new systems, and new work associated with upgrading of existing systems, recommended in the action plan, to conform to the current recommendations.*

***NOTE 8** Attention is drawn to current recommendations in BS 5266-1 and to the requirements of BS 5266-7 and BS 5266-8.*

Manual fire-fighting equipment

xxxix. *All fires begin as small fires (other than in the case of explosions). Accordingly, it is normally appropriate for the premises to be provided with means for occupants to extinguish a fire. If, very unusually, a fire risk assessor were to consider that there was no need for portable fire extinguishers in premises, there would need to be full and clear justification for this conclusion in the fire risk assessment. Normally, portable fire extinguishers are regarded as the basic provision, while hose reels tend to be regarded as optional supplementary protection. Care might, however, be necessary to ensure that the presence of hose reels does not encourage occupants of premises to remain within the premises carrying out fire-fighting beyond the time available for safe escape. Also, hose reels left by retreating employees can obstruct fire doors, allowing smoke and fire to spread throughout the premises*

xl. *In the fire risk assessment, consideration needs to be given to the need for manual fire-fighting equipment, the type of equipment that is necessary and the existing provision of such equipment.*

***NOTE 9** The benchmark code of practice for provision of portable fire extinguishers is BS 5306-8. Guidance on the provision of hose reels is given in BS 5306-1.*

xli. *In most premises there is the potential for class A fires (see **3.7**). Therefore, the most important fire-fighting equipment is that which is suitable for extinguishing these fires. Normally, additional extinguishers that are suitable for use on live electrical equipment (e.g. portable CO_2 extinguishers) are necessary. Where there is the potential for class B fires (see **3.8**), suitable extinguishers are necessary. In kitchens, extinguishers suitable for class F fires (see **3.11**) might be necessary. It is not normal to provide extinguishers specifically for class C fires (see **3.9**), as to extinguish these fires can often result in the potential for an explosion. For certain unusual special hazards, such as class D fires (see **3.10**), appropriate extinguishers might be necessary. Multi-purpose fire extinguishers, which can be used on more than one class of fire, are available.*

Structural and similar passive measures to limit fire spread and development

xlii. *In the course of the fire risk assessment, consideration needs to be given to structural and similar passive measures that are intended to limit the spread and development of fire within the premises (in addition to consideration already given to similar measures that are specifically intended to protect means of escape). In some simple premises in which compartmentation (see **3.13**) is not necessary for compliance with the relevant building regulations, there might be no such measures.*

xliii. *However, where compartment walls or floors are provided, some consideration needs to be given to the integrity of these. Usually, in the course of the fire risk assessment, a detailed examination of the construction of the premises is not practicable. For example, a fire risk assessment would not normally involve opening up work, such as cutting holes in, or removal, of walls, ceilings, partitions, etc. Normally, there can only be visual inspection of a sample of reasonably accessible areas [e.g. to check visually for any obvious inadequacies in fire stopping (see **3.54**)]. However, it should be noted that, as many areas where service penetrations might lead to breaches of compartmentation might be hidden, such sampling might need to include areas above false ceilings (or even below false floors), where many services often run. More generally, since any structural barrier will resist the passage of smoke or fire for at least some time, obvious shortcomings in fire stopping of service penetrations need to be addressed in the action plan (see Clause **19**).*

xliv. *Traditionally, it has been regarded as good practice to enclose areas of high fire hazard in construction of appropriate fire resistance (see **3.40**). The possible need for this is, therefore, normally considered in the fire risk assessment.*

xlv. *In new building work, the flammability of wall and ceiling linings is controlled under building regulations. If the linings continue to conform to the original requirements in this respect, they are likely to be satisfactory. However, consideration needs to be given to the issue of linings, as unsatisfactory linings can promote the spread and development of fire. In premises with large areas of drapes, etc., such as cinemas and theatres, consideration normally needs to be given to their flammability. Similarly, in some premises, the flammability of furniture and furnishings might need to be considered.*

xlvi. *Ventilation and air conditioning systems can provide a path for spread of fire and smoke. In the past, particularly under building regulations, the fire protection measures incorporated in these systems have been related primarily to avoidance of breaches in the compartmentation of premises. However, ventilation systems and ductwork can be responsible for accelerating the initial spread of fire, e.g. between rooms within a fire compartment. More importantly, ventilation systems and ductwork can constitute a means for spread of smoke and combustion products at an early stage in fire development.*

xlvii. *Issues to consider include means to prevent fire from entering or leaving the ductwork, means to limit the spread of fire, smoke and combustion products within the ductwork, and means to prevent a breach in the integrity of a fire-resisting element of construction where penetrated by ductwork. Such measures comprise a combination of fire and smoke dampers (see **3.26** and **3.79**), or combined fire/smoke dampers (see **3.27**), fire-resisting ductwork, fire-resisting enclosure of ductwork and adequate fire-stopping. Fire detection might need to be provided to operate dampers, shut down systems, etc. In the case of the common parts of purpose-built blocks of flats, fire detectors are often provided to operate automatically opening vents (though not to give a fire alarm warning).*

xlviii. *In a fire risk assessment, it can be difficult to determine whether the measures incorporated within the design of ventilation and air conditioning systems are adequate. Access to false ceilings within which ductwork runs can be difficult; frequently there is difficulty in determining whether dampers are fitted at appropriate locations. In general, the appropriate measures are likely to have been required for compliance with building regulations when the premises were constructed.*

xlix. *However, particularly where the age of the premises, or the likely extent of modifications to the premises, might suggest that ductwork could act as a route for spread of smoke into, or within, escape routes, consideration might need to be given to some investigation, or the need to recommend further investigation in the action plan, if the siting of visible air extract or supply points suggests that dampers are essential. Greater care is necessary in the case of hospitals, residential care homes, hotels, hostels and other premises where people sleep.*

***NOTE 10** Guidance on precautions to prevent the spread of smoke and combustion products by ventilation and air conditioning systems is given in BS 9999.*

Automatic water-based suppression systems

l. *Automatic sprinkler installations are very effective in control of fire. The presence of an automatic water-based suppression system, such as an automatic sprinkler installation, might therefore, enhance life safety, reduce risk and limit the spread of fire from its point of origin. Provision of sprinklers can allow a reduction*

*in the performance requirements of elements of construction and compartmentation. In the case of premises designed and managed in accordance with BS 9999, the provision of an automatic sprinkler system can permit increased travel distances and decreased exit widths. While an engineering evaluation of an automatic sprinkler system is not normally appropriate in the course of the fire risk assessment, it is normally appropriate to confirm that there are no obvious shortcomings created by, for example, storage of stock too close to sprinkler heads. It is also appropriate to confirm that there are adequate arrangements for testing and maintenance of the system so that faults and major shortcomings are identified (see Clause **16**).*

li. *Other forms of water-based suppression system include water mist systems, which can be appropriate in specific circumstances.*

Other fire protection systems

lii. *Other fire protection facilities and systems that should be taken into account in the fire risk assessment include:*

a) smoke control systems;

b) other localized fire suppression systems;

*c) dry fire mains (see **3.16**), wet fire mains (see **3.86**), fire-fighting lifts (see **3.32**) and firefighters' switches for high voltage illuminated signs.*

liii. *While such systems are not present in all premises, they can have an important role to play in the safety of occupants in certain large or complex premises. Even if the objective of such a system is property protection or assistance to the fire and rescue service, it is still appropriate to note, and take account of, the system in the fire risk assessment.*

liv. *In some (usually complex) premises, smoke control systems can be essential for protection of means of escape. For example, in most shopping complexes, the combination of automatic sprinkler and smoke control systems is an essential part of the fire safety engineering package. Again, although an engineering evaluation of a smoke control system is usually outside the scope of the fire risk assessment, it is often vital to ensure that there are adequate arrangements for ongoing control, testing and maintenance of such systems (see Clause **16**).*

lv. *Localized fire suppression systems are often provided primarily for property protection. However, they might contribute to life safety. In some cases, they might even compensate for a reduction in the standards of other fire protection measures. For example, sometimes a cooking area (e.g. within a retail floor of a shop) might require enclosure in fire-resisting construction, but it might be acceptable to omit this construction if a fixed fire extinguishing system is fitted to the cooking equipment. Due account might, therefore, need to be taken of such systems, and arrangements for their testing and maintenance might need to be confirmed (see Clause **16**).*

lvi. *In most premises that require dry or wet fire mains, or fire-fighting lifts, these will already be present. It will be unusual for a need for such facilities to first be identified in the fire risk assessment, or for a fire risk assessment to recommend retrofitting of such facilities in premises that were not provided with them at the time of construction. Usually, at the stage that these facilities come into operation, the premises are already evacuated, and they are primarily of assistance to the fire and rescue service. However, since safety of firefighters might depend on the correct operation of these facilities it needs to be ensured that there are adequate, arrangements for their testing and maintenance (see Clause **16**).*

Recommendations

15.1 The fire risk assessment should include, as a minimum, consideration of:

a) means for detecting fire and giving warning to occupants;

b) means of escape from the premises (including means of escape and arrangements for evacuation of disabled people);

c) fire safety signs and notices;

***NOTE 1** Attention is drawn to the Health and Safety (Safety Signs and Signals) Regulations 1996 [21] regarding requirements for signs relating to fire escape and fire extinguishing equipment.*

d) emergency escape lighting;

e) means to limit spread and development of fire;

f) means for fighting fire;

g) other relevant fire protection systems and equipment;

h) maintenance of facilities to assist firefighters.

The extent to which these measures are necessary, and the adequacy of existing measures, should be considered, and shortcomings in such measures should be addressed within the action plan (see Clause **19**).

NOTE 2 *It is always necessary for there to be adequate means of escape in the event of fire.*

NOTE 3 *The fire risk assessment does not normally involve a detailed engineering evaluation of fire protection systems and equipment, but a recommendation for such an evaluation might be included in the action plan if there are doubts about the adequacy of the system.*

NOTE 4 *It is not expected that a fire risk assessment will involve opening up of the structure of the premises, such as cutting holes in, or removal of sections of walls, ceilings partitions, etc. If, unusually, a dutyholder requires such an "intrusive" inspection, this would need to be made clear to the fire risk assessor.*

NOTE 5 *The effects of dangerous substances on the nature of the appropriate fire protection measures needs to be considered.*

15.2 The purpose of assessing the fire protection measures described in **15.1** is to determine their contribution to safety of occupants in the event of fire. However, each of these measures should not be considered in total isolation of the other measures; account should be taken of the effect of the entire package of measures (including relevant managerial arrangements) on the consequences of fire to life safety.

15.3 In the case of fire detection and fire alarm systems, consideration should be given to the need, or otherwise, for automatic fire detection, and to the adequacy of the means for warning people in the event of fire.

15.4 Consideration should be given to the means for warning any deaf or hard of hearing occupants identified as especially at risk in the event of fire.

15.5 Means of escape should be assessed in accordance with Annex D.

15.6 Consideration should be given to arrangements for evacuation of any disabled or other occupants identified as especially at risk in the event of fire.

15.7 In every fire risk assessment, a judgement should be made as to whether there is a need for emergency escape lighting. If emergency escape lighting is considered necessary, subjective consideration should be given to the adequacy of any existing emergency escape lighting.

15.8 Consideration should be given to the adequacy of fire safety signs, particularly those associated with assistance in use of escape routes.

15.9 Consideration should be given to the adequacy of the type, number and siting of manual fire-fighting appliances.

NOTE *Normally, the minimum provision is a sufficient number of portable fire extinguishers that are suitable for use on class A fires.*

15.10 Consideration should be given to the adequacy of fire stopping, the flammability of linings and, where appropriate, the flammability of furniture and furnishings.

NOTE *It is not normally practicable to carry out a complete review of fire stopping in premises, and reliance on a visual inspection of a sample of readily accessible areas including, where appropriate, those above false ceilings will normally be adequate.*

15.11 The fire risk assessment should take account of the potential for means of escape to be compromised by ventilation and air conditioning systems, particularly in hospitals and residential care premises, but also in other premises in which people sleep. Although a detailed evaluation of the fire protection measures incorporated in such systems might not be practicable in the course of a fire risk assessment, where the fire risk is high it might be necessary to recommend further investigation within the action plan (see Clause **19**). The fire risk assessment should take account of all other fire protection systems, including automatic sprinkler systems, smoke control systems, localized fire suppression systems, dry or wet fire mains, fire-fighting lifts and firefighters' switches. Even if the objective of such systems or facilities is considered to be property protection, their presence should be noted in the fire risk assessment, and due account should be taken of their contribution (if any) to safety of occupants from fire.

16 Assessment of fire safety management

*COMMENTARY ON CLAUSE **16***

General

i. *In the fire risk assessment, fire safety management (see **3.47**) needs to be regarded as of equal importance to fire protection measures. In its broadest sense, fire safety management includes certain policies and procedures designed to prevent the occurrence of fire by eliminating or controlling fire hazards. However, most of these aspects of fire safety management have already been considered in Clause **13**.*

ii. *Fire safety management also includes the following:*

- *a) designated responsibility for fire safety in the premises;*
- *b) access to suitable advice on the requirements of fire safety legislation;*
- *c) procedures for people to follow in the event of fire, including people with special responsibilities;*
- *d) nomination of people to respond to fire and, where appropriate, to assist with evacuation;*
- *e) arrangements for liaison with the fire and rescue service, both in respect of pre-planning for fire and at the time of any fire;*
- *f) arrangements for routine inspections of the premises and their fire precautions or for more formal fire audits (see **3.25**);*
- *g) staff training and fire drills (see **3.29**);*
- *h) cooperation and coordination between different dutyholders within premises in multiple occupations;*
- *i) provision of information to third parties;*
- *j) testing and maintenance of fire protection systems and equipment;*
- *k) documentation of fire safety arrangements and keeping appropriate records;*
- *l) implementation of the action plan's recommendations;*
- *m) review of the fire risk assessment at appropriate intervals.*

iii. *Points a) to k) are discussed in the sections of commentary that follow. Point l) is discussed in Clause **19,** and point m) is discussed in Clause **20**. It is important that matters in the paragraphs that follow are properly considered in the fire risk assessment and that fire safety management is taken into account in the subjective judgement of overall fire risk (see Clause **18**).Guidance on fire safety management of occupied buildings can be found in Clause **41** of BS 9999:2008. At the time of the publication of this PAS, a new PAS (PAS 7) is in the course of development aimed at assisting in the audit of fire safety management.*

Responsibility for fire safety

iv. *Although legislation does not demand that a specific, named person be responsible for fire safety within particular premises, it is of advantage to confirm, in the fire risk assessment, that within the organization there is someone who, in at least an administrative sense, is responsible for fire safety within the premises. The intention is not to provide a legal interpretation of responsibility, but to reflect the managerial arrangements in place at the time of the fire risk assessment. The person in question might, or might not, have a legal responsibility for breaches of legislation, etc.*

v. *According to the manner in which the organization is structured, the person named in this section of the fire risk assessment might be a director, building manager, facilities manager, health and safety manager, fire safety manager (see **3.48**), estates manager, etc. The person might or might not work within the premises, and the responsibility could even be shared by two or more people. It is, however, important in the management of any organization that someone is, and accepts that they are, responsible for fire safety, particularly in the case of premises in multiple occupation.*

Access to advice

***NOTE 1** Attention is drawn to the requirements of the relevant fire safety legislation for the appointment of one or more "competent persons" to assist in compliance with the legislation, and to the definition of "competent person" given in the relevant fire safety legislation.*

vi. *The "competent person" required by the relevant fire safety legislation might, or might not, be the person responsible for fire safety, to which reference is made above. However, the two will often be different, since the person having responsibility for fire safety might be a senior manager, while the "competent person" might be a trained professional in the field of fire safety*

or health and safety, often based in a remote location, such as a group head office.

vii. *The fire safety policy should set out the organizational structure and indicate the sources of competent assistance available to the dutyholder. Often, organizations are able to appoint one or more of their own employees for this purpose, while large organizations might appoint whole departments with specific health and safety responsibilities, including specialists in various matters, such as fire safety. Equally, if consultants are used for advice, it is necessary for their activities to be coordinated by the organization, since external consultants will usually be appointed in an advisory capacity only, and their appointment does not absolve the organization from its responsibilities (see Clause **6**).*

Fire procedures

viii. *In the course of the fire risk assessment, there is a need to ensure that there are formal, documented procedures for people to follow in the event of fire, and that the procedures in question are adequate. Adequate procedures will normally address:*

a) actions to follow on discovery of fire;

b) actions to follow on hearing the fire alarm signal;

c) the importance of raising the alarm immediately on discovery of fire;

d) the importance of evacuating the premises immediately when the fire alarm sounds;

e) the arrangements for evacuation of disabled occupants;

f) the policy on fire-fighting by employees;

***NOTE 2** The relevant fire safety legislation requires that, where necessary, dutyholders nominate sufficient competent employees to use fire extinguishing appliances.*

g) the summoning of the fire and rescue service;

h) the location of evacuation assembly points;

i) the importance of not attempting to reoccupy the premises until instructed to do so by the fire and rescue service.

***NOTE 3** In cases of false alarms that the fire and rescue service do not attend, the decision to re-enter the premises will need to be taken by the person in charge.*

ix. *Normally, there will be a need for special procedures for occupants with special duties in the event of fire. These could include, for example:*

1) *switchboard operators (in relation to, for example, summoning of the fire and rescue service);*
2) *fire wardens (see **3.55**);*
3) *assembly point wardens;*
4) *those responsible for meeting the fire and rescue service;*
5) *security personnel;*
6) *senior management.*

Nomination of people with special duties in the event of fire

x. *In carrying out the fire risk assessment, there is a need to ensure that there are adequate arrangements for summoning the fire and rescue service in the event of fire. The arrangements will form part of the fire procedures for the premises (see above), but it might be the case that summoning of the fire and rescue service is the responsibility of a nominated post-holder, such as a switchboard operator. Even if there are means for automatic transmission of fire alarm signals to an alarm receiving centre when the premises are occupied, there should still be arrangements for summoning the fire and rescue service by means of the public emergency call system.*

xi. *The fire risk assessor needs to investigate the dutyholder's arrangements, where necessary, for nomination of a sufficient number of competent persons to use the fire extinguishing appliances in the premises, and to ensure that these are adequate. For example, the fire procedures might dictate that anyone who discovers a fire may tackle the fire with fire extinguishing appliances if it is safe to do so; alternatively, only a proportion of the staff in the premises might be authorized and trained to do so. Persons nominated need to be competent (see **3.14**).*

***NOTE 4** Attention is drawn to the requirements of the relevant fire safety legislation regarding arrangements for fire-fighting, including where necessary the nomination and training of people to use fire-fighting equipment.*

xii. *The fire risk assessor also needs to investigate the arrangements for ensuring that the premises are evacuated (e.g. by appointment of fire wardens), and to ensure there is suitable control, coordination and monitoring of evacuation*

procedures. Information on the status of the evacuation will be of importance to the fire and rescue service when they arrive at the premises.

***NOTE 5** Attention is drawn to the requirements of the relevant fire safety legislation regarding the nomination of people to assist in evacuation.*

xiii. *In premises such as residential care homes, it is appropriate to consider, within the fire risk assessment, whether sufficient levels of staff are present to ensure the safety of residents during both day and night. This will normally necessitate discussions with the premises management. In this connection, there will be a need for a suitable emergency plan for evacuation of, at least, the sub-compartment of fire origin. (Except in the case of small care homes, normally care homes are divided into sub-compartments to facilitate evacuation to a place of relative safety (see **3.71**) in the event of fire.)*

***NOTE 6** Attention is drawn to registration conditions relating to staffing levels in registered care homes; these levels might, or might not, be sufficient to facilitate the evacuation of residents.*

Liaison with the fire and rescue service

xiv. *In large and complex premises, it is important that there are arrangements for local fire and rescue service crews to familiarize themselves with the premises and with, for example, the facilities for fire-fighting and potential risks to firefighters. While there are legislative requirements imposed on fire and rescue services in this respect, it can be beneficial for dutyholders to be proactive in inviting the fire and rescue service to carry out familiarization visits. In some such premises, there might be a need for pre-planning emergency procedures with the fire and rescue service. In addition, it is important that the fire procedures for the premises include arrangements for summoning of the fire and rescue service in the event of fire and meeting the fire and rescue service on arrival.*

Routine inspections

xv. *The fire risk assessment is somewhat similar to the MOT inspection of a car; it reflects the conditions found by an assessor at a particular point in time. There is, however, a need to ensure that, on a more routine basis, there are means for detecting deficiencies in fire precautions. Accordingly, it is appropriate for the fire risk assessor to investigate arrangements for suitably trained or instructed premises occupants to carry out routine inspections of the fire precautions.*

xvi. *Such inspections need little or no specialist knowledge, but can make a major contribution towards the maintenance of adequate fire precautions by checking that, for example, manual call points, fire detectors, sprinkler heads, etc. remain unobstructed, self-closing fire doors operate correctly, fire exit doors that are not in normal use open easily and there is no storage in escape routes that need to remain relatively sterile (e.g. protected staircases). Sometimes these matters are addressed in the course of health and safety inspections or more specific fire audits. Often, more frequent day-to-day inspections, of a basic nature, can be carried out by, for example, patrolling security officers or, for example, in the case of a hotel, by duty managers. It is important that adequate procedures are in place to enable any deficiencies identified in the course of routine inspections to be reported and subsequently addressed (e.g. within the scope of a maintenance schedule).*

Staff training and fire drills

xvii. *Since failure of people to react correctly has been associated with many fires that have resulted in serious loss of life, an important part of the fire risk assessment is consideration of arrangements for giving instruction and training to staff on fire safety matters and for carrying out fire drills. Training and information provided need to relate not only to the fire procedures, but need to be sufficient for staff to understand the fire risks in the premises, including risks associated with dangerous substances, and to understand the fire precautions that are in place. Such understanding will facilitate the usefulness of and accuracy of routine inspections as discussed in the preceding paragraph. In premises to which the public resort, staff training needs to include arrangements in respect of shepherding the public in the event of fire. Fire safety induction training (see **3.46**) for all new staff is particularly important.*

***NOTE 7** Attention is drawn to the requirements of the relevant fire safety legislation for adequate training for employees.*

xviii. *Thereafter, fire safety refresher training (see **3.52**) needs to be given periodically. The frequency of refresher training needs to take into account the turnover of staff, the complexity of the premises and their fire procedures, and the fire risk. There will often be a need to provide additional, or special, training for people who have special responsibilities in the event of fire; this could, for example, include fire wardens.*

xix. *Generally, fire drills are important in all except the smallest premises. The drills are a means of reinforcing training, and provide feedback on the effectiveness of the training that has been carried out.*

***NOTE 8** Attention is drawn to the requirements of the relevant fire legislation for fire drills to be carried out where necessary.*

Provision of Information for third parties

xx. *Where the employees of third parties work in the premises of a dutyholder, the dutyholder needs to ensure that adequate information on fire procedures and relevant fire precautions are passed on to their employer, and that the employees have been given the relevant information. Such third parties include contractors working in the premises, contract security staff, contract caterers, contract cleaners, etc.*

***NOTE 9** Attention is drawn to the requirements of the relevant fire safety legislation for the provision of information to third parties who work, or employ people to work, in the premises.*

Testing and maintenance of fire protection measures

xxi. *The fire risk assessor needs to ensure that there are adequate arrangements for testing and maintenance of all fire protection measures. There is also a need to ensure that the workplace itself is adequately maintained in order to avoid certain fire hazards.*

***NOTE 10** Attention is drawn to the requirements of the relevant fire safety legislation for testing and maintenance of fire precautions required by that legislation, and for testing and maintenance of facilities, systems and equipment required under other legislation (e.g. building regulations) for the use by, or safety of, firefighters. Recommendations for testing and maintenance of systems are given in the relevant British Standards for the particular systems and equipment.*

Record keeping

xxii. *The relevant fire safety legislation requires appropriate arrangements to be put in place for the effective planning, organization, control, monitoring and review of the preventive and protective measures that the fire risk assessment identifies as being necessary for compliance with that legislation. Other than in the case of certain small businesses, it is a legal requirement for these arrangements to be recorded. Thus there is a need, in effect, for a fire safety manual for the premises (see **3.49**).*

xxiii. *It is not necessarily specifically required that records of training, inspection, testing, maintenance, etc. are kept. Nevertheless, such records are an important means of demonstrating, if required, that all legislative obligations have been satisfied. It is, therefore, relevant for the fire risk assessor to consider any records that exist and to make recommendations, where appropriate, for keeping of suitable records. These records can also be important in demonstrating that there have been no breaches of good practice that could result in litigation in the event of injury to an occupant of the premises in the event of fire.*

Cooperation and coordination between dutyholders in premises in multiple occupation

xxiv. *Where two or more organizations share a building, adequate fire safety for all occupants will only be achieved if the organizations cooperate with one another and coordinate their fire safety measures. For example, there needs to be coordination of fire procedures, fire drills and fire management strategy. It needs to be ensured that one occupier's activities and practices do not create a risk to those in another occupier's part of the building. In the case of the fire risk assessment, it needs to be ensured that there is appropriate cooperation and coordination of the fire safety measures of different occupiers within such premises in multiple occupation.*

***NOTE 11** Such occupiers can include those occupying premises to which the relevant fire safety legislation does not generally apply (e.g. flats within a block, or flats within buildings that also contain commercial premises); the safety of persons in the premises of one occupier might rely on fire protection measures in premises that are not, otherwise, within the scope of the relevant fire safety legislation (e.g. fire detectors in the dwellings or flat entrance doors that separate the flats from the common parts).*

***NOTE 12** Where part of a building is a construction site (e.g. during a refurbishment or partial occupation of a new building), cooperation and coordination is necessary between each occupier and the principal contractor.*

Recommendations

16.1 The fire risk assessment should record the name(s) or post(s) of the person(s) responsible for fire safety in the premises.

16.2 It should be confirmed that there are arrangements for obtaining competent advice on the requirements of fire safety legislation. The source of such advice should be recorded in the documented fire risk assessment (see Clause **10**).

16.3 In the course of the fire risk assessment, the following matters should be considered. Any shortcomings in these matters should be identified in the documented fire risk assessment and should be addressed in the action plan (see Clause **19**):

a) the fire procedures, including procedures for people with special responsibilities in the event of fire;

b) the arrangements for summoning the fire and rescue service in the event of fire;

c) the nomination of people to respond to fire, using fire-fighting equipment if appropriate to do so;

d) where appropriate, the nomination of people to assist with evacuation;

e) arrangements for liaison with the fire and rescue service;

f) arrangements for routine inspections of the premises and their fire precautions;

g) in the case of premises in multiple occupation, arrangements for cooperation and coordination between different occupiers;

h) staff training;

i) fire drills;

j) provision of information to third parties;

k) testing and maintenance of fire protection systems and equipment by a competent person (including systems and equipment installed for use by, or for the safety of, firefighters);

l) maintenance of the workplace;

m) appropriate records, including, normally, a fire safety manual.

17 Assessment of likely consequences of fire

*COMMENTARY ON CLAUSE **17***

i. *Once all fire protection measures and all aspects of fire safety management have been assessed, the fire risk assessor is in a position to make an assessment of the likely consequences of fire, taking into account the factors concerning the premises and their occupants discussed in Clause **12**. As well as consideration of fire protection measures and matters such as fire procedures, account needs to be taken of human behaviour. It is not, for example, appropriate for the fire risk assessment to assume error-free perfection in the response of people to fire alarm signals. Consideration needs to be given to the manner in which the known occupants of the premises are likely to behave in the event of fire.*

ii. *It would be possible, in theory, to associate different consequences of fire with different fire scenarios arising from each of the fire hazards identified in the fire hazard identification step of the fire risk assessment (see Clause **13**). However, this would make the fire risk assessment process unnecessarily complex and unduly lengthy. Usually, it is sufficient to consider the most likely consequences of a fire in the premises, taking into account the range of fire scenarios that it is reasonable to anticipate, and assuming that normally only one fire occurs at any one time (i.e. generally discounting multiple seats of fire).*

iii. *Consequences need to take into account the extent of injury that would occur to occupants in anticipated scenarios, and the number of occupants likely to be affected. Consequences are more serious if a greater number of occupants are affected. Equally, serious consequences include, for example, a situation in which there is a high likelihood that a small number of occupants (even one) will be subject to serious injury in the event of fire.*

iv. *The likely consequences of fire need not, and usually cannot, be expressed in a statistical manner (e.g. probability of death or serious injury). All that is required is a subjective judgement that classifies likely consequences of fire into one of several predetermined categories. Since the assessment of these factors is subjective, the use of numbers to express the likely consequences of fire does not confer any greater accuracy to the assessment of fire risk.*

v. *The predetermined categories of likely consequences of fire may be described in the form of words, such as "slight harm", "moderate harm" and "extreme harm", provided these terms are defined, or in the form of numbers (e.g. 1, 2 and 3), but there will be a need for at least three categories. However, if likely consequences are expressed in the form of numbers, care is necessary to ensure that it is not implied, for instance, that a score for likely consequences of "2" indicates that fire is twice as likely to result in casualties compared to a score of "1".*

vi. *There is no upper limit to the number of categories of likely consequences that can be adopted in the fire risk assessment process. However, if too many categories are adopted, the distinctions between categories will be meaningless. Moreover, if the same fire risk assessment process is then applied to numerous different premises (e.g. within the estate of a single organization), particularly by different fire risk assessors, assessments of the likely consequences of fire are likely to be inconsistent, and the benefits of comparing fire risk in different premises (e.g. for the purpose of prioritizing improvements on a building-by-building basis) will then be lost.*

vii. *One common practice for the assessment of fire risk (see Clause **18**) is for fire risk to be determined by means of combining the assessment of the likelihood of fire and the assessment of the likely consequences of fire, using a matrix. It is this method that is suggested in this PAS. Where such an approach is adopted, it is helpful to use the same number of categories for both likelihood of fire and likely consequences of fire.*

viii. *In assessing the likely consequences of fire, for the purpose of carrying out the fire risk assessment to which this PAS relates, it is not normally necessary, or appropriate, to carry out calculations of the type used in the practice of fire safety engineering (see **3.45**). However, the principles of fire safety engineering may be used, in a subjective manner, to assess the likely consequences of fire, using the principle of "timelines" that forms the basis of fire safety engineering (see Figure 3).*

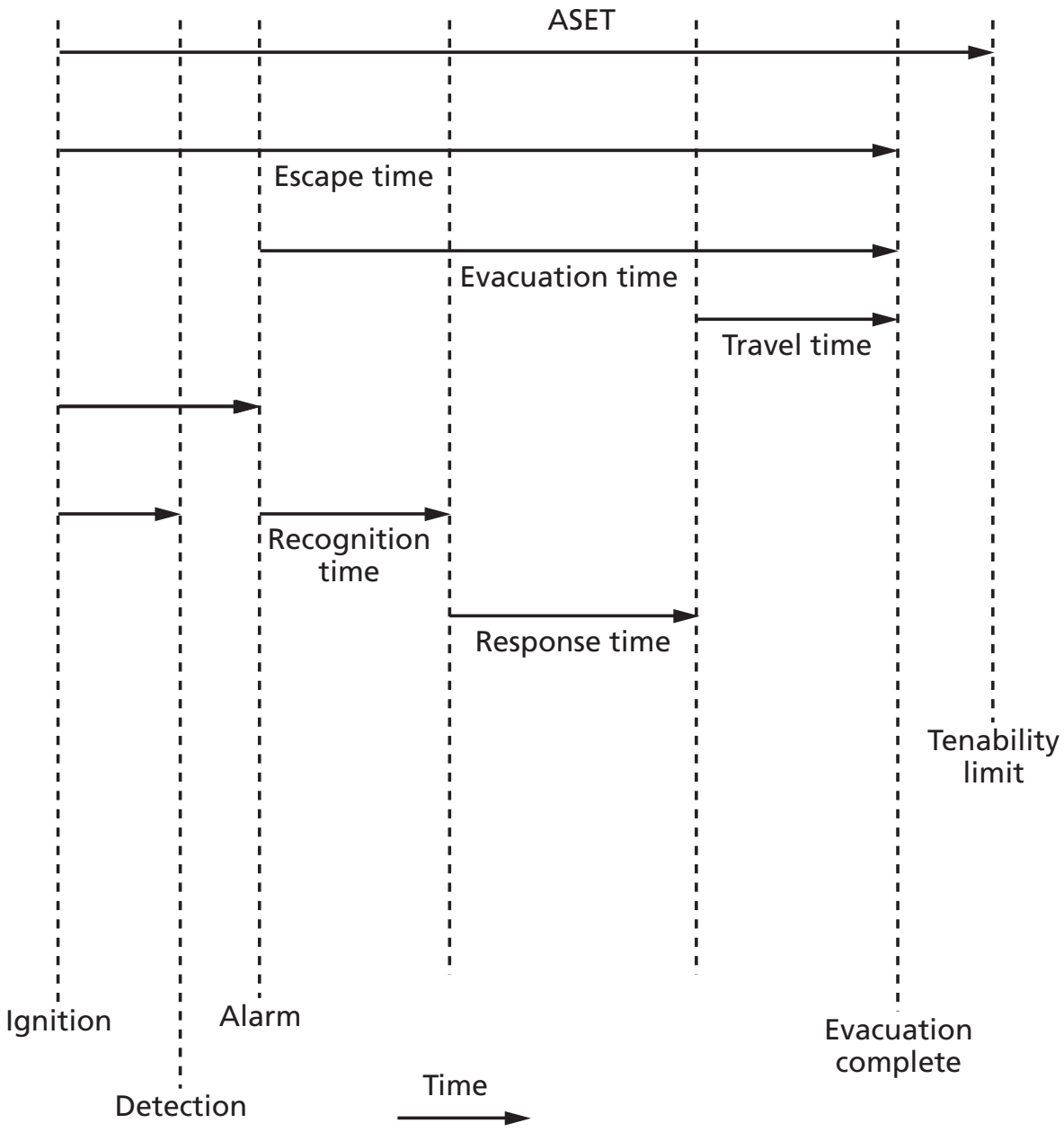
ix. *In Figure 3, which is reproduced (with minor modifications) from BS 7974, the escape time (see **3.21**) is broken down into a number of components, namely:*

a) *the time between ignition of a fire and detection of the fire (whether by occupants or by an automatic fire detection system);*
b) *the time between detection and the giving of the alarm warning to occupants;*
c) *the time between the giving of the alarm warning and the recognition by occupants that the alarm warning is a warning of fire;*
d) *the time between this recognition and the response by occupants (i.e. the time to begin evacuation);*
e) *the time between response and completion of evacuation of occupants to a place of safety.*

x. *The escape time, so derived, is then compared with the ASET (see **3.6**). For safe evacuation of occupants, the ASET should be significantly longer than the escape time. In the fire risk assessment, Figure 3 is particularly useful in forming the basis for an analytical approach to situations in which fire protection measures (such as means of escape) do not conform to the recommendations of the relevant prescriptive code of practice or guidance.*

xi. *For example, if the travel distances are significantly longer than prescribed in the relevant code of practice, so extending the travel time and hence the escape time, account may be taken of fire precautions (whether existing or proposed in the action plan) that act to reduce the escape time by a commensurate amount; such fire precautions may be other fire protection measures or various enhancements in fire safety management (e.g. fire procedures, fire training and fire drills). Alternatively, account may be taken of fire precautions (whether existing or proposed in the action plan) that extend the ASET (e.g. measures to control smoke).*

Figure 3 – Example of timeline comparison between ASET and escape time



Recommendations

17.1 In the process of every fire risk assessment, an assessment should be made of the likely consequences of fire. It is usual and acceptable for the likely consequences of fire to be expressed subjectively (e.g. "slight harm", "moderate harm" or "extreme harm").

17.2 If, in the fire risk assessment methodology adopted, a matrix is used to combine likelihood of fire and likely consequences of fire in order to determine the fire risk, the number of predetermined categories of likely consequences of fire should be the same as the number of predetermined categories of likelihood of fire (see Clause **14**).

18 Assessment of fire risk

*COMMENTARY ON CLAUSE **18***

i. *It is innate to the process of carrying out the fire risk assessment that there be an assessment of fire risk, which it is then appropriate to document. The assessment of fire risk enables the (usually subjectively based) fire risk in one premises to be compared with the fire risk in other premises (e.g. within the single estate of one organization), so identifying those premises in greatest need of attention. Even applied to single premises in isolation, the assessment of fire risk can provide a useful descriptor that imparts a sense of the magnitude of fire risk.*

ii. *The categories for classification of fire risk are derived from those used to determine the likelihood and likely consequences of fire (see Clauses **14** and **17**). Whereas it is normally sufficient to classify likelihood of fire, or likely consequences of fire, into one of three predetermined categories, a greater number of categories of fire risk is normally appropriate in order to cater for the range of levels of fire risk that can occur. Thus, a minimum of five predetermined categories of fire risk is normally appropriate.*

iii. *The category of fire risk for any premises can be determined by combination of the likelihood of fire and the likely consequences of fire, using a matrix; this is a method of risk assessment commonly adopted in the field of health and safety. Table 1 shows an example of such a matrix that can be adopted in assessment of fire risk.*

iv. *The advantage of this approach is that it tends to result in relatively consistent assessments of risk (and, hence, fire risk) by different risk assessors; the risk assessor need "plug in" to the matrix only one of three levels of likelihood and one of three levels of likely consequences, but can derive thereby any one of five levels of (fire) risk.*

Recommendations

18.1 In the process of every fire risk assessment, an assessment should be made of the fire risk in the premises. It is usual and acceptable for the fire risk to be expressed in terms of one of a number of predetermined categories of risk (e.g. "trivial", "tolerable", "moderate", "substantial" or "intolerable").

18.2 If, in the fire risk assessment methodology adopted, fire risk is expressed in terms of one of several predetermined categories, the number of predetermined categories should be at least five.

18.3 The fire risk assessment methodology adopted should be such that there is a transparent means for combining the likelihood of fire and the likely consequences of fire to derive the fire risk (e.g. use of a matrix with predetermined categories for each of these).

Table 1 – A simple risk level estimator

Likelihood of fire	Classification of fire risk		
	Likely consequences of fire:		
	Slight harm	Moderate harm	Extreme harm
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	**Intolerable risk**

19 Formulation of an action plan

*COMMENTARY ON CLAUSE **19***

i. *The outcome, and indeed the principal raison d'être, of the fire risk assessment is the action plan. The action plan comprises recommendations that are intended to ensure that the fire risk is reduced to, or maintained at, a tolerable level (see **3.83**). Even if the fire risk is already tolerable, there is often a need to make recommendations in the action plan, often involving low cost or changes in managerial arrangements, to address minor deficiencies in fire precautions.*

ii. *In formulating an action plan for premises in which the fire risk has been assessed as unacceptably high, the analytical approach to fire risk assessment permits backtracking to determine whether, in effect, the problem arises from inadequate fire prevention (i.e. inadequate means for control or elimination of fire hazards), inadequate fire protection (e.g. unsatisfactory means of escape or fire warning systems), shortcomings in fire safety management, or a combination of these.*

iii. *The action plan is an inventory of actions, normally prioritized and time restrained, to devise, maintain or improve controls .Where appropriate, the inventory will include measures to eliminate or control hazards (e.g. better separation of combustible materials and ignition sources). A blend of physical and procedural controls is often necessary.*

iv. *The adequacy of the action plan needs to be tested, at least in the mind of the fire risk assessor, before it is finalized. At that stage, it is appropriate to consider the following questions.*

   a) *Will the revised controls lead to tolerable fire risk levels?*
   b) *Are new hazards created?*
   c) *Have the most cost-effective solutions been chosen?*
   d) *What will occupants affected think about the need for, and practicality of, the revised fire precautions?*
   e) *Will the revised fire precautions be adopted and maintained in practice and not ignored in the face of, for example, normal use of, and operations in, the premises?*

v. *All of these questions have a relevance to any action plan, the objective of which is to achieve tolerable risk, but without the creation of new hazards. The fire precautions proposed ought to be the most cost-effective available; often a single fire safety objective (see **3.50**) can be satisfied by a variety of measures.*

vi. *The practicality of fire precautions, and their acceptability to occupants, are also essential. There is no point in installing self-closing fire doors if discussion with occupants would have revealed that they would be such an impediment to the work process that they would always be wedged in the open position. Equally, if this is clear from discussion with those in the workplace, the problem may be pre-empted by installing fire doors that are held open by automatic door release mechanisms, which release the self-closing doors on operation of the fire alarm system.*

vii. *It is normally appropriate to allocate priorities to each measure recommended in the action plan, to reflect the urgency of the measure, as determined in the fire risk assessment. (This might, however, be unnecessary if, for example, most of the recommended measures are minor in nature and will be implemented in the short term in any case.)*

viii. *If prioritization is appropriate, a scheme of prioritization that is suitable for the way in which the company operates and projects are planned is often helpful. There is no right or wrong scheme of prioritization, but, whatever scheme is adopted, it needs to be simple to understand, consistent to apply and relatively unambiguous as far as allocation of priorities is concerned. This suggests that it is appropriate for there to be no more than three or four priorities.*

ix. *A simple scheme might be one with only four priorities, such as:*

   1) *immediate (should be implemented as soon as possible), including, where relevant, interim measures necessary to ensure the safety of occupants until permanent measures can be implemented;*
   2) *short term (should be implemented within, say, three months);*
   3) *medium term (should be implemented within, say, three to six months);*

4) *long term (should be implemented as and when the opportunity arises, such as at the time of replacement of a fire door or refurbishment of premises).*

x. *Many other systems of prioritization are possible. For example, priorities might distinguish between matters that constitute breaches of legislation and those that do not.*

***NOTE** Under the relevant fire safety legislation, breach of the requirements of the legislation in respect of fire precautions constitutes a criminal offence if the breach results in the risk of serious injury or death of one or more persons who are lawfully on the premises, or in the immediate vicinity of the premises, in the event of fire.*

xi. *Thus, for example, a possible scheme of prioritization could be:*

a) *serious breach of legislation, having the potential for serious injury to occupants;*

b) *matters that breach legislation but are not considered to constitute a serious threat to life safety;*

c) *matters that should be addressed as good practice, but that do not constitute a significant threat to occupants.*

xii. *The implications, in terms of timescales, etc. would naturally flow from this.*

xiii. *Yet another possible scheme could take into account both the cost benefit and the practicality of implementation. For example, minor housekeeping items could be regarded as suitable for immediate implementation, simply because there is no reason to delay doing so, regardless of whether there is a major benefit to the safety of occupants. However, matters that might address a greater threat to occupants might be impossible to implement immediately, in the literal sense of the term, simply because specifications need to be drawn up, tenders obtained, etc.*

xiv. *In some circumstances, the risk to persons may be so serious that the risk assessor should ensure that a suitable representative of the dutyholder is informed immediately, before the assessor leaves the premises.*

Recommendations

19.1 Every documented fire risk assessment should incorporate an action plan. If the fire risk and existing fire precautions are such that no recommendations for improvements are necessary, it should be explicit within the document that, in the opinion of the fire risk assessor, the only actions necessary are those to maintain the existing standard of fire precautions.

***NOTE** The action plan is sometimes, more simply, described as "recommendations", particularly when the fire risk assessment is carried out by a third-party fire risk assessor (see **3.82**).*

19.2 The action plan should be such as to ensure that, if implemented, it will reduce fire risk to, or maintain fire risk at, a tolerable level.

19.3 Where appropriate, the action plan should address both physical fire precautions and managerial issues.

19.4 The action plan should be both practicable to implement and possible to maintain, taking into account the nature of the premises, their occupants and the work processes carried out.

19.5 The measures recommended in the action plan should be cost-effective in reducing fire risk. (In health and safety parlance, they should be "reasonably practicable", meaning that the cost, time and trouble involved in implementing any measure is not grossly disproportionate to the risk if the measure is not implemented.)

19.6 No new significant hazards should result from implementation of the action plan.

19.7 The action plan should contain information regarding the appropriate effort and urgency associated with the measures recommended. Effort and urgency should be proportionate to fire risk, but financial considerations should also be taken into account, though only in relation to the fire risk, and not simply in relation to the ability of the dutyholder to pay for the recommended actions; this avoids a situation in which persons in one premises are placed at greater risk than persons in another premises, simply because the first dutyholder is less able to afford fire precautions than the second dutyholder.

20 Periodic review of fire risk assessments

*COMMENTARY ON CLAUSE **20***

i. *The documented fire risk assessment is not intended to be a fire safety manual (see **3.49**), albeit that such a manual is a valuable asset in the management of fire safety, particularly in large or complex premises. However, the fire risk assessment is a living document, in that it cannot remain valid for an unlimited length of time.*

ii. *The fire risk assessment is likely to cease to be valid when, for example:*

   a) *a material alteration (see **3.63**) takes place;*

   b) *a significant change occurs in the "given" factors that were taken into account when the fire risk assessment was carried out (see Commentary on Clause **5**);*

   c) *a significant change in fire precautions occurs.*

iii. *Significant changes in the "given" factors could, for example, comprise a large increase in the number of occupants of the premises, use of the premises by significantly more disabled occupants, or introduction of a much more hazardous process. Significant changes in fire precautions include major changes in the provision or design of fire protection measures and major changes in the measures for control or elimination of fire hazards, but also include changes resulting from more gradual deterioration of fire precautions as a result of constant use or lack of maintenance (e.g. wear and tear on fire doors). Gradual changes can also occur as a result of changes in management, turnover of employees and minor changes in layout that, after a prolonged period and numerous changes, have a significant effect on means of escape. It is also relevant to review the fire risk assessment after any fire.*

iv. *It follows, therefore, that, when any of the acute step changes described above occur, the fire risk assessment needs to be reviewed. There might also be need for approval of such changes under building regulations. Approval of changes by the fire and rescue authority is not necessary, unless an "alterations notice" under the relevant fire safety legislation requires that proposed alterations to the premises be notified to the fire and rescue authority. However, as gradual changes over a long period of time can also affect the validity of the fire risk assessment, there is a need for regular review of the fire risk assessment, even if there are no obvious changes that affect its validity. In fire risk assessments carried out in accordance with this PAS, judgement of the maximum period after which the fire risk assessment needs to be reviewed, on a routine basis, is actually part of the fire risk assessment process.*

v. *When the fire risk assessment is reviewed, consideration needs to be given to the extent to which the original action plan has been implemented. Work that has not been completed needs to be identified.*

vi. *There is no correct or incorrect frequency for the regular review of the fire risk assessment. This is a matter for the judgement of the fire risk assessor and, to some extent, the organization's own fire safety policy (see **3.51**). It is, however, appropriate to take account of the likely frequency of significant changes.*

vii. *For example, the fire risk assessment for a retail outlet, in which significant changes in sales layout are likely to occur frequently, might need more frequent review than the fire risk assessment for a barrister's chambers that have remained unaltered for many decades. Also, if, at the time of the fire risk assessment, there are major shortcomings in fire precautions, the action plan will normally contain proposals for significant changes. These changes are likely to take place within a relatively short time, after which review of the fire risk assessment might be warranted.*

viii. *Review of the fire risk assessment is not synonymous with a new assessment. Equally, however, in a regular review, all aspects of the original fire risk assessment might need to be revisited to ensure that they have not been subject to change; this emphasizes the importance of adequate recording of the significant findings of the original fire risk assessment, so that the basis for its conclusions can be readily re-examined. On the other hand, if the review has arisen purely as the result of a specific material alteration, it might be the case that a limited review is sufficient.*

ix. *The original fire risk assessment, in conjunction with one or more documented reviews, constitutes a form of audit trail that demonstrates ongoing control of fire safety. After a period*

of time in which there have, for example, been several reviews in which significant changes and the need for new risk control measures have been identified, the audit trail is likely to become unwieldy. At that stage, the documentation of a new and complete fire risk assessment might be appropriate.

Recommendations

20.1 The fire risk assessment should be subject to review when:

a) material alterations to the premises take place;

b) a significant change occurs in the matters taken into account when the fire risk assessment was carried out;

c) a significant change in fire precautions occurs;

d) there is any other reason to suspect that the original fire risk assessment might no longer be valid (this might include the occurrence of a fire);

e) a defined period of time, which should be recorded in the original fire risk assessment [see **11.1i**)], has elapsed.

NOTE *Annex E contains a pro forma that is considered a suitable and sufficient means for documenting a review of an existing fire risk assessment. The pro forma contained in Annex E is only a model, in that, if completed by a competent person (see Clause **7** and Annex A), the scope of the documented review of the fire risk assessment will normally conform to the recommendations of this PAS. Equally, the format of a documented fire risk assessment may vary from that shown in Annex E, provided that all recommendations of this PAS are satisfied.*

20.2 When the fire risk assessment is reviewed, it should be confirmed whether work recommended in the original action plan has been carried out.

20.3 The fire risk assessment review frequency should take into account the likely frequency of significant alterations to the premises, and should also take account of the period after which major changes in fire precautions are likely to have taken place as a result of the measures recommended in the action plan. (The level of fire risk should also be taken into account.)

20.4 The fire risk assessment review should explicitly address the issues considered in the original fire risk assessment, albeit that less detail in the record of the significant findings is necessary, particularly in respect of fire precautions that have not changed since the original fire risk assessment.

20.5 The fire risk assessment review should record the name of the fire risk assessor(s), the date(s) on which the periodic review was carried out and the name(s) of the principal person(s) with whom there was consultation (e.g. for supply of relevant information) at the time of the periodic review.

20.6 The fire risk assessment review should record the date by which the next periodic review should be carried out.

Annex A (informative)
Competence standard for fire risk assessors

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Foreword

Fire safety legislation requires that, for most non-domestic premises, a fire risk assessment is carried out to determine the risks to people from fire. The legislation also requires that suitable measures are taken to ensure the safety of people from fire. The appropriate fire precautions are determined by the fire risk assessment.

There is no legislative requirement for the fire risk assessment to be carried out by a competent person. This is to avoid an implication that every dutyholder under the legislation needs to employ the services of a fire safety specialist, such as a consultant, to carry out their fire risk assessment.

For small, simple premises, it is often the dutyholder that carries out the fire risk assessment. Arguably, in these premises, the dutyholder is the best person to do so because of their intimate knowledge of the premises and the activities therein. However, for many premises, the dutyholder seeks the services of an external consultant ("a fire risk assessor"). In the case of larger, more complex or high risk premises, this is often appropriate, as the task might well be beyond the ability of the dutyholder. Moreover in England and Wales, Government guidance to the dutyholder is that, where premises are more than four storeys in height, the dutyholder should seek the advice of a competent person.

In the light of experience, including the emergence of inadequate fire risk assessments for premises that suffered multiple fatality fires, there has been growing concern regarding the competence of those who provide fire risk assessment services to dutyholders on a commercial basis (i.e. for a fee).

As a result of these concerns, the Fire Risk Assessment Competency Council emerged from the fire sector with the encouragement of Government. The raison d'être of the Council, which comprises a broad group of relevant stakeholders, is to establish criteria against which the competence of a fire risk assessor can be judged. It is anticipated that these criteria will be used by professional bodies and third-party certification bodies that register or certificate fire risk assessors and commercial companies that provide fire risk assessment services.

While it is very unlikely that third-party certification of this nature will become mandatory under legislation, Government acknowledges the benefits to dutyholders of third-party certification of fire protection products and services as a means of assisting in compliance with legislation. It is now recognized that this includes fire risk assessment services.

This document will be subject to periodic review by the Fire Risk Assessment Competency Council, so that it can be updated to reflect current thinking and experience in the fire safety community.

Participants

Acknowledgement is given to the following organizations that assisted in the development of this document;

Association of Building Engineers (ABE)
Association of Fire Consultants (AFC)
Association for Specialist Fire Protection (AFSP)
Awarding Body of the Built Environment (ABBE)
British Approvals for Fire Equipment (BAFE)
British Fire Consortium (BFC)
BRE Global Ltd (BRE)
Chartered Institute of Environmental Health (CIEH)
Chief Fire Officers' Association (CFOA)
Chief Fire & Rescue Advisors Unit (CFRAU)
Confederation of British Industry (CBI)
Construction Products Association (CPA)
Department for Communities and Local Government (DCLG)
Fire Industry Association (FIA)
Fire Brigades Union (FBU)
Fire Protection Association (FPA)
Federation of British Fire Organisations (FOBFO)
Institution of Fire Engineers (IFE)
Institute of Fire Prevention Officers (IFPO)
Institute of Fire Safety Managers (IFSM)
International Fire Consultants Certification Ltd (IFCC)
Institute of Occupational Safety & Health (IOSH)
National Examination Board in Occupational Safety and Health (NEBOSH)
Passive Fire Protection Federation (PFPF)
Royal Institute of British Architects (RIBA)
Royal Institution of Chartered Surveyors (RICS)
Skills for Justice
Warrington Certification Ltd (WCL)
United Kingdom Accreditation Service (UKAS)

Fire risk assessor competency

Competence does not necessarily depend on the possession of specific qualifications, although such qualifications might contribute to the demonstration of competence.

In the case of simple buildings, where the fire risk assessor might, for example, be an employee of the occupier, it is possible that the following attributes of a fire risk assessor might be sufficient in conjunction with a study of suitable guidance documents. Even in such a simple building, the fire risk assessor will need:

a) an understanding of relevant current best fire safety practices in buildings of the type in question;
b) an awareness of the limitations of the fire risk assessor's own experience and knowledge;
c) a willingness and ability to supplement existing experience and knowledge, when necessary, by obtaining external help and advice.

Complex buildings will require a higher level of knowledge, understanding and, preferably, experience on the part of the fire risk assessor. For such buildings, there will be a need for the specific applied knowledge and skills of an appropriately qualified specialist. In such cases, evidence of specialist training and experience, or membership of a professional body, may assist in demonstrating competence.

In general, other than in the case of simple, low risk buildings, fire risk assessors, particularly those offering their services on a commercial basis, need an appropriate knowledge of:

- The assessment of risk from fire (Appendix A)
- Applicable legislation (Appendix B)
- Appropriate guidance (Appendix C)
- Behaviour of fire in buildings (Appendix D)
- Behaviour of people in fire situations (Appendix E)
- Means of escape (Appendix F)
- Fire prevention (Appendix G)
- Fire protection (Appendix H – includes passive and active)
- Management of fire safety (Appendix I)

In the context of the above paragraph, knowledge can be obtained by academic study, training, working alongside others, short courses, continuing professional development or any combination of two or more of these.

Education is likely to involve formal education of a relatively academic nature, often culminating in a qualification. Training involves training of a practical nature, often given on the job.

It is not implied that education, training and experience in the principles of fire safety need each be extensive, provided that the combination of each results in adequate knowledge. Moreover, a high level in respect of any one of these might compensate for a lower level in another. It is essential that the level of competence be sufficient to allow the fire risk assessor to identify correctly the significant risks and to draw up an appropriate action plan to address them.

Appendix A
The assessment of risk from fire

It is innate to the process of carrying out a fire risk assessment that there be an assessment of fire risk. The competent fire risk assessor must be able to make a subjective judgement – albeit based largely on objective evidence – of the overall risk to life from fire in the building for which a fire risk assessment is carried out.

Accordingly, the fire risk assessor should be able to:

- appreciate generally the concept of risk assessment as it applies to fire;
- understand the terms "fire risk" and "fire hazard" and appreciate the relationship between the two;
- within the fire risk assessment, reach a subjective opinion on differing levels of fire risk for the purposes of making comparisons in premises where a fire risk assessment is being carried out;
- to enable to fire risk assessor to carry out the above, the fire risk assessor should;
- be aware of the broad range of methodologies of fire risk assessments available;
- be able to apply an appropriate methodology of fire risk assessment in respect of the premises for which the fire risk assessment relates;
- be able to identify fire hazards (both common and process) and the risks associated with those hazards;
- be able to apply the understanding of fire hazard and fire risk in the premises in context, to make an informed judgement on the appropriate level of fire precautions in the premises where a fire risk assessment is being carried out;
- be able to express fire risk for the client in such a manner as to provide at least, a broad comparison of the fire risk at different premises within a single estate of properties.

Appendix B
Applicable legislation

It is not expected that the fire risk assessor will have the skills of a legal expert. However, it is necessary for the fire risk assessor to have a good understanding of the applicability, principles, objectives and intent of the legislation under which the fire risk assessment is carried out, and of any associated legislation.

Accordingly, the fire risk assessor should be able to:

- generally determine the extent to which premises comply with the relevant fire safety legislation;
- identify failures to comply with the specific legislation, particularly those that may lead to the commission of an offence;
- within the action plan of the fire risk assessment, write a sufficient outline requirement for any measures required to achieve compliance with the relevant legislation.

To enable the fire risk assessor to carry out the above, the fire risk assessor should:

- be aware of the relevant enforcing authority for the legislation under which the fire risk assessment is carried out;
- be aware of the relevant requirements of the legislation in respect of fire risk assessment and the duties the legislation places on various persons;
- be aware of the nature of non-compliances that may occur;
- be aware of the nature of the offences that may be committed;
- be aware of the guidance that supports the legislation (see Appendix C);
- be aware the principles of prevention (as defined in the relevant European Directive);
- be able to distinguish between the general fire precautions (fire safety measures) required by fire safety legislation and the process fire precautions required by health and safety legislation.

To enable the fire risk assessor to carry out an appropriate risk assessment they must have regard to legislative and regulatory requirements of the country in which the assessment is taking place.

Reference should be made to the following sub appendices:

- Appendix B1 – England and Wales
- Appendix B2 – Scotland
- Appendix B3 – Northern Ireland

These do not cover every eventuality and a competent assessor should be capable of identifying when other laws or regulations need to be considered.

Appendix B1 – England and Wales

- Have a good understanding of the Regulatory Reform (Fire Safety) Order 2005 ("the Fire Safety Order").
- Be aware of which enforcing authority enforces the Fire Safety Order in any premises for which a fire risk assessment is carried out.
- Understand the meaning of the term "Responsible Person" and be able to identify the Responsible Person in premises for which a fire risk assessment is carried out.
- Understand the meaning of "Persons having control of premises" and be able to identify such persons.
- Understand the meaning of the term "Relevant Premises".
- Understand the meaning of the term "General Fire Precautions".
- Understand the manner in which the Fire Safety Order applies to premises.
- Be fully aware of the requirements of Article 9 of the Fire Safety Order in respect of risk assessment.
- Understand the relationship between the Fire Safety Order and the Dangerous Substances and Explosive Atmospheres Regulations 2002.
- Understand the relationship between the Fire Safety Order and licensing legislation.
- Understand the relationship between the Fire Safety Order and the Health and Safety at Work etc. Act 1974.
- Understand the relationship between the Fire Safety Order and the Housing Acts.
- Understand the meaning of the term "Reasonably Practicable".
- Understand the concept of proportionality of general fire precautions to risk.
- Understand the distinction between the failure to comply with the requirements of the Fire Safety Order and an offence under the Order.
- Understand the relevant requirements of the Health and Safety (Safety Signs and Signals) Regulations 1996.

Appendix B2 – Scotland

- Understand the relationship between Part 3 of the Fire (Scotland) Act 2005 ("the Act") and the Fire Safety (Scotland) Regulations 2006 ("the Regulations").
- Have a good understanding of the Act and the Regulations.
- Be aware of which enforcing authority enforces the Act and the Regulations in any premises for which a fire risk assessment is carried out.
- Understand the meaning of the term "Employer" and be able to identify the Employer in premises for which a fire risk assessment is carried out.
- Understand the meaning of "Persons having control of premises" and be able to identify such persons.
- Understand the meaning of the term "Relevant Persons".
- Understand the meaning of the term "Relevant Premises".
- Understand the meaning of the term "Fire Safety Measures".
- Understand the manner in which the Act and the Regulations apply to premises.
- Be fully aware of the requirements of Part II of the Regulations in respect of fire risk assessment.
- Understand the relationship between the Act, the Regulations and the Dangerous Substances and Explosive Atmospheres Regulations 2002.
- Understand the relationship between the Act, the Regulations and licensing legislation.
- Understand the relationship between the Act, the Regulations and the Health and Safety at Work etc. Act 1974.
- Understand the relationship between the Act, the Regulations and housing legislation.
- Understand the meaning of the term "Reasonably Practicable".
- Understand the concept of proportionality of fire safety measures to risk.
- Understand the distinction between the failure to comply with the requirements of the Act or the Regulations and an offence under the Act.
- Understand the relevant requirements of the Health and Safety (Safety Signs and Signals) Regulations 1996.

Appendix B3 – Northern Ireland

- Understand the relationship between Part 3 of the Fire and Rescue Services (Northern Ireland) Order 2006 ("the Order") and the Fire Safety Regulations (Northern Ireland) 2010 ("the Regulations").
- Have a good understanding of the Order and the Regulations.
- Be aware of which enforcing authority enforces the Order and the Regulations in any premises for which a fire risk assessment is carried out.
- Understand the meaning of the term "Employer" and be able to identify the Employer in premises for which a fire risk assessment is carried out.
- Understand the meaning of "Persons having control of premises" and be able to identify such persons.
- Understand the meaning of the term "Relevant Persons".
- Understand the meaning of the term "Relevant Premises".
- Understand the meaning of the term "Fire Safety Measures".
- Understand the manner in which the Order and the Regulations apply to premises.
- Be fully aware of the requirements of Part II of the Regulations in respect of fire risk assessment.
- Understand the relationship between the Order, the Regulations and the Dangerous Substances and Explosive Atmospheres Regulations (Northern Ireland) 2003.
- Understand the relationship between the Order, the Regulations and licensing legislation.
- Understand the relationship between the Order, the Regulations and the Health and Safety at Work (Northern Ireland) Order 1978.
- Understand the relationship between the Order, the Regulations and housing legislation.
- Understand the meaning of the term "Reasonably Practicable".
- Understand the concept of proportionality of fire safety measures to risk.
- Understand the distinction between the failure to comply with the requirements of the Order or the Regulations and an offence under the Order.
- Understand the relevant requirements of the Health and Safety (Safety Signs and Signals) Regulations (Northern Ireland) 1996.

Appendix C
Appropriate guidance

The fire risk assessor should have knowledge of the suites of guidance produced by the applicable government departments together with other guidance produced by industry, standards making bodies, etc. that apply to the premises on which the fire risk assessment is being carried out.

Much of this guidance cross references other guidance and it is the duty of the competent fire risk assessor to be able to navigate through these sets of guidance and to maintain their currency as guidance is refreshed and new guidance is produced. This will form part of their formal continual professional development which will need to be evidenced to allow for third-party certification.

Accordingly the fire risk assessor should be able to:

- determine the appropriate guidance applicable to the premises to which the fire risk assessment is being carried out;
- apply such guidance in a proportional manner, keeping in mind the use to which the premises are being put;
- evidence how they are maintaining their currency in respect of applicable guidance and standards.

Appendix D
Behaviour of fire in buildings

The behaviour of a building in fire will be determined by a combination of its structural design, construction materials, passive and active fire safety elements, the use to which the building is put and the standard of management applied.

Active and Passive fire safety is covered in Appendix H and management of fire safety is covered in Appendix I.

Although the basic structural integrity of the building is not strictly within the remit of a fire risk assessor, as it should already have been covered by the appropriate building control body, a fire risk assessor must have regard to this aspect.

Accordingly, the fire risk assessor should be able to:

- generally determine how fires can start and the how the spread of fire and products of combustion can impact on components of the building;
- identify failures and or changes to the building that could change the way a fire and products of combustion travel through the building.

To enable to fire risk assessor to carry out the above, the fire risk assessor should have:

- knowledge of the principles of combustion (triangle of fire);
- knowledge of fire growth and how it gets progressively bigger;
- knowledge of movement of smoke and other products of combustion;
- an awareness of how different construction materials behave in a fire;
- an awareness of how different structural designs of buildings behave in a fire;
- an awareness of how fire spread can be inhibited by passive and active fire protection methods (see Appendix H);
- an awareness of how to identify that the subsequent use or alteration of the building can invalidate pre-existing fire safety precautions and/or strategies.

Appendix E
Behaviour of people in fire situations

It is not expected that the fire risk assessor will have the skills of a behavioural psychologist. However, whilst most other aspects of fire safety are concerned with physical or system-based issues, understanding human behaviour is an essential part of the knowledge of a fire risk assessor's role.

Accordingly, the fire risk assessor should be able to:

- anticipate the way people will generally behave in fire situations;
- identify potential problems arising from the likely behaviour of people in the premises for which a fire risk assessment is being carried out;
- within the action plan of the fire risk assessment, make recommendations, where relevant, for managerial or other measures considered necessary, taking account of the likely behaviour of people in the premises in the event of fire.

To enable to fire risk assessor to carry out the above, the fire risk assessor should:

- be aware of current professional thinking and practical guidance on human behaviour in fire, including case studies;
- be able to anticipate the likely behaviour of people in fire for those premises for which the fire risk assessor carries out a fire risk assessment;
- be aware of the effect of splitting of family groups;
- be aware of the likely response of people to discovery of a fire;
- be aware of the likely response of people to a fire alarm signal;
- understand the effect of frequent false alarms on willingness to evacuate;
- understand the importance of the actions of those in charge at the time of a fire;
- understand the importance of staff training and the influence of training and drills on occupant behaviour in the event of fire;
- understand the importance of a structured emergency plan;
- understand the effect of different cultures on fire and evacuation behaviour;
- understand the effect of escape route design on evacuation behaviour, including the tendency to use familiar egress routes.

Appendix F
Means of escape

The proper provision of means of escape is an essential part of fire safety measures in any and all premises. A fire risk assessor must have regard to this important aspect.

Accordingly, the fire risk assessor should be able to:

- understand the means of escape strategies for different types and occupancy of buildings;
- understand the principles of emergency planning and evacuation;
- understand the implications of how different needs of people can affect the selection of the appropriate means of escape.

To enable to fire risk assessor to carry out the above, the fire risk assessor should:

- understand that all persons within the building should be able to reach a place of total safety before life-threatening conditions arise; either unaided or with the assistance of staff – without FRS assistance (RSET/ASET);
- understand that any emergency plan should be compatible with the normal everyday use of the premises;
- understand the principles relating to alternative escape routes, dead ends and single direction of escape;
- understand the principles relating to horizontal and vertical escape;.
- understand the principles relating to travel distances and travel times;
- understand the principles relating to provision of adequate number(s) and dimensions of routes and exits;
- understand the principles relating to appropriate use of door releases and other escape hardware;
- understand the principles relating to protected escape routes;
- understand the principles relating to relative and ultimate places of safety;
- understand the principles relating to means of escape other than stairs;
- have an awareness of how smoke control systems can assist means of escape;
- have an awareness of the provisions for, and maintenance of, evacuation signage;
- have an awareness of the provisions for, and maintenance of, emergency lighting;
- have an awareness of procedures and methods of assisted evacuation including the need for the training of staff in the emergency procedures and use of such equipment.

Appendix G
Fire prevention

Fire prevention should be regarded as a vital part of fire safety and is an important part of any assessment. The law requires that one takes appropriate steps to reduce the likelihood of fire and of the spread of fire on the premises and to mitigate the effects of any fire that occurs.

Accordingly, the fire risk assessor should be able to:

- understand and apply the appropriate principles of prevention;
- identify and have an understanding of the different types of hazard (see Appendix A);
- evaluate the risk, and consider the appropriate method of managing the risk.

To enable to fire risk assessor to carry out the above, the fire risk assessor should:

- understand the term "as low as reasonably practicable" (ALARP);
- understand how ALARP should be applied proportionately to the risk in the premises;
- understand that removal of the hazard should be the first step in fire prevention;
- understand if the risk cannot be removed the next step is to reduce the risk;
- understand that if the risk cannot be reduced to an acceptable level then appropriate protective measures will need to be implemented;
- understand the need to maintain the measures undertaken above, especially when changes are made to the use, structure or layout of the building.

Appendix H
Fire protection

It is not expected that a fire risk assessor will carry out any engineering evaluation or examination of detailed design of passive or active fire protection systems or equipment, but such systems and equipment should be considered in terms of their suitability for the premises, and requirements in respect of appropriate maintenance and necessary testing.

A competent fire risk assessor must have the ability to identify correctly the passive and active elements of fire protection/design and their role in the provision of fire safety in the building. This will include how they may interact, e.g. if the fire alarm system triggers a door release mechanism to release held open doors to the closed position. The fire risk assessor should understand the availability and value of third-party certification schemes.

The sub-appendices below identify the elements that should be used to evaluate the competence of vfire risk assessors.

Accordingly the fire risk assessor should be able to:

1) determine the need for fire protection systems and equipment;
2) identify any major failings in the level of passive and/or active fire protection provided by existing systems and equipment from documentation, by observation and, where necessary inspection of measures that are not immediately visible;
3) within the action plan of the fire risk assessment, write a brief outline requirement for new or upgraded systems and equipment;
4) demonstrate an ability to correctly identify the purpose, function and suitability of passive or active elements of fire protection/design.

To enable the fire risk assessor to carry out an appropriate risk assessment they must have regard to the passive and active systems installed within the building and any necessary interaction between the two.

Reference should be made to the following sub appendices:

- Appendix H1 – Passive fire protection
- Appendix H2 – Active fire protection

Appendix H1 – Passive fire protection

The fire risk assessor should have a knowledge and understanding of the role in the provision of fire safety, including the types of fire performance requirements (load-bearing capacity, integrity, insulation, reaction to fire performance etc.) of the following:

Cavity barriers

- Their location in the building (from documentation).
- Their importance in particular types of building construction.

Fire resisting ceiling systems including suspended ceilings

- Their location in the building (from documentation).
- The importance of ensuring they are in good condition.

Compartment walls and floors

- Their location in the building (from documentation but where none is available from a survey of the building).
- The need to maintain the fire resistance:
  - above any suspended ceilings;
  - below any raised floors;
  - where they are penetrated by services (cables, pipes, ducts etc.).

Fire doors and furniture

- The importance of correct fitting of the door in the frame including door gaps.
- The importance of suitable fire rated ironmongery, e.g. self-closing devices, latches etc.
- The need for intumescent protection:
  - around the periphery of the door leaf;
  - to ironmongery.
- The provision and condition of any smoke seals.
- The ability to self-close.
- The ability of any door retention device to release, e.g. on the operation of any fire alarm/detection system (from documented maintenance records/checks).
- The assistance of any third-party labelling in ascertaining the above.

Fire-fighting shafts and stairwells

- Their location in the building (from documentation but where none is available from a survey of the building).

Fire-resisting dampers (mechanical or intumescent)

- Their location in the building (from documentation).
- Their operation (from maintenance records).
- Their operation as part of any smoke control system (from maintenance records/checks).

Fire-resisting ductwork

- Its location in the building (from documentation).
- The need to maintain the fire resistance where it penetrates compartment and/or fire resisting walls/ floors by the use of suitable penetration seals.

Fire-resisting glazing

- Its location in the building (from documentation but where none is available from a survey of the building).
- The significance of any immediately visible damage and the need to repair it.

Fire-resisting service ducts and shafts

- Its location (from documentation).

Fire-resisting floors, walls and partitions

- Their location in the building (from documentation but where none is available from a survey of the building).
- The need to maintain the fire resistance:
  - above any suspended ceilings;
  - below any raised floors;
  - where they are penetrated by services (cables, pipes, ducts etc.).

Penetration seals for pipes, cables and other services

- Their location (from documentation).
- Their visible condition including the use of unsuitable repairs.
- The use of unsupported.

Fire protection to structural frame

- The significance of any immediately visible damage.

The building envelope, e.g. fire-resisting external walls, curtain walls

- The significance of their role in protecting escape routes at boundaries.
- The significance of any immediately visible damage.
- The importance of remedying any immediately visible damage in sandwich panel constructions using combustible insulating cores.

Wall and ceiling linings in escape routes

- The significance of extensive over painting.
- The significance of large quantities of combustible items (notice boards, notices etc.).

Appendix H2 – Active fire protection

The fire risk assessor should:

For Fire Detection and Alarm (FD&A) Systems and Voice Alarm Systems:

- be able to determine the appropriate category of FD&A system to match the risks for a (non domestic or domestic) building;
- be able to determine the circumstances where a voice alarm system is appropriate for the risks;
- understand how FD&A systems interlink with other systems and equipment;.
- understand the need for door release mechanisms to fail safe and the need for ancillary equipment;
- understand the circumstances in which there is a need for a connection to an alarm receiving centre;
- be aware of the importance of avoiding false alarms, and have an awareness of elementary measures for their avoidance;
- be aware of available adaptations to FD&A systems for deaf and hard of hearing people;
- understand how phased evacuation and staged alarm systems interact;
- be aware of the basic requirements for siting manual call points;
- understand the common types of detectors and their limitations;
- understand the common alarm devices and their limitations;
- be aware of situations in which cables should be fire resisting;
- be aware of the need for zone plans and their value to the fire and rescue service;
- be aware of the certificates that should be issued by "competent persons" and key points contained in them;
- understand the appropriate frequency and nature of routine testing and maintenance.

For emergency voice communication systems (EVC):

- understand the need for, and purpose of, EVC systems;
- be aware of the main components and their locations;
- understand the appropriate frequency and nature of routine testing and maintenance.

For emergency escape lighting (EEL):

- be aware of the common forms of EEL system, their principles of operation (i.e. self contained and central systems) and modes of operation (maintained & non maintained);
- be aware of limitations in the use of standby generators;
- understand situations where maintained EEL is necessary;
- be aware of the basic requirements for positioning of luminaires and understand the meaning of "Point of Emphasis";
- be aware of the relationship between EEL and signs;
- be aware of the certificates that should be issued by "Competent Persons" and key points contained in them;
- understand the appropriate frequency and nature of routine testing and maintenance.

For first aid fire-fighting appliances:

- have an understanding of the situations in which fire extinguishing appliances are necessary;
- have an understanding of the different fire extinguishing agents, their applications and limitations;
- have an understanding of the different roles of portable fire extinguishers and hose reels;
- be aware of the basic requirements for selection, provision and siting of fire extinguishing appliances;
- understand the appropriate frequency and nature of routine inspection and maintenance.

For fire suppression systems:

- be aware of the common forms of fire suppression systems and their principles of operation;
- be aware of the situations where an automatic fire suppression system is necessary for compliance with legislation or life safety;
- be aware of the basic requirements for siting of devices such as sprinkler heads;
- be aware of the certificates that should be issued by "competent persons" and key points contained in them;
- understand the appropriate frequency and nature of routine testing and maintenance.

For smoke control systems:

- understand the different types and roles of smoke control systems that may be found in buildings and their principles of operation;
- be aware of the situations where a smoke control system, is necessary for compliance with legislation or life safety;
- be aware of the certificates that should be issued by "competent persons" and key points contained in them;
- understand the appropriate frequency and nature of routine testing and maintenance.

For facilities for the fire and rescue service:

- understand the types of and need for facilities for the fire and rescue service to the extent necessary;
- understand the appropriate frequency and nature of routine testing and maintenance.

Appendix I
Management of fire safety

Management of fire safety is a wide ranging subject and can include all those matters covered in the previous appendices (A to H inclusive).

Accordingly, the fire risk assessor should be able to:

- demonstrate a knowledge and understanding of the principles and practices of management of fire safety;
- understand how they relate to the protection of life of persons within and around buildings;
- assess the management capabilities and controls in place, balanced against and pertinent to, the occupation and purpose of the building;
- give clear and appropriate advice to the dutyholder.

To enable the fire risk assessor to carry out the above, the fire risk assessor should have an appropriate knowledge and understanding of:

- available resources and status of responsibility of the person responsible for management of fire safety;
- staffing levels (staff-occupant ratio);
- fire training – including fire drills and responsibility levels in event of a fire;
- emergency and evacuation procedures (including existing emergency plan, its compatibility with ordinary everyday use of the premises and its provisions for disabled persons);
- signs and signage;
- work control – contractors and similar (permit systems etc.);
- communications procedures (alerting to fire, internal communication etc.);
- maintenance and testing of fire safety systems and record keeping;
- degraded systems planning;
- abnormal occupancy planning;
- fire load management;
- monitoring of special or unusual risks.

In addition the fire risk assessor should have a knowledge of the issues relating to people especially at risk and the appropriate types of evacuation strategies, including:

- the presence of and an awareness of how mobility and other disability limitations can affect the evacuation strategy of the premises;
- the presence of and an awareness of how children and the very elderly can affect the evacuation strategy of the premises;
- the presence of and an awareness of how people asleep or otherwise unable to escape quickly or unaided can affect the evacuation strategy of the premises;
- an awareness of the different lone workers and isolated workers;
- an awareness of personal emergency evacuation plans (PEEPs);
- an understanding of the different types of evacuation strategies including simultaneous total evacuation, phased total evacuation, progressive horizontal evacuation, zoned evacuation.

Annex B (informative)
Model pro-forma for documentation of a fire risk assessment

THE FOLLOWING PRO-FORMA IS APPLICABLE SOLELY TO PREMISES IN ENGLAND AND WALES.

B.1 This annex contains a model pro-forma for documentation of a fire risk assessment for premises in England and Wales. If the pro-forma is completed by a competent person, the format and scope of the fire risk assessment will be suitable and sufficient to satisfy the recommendations of this PAS. Modifications to this format will be necessary in the case of premises in multiple occupation, for which information about the building and about the premises of the occupier, for whom the fire risk assessment is being carried out, both need to be recorded.

NOTE *Enforcement of fire safety legislation is the prerogative of the enforcing authority charged by legislation with the responsibility to do so. Each enforcing authority is autonomous. There remains debate as to the legal interpretation of what constitutes the significant findings of a fire risk assessment. However, the format of the pro-forma contained in this annex, being part of a BSI PAS, is considered by the Chief Fire Officers' Association to be one suitable format for recording the significant findings of a suitable and sufficient fire risk assessment, although many other formats would also be acceptable.*

B.2 The format of a documented fire risk assessment may vary from that shown in this Annex, provided that the recommendations of each clause of this PAS are satisfied. For example, in the case of means of escape, compliance with Annex D necessitates that the key factors in Table D.1 are explicitly addressed in the documented fire risk assessment, but not all the specific issues shown in Table D.1 and in the pro-forma contained in this Annex need necessarily be included in all documented fire risk assessments conforming to the recommendations of this PAS, as they might not all constitute "significant findings". It is, however, necessary for compliance with this PAS, that the specific issues have, at least, been considered by the fire risk assessor while carrying out the fire risk assessment.

B.3 Equally, the prompt-list of fire hazards shown in the pro-forma may be expanded. This might be appropriate, for example, if there are significant fire hazards for which no headings are included in the pro-forma.

B.4 Where description of any fire hazards or fire precautions is considered appropriate, this can be recorded under the relevant "Comments" heading in the pro-forma. The comments sections can also be used to set out justification for acceptance of standards of any fire protection measures that depart significantly from a prescriptive norm (see **10.3**).

B.5 While it might not be essential to record further information in every comments section, care needs to be taken to ensure that the pro-forma does not become a mere tick-list with inadequate supporting information. Such a fire risk assessment is unlikely to satisfy fire safety legislation, nor would it conform to the recommendations of this PAS.

REGULATORY REFORM (FIRE SAFETY) ORDER 2005
FIRE RISK ASSESSMENT

Responsible person (e.g. employer) or person having control of the premises:	
Address of premises:	
Assessor:	
Date of fire risk assessment:	
Date of previous fire risk assessment:	
Suggested date for review: [1)]	

The purpose of this report is to provide an assessment of the risk to life from fire in these premises, and, where appropriate, to make recommendations to ensure compliance with fire safety legislation. The report does not address the risk to property or business continuity from fire.

[Date]

[1)] This fire risk assessment should be reviewed by a competent person by the date indicated above or at such earlier time as there is reason to suspect that it is no longer valid, or if there has been a significant change in the matters to which it relates, or if a fire occurs.

GENERAL INFORMATION

1. THE PREMISES

1.1 Number of floors:

1.2 Approximate floor area:

m^2 per floor

m^2 gross

m^2 on ground floor

[enter units as appropriate]

1.3 Brief details of construction

1.4 Use of premises

2. THE OCCUPANTS

2.1 Approximate maximum number:

2.2 Approximate number of employees at any one time:

2.3 Maximum number of members of public at any one time:

2.4 Associated times/hours of occupation:

3. OCCUPANTS ESPECIALLY AT RISK FROM FIRE

3.1 Sleeping occupants:

3.2 Disabled occupants:

3.3 Occupants in remote areas and lone workers:

3.4 Young persons:

3.5 Others:

4. FIRE LOSS EXPERIENCE

5. OTHER RELEVANT INFORMATION

6. RELEVANT FIRE SAFETY LEGISLATION

6.1 The following fire safety legislation applies to these premises:

6.2 The above legislation is enforced by:

6.3 Other legislation that makes significant requirements for fire precautions in these premises (other than the Building Regulations 2010):

6.4 The legislation to which 6.3 makes reference is enforced by:

6.5 Comments:

FIRE HAZARDS AND THEIR ELIMINATION OR CONTROL

7. ELECTRICAL SOURCES OF IGNITION

7.1 Reasonable measures taken to prevent fires of electrical origin? ☐ Yes ☐ No

7.2 More specifically:

Fixed installation periodically inspected and tested?	☐ Yes	☐ No
Portable appliance testing (where appropriate) carried out?	☐ Yes	☐ No
Suitable policy regarding the use of personal electrical appliances?	☐ Yes	☐ No
Suitable limitation of trailing leads and adapters?	☐ Yes	☐ No

7.3 Comments and hazards observed:

8. SMOKING

8.1 Reasonable measures taken to prevent fires as a result of smoking? ☐ Yes ☐ No

8.2 More specifically:

Smoking prohibited on the premises?		☐ Yes	☐ No
Smoking prohibited in appropriate areas?	☐ N/A	☐ Yes	☐ No
Suitable arrangements for those who wish to smoke?		☐ Yes	☐ No
This policy appeared to be observed at time of inspection?		☐ Yes	☐ No

8.3 Comments and hazards observed:

9. ARSON

9.1 Does basic security against arson by outsiders appear reasonable? [2)] ☐ Yes ☐ No

9.2 Is there an absence of unnecessary fire load in close proximity to the premises or available for ignition by outsiders? ☐ Yes ☐ No

9.3 Comments and hazards observed:

2) Reasonable only in the context of this fire risk assessment. If specific advice on security (including security against arson) is required, the advice of a security specialist should be obtained.

10. PORTABLE HEATERS AND HEATING INSTALLATIONS

10.1	Is the use of portable heaters avoided as far as practicable?		☐ Yes	☐ No
10.2	If portable heaters are used:			
	Is the use of the more hazardous type (e.g. radiant bar fires or lpg appliances) avoided?	☐ N/A	☐ Yes	☐ No
	Are suitable measures taken to minimize the hazard of ignition of combustible materials?	☐ N/A	☐ Yes	☐ No
10.3	Are fixed heating installations subject to regular maintenance?	☐ N/A	☐ Yes	☐ No

10.4 Comments and hazards observed:

11. COOKING

11.1	Are reasonable measures taken to prevent fires as a result of cooking?	☐ N/A	☐ Yes	☐ No
11.2	More specifically:			
	Filters changed and ductwork cleaned regularly?	☐ N/A	☐ Yes	☐ No
	Suitable extinguishing appliances available?	☐ N/A	☐ Yes	☐ No

11.3 Comments and hazards observed:

12. LIGHTNING

12.1 Do the premises have a lightning protection system? ☐ N/A ☐ Yes ☐ No

12.2 Comments and hazards observed:

13. HOUSEKEEPING

13.1 Is the standard of housekeeping adequate? ☐ Yes ☐ No

13.2 More specifically:

Combustible materials appear to be separated from ignition sources?		☐ Yes	☐ No
Avoidance of unnecessary accumulation of combustible materials or waste?		☐ Yes	☐ No
Appropriate storage of hazardous materials?	☐ N/A	☐ Yes	☐ No
Avoidance of inappropriate storage of combustible materials?		☐ Yes	☐ No

13.3 Comments and hazards observed:

14. HAZARDS INTRODUCED BY OUTSIDE CONTRACTORS AND BUILDING WORKS

14.1 Are fire safety conditions imposed on outside contractors? ☐ Yes ☐ No

14.2 Is there satisfactory control over works carried out on the premises by outside contractors (including "hot work" permits)? ☐ Yes ☐ No

14.3 If there are in-house maintenance personnel, are suitable precautions taken during "hot work", including use of "hot work" permits? ☐ N/A ☐ Yes ☐ No

14.4 Comments:

15. DANGEROUS SUBSTANCES

15.1 Are the general fire precautions adequate to address the hazards associated with dangerous substances used or stored within the premises? ☐ N/A ☐ Yes ☐ No

15.2 If 15.1 applies, has a specific risk assessment been carried out, as required by the Dangerous Substances and Explosive Atmospheres Regulations 2002? ☐ N/A ☐ Yes ☐ No

15.3 Comments:

16. OTHER SIGNIFICANT FIRE HAZARDS THAT WARRANT CONSIDERATION INCLUDING PROCESS HAZARDS THAT IMPACT ON GENERAL FIRE PRECAUTIONS

16.1 Hazards:

16.2 Comments and deficiencies observed:

FIRE PROTECTION MEASURES

17. MEANS OF ESCAPE FROM FIRE

17.1 It is considered that the premises are provided with reasonable means of escape in case of fire. ☐ Yes ☐ No

17.2 More specifically:

Adequate design of escape routes?		☐ Yes	☐ No
Adequate provision of exits?		☐ Yes	☐ No
Exits easily and immediately openable where necessary?		☐ Yes	☐ No
Fire exits open in direction of escape where necessary?		☐ Yes	☐ No
Avoidance of sliding or revolving doors as fire exits where necessary?	☐ N/A	☐ Yes	☐ No
Satisfactory means for securing exits?		☐ Yes	☐ No
Reasonable distances of travel:			
Where there is a single direction of travel?	☐ N/A	☐ Yes	☐ No
Where there are alternative means of escape?	☐ N/A	☐ Yes	☐ No
Suitable protection of escape routes?		☐ Yes	☐ No
Suitable fire precautions for all inner rooms?	☐ N/A	☐ Yes	☐ No
Escape routes unobstructed?		☐ Yes	☐ No

17.3 It is considered that the premises are provided with reasonable arrangements for means of escape for disabled people. ☐ N/A ☐ Yes ☐ No

17.4 Comments and deficiencies observed:

18. MEASURES TO LIMIT FIRE SPREAD AND DEVELOPMENT

18.1 It is considered that there is:

compartmentation of a reasonable standard [3)]	☐ Yes	☐ No
reasonable limitation of linings that might promote fire spread.	☐ Yes	☐ No

18.2 As far as can reasonably be ascertained, fire dampers are provided as necessary to protect critical means of escape against passage of fire, smoke and combustion products in the early stages of a fire? [3), 4)] ☐ N/A ☐ Yes ☐ No

18.3 Comments and deficiencies observed:

[3)] Based on visual inspection of readily accessible areas, with a degree of sampling where appropriate.

[4)] A full investigation of the design of HVAC systems is outside the scope of this fire risk assessment.

19. EMERGENCY ESCAPE LIGHTING

19.1 Reasonable standard of emergency escape lighting system provided? [5)] ☐ N/A ☐ Yes ☐ No

19.2 Comments and deficiencies observed:

[5)] Based on visual inspection, but no test of illuminance levels or verification of full compliance with relevant British Standards carried out.

20. FIRE SAFETY SIGNS AND NOTICES

20.1 Reasonable standard of fire safety signs and notices? ☐ N/A ☐ Yes ☐ No

20.2 Comments and deficiencies observed:

21. MEANS OF GIVING WARNING IN CASE OF FIRE

21.1 Reasonable manually operated electrical fire alarm system provided? [6)] ☐ N/A ☐ Yes ☐ No

21.2 Automatic fire detection provided? ☐ Yes (throughout premises) ☐ Yes (part of premises only) ☐ No

21.3 Extent of automatic fire detection generally appropriate for the occupancy and fire risk? ☐ N/A ☐ Yes ☐ No

21.4 Remote transmission of alarm signals? ☐ N/A ☐ Yes ☐ No

21.5 Comments and deficiencies observed:

6) Based on visual inspection, but no audibility tests or verification of full compliance with relevant British Standard carried out.

22. MANUAL FIRE EXTINGUISHING APPLIANCES

22.1 Reasonable provision of portable fire extinguishers? ☐ N/A ☐ Yes ☐ No

22.2 Hose reels provided? ☐ Yes ☐ No

22.3 Are all fire extinguishing appliances readily accessible? ☐ N/A ☐ Yes ☐ No

22.4 Comments and deficiencies observed:

23. RELEVANT AUTOMATIC FIRE EXTINGUISHING SYSTEMS

23.1 Type of system:

23.2 Comments:

24. OTHER RELEVANT FIXED SYSTEMS AND EQUIPMENT

24.1 Type of fixed system:

24.2 Comments:

24.3 Suitable provision of fire-fighters switch(es) for high voltage luminous tube signs, etc. ☐ N/A ☐ Yes ☐ No

24.4 Comments:

MANAGEMENT OF FIRE SAFETY

25. PROCEDURES AND ARRANGEMENTS

25.1 Fire safety is managed by: [7)]

25.2 Competent person(s) appointed to assist in undertaking the preventive and protective measures (i.e. relevant general fire precautions)? ☐ Yes ☐ No

Comments:

25.3 Is there a suitable record of the fire safety arrangements? ☐ N/A ☐ Yes ☐ No

Comments:

25.4 Appropriate fire procedures in place? ☐ Yes ☐ No

More specifically:

Are procedures in the event of fire appropriate and properly documented? ☐ N/A ☐ Yes ☐ No

Are there suitable arrangements for summoning the fire and rescue service? ☐ Yes ☐ No

Are there suitable arrangements to meet the fire and rescue service on arrival and provide relevant information, including that relating to hazards to fire-fighters? ☐ N/A ☐ Yes ☐ No

Are there suitable arrangements for ensuring that the premises have been evacuated? ☐ N/A ☐ Yes ☐ No

Is there a suitable fire assembly point(s)? ☐ N/A ☐ Yes ☐ No

Are there adequate procedures for evacuation of any disabled people who are likely to be present? ☐ N/A ☐ Yes ☐ No

Comments:

25.5 Persons nominated and trained to use fire extinguishing appliances? ☐ N/A ☐ Yes ☐ No

Comments:

25.6 Persons nominated and trained to assist with evacuation, including evacuation of disabled people? ☐ N/A ☐ Yes ☐ No

Comments:

25.7 Appropriate liaison with fire and rescue service (e.g. by fire and rescue service crews visiting for familiarization visits)? ☐ N/A ☐ Yes ☐ No

Comments:

25.8 Routine in-house inspections of fire precautions (e.g. in the course of health and safety inspections)? ☐ N/A ☐ Yes ☐ No

Comments:

7) This is not intended to represent a legal interpretation of responsibility, but merely reflects the managerial arrangement in place at the time of this risk assessment.

26. TRAINING AND DRILLS

26.1 Are all staff given adequate fire safety instruction and training on induction? ☐ N/A ☐ Yes ☐ No

Comments:

26.2 Are all staff given adequate periodic "refresher training" at suitable intervals? ☐ N/A ☐ Yes ☐ No

Comments:

26.3 Does all staff training provide information, instruction or training on the following:

Fire risks in the premises?	☐ N/A	☐ Yes	☐ No
The fire safety measures on the premises?	☐ N/A	☐ Yes	☐ No
Action in the event of fire?	☐ N/A	☐ Yes	☐ No
Action on hearing the fire alarm signal?	☐ N/A	☐ Yes	☐ No
Method of operation of manual call points?	☐ N/A	☐ Yes	☐ No
Location and use of fire extinguishers?	☐ N/A	☐ Yes	☐ No
Means for summoning the fire and rescue service?	☐ N/A	☐ Yes	☐ No
Identity of persons nominated to assist with evacuation?	☐ N/A	☐ Yes	☐ No
Identity of persons nominated to use fire extinguishing appliances?	☐ N/A	☐ Yes	☐ No

Comments:

26.4 Are staff with special responsibilities (e.g. fire wardens) given additional training? ☐ N/A ☐ Yes ☐ No

Comments:

26.5 Are fire drills carried out at appropriate intervals? ☐ N/A ☐ Yes ☐ No

Comments:

26.6 When the employees of another employer work in the premises:

Is their employer given appropriate information (e.g. on fire risks and general fire precautions)? ☐ N/A ☐ Yes ☐ No

Is it ensured that the employees are provided with adequate instructions and information? ☐ N/A ☐ Yes ☐ No

Comments:

27. TESTING AND MAINTENANCE

27.1 Adequate maintenance of premises? ☐ Yes ☐ No

Comments and deficiencies observed:

27.2 Weekly testing and periodic servicing of fire detection and alarm system? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.3 Monthly and annual testing routines for emergency escape lighting? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.4 Annual maintenance of fire extinguishing appliances? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.5 Periodic inspection of external escape staircases and gangways? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.6 Six-monthly inspection and annual testing of rising mains? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.7 Weekly and monthly testing, six-monthly inspection and annual testing of fire-fighting lifts? ☐ N/A ☐ Yes ☐ No

Comments and deficiencies observed:

27.8 Weekly testing and periodic inspection of sprinkler installations? ☐ N/A ☐ Yes ☐ No

Comments:

27.9 Routine checks of final exit doors and/or security fastenings? ☐ N/A ☐ Yes ☐ No

Comments:

27.10 Annual inspection and test of lightning protection system? ☐ N/A ☐ Yes ☐ No

Comments:

27.11 Are suitable systems in place for reporting and subsequent restoration of safety measures that have fallen below standard? ☐ Yes ☐ No

Comments:

27.12 Other relevant inspections or tests:

Comments:

28. RECORDS

28.1 Appropriate records of:

Fire drills?	☐ N/A	☐ Yes	☐ No
Fire training?	☐ N/A	☐ Yes	☐ No
Fire alarm tests?	☐ N/A	☐ Yes	☐ No
Emergency escape lighting tests?	☐ N/A	☐ Yes	☐ No
Maintenance and testing of other fire protection systems?	☐ N/A	☐ Yes	☐ No

28.2 Comments:

FIRE RISK ASSESSMENT

The following simple fire risk level estimator is based on a commonly used health and safety risk level estimator.

Likelihood of fire	**Potential consequences of fire**		
	Slight harm	**Moderate harm**	**Extreme harm**
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Taking into account the fire prevention measures observed at the time of this risk assessment, it is considered that the hazard from fire (likelihood of fire) at these premises is:

☐ Low ☐ Medium ☐ High

In this context, a definition of the above terms is as follows:

Low Unusually low likelihood of fire as a result of negligible potential sources of ignition.

Medium Normal fire hazards (e.g. potential ignition sources) for this type of occupancy, with fire hazards generally subject to appropriate controls (other than minor shortcomings).

High Lack of adequate controls applied to one or more significant fire hazards, such as to result in significant increase in likelihood of fire.

Taking into account the nature of the premises and the occupants, as well as the fire protection and procedural arrangements observed at the time of this fire risk assessment, it is considered that the consequences for life safety in the event of fire would be:

☐ Slight harm ☐ Moderate harm ☐ Extreme harm

In this context, a definition of the above terms is as follows:

Slight harm Outbreak of fire unlikely to result in serious injury or death of any occupant (other than an occupant sleeping in a room in which a fire occurs).

Moderate harm Outbreak of fire could foreseeably result in injury (including serious injury) of one or more occupants, but it is unlikely to involve multiple fatalities.

Extreme harm Significant potential for serious injury or death of one or more occupants.

Accordingly, it is considered that the risk to life from fire at these premises is:

☐ Trivial ☐ Tolerable ☐ Moderate ☐ Substantial ☐ Intolerable

Comments:

A suitable risk-based control plan should involve effort and urgency that is proportional to risk. The following risk-based control plan is based on one that has been advocated for general health and safety risks:

Risk level	Action and timescale
Trivial	No action is required and no detailed records need be kept.
Tolerable	No major additional fire precautions required. However, there might be a need for reasonably practicable improvements that involve minor or limited cost.
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures, which should take cost into account, should be implemented within a defined time period. Where moderate risk is associated with consequences that constitute extreme harm, further assessment might be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.
Substantial	Considerable resources might have to be allocated to reduce the risk. If the premises are unoccupied, it should not be occupied until the risk has been reduced. If the premises are occupied, urgent action should be taken.
Intolerable	Premises (or relevant area) should not be occupied until the risk is reduced.

(Note that, although the purpose of this section is to place the fire risk in context, the above approach to fire risk assessment is subjective and for guidance only. All hazards and deficiencies identified in this report should be addressed by implementing all recommendations contained in the following action plan. The fire risk assessment should be reviewed regularly.)

ACTION PLAN

It is considered that the following recommendations should be implemented in order to reduce fire risk to, or maintain it at, the following level:

☐ Trivial ☐ Tolerable

Definition of priorities (where applicable):

	Priority (where applicable)	Action by whom	Date action undertaken
1.			

Annex C (informative) Fire hazard prompt-list

C.1 This annex sets out, in Table C.1, a list of fire hazards that are normally considered in the fire risk assessment. Typical key measures for the elimination or control of each hazard are given, along with some relevant codes of practice or guidance documents. Government guidance documents in support of the relevant fire safety legislation also give guidance on those matters.

C.2 This prompt-list is not necessarily exhaustive, particularly in respect of measures for control and elimination of fire hazards, and there might be a need to consider further hazards and measures to prevent fire in the course of the fire risk assessment, particularly if work processes give rise to more specific fire hazards. Similarly, the codes of practice and guidance documents referenced are intended only to comprise a representative sample of those available.

Table C.1 – Fire hazards, elimination or control measures and relevant codes of practice

Fire hazard	Typical key measures for control or elimination of the fire hazard	Relevant code of practice or guidance document
Electrical faults	Periodic inspection and testing of fixed electrical installation. Portable appliance testing. Suitable control over employees' and visitors' use of their own electrical appliances. Limitation of trailing leads and adaptors.	IET *Guidance Note 3* [22]. *Code of practice for in-service inspection and testing of electrical equipment* [23]. HSE HSG 107 [24]. Portable Appliance Testing: http://www.hse.gov.uk/myth/july.htm
Smoking	Prohibition or limitation of smoking. Suitable arrangements for those who wish to smoke.	
Arson	Basic security measures to prevent malicious ignition by outsiders. Avoidance of unnecessary fire load in close proximity to the premises or available for ignition by outsiders.	*The prevention and control of arson* [25].
Improper use of portable heaters	Avoidance of use of portable heaters as far as practicable. If portable heaters are used, avoidance of the most hazardous types of heater. Suitable measures to minimize the likelihood of ignition of combustible materials.	
Faults in fixed heating installations	Regular maintenance of installations.	
Use of cooking appliances	Suitable design of cooking areas. Availability of suitable fire extinguishing appliances to deal with small fires. Regular replacement of grease filters and deep cleaning of extract ductwork.	*Cooking equipment (other than fish and chip shop frying ranges)* [26]. *Fire risk assessment – Catering extract ventilation* [27].
Lightning	Provide lightning protection system if likelihood of lightning strike warrants it.	BS EN 62305 (All parts)

Table C.1 – Fire hazards, elimination or control measures and relevant codes of practice *(continued)*

Fire hazard	Typical key measures for control or elimination of the fire hazard	Relevant code of practice or guidance document
Contractors' operations and "hot work" by maintenance staff	Suitable fire safety conditions in contracts with outside contractors. Suitable control over outside contractors while in the premises. Suitable control over hazardous activities by in-house maintenance personnel, such as "hot work" involving cutting, welding, use of blowlamps, etc.	*Standard fire precautions for contractors engaged on Crown works* [28]. *Fire prevention on construction sites* [29] *Fire safety in construction* [30].
Poor housekeeping and inadequate control over general fire hazards or specific fire hazards associated with work activities	Separation of combustible materials from ignition sources. Avoidance of unnecessary accumulation of combustible materials or waste. Appropriate storage of hazardous materials. Avoidance of inappropriate storage of combustible materials. Suitable maintenance of the workplace. Routine safety inspections.	There are numerous publications on the subject of fire prevention. Most publications on the subject give guidance on housekeeping and maintenance issues. More specific guidance exists for numerous occupancies, work processes and related hazards. See, for example, *A Comprehensive Guide to Fire Safety* [31], and a wide range of publications produced by the Fire Protection Association (www.thefpa.co.uk/resources/publications.htm).

Annex D (normative)
Key factors to consider in assessment of means of escape

D.1 Table D.1 shows the key factors that should always be explicitly considered in assessment of means of escape. Most of the factors are quite broad and encompass a number of more specific issues. These key factors can be used as a form of prompt-list and should, therefore, normally be shown in the documented fire risk assessment (see Clause **10**), as proof that they have been considered.

D.2 The more specific issues should always be considered in the fire risk assessment process but may or may not be explicitly shown in the documented fire risk assessment. Where the experience of the fire risk assessor is limited, it might be of value for at least some of the specific issues to be included in the pro forma used, so that they act as prompts or reminders to the fire risk assessor.

D.3 Where it is determined that there are significant departures in compliance of any key factor or specific issue with recognized guidance or codes of practice, but it is considered that the departures are acceptable (and, hence, no relevant recommendation needs to be made in the action plan), the reasoning behind the acceptance of each departure should be documented in the fire risk assessment (see **10.3**).

D.4 Guidance on means of escape is contained in Government guidance documents that support the relevant fire safety legislation.

Table D.1 – Key factors and specific issues to consider in means of escape

Key factor	Specific issues to consider	Notes
Design of escape routes	• Do escape routes lead to final exits? • Do doors on means of escape open in the direction of escape where necessary? • Are doors on means of escape fitted with appropriate panic bolts or latches? • Will occupants of inner rooms (see **3.58**) be aware of a fire in the access rooms? • Do revolving doors or sliding doors have suitable by-pass doors where necessary? • Are there (and is there a need for) alternative escape routes (see **3.4**)?	
Distances of travel	• Are travel distances (see **3.84**) reasonable? • Are travel distances in dead ends (see **3.15**) suitably limited?	Recommended maximum travel distances are given in all guidance documents and codes of practice on means of escape, but these figures should not be considered in isolation of other fire protection measures (see Commentary on Clause **15**, *Means of escape)*. The likely rate of fire development, and the consequent time available for escape, need to be taken into account.
Protection of escape routes	• Are escape routes, such as staircases, dead end corridors, bedroom corridors, etc, protected (see **3.74** where necessary? • Are all fire-resisting doors properly self-closing, kept locked shut or only held open by suitable, correctly functioning automatic door release mechanisms (see **3.5**)?	Where automatic door release mechanisms are used, it is important to ensure that there is adequate provision of suitably sited smoke detectors and that the interface with the fire alarm system is appropriate. Guidance is given in BS 7273-4.
Adequate provision of exits and escape routes	• Is there a sufficient number of fire exits and escape routes? • Are the number and widths of fire exits and escape routes sufficient for the number of occupants?	Methods of calculating exit capacity are given in all codes of practice that cover means of escape.

Table D.1 – Key factors and specific issues to consider in means of escape *(continued)*

Key factor	Specific issues to consider	Notes
Exits easily and immediately openable	• Are fire exits easily openable without, for example, the use of a key? • Is there only a single means of securing each fire exit? • Where necessary, do the means of securing fire exits comprise panic bolts (see **3.68**) or panic latches (see **3.69**)? • Where electronic locking is used, is its use acceptable, and are the means of releasing the locks suitable?	Guidance on the interface between fire detection and fire alarm systems and electronically secured doors is given in BS 7273-4.
Escape routes unobstructed	• Are escape routes kept unobstructed? • Are adequate widths of corridors and other escape routes maintained at all times?	Escape route widths should be sufficient for the number of people who need to use the escape route.

Annex E (informative)
Model pro-forma for documentation of a review of an existing fire risk assessment

THE FOLLOWING PRO-FORMA IS APPLICABLE SOLELY TO PREMISES IN ENGLAND AND WALES.

E.1 This annex contains a model pro-forma for documentation of a review of an existing fire risk assessment for premises in England and Wales. If the pro-forma is completed by a competent person, the format and scope of the review will be suitable and sufficient to satisfy the recommendations in Clause **20**.

E.2 The format of the documented review may vary from that shown in this Annex, provided the recommendations in Clause **20** are satisfied. For example, the level to which principal issues are broken down into their component factors may vary, provided it is clear that the principal issues addressed in the original fire risk assessment have been addressed, or that the scope of the review is limited to, for example, a material alteration that has resulted in the review (see Clause **20**).

NOTE *A review of a fire risk assessment does not necessarily involve completion of a pro-forma but this Annex offers a record of the review that may be made.*

REGULATORY REFORM (FIRE SAFETY) ORDER 2005
FIRE RISK ASSESSMENT

Responsible person (e.g. employer) or person having control of the premises:	
Address of premises:	
Assessor:	
Date of fire risk assessment review:	
Date of previous fire risk assessment:	
Suggested date for review: [1)]	

The purpose of this report is to provide an assessment of the risk to life from fire in these premises, and, where appropriate, to make recommendations to ensure compliance with fire safety legislation. The report does not address the risk to property or business continuity from fire.

[Date]

1) The original fire risk assessment should be reviewed again by a competent person by the date indicated above or at such earlier time as there is reason to suspect that it is no longer valid or if there has been a significant change in the matters to which it relates, or if a fire occurs.

GENERAL INFORMATION

1. Significant changes identified since the time of the previous fire risk assessment in respect of:

1.1 The premises:

1.2 The occupancy:

1.3 The occupants (including occupants especially at risk from fire):

1.4 Fire loss experience:

1.5 Application of fire safety legislation:

1.6 Other relevant information:

FIRE HAZARDS AND THEIR ELIMINATION OR CONTROL

2. Significant changes in measures to prevent fire since the time of the fire risk assessment:

3.1 Are there adequate measures to prevent fire? ☐ Yes ☐ No

Comments and hazards observed:

4.1 Are housekeeping and maintenance adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

FIRE PROTECTION MEASURES

5.1 Significant changes in fire protection measures since the time of the fire risk assessment:

6.1 Are the means of escape from fire adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

7.1 Are compartmentation and linings satisfactory? [2)] ☐ Yes ☐ No

Comments and deficiencies observed:

8.1 Is there reasonable emergency escape lighting? [3)] ☐ Yes ☐ No

Comments and deficiencies observed:

9.1 Are there adequate fire safety signs and notices? ☐ Yes ☐ No

Comments and deficiencies observed:

10.1 Are the means of giving warning of fire adequate? [4)] ☐ Yes ☐ No

Comments and deficiencies observed:

11.1 Is the provision of fire extinguishing appliances adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

12.1 Comments on other fixed fire protection systems:

MANAGEMENT OF FIRE SAFETY

13.1 Significant changes in management of fire safety since the time of the fire risk assessment:

14.1 Are arrangements for management of fire safety adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

15.1 Are fire procedures adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

16.1 Are the arrangements for staff training and fire drills adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

2) Based on a sample inspection of readily accessible areas.

3) Based on visual inspection only.

4) Based on visual inspection only.

17.1 Are the arrangements for testing and maintenance of fire protection systems and equipment adequate? ☐ Yes ☐ No

Comments and deficiencies observed:

18.1 Are there adequate records of testing, maintenance, training and drills? ☐ Yes ☐ No

Comments and deficiencies observed:

FIRE RISK ASSESSMENT

On the basis of the criteria set out in the original fire risk assessment, it is considered that the current risk to life from fire at these premises is:

☐ Trivial ☐ Tolerable ☐ Moderate ☐ Substantial ☐ Intolerable

ACTION ON PREVIOUS ACTION PLAN

Have all previous recommendations been satisfactorily addressed?

☐ Yes ☐ No

Brief details of recommendations not yet implemented:

1.

NEW ACTION PLAN

It is considered that the following recommendations should be implemented in order to reduce fire risk to, or maintain it at, the following level:

☐ Trivial ☐ Tolerable

Definition of priorities (where applicable):

	Priority (where applicable)	Action by whom	Date action undertaken
1.			

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