Classification: Official

Publications approval reference: PRN00619_iii

NHS England

Health Technical Memorandum 05-03: Operational provisions Part K: Guidance on fire risk assessments in complex healthcare premises

Preface

About Health Technical Memoranda

Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of Health Technical Memorandum guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.

Language usage in technical guidance

In HTMs and HBNs, modal verbs such as "must", "should" and "may" are used to convey notions of obligation, recommendation or permission. The choice of modal verb will reflect the level of obligation needed to be compliant.

The following describes the implications and use of these modal verbs in HTMs/HBNs (readers should note that these meanings may differ from those of industry standards and legal documents):

- "Must" is used when indicating compliance with the law.
- "Should" is used to indicate a recommendation (not mandatory/ obligatory), i.e. among several possibilities or methods, one is recommended as being particularly suitable – without excluding other possibilities or methods.
- "May" is used for permission, i.e. to indicate a course of action permissible within the limits of the HBN or HTM.

Typical usage examples

- "All publicly-funded organisations must ensure that all contracts established to collect and treat waste conform to the Public Contracts Regulations." [obligation]
- "All low voltage (LV) distributions should be configured as TN systems." [recommendation]
- "Alcohol hand gels that do not contain siloxanes may be rinsed out and the packaging recycled or placed into the municipal waste stream." [permission]

"Shall", in the obligatory sense of the word, is never used in current HTMs/HBNs.

Project derogations from the Technical Guidance

Healthcare facilities built for the NHS are expected to support the provision of high-quality healthcare and ensure the NHS Constitution right to a clean, safe and secure environment. It is therefore critical that they

are designed and constructed to the highest and most appropriate technical standards and guidance. This applies when organisations, providers or commissioners invest in healthcare accommodation (irrespective of status, e.g. Foundation and non-Foundation trusts).

Statutory standards plus technical standards and guidance specific to NHS facilities:

- Health Building Notes
- Health Technical Memoranda
- Complete list of NHS estates related guidance

The need to demonstrate a robust process for agreeing any derogation from Technical Guidance is a core component of the business case assurance process.

The starting point for all NHS healthcare projects at Project Initiation Document (PID) and/or Strategic Outline Case (SOC) stage is one of full compliance.

Derogations to standards will potentially jeopardise business case approval and will only be considered in exceptional circumstances. A schedule of derogations will be required for any project requiring external business case approval and may be requested for those that have gone through an internal approvals process.

While it is recognised that derogation is required in some cases, this must be risk-assessed and documented in order that it may be considered within the appraisal and approval process.

Derogations must be properly authorised by the project's senior responsible owner and informed and supported by appropriate technical advice (irrespective of a project's internal or external approval processes).

This guidance is not mandatory (unless specifically stated). However, any departures/ derogations from this HTM – including the measures implemented – should provide a degree of safety not less than that achieved by following the guidance set out in this HTM.

Executive summary

This Health Technical Memorandum (HTM) provides guidance on fire risk assessments (FRAs) in complex healthcare premises. It is supplementary to the guidance in HM Government's (2006) 'Fire safety risk assessment: healthcare premises' and supersedes all previous editions of HTM 05-03 Part K.

This HTM is part of the HTM 05 series on fire safety. Other documents in this series should be used to provide more detailed technical information where necessary as should industry guidance as it develops.

Where healthcare premises are classed as complex healthcare premises (see Definitions), this guidance should be applied. Where the main purpose of an area/building on a hospital site is not patient treatment or associated with patient treatment or care (for example stand-alone main kitchens, office blocks and main laundries), other fire safety risk assessment guides may be applied. These are produced by the Home Office as are further detailed guidance on fire safety legislation.

Main changes in HTM 05-03 Part K since the previous edition

This HTM introduces a new concept for the FRA process. It requires that two levels of FRA are carried out:

- Primary – FRA relating to shared/ overarching general fire precautions, facilities, and the overall building management arrangements.
- Secondary – FRA relating to locally assessed and/or managed areas.

The terms primary and secondary are not intended to describe relative importance. These terms reflect the fact that the primary FRA is likely to provide features such as escape routes and fire alarms which the secondary FRA will rely on to secure the means of escape from secondary areas.

Primary fire risk assessments focus on verifying fire door ratings and installations. They assess the areas used in common to provide escape routes or that protect the building as a whole, such as the external walls. The primary FRA should also cover maintenance and activities that are carried out on building-wide systems or parts that provide communal means of escape and firefighting access.

Secondary assessments should review the condition and ongoing inspection regimes carried out by trained staff for things like unobstructed operation and self-closing mechanisms. Comprehensive technical guidance is provided on appropriate inspection frequencies, assessment methods, maintenance protocols and record-keeping requirements. Secondary FRAs need to be carried out on wards and departments within the hospital. These risk assessments focus on the local area and how these are managed.

This HTM adopts the general FRA process outlined in PAS 79.

It also provides guidance on specific issues/ concerns that have been highlighted in the Grenfell Tower Inquiry:

- Competence for fire risk assessors is paramount and guidance is provided that reflects the progress made in this area by the Fire Sector Federation (see

the ‘Approved Code of Practice: a national framework for fire risk assessor competency’ (Fire Sector Federation, 2020)).

- There is also guidance on external wall risk assessments and the use of PAS 9980 which is part of the primary FRA.

There is also guidance on emerging hazards that affect the risk from fire such as battery storage and electric vehicle charging as well as further advice on issues recently highlighted such as passive fire protection (PFP) and the maintenance of fire doors.

Most of the content on fire prevention and fire hazards originally in Chapters 3 and 5 of the previous version of HTM 05-03 Part A – ‘General fire precautions’ has now been included and revised, where necessary, in this revision.

More comprehensive guidance on assessing and maintaining fire doors has been included. It outlines different options for existing fire doors that may not meet current standards, such as accepting “notional” fire-rated doors if professionally assessed as likely to perform adequately, upgrading them with new seals/strips, or full replacement. Competent assessors must evaluate fire doors against their intended purpose in the fire strategy, considering factors such as fire load, patient dependency and evacuation times.

There is a new chapter on maintenance recommending that the frequency of maintenance should be risk-based and evidence-backed. The overriding risk to healthcare from contamination and the risk of infection means that there should be a proportionate maintenance programme that is unlikely to pose a risk to patient safety. This may result in varying the frequency of checks from the given standards and recommendations.

The document advocates that frequency of inspection should be based on three factors:

- The criticality of the system
- The operating environment including frequency of usage.
- Past history. If similar items or items in similar locations have shown a high failure rate, maintenance should be more frequent. Conversely if the failure rate is particularly low, maintenance may be less frequent.

The work on risk-assessed maintenance carried out by the IHEEM Fire Safety Technical Platform is referenced.

A key question at the scoping stage of this HTM was whether the 5 x 5 matrix needed to be revised. This has been retained but amended for this particular HTM:

- The most severe level of potential consequences resulting from a fire has been amended to “catastrophic” to align with PAS 79.
- While the revised HTM states that it is not necessary to provide indicative timescales for completion of the recommendations within the FRA, it is essential and vitally important that a level of priority and importance to these recommendations is provided within the relevant management system. Action must be taken immediately if there is catastrophic risk or if risks can be reduced by simple immediate action.

The approach taken should be proportionate and risk-assessed, underpinned by an increased emphasis on the HSE’s “as low as reasonably practicable” (ALARP) principle. The purpose of an FRA is not to audit existing premises against design guidance such as HTM 05-02: while HTM 05-02 provides guidance to establish best practice of newly designed healthcare premises, this HTM provides an overview in the context of how protection measures may be viewed when performing an FRA.

Downloadable Word versions of the FRA templates in Appendices E and F are available from the HTM 05-03 web page.

Acknowledgements

Anthony Pitcher Senior Fire Safety Advisor, NHS Wales Shared Services Partnership - Specialist Estates Services

Bill Connelly Fire Safety Officer, Health Facilities Scotland

Chris Callow Risk Based Inspection Programme Lead, National Fire Chiefs Council

David McCabrey Principal Engineer, Health Estates Northern Ireland

David Russell Main technical author, PartB Group

Kenny Pitkethly Fire Safety Officer, Health Facilities, Scotland

Kevin Finch Home Office Fire Safety Unit

Mairead McCartan Senior Estates Officer, Risk & Fire, Belfast Health and Social Care Trust

Mazin Daoud Head of Fire Safety, NHS England, and Chair of the IHEEM Fire Safety Technical Platform

Michael Rope Head of Technical Guidance, NHS England

Mike Ralph Principal Engineer, NHS Scotland

Pete Wise Technical Director, PartB Group

Peter Aldridge Secretary, National Association of Healthcare Fire Officers (Leeds Teaching Hospitals NHS Trust)

Peter Wilkinson Technical Director Chartered, Engineer, IFE

Richard Clark Fire Engineering/Building Safety, National Fire Chiefs Council

Contents

Definitions

For the purposes of this Health Technical Memorandum (HTM) the following terms are defined:

Access room: a room through which the only escape route from an inner room passes.

Air transfer grille (fire & cold smoke): a device that will allow the passage of air in normal use, but when activated will stop the movement of both cold smoke and hot gases – usually activated by heat and an electrical interface with the fire detection and alarm system.

ALARP: as low as reasonably practicable.

Automatic fire-detection system: a means of automatically detecting the products of a fire and sending a signal to a fire warning system. See Fire warning system.

Automatic suppression: active methods of fire suppression which are activated automatically – such systems may include sprinklers, water-mist and gaseous flooding systems.

Basement: a storey with a floor which at some point is more than 1200 mm below the highest level of ground adjacent to the outside walls.

Cavity barrier: a construction provided to close a concealed space against the penetration of smoke or flame or provided to restrict the movement of smoke or flame within such a space.

Child: a person who is not over compulsory school age, as construed in accordance with section 8 of the Education Act 1996.

Circulation space: corridors, internal lobbies, etc. within a department for moving between rooms/spaces within the department. Definition also includes hospital streets, corridors, staircases, etc. that provide access between departments.

Class 0 surface spread of flame: the classification achieved by a material or composite product which is either:

a. composed throughout of materials of limited combustibility or

b. a class 1 material (when tested in accordance with BS 476-7:1971 or 1987) which, when tested in accordance with BS 476-6:1981 or 1989, has a fire propagation index (I) of not more than 12 and a subindex (i1) of not more than 6.

Class 0 is not a classification identified in any British Standard test.

Compartment: a building or part of a building, comprising one or more rooms, spaces or storeys, constructed to prevent the spread of fire to, or from, another part of the same building, or an adjoining building.

Compartment floor: a fire-resisting floor used to separate one fire compartment from another and having a minimum period of resistance of 60 minutes.

Compartment wall: a fire-resisting wall used

to separate one fire compartment from another and having a minimum period of resistance of 60 minutes (or 30 minutes in single-storey buildings or where automatic water fire suppression systems are installed).

Competent person: a person with enough training and experience or knowledge and other qualities to enable them properly to assist in undertaking the preventive and protective measures.

Complex healthcare premises: hospital or other healthcare premises which place a dependence on staff for evacuation.

Dangerous substance:

a. a substance or preparation which meets the criteria in the approved classification and labelling guide for classification as a substance or preparation which is explosive, oxidising, extremely flammable, highly flammable or flammable, whether or not that substance or preparation is classified under the Chemicals (Hazard Information and Packaging for Supply) Regulations 2009

b. a substance or preparation that – because of its physico-chemical or chemical properties and the way it is used or is present in or on premises – creates a risk, and

c. any dust, whether in the form of solid particles or fibrous materials or otherwise, which can form an explosive mixture with air or an explosive atmosphere.

Emergency lighting: lighting provided to illuminate escape routes when the normal lighting fails.

Enforcing authority: the fire and rescue authority or any other authority specified in Article 25 of the Regulatory Reform (Fire Safety) Order 2005.

Escape lighting: that part of the emergency lighting which is provided to ensure that the escape routes are illuminated at all material times.

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

External escape stair: stair providing an escape route, external to the building.

FA: fire authority.

False alarm: a fire signal, usually from a fire warning system, resulting from a cause other than fire.

Final exit: the termination of an escape route from a building giving direct access to a place of safety outside the building.

Fire and smoke damper: fire damper which when tested in accordance with BS EN 1366-2 meets the ES (i.e. integrity and leakage) classification requirements defined in BS EN 13501-3 and achieves the same fire resistance in relation to integrity as the element of the building construction through which the duct passes.

Fire damper: mechanical or intumescent device within a duct or ventilation opening which is operated automatically and is designed to prevent the passage of fire and which is capable of achieving an integrity E classification and/or an ES (i.e. integrity and leakage) classification to BS EN 13501-3 when tested to BS EN 1366-2. Note: Intumescent fire dampers may be tested to ISO 10294-5.

Fire door: a door or shutter provided for the passage of persons, 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.

Fire engineering: the application of scientific

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

Firefighting lift: a lift, designed to have additional protection, with controls that enable it to be used under the direct control of the fire and rescue service when fighting a fire.

Firefighting shaft: a fire-resisting enclosure containing a firefighting stair, fire mains, firefighting lobbies and, if provided, a firefighting lift.

Firefighting stair: a specially protected staircase under the direct control of the fire and rescue service capable of use by firefighters to facilitate firefighting and rescue operations within the building.

Fire hazard: a set of conditions in the operation of a product or system with the potential for initiating a fire.

Fire hazard room: a room or other area which, because of its function and/or contents, presents a greater hazard of fire occurring and developing than elsewhere.

Fire resistance: the ability of an element of building construction, component or structure to fulfil, for a stated period of time, the required load-bearing capacity, fire integrity and/or thermal insulation and/or other expected duty in a standard fire resistance test.

Fire Safety Manager: the person within the healthcare organisation tasked with coordinating fire safety issues throughout the healthcare organisation's activities

Fire Safety Order (FSO): the Regulatory Reform (Fire Safety) Order 2005.

Fire safety strategy: a number of planned and coordinated arrangements designed to reduce the risk of fire and to ensure the safety of people if there is a fire.

Fire-stop: a seal provided to close an imperfection of fit or design tolerance between elements or components, to restrict the passage of fire and smoke.

Fire warning system: a means of alerting people to the existence of a fire (see Automatic fire-detection system).

Hazardous substance: See Dangerous substance. A substance subject to the Control of Substances Hazardous to Health Regulations 2002 (COSHH).

Healthcare building: a hospital, treatment centre, health centre, clinic, surgery, walk-in centre or other building where patients are provided with medical care by a clinician.

Height (of a building, or top occupied storey): the distance from ground level at the lowest side of the building measured to the finished floor level of the top storey (excluding plantrooms).

High consequence infectious disease (HCID): typically a disease that causes severe symptoms requiring a high level of care, with a high case-fatality rate, and for which there may not be effective prophylaxis or treatment. HCIDs are transmissible from human to human (contagious) and capable of causing epidemics or pandemics.

Highly flammable: generally, liquids with a flashpoint of below 21ºC. (The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 give more detailed guidance.)

Hospital street: a special type of compartment which connects final exits, stairway enclosures and department entrances, and serves as a firefighting bridgehead and a safe evacuation route for occupants to parts of the building unaffected by fire.

Inner room: a room from which escape is possible only by passing through another room (the access room).

L1: Type of fire detection and alarm system category that is installed throughout all areas of the building in accordance with BS 5839-1. The objective of a category L1 system is to offer the earliest possible warning of fire so as to achieve the longest available time for escape. (For further guidance, see HTM 05-03 Part B – 'Fire detection and alarm systems including the reduction of false alarms and unwanted fire signals'.)

Material of limited combustibility, either:

a. a non-combustible material or Class A1 classification in BS EN 13501-1 classification or

b. any material with a classification of A2-s3,d2 in BS EN 13501-1 or of density 300 kg/m^3 or more which, when tested in accordance with BS 476-11, does not flame, and whose rise in temperature on the furnace thermocouple is not more than 20ºC or

c. any material of density less than 300 kg/m^3 which, when tested in accordance with BS 476-11, does not flame for more than ten seconds and whose rise in temperature is not more than 35ºC on the centre (specimen) thermocouple and not more than 25ºC on the furnace thermocouple.

Means of escape: route(s) provided to ensure safe egress from premises or other locations to a place of total safety.

Non-combustible: any material which is capable of satisfying the performance requirements specified in BS 476-4, or any material which when tested in accordance with BS 476-11 does not flame or cause any rise in temperature on either the centre (specimen) or furnace thermocouple, or Class A1 classification in BS EN 13501-1 classification.

Patient-access areas: those areas of the healthcare building to which patients have reasonable access either with or without supervision.

Place of relative safety: a place of temporary safety within a building. This may be an adjoining compartment or sub-compartment capable of holding all those threatened, without a significant change in level and from which there is potential for further escape should that become necessary.

Place of safety: a place where persons are in no danger from fire and smoke.

Premises: any place, such as a building and the immediate land bounded by any enclosure of it, any tent, moveable or temporary structure or any installation or workplace.

Progressive horizontal evacuation: an escape strategy that allows the evacuation of patients away from a fire into a fire-free compartment or sub-compartment on the same level.

Protected shaft: a vertical opening that enables persons, air or objects to pass from one compartment to another, and which is enclosed with fire-resisting construction.

Refuge: see Place of relative safety.

Relevant persons: any person lawfully on the premises and any person in the immediate vicinity but does not include firefighters carrying out firefighting duties.

Responsible person: the person ultimately responsible for fire safety as defined in the Regulatory Reform (Fire Safety) Order 2005.

Self-closing device: a device that is capable of closing the door from any angle and against any latch fitted to the door.

Significant finding: the significant findings of a risk assessment (see Chapter 2 on "Statutory requirements").

Sub-compartment: areas into which the building can be divided to reduce travel distance, and which provide 30 minutes' resistance to fire.

Sub-compartment wall: a fire-resisting wall used to separate one sub-compartment from another and having a minimum period of resistance of 30 minutes.

Tolerable: risk that may be considered tolerable, for example, if the risk is rated “low” or “moderate” or if the healthcare organisation’s ability to mitigate the risk is constrained or if taking action is disproportionately costly. If the decision is to tolerate the risk, contingency arrangements may need to be developed and agreed and additional control measures implemented for managing the consequences if the risk is realised. This is the most common response to managing a risk. It allows the organisation to continue with the activity giving rise to the risk while taking mitigating action to reduce the risk to an acceptable level i.e. as low as reasonably practicable. In general, action plans will reduce the risk over time.

Travel distance: the actual distance to be travelled by a person from any point within the floor area to the nearest adjoining compartment, sub-compartment, escape stairway or external exit, having regard to the layout of walls, partitions, fittings and furniture.

Unwanted fire signal (UwFS): A UwFS is a false alarm from a fire detection and alarm system that has been passed through to the fire and rescue service.

Where necessary: the FSO requires that fire precautions (such as firefighting equipment, fire detection and warning, and emergency routes and exits) should be provided (and maintained) “where necessary”. These are the fire precautions provided (and maintained) to reasonably protect relevant people from risks to them in case of fire. This will be determined by the finding of the risk assessment, including the preventive measures that have or will have been taken. In practice, it is very unlikely that a properly conducted FRA, which takes into account all the matters relevant for the safety of people in case of fire, will conclude that no fire precautions (including maintenance) are necessary.

Young person: any person who has not attained the age of 18.

5

1 Introduction

Note on the Building Safety Act

Following the tragic fire at Grenfell Tower in London in 2017, the government initiated an independent review of building regulations and fire safety which was chaired by Dame Judith Hackitt and is often referred to as the "Hackitt review". This looked primarily at safety in high-rise residential buildings. A number of recommendations were made which resulted in primary legislation in the Building Safety Act 2022 (the Act) and a large amount of secondary legislation including the Higher-Risk Buildings (Descriptions and Supplementary Provisions) Regulations 2023. The Act created "the building safety regulator", which sits within the Health and Safety Executive, which was established to raise safety standards in all buildings and also to take over regulation of higher-risk buildings. These include any buildings at or above 18 m or seven storeys that have two or more residential units. Hospitals that meet the same height criteria are also considered to be higher-risk buildings for some parts of the Act. In the Regulations referred to above, "a hospital" is specified (under section 120D of the Building Act 1984). What this means is that a hospital building that meets the height criteria is subject to the building safety regulator when completing building works and must apply to the building safety regulator for building control approval under Part 3 of the Act where such approval is required. Hospitals are not, however, subject to the management requirements set out in Part 4 of the Act as, being a workplace, hospitals are already subject to the requirements of the Regulatory Reform (Fire Safety) Order 2005 to carry out, review and record fire risk assessments. Despite this, cognisance should be taken of the recommendations in the Hackitt review and the requirements in the Act, along with the recent changes to the Fire Safety Order, some of which have come about as a result of the Hackitt review and have been introduced by the Act.

1.1 In healthcare premises, fire safety is the responsibility of all staff. Legal responsibility to ensure that this occurs is mainly that of the "responsible person".

1.2 The Regulatory Reform (Fire Safety) Order 2005 (FSO) stresses that the responsible person 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" they need to take. Simply, the employer must ensure that adequate fire precautions are taken to ensure the safety of employees and other relevant persons.

1.3 This Health Technical Memorandum (HTM) provides a methodology to achieve this and reduce the risk from fire to as low as reasonably practicable. It will not only permit an assessment of the general fire precautions which need to be made but may also provide more in-depth specific fire precautions which will be in the form of an action plan.

General application and scope

1.4 This HTM provides guidance on fire risk assessments (FRAs) in complex healthcare premises and is designed to meet statutory

requirements in England and Wales. It is supplementary to the guidance provided under Article 50 of the FSO. This HTM supersedes the previous edition of HTM 05-03 Part K.

1.5 FRAs are required by the FSO. The guidance in this HTM can be used to:

- review, revise and update an existing FRA, or
- undertake an FRA for healthcare premises for the first time.

1.6 This HTM considers fire safety in areas of complex healthcare premises to which patients have access and in which the system of evacuation is progressive horizontal evacuation. Patients will typically be either dependent or very high dependency (see paragraph 3.7). Patients will need assistance to evacuate, and evacuation itself could place patients at risk. Where the main purpose of a department is patient treatment or care, the guidance contained within this HTM should be applied.

1.7 Where the main purpose of an area or building on a hospital site is not for the treatment of dependent or very high dependency patients (for example, stand-alone kitchens, office blocks, laundries and maintenance facilities), other fire safety risk assessment guides should be applied such as those from the Home Office series on fire risk assessment and PAS 79.

Managing fire safety

1.8 Good management of fire safety is essential to ensure that fires are unlikely to occur. However, if they do occur, they must be rapidly detected and extinguished or contained. If a fire does develop, everyone in the premises should be able to escape to a place of safety and firefighters should have the facilities to fight a fire. Measures should be taken to reflect the risk to business continuity in line with the healthcare organisation's emergency preparedness, resilience and response (EPRR) policy.

1.9 Healthcare organisations should develop an appropriate fire safety management strategy in order to:

- ensure that their management policies regarding fire safety comply with the relevant guidance in HTM 05-01 – 'Managing healthcare fire safety'
- (when using external contractors to help meet FSO requirements) appoint a third-party certificated organisation (for example, an organisation with appropriate British Approvals for Fire Equipment (BAFE) registration or equivalent United Kingdom Accreditation Service (UKAS)-accredited third-party certification, or assessors registered by professional body registration schemes)
- provide appropriate procedures to be followed in the event of serious and imminent danger from fire and nominate a sufficient number of competent persons to implement these procedures
- ensure that sufficient and adequately trained staff are available whenever necessary to provide for the safe evacuation of patients and staff, in accordance with the emergency evacuation plan
- maintain an up-to-date set of drawings showing the assessment areas (see Chapter 4), which should indicate:
  - detection and alarm systems
  - emergency lighting
  - means of escape routes
  - fire compartmentation and structural fire protection (including fire doors and fire dampers)
  - first-aid firefighting equipment
  - access and facilities for fire and rescue services
- keep up-to-date records of all fire-related maintenance work, instruction and training, fire drills and exercises.

Use of this Health Technical Memorandum

1.10 This HTM describes the general approach to fire risk assessment and how the process defined within PAS 79-1 can be applied to complex healthcare premises. Guidance is also given on fire precautions and management measures within the Appendices.

1.11 It considers the full range of factors that affect fire safety in healthcare premises. In addition to the physical fire precautions that may be provided, it also considers:

- fire prevention (to reduce fire hazards and the likelihood of fire)
- those at risk from fire (particularly the dependency of patients)
- management policies and procedures, and
- the availability of sufficient adequately trained staff (to ensure the facilitation of fire safety measures, particularly evacuation procedures).

1.12 The content of this guidance is focused on ensuring a suitable standard of life safety. Although it can be used to inform other matters, it is not intended to be used as comprehensive guidance for property protection and/or business continuity.

1.13 Property protection and business continuity strategies are essential for the effective resource management of healthcare. However, they are not a requirement of the FSO. Such strategies should be implemented by healthcare organisations according to their EPRR process.

Use by competent persons

1.14 This HTM is for use by competent persons to provide guidance to perform a suitable and sufficient FRA for complex hospital premises. In addition, employers, managers, occupiers and owners of premises providing healthcare (including private healthcare premises) may find it useful.

1.15 It has been written to provide guidance for complex healthcare premises: that is, those providing treatments and care which generally place a dependence on staff for evacuation.

1.16 Only suitable persons who have relevant comprehensive training or experience in FRAs should assess healthcare premises. The level of the training and experience should be commensurate with the complexity of the premises to be assessed.

1.17 There is no legal requirement for a fire risk assessor to be a member of a specific organisation or to hold a defined qualification. However, following the Grenfell Tower Inquiry, the industry has developed best practice guidance to guide both the responsible person and fire risk assessors. The Fire Sector Federation has developed this work in response to concerns raised by Dame Judith Hackitt's 'Building a safer future' report (Hackitt, 2018). In 2020, the Federation produced an 'Approved Code of Practice: a national framework for fire risk assessor competency' (Fire Sector Federation, 2020) to establish industry standards for assessing the competency of individuals who conduct FRAs.

1.18 The Fire Sector Federation's Code brings together the fire industry recommendations of best practice on how to assess the competency of individuals who conduct fire risk assessments. While the initial impetus for this work was the recognition that all high-rise residential buildings are potentially high risk, the Code also recognises that other buildings, such as hospitals, are potentially high risk. These are described as life-safety-critical buildings.

1.19 The guidance includes matters of behaviour and details of the knowledge, skills and experience expected for a competent fire risk assessor. The Code sets out the requirements for fire risk assessors for:

- appropriate third-party certification and/or accreditation and membership of professional bodies
- core competencies
- functional requirements for specific sectors
- methods of assessing competence of persons
- competency assessments recording and reassessments
- maintenance of competence training and continuous professional development.

1.20 The Code acknowledges that "within the fire sector there are legacy and emerging practices where practitioners either have long experience with little or no formal external recognition, or they are evolving practice to meet innovation". Healthcare organisations should develop a protocol to demonstrate how they assess the competencies of fire risk assessors. Where reasonably possible, fire risk assessors should hold third-party accredited certification and/or accreditation and membership of professional bodies. Third-party fire risk assessment accreditation is also available to organisations.

1.21 FRAs will be undertaken by both (or either) internally employed staff or externally appointed contractors. Whatever the appointment status of the fire risk assessor, a robust process of due diligence should be employed to ensure that the appointed fire risk assessor holds an adequate level of competence to the satisfaction of the responsible person. Where relevant, the Fire Safety Manager and appointed Authorising Engineer (Fire) should be consulted. Should NHS England introduce a competence framework for the fire risk assessor, this should be adopted as soon as reasonably practicable.

New healthcare premises

1.22 Where the building has been recently constructed or significantly altered, the fire protection provision should have been designed, constructed and installed in line with current building regulations by following HTM 05-02 – 'Guidance in support of functional provisions (fire safety in the design of healthcare premises)'. Such designs should be supported by a fire strategy which should detail the design intent and general fire precautions present in the building. This information should be made available to the responsible person under Regulation 38 of the Building Regulations 2010 and should provide a good basis for the FRA.

1.23 This HTM should not be used to design fire safety in new buildings (see HTM 05-02). Where alterations are proposed to existing premises, they may be subject to the Building Regulations, Building Safety Act and HTM 05-02. However, this guide can be used to assist in the development of a fire strategy for the building.

1.24 Regardless of the age of the building, the principle of maintaining the risk as low as reasonably practicable must be maintained in accordance with the findings of the FRA and all future reviews. However, it can be reasonably assumed, (where supported with appropriate evidence) that where a building design has demonstrated compliance with the functional requirements of Building Regulations and assumed management regime, additional physical fire precautions are unlikely to be required unless a change in the intended occupancy profile of the building dictates this.

In-patient mental health services and in-patient accommodation for people with learning disabilities

This section provides background information for general awareness. Specific design guidance can be found in HTM 05-02.

1.25 The principles of FRAs apply to complex mental health facilities. However, it is likely that

the way in which fire protection is provided will differ due to the needs of the service users. The intention of the FRA process is to reduce the risk from fire to as low as reasonably practicable while facilitating safe care in the least restrictive environment.

1.26 Although the range of services provided varies considerably, there are common issues. The intention is to provide a safe and secure environment where service-users can receive care and treatment; however, safety from the effects of fire and maintaining the required levels of security are equally important, and the design of fire precautions and evacuation strategies should not compromise security.

1.27 It is important to provide appropriate fire safety systems that will enable staff to enable a full evacuation of all users of a facility without undue distress to service users. As such, acceptable fire safety provision may differ in mental health services. This will be based on having an appropriate number of highly trained specialised nursing and clinical staff present when the premises are occupied who are trained to take the lead role in the evacuation of service users. In principle, the concept of progressive horizontal evacuation is likely to be used in these situations. Other specific features that may differ in a mental health environment are:

- The potential to configure the detection and alarm system so that in the first instance only staff receive the alarm. This can reduce adverse reactions from service users. A general alarm confined to the compartment or zone would only be activated as the evacuation strategy was implemented. This can avoid creating anxiety and may be beneficial in the case of a full evacuation.
- Where service users are likely to cause issues with the operation of manual call points and where all other preventive measures may fail, the use of key-operated call points should be considered appropriate, subject to suitable management systems to ensure relevant staff can operate them.
- In service user areas, careful consideration should be given to the siting, number and alarm call of devices in order to alert staff without causing unnecessary anxiety to service users.
- The integration of the detection and alarm system with staff and patient monitoring and location systems can improve response times to alarm situations. Levels of fire alarm sounders can also be reduced. Further guidance on fire detection and alarm systems is provided in HTM 05-03 Part B.
- When using alternative means to alert staff to a fire call other than fire alarm system audible sounders (for example, PA system or security paging device), which may not meet the same high standard of equipment protection and self-monitoring for failure as a fire alarm system, then at least two alternative methods should be used.
- For security purposes, it can be important that final exits do not release immediately on actuation of the fire alarm. The release mechanism should form part of the overall strategy for managing the evacuation. This gives control to the staff and increases the security of the facility. Some means of control should be provided such that staff can open these doors when it becomes necessary to evacuate to a designated (secure) assembly point.
- Should it become necessary to evacuate an entire facility or part thereof, adequate safe and secure external assembly points should be available. Evacuation to an external assembly point would be carried out in cases of immediate risk.
- Generally, all fire doors (other than those that are kept locked shut) should be fitted with automatic self-closing devices.

However, these may not be required for service user bedrooms. In all circumstances a risk assessment should be undertaken to assess the level of risk, including that of the need for reduced-ligature design. Fire doors in mental health accommodation need not be provided with fire door standard identification discs.

- Door-swing direction for escape routes within mental health facilities should be reviewed on a risk assessment basis.
- Electronic-mechanical and magnetic locks as well as biometric reader systems such as finger, thumb or palm readers are increasingly being used at entry points to buildings. Use of electronic systems should be coordinated with the fire strategy for the premises to ensure the means of escape is controlled but not compromised.
- It may be appropriate to locate fire extinguishers in staff-controlled areas beyond the reach of service users.

2 Statutory requirements

Regulatory Reform (Fire Safety) Order 2005

2.1 The Regulatory Reform (Fire Safety) Order (FSO) requires fire precautions to be put in place "where necessary" and to the extent that it is reasonable and practicable in the circumstances of the case. This does not mean that the fire safety measures in the premises need to comply with current design guidance such as HTM 05-02. Compliance with any previous design guidance does not necessarily mean that a building needs to be upgraded to current guidance. The risk from fire should be assessed in its entirety and any specific fire safety measure assessed in context to the risk.

2.2 Responsibility for complying with the FSO rests with the responsible person. In a workplace, this is the employer and any other person who may have control of any part of the premises. Article 22 of the FSO places a duty on the responsible person, where two or more responsible persons share or have duties in respect of premises, to cooperate and coordinate so that they can work together to provide a safe environment where they share premises. In complex hospitals where staff are employed by different bodies and areas of the hospital are managed by different parties, it is essential that the cooperation and coordination is conducted effectively.

2.3 The FSO requires the responsible person to conduct a "suitable and sufficient" assessment of the risks from fire on the premises. The determining factors are whether:

- fire hazards have been reasonably identified
- risk reduction and mitigation have been carried out
- appropriate residual risk protection measures (including management arrangements) have been implemented or proposed.

This HTM is intended to provide competent fire risk assessors with a methodology to complete a suitable and sufficient FRA in complex hospital environments to demonstrate compliance with the FSO.

2.4 The FSO has been amended by Section 156 of the Building Safety Act 2022. These amendments require that:

- all responsible persons must record their completed FRA, and in full
- all responsible persons must record the identity of any individual (their name), and/or, if applicable, their organisation (name), engaged by them to undertake/review any or all of the FRA
- all responsible persons must record their fire safety arrangements (demonstrate how fire safety is managed in their premises)
- all responsible persons must record (and as necessary update) their contact information, including a UK-based

address, and share this – along with the identified fire safety risks, the preventive and protective measures, and any competent persons nominated to assist with firefighting and detection measures – with other responsible persons

- all responsible persons must take reasonably practicable steps to ascertain the existence of other responsible persons who share, or have duties in respect of, the same premises, and of "accountable persons" (which are a new legal entity made under the Building Safety Act 2022)
- departing responsible persons must share all "relevant fire safety information" with incoming responsible persons
- where the responsible person appoints a person to make or review the FRA, they must be competent.

2.5 Healthcare organisations must be able to satisfy the enforcing authority, if called upon to do so, that they have carried out a suitable and sufficient FRA. Keeping records will help to achieve this and will also form the basis of subsequent reviews. The FSO requires that records (including details of significant findings, any action taken, a copy of the emergency plan, maintenance of fire protection equipment and training) should be kept.

Compliance monitoring by fire authorities

2.6 All fire authorities (FAs) in England and Wales have a statutory duty to enforce the provisions of the FSO. In some circumstances, such as construction sites, the enforcing authority is the Health and Safety Executive.

2.7 Where healthcare facilities are under control of the Crown (such as prisons), the enforcing authority will be the Crown Premises Fire Safety Inspectorate.

2.8 The UK Government's 'Fire and rescue service national framework' sets out priorities for FAs, with the aim of promoting public safety and the economy, efficiency and effectiveness of authorities and their functions. This framework indicates that authorities must have a fire safety audit and inspection programme forming part of its community risk management plans (CRMPs).

2.9 FAs are expected to operate a risk-based enforcement programme directing resources to those places that pose a significant risk to life. Hospitals are in the highest risk category and are likely to have regular audits and inspections.

2.10 The FSO does not adopt a prescriptive approach of compliance. The FSO provides a risk-based regime where responsibility for ensuring compliance clearly rests with those generating and managing the risk – the responsible person. The FA's principal role is to monitor compliance by ensuring that a suitable and sufficient FRA has been undertaken in the premises to which the FSO applies (see paragraph 2.1).

2.11 The Home Office has issued fire safety risk assessment guidance for responsible persons, which provides recommendations and guidance (benchmarks) for use when assessing the adequacy of fire precautions in premises subject to the FSO.

2.12 This HTM can be considered as "applicable risk-based guidance" as defined by Article 50 of the FSO (as amended by the Fire Safety Act 2021). However, it should be borne in mind that this is one of a suite of guidance documents and it should be read/applied in conjunction with other relevant HTMs and other guidance.

2.13 Fire and rescue services in England and Wales continue to provide a data-gathering and fire safety audit process to ensure a consistent approach to risk categorisation and enforcement. This process is supported by guidance published by the National Fire Chiefs

Council (NFCC) for FAs to adapt or adopt. NFCC guidance covers all aspects of enforcement, audit and administration. Further information is available at the NFCC website.

'Regulators' Code'

2.14 The 'Regulators' Code' (HM Government, 2014) provides a clear, flexible and principle-based framework for how regulators should engage with those they regulate. The NFCC guidance has adopted and adapted the enforcement management model (EMM) used by the Health and Safety Executive and local authority enforcers. The EMM provides a framework to help inspectors make enforcement decisions in line with best practice, promoting consistent application by fire safety enforcement officers. This is not a procedure in its own right but captures the issues that inspectors consider when exercising their professional judgement, and it reflects the process by which enforcement decisions are reached.

2.15 The EMM is a key tool to determine appropriate enforcement action, be it formal or informal action. Where there is no excessive risk and the residual risk is being adequately managed (often by provision of agreed interim measures), a partnership approach is encouraged.

3 Risk assessment process

Approach

3.1 This guidance adopts the nine-step approach to FRA as detailed in PAS 79. This HTM is not considered a replacement of the guidance contained in PAS 79 or indeed the fire safety risk assessment guidance produced under Article 50 of the FSO for healthcare premises. It is intended that the guidance contained within this HTM is supplementary to other relevant guidance. Further information regarding the risk assessment process can be found in PAS 79.

3.2 It is not necessary for these steps to be performed in a chronological manner and it is likely that experienced assessors will have adopted individual methods for producing suitable and sufficient FRAs. However, the broad process should be followed to ensure that a reasonable assessment of fire risk is undertaken.

3.3 A schematic of the FRA process as detailed in PAS 79 is shown in Figure 1.

Step 1

3.4 The first step is to obtain relevant information about the equipment in the premises, the activities carried on at the premises, and the occupants of the premises. In the context of a hospital, information regarding the type of medical procedures and the number of independent, dependent and very high dependency patients is particularly useful, as described below.

Relevant persons

3.5 All people who are likely to use the premises should be considered as relevant persons. Particular attention should be paid to people who may be especially at risk, which must be recorded in the FRA, such as:

- employees who work alone, either regularly or at specific times and/or in isolated areas – especially at night (for example, cleaners, security staff, maintenance staff, nursing staff and care staff)
- people who are unfamiliar with the premises (for example, agency or temporary staff, guests, visitors – including visiting medical or social care staff – and contractors)
- dependent patients or those with very high dependency including young children, babies, older people, physically disabled people (in particular people with mobility impairment), people with mental health conditions or learning disabilities, people with visual or hearing impairments or other sensory impairments, and those whose ability to escape unassisted is impaired due to their medical condition or medication, or who may be intoxicated
- people who are not able to leave the premises quickly, but who do not require assistance (for example, older patients or visitors who have limited mobility)

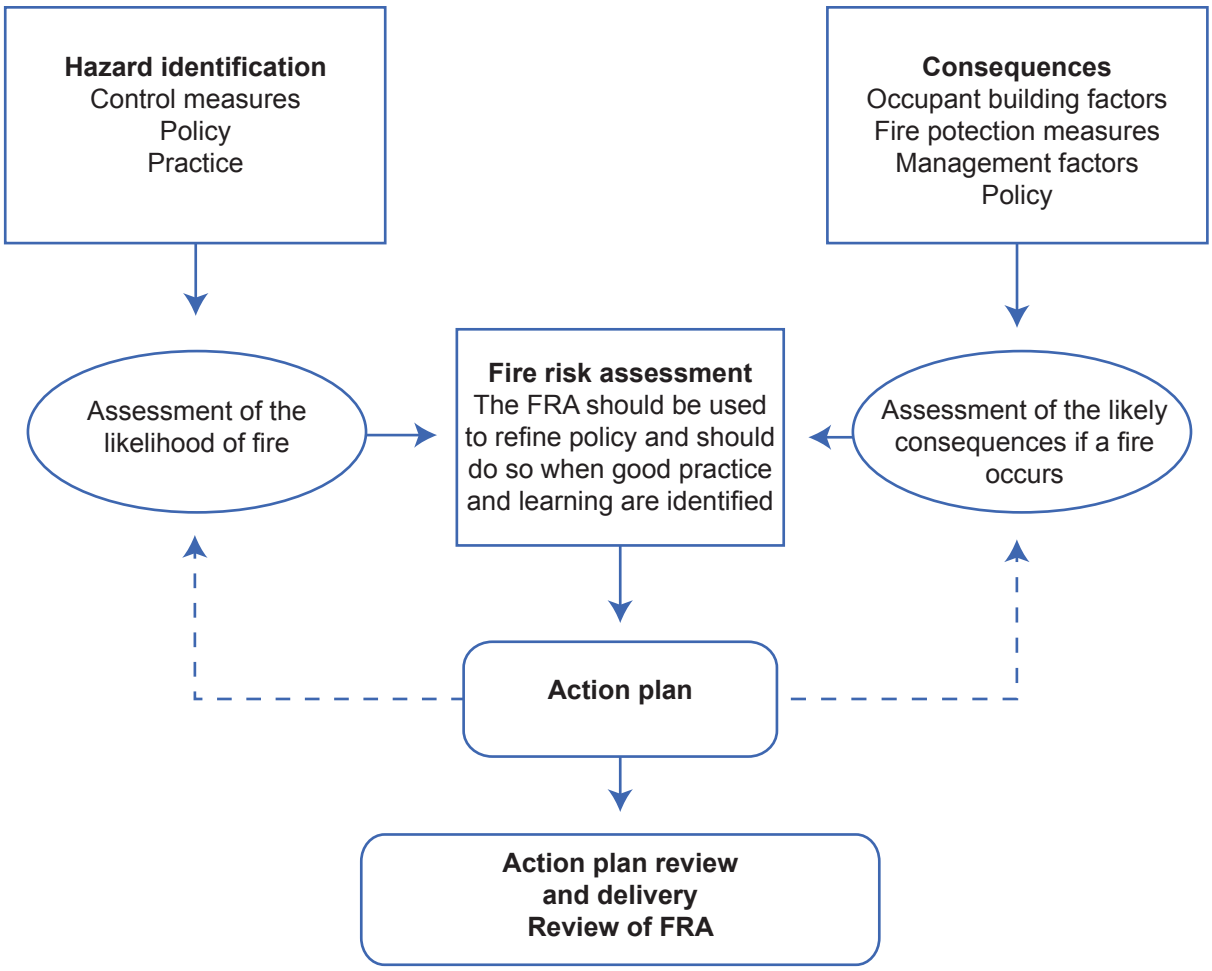


Figure 1 The fire risk assessment process

- patients with suspected or confirmed high consequence infectious diseases in special isolation units
- parents with children
- people for whom English is not their first language.

3.6 In complex healthcare premises, it may be necessary to seek the expert advice of another competent person (for example, clinical staff). It should be noted that it is unnecessary to include firefighters (whilst firefighting on the premises) within the FRA at this stage.

Dependency of patients

3.7 For the purposes of this document, occupants are classified as independent (including some patients), dependent or very high dependency (these latter two terms refer to patients only), based upon a broad consideration of their anticipated mobility and/or dependence. The categories differentiate between the anticipated dependence of various occupants either during an evacuation or as a consequence of the treatment they are receiving.

Independent

3.8 Patients will be defined as being independent if their mobility is not impaired in any way and they are able to physically leave the premises without staff assistance, or if they experience some mobility impairment and rely on another person to offer minimal assistance. This would include being sufficiently able to negotiate stairs unaided or

with minimal assistance, as well as being able to comprehend the emergency wayfinding signage around the facility.

Dependent

3.9 Patients who are classed as neither "independent" nor "very high dependency" are classed as dependent patients.

Very high dependency

3.10 Patients with very high dependency are those whose clinical treatment and/or condition creates a high dependency on staff and associated equipment. This will include those in critical care areas, operating theatres, and those where evacuation would prove potentially life-threatening.

3.11 Assessment areas (see Chapter 4) will include a mix of people with a range of dependencies. Some will be able to escape without assistance; others will require considerable extra help to do so.

3.12 Any assessment will need to be based on the clinical dependency/care needs of the majority, but it must also take into account any individuals at specific risk.

Step 2

3.13 The second step is fire hazard identification and the determination of existing measures for the elimination or control of the identified fire hazards. This normally involves a combination of talking to the management/ staff and inspection of the premises. See also paragraphs 6.2–6.5 on hazard rooms.

Step 3

3.14 The third step is to make an assessment of the likelihood of fire. This is based primarily on the findings of step two. However, the assessment of likelihood of fire also takes into account any relevant information obtained in step one.

3.15 The chances of a fire starting will be lower if the premises are well-managed (including well-trained staff) and have limited ignition sources that are kept well away from combustible materials.

3.16 In general, fires start in one of three ways:

- accidentally, such as when smoking materials are not properly extinguished or when hot works are not properly supervised
- by defect, act or omission, such as when electrical office equipment is not properly maintained or when waste packaging is allowed to accumulate near a heat source, or
- deliberately, such as when external waste receptacles placed too close to the building have been set on fire.

3.17 In the context of an FRA, it is important to look critically at the premises and management procedures and try to identify any incident waiting to happen. This can be based on any of the three factors described above.

3.18 It is essential to learn from past incidents. Therefore, it is imperative to investigate previous fire history and reported near misses. Gathered information should not be solely constrained to local events. If wider knowledge exists regarding a particular fire hazard (such as healthcare bulletins, manufacturers' information and recalls), this should be communicated and acted on accordingly.

3.19 Likelihood means the probability of an uncontrolled event that may lead to damage, injury or ill-health happening. It can be a subjective assessment that can vary within or between the nature of the occupancies and activities being carried out.

3.20 The likelihood should be recorded subjectively, closely fitting a descriptor provided in the risk matrix:

- Rare: a combination of few ignition sources and low fire load in a highly controlled environment.
- Unlikely: a very well-controlled environment (for example, no use of untested electrical equipment and extension cables), effective management of contractors and hot works, controlled access to members of the public.
- Possible: fire load typical for hospitals with controlled sources of ignition (for example, PAT testing of electrical equipment).
- Likely: a lack of control over the use of electrical equipment (such as portable electrical heaters), uncontrolled access to members of the public combined with readily accessible fire loads (for example, poorly controlled waste areas).
- Almost certain: uncontrolled hot works with immediate risk of ignition combined with fire load.

Note:

The likelihood of a fire is rarely reduced to zero. Accordingly, there is a need for both fire protection and fire preventive measures.

Step 4

3.21 This step is to determine the physical fire protection measures relevant to the protection of people in the event of fire. The relevant information can be obtained partly from the initial discussion with management, but is primarily obtained by inspection of the premises so that the level of fire protection can be determined.

3.22 The physical protection measures of a hospital can be complex and on occasion specialist knowledge may be required to assess them with accuracy.

3.23 New hospital fire safety design, including the provision of active and passive fire safety measures, is specified in HTM 05-02, which provides a good benchmark for measures that are likely to be present. Ideally, the required information can be found in the building's fire strategy. The healthcare organisation should have this information available to be accessed by the responsible person as and when required.

3.24 The legal requirement is to reduce the risk to as low as reasonably practicable and not to apply current design guidance to existing situations as a matter of course. Carrying out a risk assessment does not mean applying modern design standards to existing situations.

Step 5

3.25 The fifth step is to determine relevant information about fire safety management. This primarily involves discussion with management and staff including Fire Wardens but should also involve examination of documentation such as records of testing, maintenance, training and drills.

3.26 Effective fire safety management is critical in complex healthcare premises to ensure that the effects of fire can be adequately mitigated. It should be noted that the management of fire safety is often viewed as a tiered approach, with varying levels of management throughout the organisation.

3.27 This is particularly relevant in the case of a large complex organisation such as a healthcare trust where there will be an organisational policy that sets out the overall fire safety strategy. This is different from the local management arrangements that ensure the overall fire safety objectives are being met at premises level. It would not normally be expected that the organisational arrangements would be audited in the process of an FRA.

3.28 In accordance with HTM 05-01, management audits should be undertaken by an Authorising Engineer (Fire). These are separate to the FRA process.

Step 6

3.29 The sixth step is to make an assessment of the likely consequences to occupants in the event of fire. This assessment needs to take account of the fire risk assessor's opinion of the likelihood of various fire scenarios, the extent of the injuries that could occur to occupants in these scenarios, and the number of people who are likely to be affected. This assessment is principally based on the fire risk assessor's findings in steps four and five, but takes account of information obtained in step one.

3.30 It is not intended to replicate the guidance provided within PAS 79, but attention is drawn to the principles enshrined in Figure 2, which are a reminder to the fire risk assessor that an assessment of fire risk should be undertaken to ensure that occupants would have adequate time to escape (including managed evacuations) to a place of relative safety. The purpose of the FRA is not to audit existing premises against new standards; it is to consider the risk to persons utilising the available safe egress time/required safe egress time (ASET/RSET) principles.

Step 7

3.31 The seventh step is to make an assessment of the fire risk and to decide if the fire risk is tolerable (see Definitions). The fire risk is assessed by combining the likelihood of fire and the consequences of fire (severity of fire).

3.32 This document uses an enhanced 5 x 5 risk matrix to be adopted within an FRA. (The PAS 79 approach utilises a 3 x 3 risk matrix, but the 5 x 5 matrix is aligned with the NHS risk assessment process.)

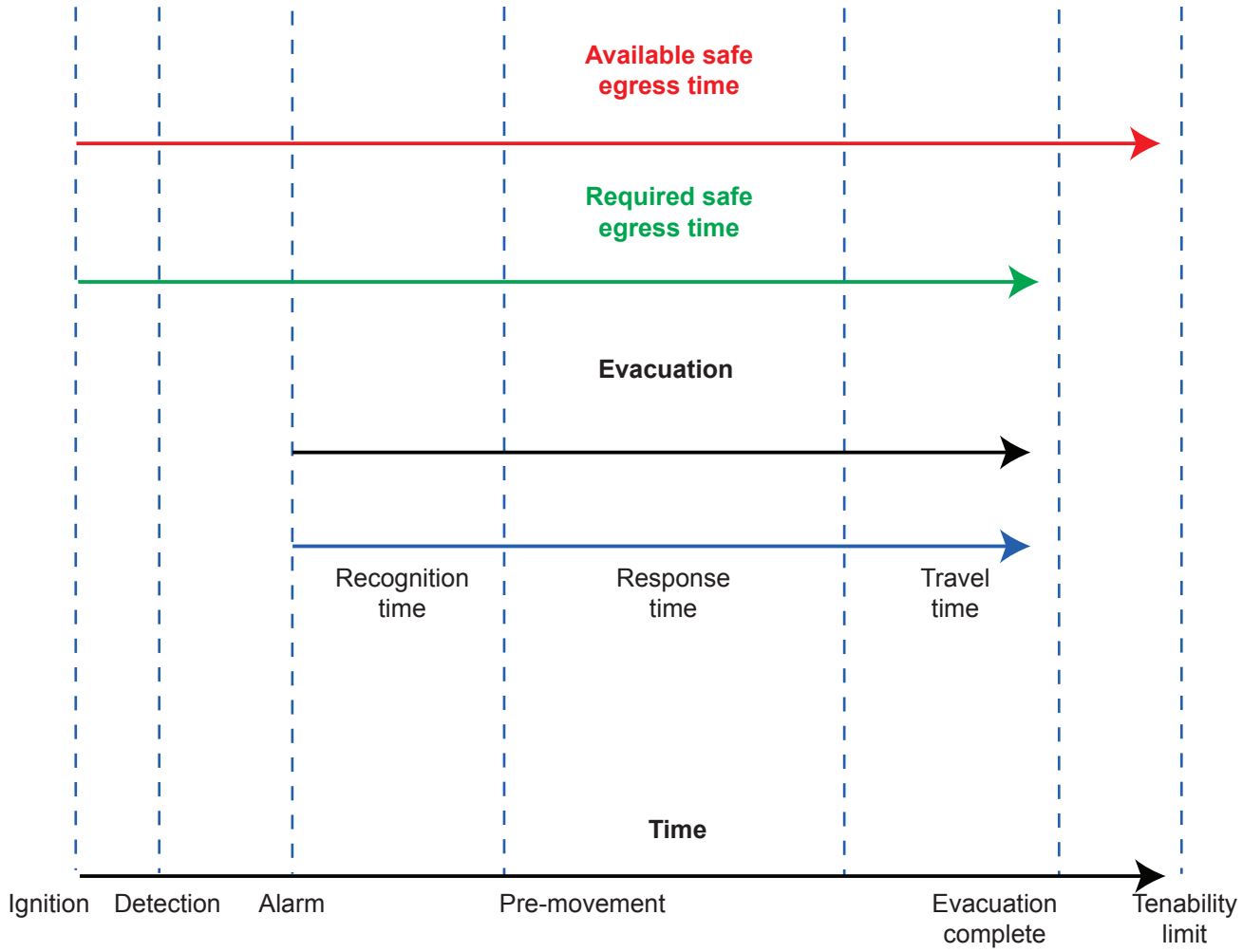


Figure 2 ASET/RSET principles

Consequence of fire

Severity of outcome (S)	Value	Examples
Negligible	1	Negligible
Low	2	Slight damage to property Minor injury to occupants, first aid required
Moderate	3	Moderate damage to property Partial evacuation required Injury to occupants, medical attention required
High	4	Large scale damage to property Complete evacuation required Occupants require hospitalisation
Catastrophic	5	Major loss of property Major loss of life

Probability of fire

Likelihood (L)	Value	**Examples**
Rare	1	Combination of few ignition sources and low fire load in a highly controlled environment.
Unlikely	2	Very well-controlled environment (for example, no use of untested electrical equipment and extension cables), effective management of contractors and hot works, controlled access to members of the public.
Possible	3	Fire load typical for hospitals with controlled sources of ignition (for example, PAT testing of electrical equipment).
Likely	4	Lack of control of use of electrical equipment (such as portable electrical heaters), uncontrolled access to members of the public combined with readily accessible fire loads (for example, poorly controlled waste areas).
Almost certain	5	Uncontrolled hot works with immediate risk of ignition combined with fire load.

Risk level estimator

3.33 The level of risk is an estimate of the probability and the consequence of a fire. This results in a numerical value

	Rare	Unlikely	Possible	Likely	Almost certain
Negligible	1	2	3	4	5
Low	2	4	6	8	10
Moderate	3	6	9	12	15
High	4	8	12	16	20
Catastrophic	5	10	15	20	25
Note: Beware of low likelihood but high severity in specific cases.					

Risk level outcome

3.34 This is taken from the numerical value derived from the risk level estimator.

Risk rating	Risk description	Action
1	Trivial	None
2–3	Tolerable	Review findings at next FRA
4–9	Moderate	Implement additional control measures within programmed maintenance/management process
10–16	Substantial	Implement interim measures immediately and full controls as soon as practicable
20–25	High	Cease use of area or activity giving risk until additional controls are in place

3.35 The intention of this process is to give a relative value to the level of risk. The intention of any resulting actions is to reduce the level of risk to a tolerable level.

Step 8

3.36 The eighth step is to formulate an action plan if this is necessary to address any 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. The emphasis at this point is to remove a hazard as far as possible (for example, by reducing the build-up of waste, ensuring that medical gases are stored correctly, or improving security to prevent the risk of arson). Flexibility will be required when applying this guidance; the level of fire protection should be proportional to the risk posed to the safety of the people in the premises. Therefore, the objective should be to reduce the remaining risk to a level as low as reasonably practicable. The higher the risk of fire and risk to life, the higher the standards of fire protection will need to be and the greater the effort and urgency required.

Step 9

3.37 Healthcare organisations should have a protocol on the time review period for FRAs based on the risk levels. The ninth step is to determine the time interval after which the FRA needs to be reviewed (assuming no earlier review is necessitated by changes to the premises and that there is no reason to suspect that the FRA is no longer valid).

3.38 In the context of this HTM, it is not necessary to provide indicative timescales for completion of the recommendations within the FRA. However, it is necessary and vitally important that a level of priority and importance is provided within the relevant management system. Action must be taken immediately if there is catastrophic risk or if risks can be reduced by simple immediate action.

3.39 It is also appropriate to take account of the likely frequency of significant changes. A best-practice default is normally that the FRA is reviewed annually although the complexity of the premises, level of management and overall fire risk will have a bearing on the proposed review period. This should be defined in the fire risk management protocol.

As low as reasonably practicable (ALARP)

3.40 When assessing the adequacy of fire precautions in premises and compliance with the FSO, a key concept is what is "reasonably practicable". This translates to the term ALARP, more often used within the health and safety industry.

3.41 The Health and Safety Executive define ALARP as:

"ALARP" is short for as low as reasonably practicable. "SFAIRP" is short for so far as is reasonably practicable. The two terms mean essentially the same thing and at their core is the concept of "reasonably practicable"; this involves weighing a risk against the trouble, time and money needed to control it.

3.42 Within the context of an FRA, this equates to evaluating the fire risk to relevant persons against the existing general fire precautions and establishing any reasonable improvements that will have tangible benefits to the safety of relevant persons that are proportionate to the expenditure.

3.43 The purpose of an FRA is not to audit against modern design codes, but to assess the risk of the existing conditions, making reasonable improvements where considered proportionate to do so. Many existing buildings pre-date current or even modern fire safety standards, but this is not necessarily an indication that the fire risk presented is unreasonable.

3.44 However, caution should be exercised that a "reverse ALARP" situation is not created when performing an FRA. This would be where the risk assessor utilises a cost-benefit analysis to justify the removal or reduction of existing safety standards without reasonable justification. An example of this would be to compromise the existing required compartmentation arrangements of a hospital because the maintenance costs of fire dampers are considered disproportionate without any reasonable consideration or justification.

3.45 For further information regarding ALARP can be found on the HSE website.

4 Application

Primary and secondary FRA

4.1 This HTM requires that two levels of FRA are carried out:

- Primary – FRA relating to shared/ overarching general fire precautions, facilities, and the overall building management arrangements.
- Secondary – FRA relating to locally assessed and/or managed areas.
- The terms primary and secondary are not intended to describe relative importance. These terms reflect the fact that the primary FRA is likely to provide features such as escape routes and fire alarms which the secondary FRA will rely on to secure the means of escape from secondary areas.

4.2 To assess the fire hazards and people at risk and to evaluate the fire risk in a manageable way, the premises should be divided into a series of assessment areas. However, this presents a number of challenges where the building is complex and there may be a number of interrelated general fire precautions between departments. As such, there is the potential that assessment areas can be assessed in isolation without the wider consideration of shared general fire precautions.

4.3 The historical boundaries of different assessment areas were usually determined by the functional layout of the healthcare premises; normally each nursing and/or other management unit would be an assessment area. This approach has merit; however, the overall management and any shared general fire precautions need to be considered as well.

4.4 Assessment areas should not be assessed in isolation. It would be appropriate for overarching information to be available to the fire risk assessor in the form of a fire strategy. If this is not available, it may be necessary to obtain a retrospective fire strategy that details the overall fire safety arrangements for the building. It may be necessary to commission a new document. This would enable the fire risk assessor to understand any such general fire precautions, such as means of escape calculations, which may affect or be affected by the assessment area.

4.5 The overall responsibility for fire safety will be the responsible person. In the case of a hospital building which is a workplace, this will be the employer. However, there may be degrees of shared responsibility within different departments, which will need to be considered within the FRAs of each area. Secondary FRAs may be the responsibility of more than one responsible person. It is a legal requirement for such responsible persons to cooperate and coordinate with others in relation to the measures they take. It is essential that healthcare organisations ensure this takes place.

4.6 Secondary FRAs will not normally cover more than one floor but may do so where a single nursing or management unit incorporates two different functions on

different floors (for example, sleeping areas and day spaces on separate storeys).

4.7 Assessment areas forming a secondary FRA may consist of more than one fire compartment, but the boundaries of the assessment area should be compartment walls and floors or sub-compartments.

4.8 Escape routes from the secondary FRA areas should be included in the assessment. The escape route may include circulation spaces, stairways, escape bed lifts, the potential for refuge in adjacent areas on the same level, escape to ground level, and final escape to a place of safety. As described above, the potential impact on other areas of the building should be taken into consideration. If issues are found that impact on other areas, this must be fed into the primary FRA to ensure matters are addressed accordingly.

4.9 The FRA process should not be considered complete until both primary and secondary FRAs have been carried out. The primary FRA should consider factors that are raised in the secondary FRA. These have to be considered as a whole.

4.10 Assessments should be made of the healthcare premises in operation. It is not possible for an assessment to be wholly complete before occupation as the management and day-to-day operations cannot be accurately assessed.

4.11 An assessment is dependent on many factors, including fire hazards, people at risk, building layout, physical fire precautions, staffing and management, which are likely to vary between different assessed areas. A change in any of these will require a review and revision of the FRA, including the potential impact on other assessed areas.

4.12 An example of what should be covered in each type of FRA is given in Table 1. The list in Table 1 is not exhaustive, and it is recognised that every scenario cannot be addressed. However, the examples should assist the risk assessor to understand the differences between the primary and secondary FRAs. The protocols set by the healthcare organisation will help establish the specific areas to be included on the primary and secondary FRAs. The distinction is that the secondary FRA should assess functions regarded as a building user's responsibility that are carried out regularly (such as daily and weekly checks on fire safety provisions like the condition of fire detectors, fire extinguishers or fire exits). The primary FRA is likely to be concerned with systems that are maintained by competent people in accordance with a planned preventive maintenance (PPM) schedule.

Situation	Primary FRA	Secondary FRA
Preventive maintenance (PPMs such as electrical testing, PAT and gas testing)	Checks that centrally controlled arrangements are suitable. Checks that equipment in common areas outside secondary FRA areas are subject to maintenance.	Checks that local equipment is subject to the central arrangements. Additional local equipment (specialist equipment).
Escape routes	Assessment of communal means of escape routes, including occupancy capacity consideration. Checks on centrally controlled maintenance, inspection, repair programme. Control of fire door specification, works and maintenance.	Assessment of means of escape from a secondary FRA area, including the route to a final exit. Occupancy numbers and suitability of escape routes should be considered recognising the patient profile and also feed into the considerations for the primary FRA. Report condition of fire doors and consider any obvious maintenance defects.
Compartmentation	Programmed review of the overall compartmentation requirements as per the fire strategy. Checks on centrally controlled maintenance, inspection, repair programme. Control of works, including fire damper specification, installation, and maintenance. Checks on/inspection of compartmentation relevant to common areas.	Checks on/inspection of easily accessible compartmentation relevant to assessed areas.
External wall	Consideration of external wall construction. Consideration if PAS 9980 assessment is required. Recommendations from PAS 9980 established in FRA. Consider any risk posed by space separation and temporary structures.	N/A
Firefighting equipment	Checks that centrally controlled arrangements are suitable such as maintenance and policy on the type and location of portable equipment.	Checks on type, location, maintenance of portable equipment in assessed area.
Management	Review of organisational/premises-level fire safety arrangements.	Ensure local arrangements are in place for management which support the primary FRA management arrangements. Ensure that local management arrangements are adequate to support the evacuation plan.
Training	Review of centrally arranged training content/ currency/periods.	Review of local arrangements to ensure that all relevant staff are adequately trained and receive appropriate refresher training and that staff have understood the training.
Fire detection and alarm	Review of centrally provided system, position, and function of control and indicating equipment (CIE). Overarching cause-and-effect logic. Central management of system. False alarms and unwanted fire signals (UwFS).	Local position of detectors and equipment. Local equipment is fit for purpose (not covered or obstructed, etc.). Provision of sounders and visual alarm devices are appropriate.
Emergency lighting	Review of the system testing and PPM for the emergency lighting system including the failure of supply test. Check coverage of the system is suitable given the risk and local conditions.	Local checks to see if individual lighting units are in good condition and charging.
Fire service access	Testing for dry/wet rising mains and firefighting or evacuation lifts. Testing of smoke control systems.	Checks on the accessibility and condition of fire main outlets, access to fire hydrants.

Table 1 Typical examples of what an FRA should cover

The fire risk assessment of external walls

4.13 The FSO applies to all areas of healthcare premises including the external wall. The FSO requires that general fire precautions, as reasonably practicable, must be taken to ensure the premises are safe.

4.14 Any works carried out to the external walls are likely to be subject to the requirements of both the Building Act 1984 and the Building Regulations 2010 (as amended). However, this does not exclude the requirement for a suitable and sufficient FRA to consider the risk from the external wall construction.

4.15 Regulation 7 of the Building Regulations was amended in December 2018 and now requires non-combustible materials to be used in the external wall construction of all relevant buildings over 18 m in height which have been constructed after this date. Healthcare premises are generally included within this requirement, meaning that newly constructed or significantly altered buildings would need to comply with this requirement. Many buildings, both within and outside of the scope of this legislation, may not meet the latest standards. Applying the requirements in Regulation 7 of the Building Regulations 2010 (as amended) for an existing building may be inappropriate in cases where the application of the guidance in PAS 9980 deems it so. The risk of external fire spread needs to be assessed carefully, as set out in this HTM, and mitigated appropriately to minimise risk.

4.16 Accordingly, an assessment of risk should be performed of the external wall, known as “fire risk assessment external wall” (FRAEW). PAS 9980 provides a suitable process for assessing this risk. While it is primarily intended to be used in assessing the risk in residential buildings, it sets out a methodology to conduct and record fire risk appraisals of external walls which can be scaled up or down depending on the complexity of individual buildings. Complex hospital buildings share a commonality with residential blocks of flats. In both cases, the initial response to a fire is not an immediate evacuation of the whole building. Fire compartmentation should allow the fire and rescue service to control a fire so that total evacuation is unnecessary. However, the possibility that a complete evacuation is required must be included in any hospital emergency plan, with appropriate incident management procedures. The control of fire spread in an external wall is fundamental to the viability of this approach.

4.17 The definition of an external wall is extensive. It includes the following:

- anything located within any space forming part of the wall
- any decoration or other finish applied to any external (but not internal) surface forming part of the wall
- any windows and doors on the wall
- any part of a roof pitched at an angle of more than 70 degrees to the horizontal if that part of the roof adjoins a space within the building to which persons have access (this excludes spaces accessed solely for carrying out repairs or maintenance).

4.18 In practice, the FRAEW is likely to be performed as a separate exercise and should form part of the overall building’s FRA/fire strategy.

4.19 The fire risk posed by external wall construction and cladding is considered to be influenced most by factors falling under the following three broad headings:

- fire performance
- façade configuration
- fire strategy and fire safety arrangements.

4.20 The height of the building is included as a risk factor. The extent to which a building’s external walls pose a risk is inherently lower if the number of storeys is limited. PAS 9980 emphasises the importance of proportionality in relation to risk and associated mitigation

measures, including considerations of benefit gained, practicality and cost.

Fire performance

4.21 Fire performance risk factors are those influencing the likely speed and extent of fire spread because of the fundamental properties and fire behaviour of the materials, components and systems comprising the external wall construction. This assessment will include the assessment of external wall features such as cladding panels, surface reaction to fire, combustibility of insulation and substrates, and protection to cavities.

Façade configuration

4.22 Façade configuration risk factors are those features affecting the likely speed and extent of fire spread due to the configuration of the external wall and its relationship to other parts of the building or anything presenting a fire hazard. These include the extent to which the building is covered by combustible cladding, the continuity of combustible cladding sections and its orientation, the presence of continuous cavities and the extent of openings in the external building envelope that would allow ignition of the cladding from flaming combustion originating inside the building. The possibility of entry routes for fire back into the building should be considered including openings for the building's ventilation system.

Fire strategy and fire safety arrangements

4.23 The fire strategy and fire safety arrangements are those that affect the ability of occupants to escape once fire occurs and spreads via the external wall construction to other parts of the building. These include:

- the elements of the fire safety design of the building, such as evacuation strategy, which in most hospitals will require the need to delay evacuation and the use of progressive horizontal evacuation
- escape-route design and the protection afforded by compartmentation to staircases and other parts of the escape routes
- smoke control facilities.

In a complex hospital, these factors will be a crucial factor.

4.24 The assessment of the fire strategy and fire safety arrangements also includes the facilities for the fire and rescue service to intervene effectively. The FSO requires that these facilities are appropriately maintained as firefighting access is a vital component of being able to safeguard people. As such, facilities for the fire and rescue service should be reviewed as part of the primary risk assessment. Consideration should be given to resolving any significant shortfalls in conjunction with the fire and rescue service.

PAS 9980: risk rating and mitigation

4.25 Using benchmark criteria, PAS 9980 provides a methodology for using these factors to assess the risk from external wall fire spread. Fire spread should result in only limited secondary fires and occur at a rate within expectations for the use of the building, or at a faster but nevertheless tolerable rate, given the circumstances at the building in question. Careful consideration will need to be given of how the horizontal compartmentation may be breached.

4.26 Occupants in locations where the fire has spread should not be placed at risk or be prevented from escaping before secondary fires occur. In addition, secondary fires should not compromise the communal means of escape or fire and rescue service access.

4.27 Taking these factors into account, the PAS 9980 methodology will enable a rating of the risk to be defined as either high, medium or low and to what extent any risk reduction work is required. The FRAEW may require specialist input from a competent fire engineer such as an Authorising Engineer (Fire).

5 Fire prevention advice

5.1 The spread of fire can be limited by the incorporation of structural fire precautions and the use of flame-retardant textiles and furnishing materials. However, the likelihood of fires starting can be reduced significantly if suitable preventive measures are adopted. This chapter provides practical advice which can assist in the prevention of fires, but it is not exhaustive guidance.

5.2 Good practice in fire prevention is largely a matter of awareness through training of the ways in which fires can start and of the upkeep of orderliness and tidiness in day-to-day activities (that is, good housekeeping).

5.3 The fire safety manager (or nominated deputy) should walk through the premises on a regular basis to ensure compliance with this part of the HTM. That said, all employees should be trained in basic fire prevention matters and have a duty to ensure the safety of those around them. Training is covered in HTM 05-03 Part A – 'Training'.

5.4 Healthcare premises can contain large quantities of flammable material, but they are not in general considered to constitute a high fire risk. Staff are always on duty and fire incidents are normally discovered quickly, enabling prompt action to be taken. In patient treatment and accommodation areas, for example, no time need be lost if suitable first-aid firefighting equipment is provided and staff on duty know how to use it (if it is safe to do so). However, the use of medical gases does add a potential hazard.

5.5 Certain locations in healthcare premises (for example, laboratories and pharmacies, medical gas stores, main kitchens, laundries, boiler houses, workshops, stores, and shops in foyers) carry higher fire loadings and pose greater fire risks. In such locations fires may occur, gain a hold and lead to considerable damage. These areas should be fire-separated.

5.6 Important aspects of fire prevention in healthcare premises include:

- the application of good housekeeping practices by all staff
- the need to recognise fire risks associated with the deliberate act of arson.

Good housekeeping

5.7 Attention to good housekeeping practices can reduce the likelihood of fire. Some of the particular practices that should be recognised and implemented to protect against fire risks are (this list is not exhaustive):

- orderly methods of stacking in stores where linen, paper or plastic packaging is used, to reduce the risk of fire spread and to assist firefighting
- the condition of furniture and textiles including the condition of the furniture and fabric finishes and whether there are any exposed internal foams; all furnishings should be appropriately labelled (see HTM 05-03 Part C – 'Textiles and furnishings')

- storage of equipment and packages in designated areas only – not in plantrooms, services voids and shafts, corridors or lobbies
- regular checks to ensure that storage is never permitted in a healthcare street or an escape route, nor adjacent to a fire exit or firefighting equipment
- prohibiting the drying of items over heaters having radiant heat sources, which can lead to dangerously high temperatures and possible ignition
- regular checks for the accumulation of rubbish in out-of-sight spaces such as lift wells, behind radiators, basements, dead-end corridors, etc. Waste and unauthorised storage should be dealt with promptly
- non-combustible or fire-rated waste bins used in areas to which the public has access
- regular cleaning of workplaces, machinery and equipment spaces, and checks for the accumulation of fluff and grease deposits in laundries, main kitchens and similar areas.

Smoking

5.8 While smoking is no longer permitted in enclosed buildings (or in most cases any NHS grounds), there may be some areas where it is permitted (for example, long-stay mental health facilities). In such circumstances, due regard should be given to the fire risk this poses, as well as heightened risks (for example, where emollients, medical oxygen or nitrous oxide/oxygen mixtures are used).

5.9 A disregard for no-smoking policies on NHS sites has led to an increase in surreptitious smoking and small fires in waste receptacles and external areas that are difficult to observe, where smoking facilities have been removed.

5.10 Therefore, consideration should be given to the robust enforcement of no-smoking policies set against the provision and position of suitable receptacles to ensure that in the event of a fire caused by smoking materials, the fire is unlikely to affect the building.

Cooking and kitchen facilities

5.11 There are likely to be a number of facilities that provide cooking facilities to some extent within hospital environments. In the main, these will be small kitchens/kitchenettes that are provided with limited cooking facilities including microwaves and/or toasters. These cooking facilities are generally low risk areas except where equipment is misused. It should be emphasised that staff must remain with any such appliances while they are in use. Cooking facilities should only be used in appropriately designated rooms. Catering vending machines should only be located in appropriate positions (see Appendix D).

5.12 Toasters can lead to the activation of fire alarms, and as such their use should be considered carefully, as should the type of automatic fire detector in their proximity.

5.13 Larger cooking facilities are also present in healthcare premises, which can present significant hazards and are considered an area of increased risk. The provisions within these more complex cooking areas can be extensive and are discussed below.

5.14 Where kitchen fire protection systems (for example, local suppression systems) are required, these should be designed, installed, commissioned and maintained/recharged by an organisation holding appropriate UKAS-accredited third-party certification (for example, BAFE SP206 registration or equivalent). It should be ensured that relevant staff have adequate training in the use of this equipment.

Kitchen ventilation and extraction systems

5.15 The mechanical ventilation to a hospital main kitchen can exacerbate the consequences of a fire. Therefore, its design should be such as to contain any extensive damage from smoke and toxicity, should a fire occur. The provision of a mechanical ventilation system to the main cooking area of a kitchen is essential, and it should be separate from, and independent of, those serving other hospital departments.

5.16 Kitchen extraction systems should be installed in accordance with the Building Engineering Services Association's (BESA) (2018) 'Ductwork Specification DW/172 Specification for kitchen ventilation systems' and the guidance on ventilation in HTM 00 – 'Policies and principles of healthcare engineering'.

5.17 Generally, all cooking equipment in a main kitchen will need mechanical ventilation to extract heat, vapours and combustion products. Ventilation duct runs, both for supply and extract, should be as short as possible, particularly those provided as extracts for equipment using oils or fats. The latter is to prevent an opportunity for an extensive build-up of precipitation from vapours on internal surfaces. However, this HTM does not discuss design requirements; the appropriate design guides as listed above should be consulted.

5.18 The main attributable hazard from kitchen extraction systems is the build-up of oil and grease within the system. A suitable cleaning and maintenance regime significantly reduces the risk of the extraction system contributing to fire development.

5.19 Further information regarding maintenance is provided in BESA's (2019) 'TR19: Specification for fire risk management of grease accumulation within kitchen extraction systems' and the Fire Protection Association/RISCAuthority's (2022a) 'RC44: Recommendations for fire risk assessment of catering extract ventilation units'.

Ventilated ceilings

5.20 Such ceilings are designed to permit the passage of air from the kitchen below to the void above, from where air is extracted to the atmosphere.

5.21 Some suspended ceilings include metal cassettes that can trap airborne grease and other gaseous by-products from exhaust systems. A fire hazard can be created in ventilated ceilings by the accumulation of greasy dirt deposits, exacerbated by the intrusion of other building services (for example, pipework) and if the cassettes are not cleaned regularly.

5.22 All cassettes should be easily removable for frequent cleaning. It should be possible to gain access to each void for inspection and cleaning. A suitable maintenance regime should be in place to ensure the ventilated ceiling presents no hazard from fire.

Hot cooking oils and fats

5.23 The main fire hazard arises from overheating of oils and fats in frying equipment. Human error and temperature-monitoring devices failing to correctly control temperatures of oils and fats can quickly lead to rapid increases in those temperatures.

5.24 Safe cooking in oils and fats takes place generally below 200ºC. Flammable vapours are given off at 200–230ºC, and spontaneous ignition occurs at 310–360ºC. The timescale in moving from a safe condition to a dangerous one is quite short. The flashpoint of oil is reduced by progressive oxidation through repeated use.

Correct use of fat-fryers

5.25 Oil or fat should be maintained at correct levels. Overfilling increases splashing when food is lowered into the fat. Low oil or fat levels

may prevent the thermostat from working correctly and seriously increase the risk of overheating and fire. Heating sources should never be left operating when used oil supplying pans or fat is being drained from the pans. Staff using these devices should be trained on the actions to take should a fire occur.

5.26 Care is required when solid fat is introduced into empty pans. Until a sufficient quantity of fat has melted to cover the sensitive elements of thermostats, these devices may remain ineffective.

5.27 If the type of cooking fat or oil is changed, the new cooking medium may have a different flashpoint from that previously used. Estates staff should be informed when a change is made so that thermostat settings can be checked. Oils and fats of different types should not be mixed.

5.28 A high level of regular and effective maintenance is necessary to reduce fire risk. The most reliable apparatus will eventually fail if it is not regularly inspected and overhauled and if the controls are not correctly adjusted. Incidents have occurred where deep-fat fryers have caught fire when cooking oil has leaked from faulty pans on to the gas burners below, destroying the gas valves and associated control equipment.

5.29 Correct functioning of both the normal controlling and the overriding thermostats is extremely important. Operating temperatures should be checked, as should diaphragms of relay valves, which can stiffen with age and fail to shut off gas supplies.

5.30 Routine cleaning is necessary, with particular attention being given to the removal of fatty deposits from the hob and surrounding metalwork, the hood, sides and back of the fryer, the internal surfaces of ductwork, fan blades and any filters.

5.31 Hoods above fat fryers should be constructed of sheet metal with smooth surfaces which can be easily cleaned.

5.32 Equipment, working surfaces and structural parts should be maintained at a high level of cleanliness. Care should be taken in the use of cleaning materials, which should not be allowed to come into contact with food products.

Arson

5.33 Many fires are started deliberately. Therefore, strict consideration should be given to the reduction of risk from deliberate fires, although some of the risk can be mitigated through effective security and fire safety design of buildings. The major factor is effective management of arson risks including inappropriate storage, especially of waste.

Management of waste

5.34 This chapter relates only to the fire-precaution aspects of waste and its disposal (see HTM 07-01 – 'Safe and sustainable management of healthcare waste' for general guidance on the management of healthcare waste).

5.35 Managers should aim to have policies in place for the safe storage and prompt disposal of waste that accumulates over a 24-hour period. Waste should be stored in secure receptacles such as imperforate non-flammable or metallic bins, with well-fitting lids.

5.36 To deter arson, loaded receptacles should be taken away to designated secure places – remote from patient-care areas – to await disposal. Unattended waste should not be stored or left in underground tunnels, walkways and basement areas or on stairways and corridors. Waste bins, especially in areas to which the public has access, should be non-combustible and ideally covered. The use of bins that are simply frames to hold bin bags should be avoided.

5.37 Escape routes should be kept clear at all times. Waste disposal chutes, where provided, should be maintained under constant supervision. Any redundant chutes that

connect basement zones with the floors above may constitute a serious fire and smoke risk and should be sealed off with fire- and smoke-resisting seals in the basement and at each floor level.

5.38 An efficient procedure should be established for the collection and disposal, or recycling, of combustible waste. Such waste might include, for example, packing cases, packaging materials, clinical and food packaging and other waste products left over from works activities. Large lockable waste receptacles should be kept locked, especially in areas to which the public has access.

5.39 The continuing increase in the use of disposable items, many of which are of a combustible nature, emphasises the need for diligence and for prompt removal to designated places of storage and disposal. This includes the disposal of batteries. Guidance is given in HTM 07-01.

Dangerous substances and explosive atmospheres

5.40 The assessment of dangerous substances and explosive atmospheres is a specialist area. The FSO requirement is to assess the general fire precautions required due to the presence of a dangerous substance. This does not extend to special technical and organisational measures related to the reduction of risk from work activities which are dealt with under health and safety legislation. This is regarded as a process risk enforced by the Health and Safety Executive. The requirements under the FSO are to ensure adequate general fire precautions and it is expected that specialist preventive advice will be determined by specific risk assessment.

5.41 As part of the FSO FRA, a check should be made to ensure that, where necessary, appropriate assessments have been carried out as required by the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR), for example for the safe use and storage of medical gases.

5.42 The safe storage of flammable liquids in healthcare premises should follow the principles contained in the Health and Safety Executive's (2015) 'HSG51: The storage of flammable liquids in containers'. The quantities of flammable and highly flammable liquids kept in departments should be as small as is reasonably practicable for the day-to-day purposes of the department.

5.43 The safe disposal of unwanted flammable or highly flammable liquids should be entrusted to competent persons. Highly flammable liquids and many solutions and reagents used in pathology laboratories should never be disposed of down sinks, gullies or drains, as this practice can cause explosions, injury and damage.

Lightning protection

5.44 The necessity of lightning protection and surge protection should be determined either at the design stage or through the risk assessment process. Where installed, the complete system should be maintained in accordance with the appropriate British/ European standard (see BS EN 62305-3).

Emollient treatments

5.45 Emollients are moisturising treatments applied directly to the skin to soothe and hydrate it. They cover the skin with a protective film to trap in moisture. An FRA should address matters of general fire precautions only and not specific treatment or activities. There is a risk that emollient creams can transfer to bedding and clothing, making the materials much more combustible. The risk is increased where medical gases such as oxygen or nitrous oxide are in use.

5.46 Therefore, consideration should be given to the location of naked flames and any significant heat sources where contaminated fabrics are stored/used or where there is the risk that patients will be wearing clothing that has become affected by the transfer of emollients.

5.47 Cotton and emollients can lead to spontaneous combustion of laundry, particularly if drying is not appropriately managed.

Oxygen

5.48 An oxygen-enriched atmosphere may be present when medical oxygen or nitrous oxide/oxygen mixtures are used. It should be noted that nitrous oxide also supports combustion.

5.49 A mixture of breathing gases will support combustion. In an oxygen- or nitrous-oxide enriched atmosphere, materials not normally considered to be flammable may become flammable (flammable materials ignite and burn more vigorously).

5.50 Clothing may become saturated with oxygen or nitrous oxide and become an increased fire risk (when returned to normal ambient air, clothing takes about five minutes to be free of the gas enrichment). Blankets and similar articles should be turned over several times in normal ambient air following suspected oxygen enrichment.

5.51 Consideration should be given to the increased fire risk associated with hyperbaric oxygen chambers which may be pressurised with oxygen up to three atmospheres. Pressurisation increases the fire risk still further and, in an emergency, it will take an appreciable amount of time to remove an occupant. Therefore, the most stringent fire precautions to avoid ignition are necessary in and around hyperbaric oxygen chambers, including the design of electrical services. Training should also include the fire precautions necessary for the release of hyperbaric oxygen from a chamber.

Compressed gas cylinders

5.52 Compressed gas cylinders represent a potential hazard in case of fire. Cylinders that do not contain flammable gases or oxygen can present a serious hazard. The use of cylinders will need to be assessed by completing an assessment (if required) by DSEAR 2002. The following is general advice on the use of gas cylinders.

5.53 Cylinders should ideally be stored outside of patient access buildings in a safe and secure location. Where spare cylinders need to be stored indoors, the number should be kept to a practical minimum and located in well-ventilated areas – not in passageways or stairwells, or adjacent to emergency exits. Their location in designated marked cupboards or rooms provided with permanent ventilation to the outside is recommended

5.54 Cylinders should:

- be kept away from electrical ignition sources, extremes of heat, fires and naked lights (smoking should be prohibited in the vicinity)
- not be stored in areas where there is a possibility of contamination by oils or grease (for example, kitchens, garages, areas where emollients are used)
- be secured to prevent them falling over
- be separated: full cylinders should be stored separately from empty cylinders to avoid confusion
- not be used or stored in basements or cellars that have no natural floor-level ventilation.

5.55 Further advice on medical gas pipelines can be found in HTM 02-01 – ‘Medical gas pipeline systems’. HTM 05-03 Part A sets out the requirements for specific staff training on the use of medical gases.

5.56 See also NHS England’s (2023) ‘Safe use of oxygen cylinders’, which provides further details on the use of oxygen cylinders.

Electrical safety

5.57 The use of electrical equipment is a notable cause of fires. Equipment using electricity contains both the energy source and

a fire load to start a fire. The main method of preventing electrical fires is by using appropriate equipment that is correctly used and maintained. Electrical equipment also provides an ignition source for fire in other items so good housekeeping is an important element to reducing the fire risk from electrical items.

5.58 Electrical equipment should be subject to a regular schedule of inspection and testing. Within a hospital there will be a vast array of electrical installations ranging from high voltage equipment associated with electrical supply and equipment to domestic electrical items brought into the hospital by patients, services users, visitors and external contractors.

5.59 In any hospital, local arrangements will dictate the necessary detail of the fire safety protocols required. The development of fire safety protocols for portable appliance testing should consider:

- Does new equipment require testing in its first year of use?
- What frequency should appliances be subject to testing?
- How should portable appliance testing be indicated on the equipment?
- How should portable appliance testing be recorded?

5.60 Protection against fire risks should also include:

- removal of unfused multiple-point adaptors found in socket-outlets (staff should be warned about their use – see Appendix 4 in HTM 06-01 – 'Electrical services supply and distribution')
- prohibition of unauthorised adjustment or repair to electrical equipment, and no use of authorised or private electrical equipment until it has been checked and approved by the appropriate technical staff. The connection of 13-amp plugs should only be undertaken by technical staff
- implementation of portable appliance testing
- checking whether any major white goods are subject to recall by using manufacturers' websites or the Electrical Safety First website
- regular checking of electrical cables and cords for signs of wear, and the immediate withdrawal from service of any suspect electrical equipment, which should be reported to the officer responsible for electrical maintenance.

5.61 A regime of maintenance and testing should be in place. This should be carried out by suitably trained and qualified staff in accordance with the guidance in the HTM 06 series on electrical services. See also the Health and Safety Executive's (2013) 'HSG107: Maintaining portable electrical equipment'.

5.62 The maintenance of fixed electrical equipment should be covered within the primary FRA for the hospital. The risk assessor should satisfy themselves that a suitable programme of testing and maintenance is in place. This should be based on the guidance in the HTM 06 series on electrical services.

5.63 When auditing, the assessor should examine the day-to-day use of electrical equipment. This should include checking:

- the use of unauthorised adjustment or repair to electrical equipment, and no use of official, unofficial, or private electrical equipment that has not been checked and approved by the appropriate technical staff
- electrical cables and cords for signs of wear
- the standard of housekeeping around electrical equipment

- whether there are an adequate number of electrical socket-outlets for the equipment used in each room
- whether there are clear user instructions for complex electrical equipment
- whether extension leads, two-way adaptors, etc. are used only under the direction of a suitably trained member of staff. The use of appropriate electrical adapters and extension cables is covered in Appendix 4 of HTM 06-01.

5.64 Indications of "near-misses" (such as scorch marks on furniture or fittings, discoloured or charred electrical plugs and sockets, or cigarette burns) can help to identify hazards that may not otherwise be noticed.

Battery-powered equipment and recharging

5.65 Where battery-powered equipment is used in a hospital, its use should follow the healthcare organisation's electrical safety policy including the testing and the recharging of equipment. The policy should cover acceptable practices including location and chargers.

5.66 All batteries should be stored, charged and used in accordance with the manufacturer's instructions. No flammable or combustible material, other than that associated with the chargers, should be stored within the vicinity of the charger in use. Damaged batteries should not be charged or used. Where batteries are left to charge between uses, it may be appropriate to use timers to control the charge during waking hours.

5.67 When patients and visitors bring domestic items, such as portable chargers, into the hospital, staff should be vigilant about their safe usage. Portable chargers should be placed away from fire hazards and on a stable, level surface. Charging leads should be long enough to avoid being put under strain or tension.

5.68 Further advice can be found in:

- the Fire Protection Association/ RISCAuthority's (2023a) 'Need to know guide RE2: Lithium-ion battery use and storage', and
- the Fire Protection Association/ RISCAuthority's (2014) 'RC61: Risk control – recommendations for the storage, handling, and use of batteries'.

Photovoltaic installations

5.69 Photovoltaic systems present similar risk from any electrical installations. They can potentially cause fire or present a hazard during a fire. They differ in that when solar panels are exposed to light, they will continue to produce potentially lethal amounts of direct current (DC) electricity.

5.70 As with all electrical installations, photovoltaics need to be installed and maintained appropriately. Further guidance can be found in the Fire Protection Association/RISCAuthority's (2023b) 'RC62: Recommendations for fire safety with PV panel installations: the Joint Code of Practice for fire safety with photovoltaic panel installations, with focus on commercial rooftop mounted systems'.

5.71 Facilities should be available for firefighters to isolate photovoltaic systems in case of fire. These isolation points should be clearly marked with appropriate signage and be readily accessible. There should also be schematic diagrams available to firefighters.

5.72 Any photovoltaic and/or BESS installations should be appropriately installed and be subject to ongoing maintenance. This should be verified with the appropriate electrical Authorising Engineer.

Electric scooters, mobility scooter and bicycles

5.73 If possible, charging and storage areas should be located out in a separate building reserved for this purpose or in a specially designed charging area. For external storage areas, the potential for arson and the ability of the construction to contribute to fire spread, and spread to other buildings, should be considered. Any area designated for charging should have the appropriate electrical equipment for its intended use and should not be used for general storage. It should be kept clear of combustible materials.

5.74 If the charging and storage of vehicles and batteries occur in an occupied hospital, this should take place in a dedicated area. This area should be separated from the remainder of the building by fire-resisting construction. These areas should not be in patient-access areas. Charging and storage of such devices should not take place in means of escape routes or circulation areas. These areas should be protected by the building's fire detection and alarm system.

5.75 Charging areas should be ventilated direct to the outside. Facilities for the isolation of electrical circuits should be provided in case of fire, with the provision of automatic isolation if the fire detection and alarm system registers a fire situation.

5.76 Bicycle sheds should not be located near main entrances.

Electric vehicle charging

5.77 Charging for electric vehicles ranges from cables designed for use on a domestic three-pin socket-outlet to high-powered dedicated chargers using either AC or DC current. The combination of lithium-ion batteries in cars and their significant fire load presents a potential risk. In the event of thermal runaway and structural battery failure, flammable gases may be released that may ignite immediately (especially for batteries with a high level of charge). Alternatively, the gases may disperse without igniting, potentially resulting in deflagration (rapid combustion) or explosion upon encountering an external ignition source.

5.78 The correct location of vehicle charging facilities is an important factor in complex hospitals. If vehicle charging is either underneath or adjacent to the hospital, a vehicle fire could affect the hospital (for example, via the construction of the external wall). A specific FRA should be carried out of the facility. Consideration should also be given to access for the fire and rescue service.

5.79 Where charging points are to be provided in multi-storey car parks, consideration should be given to locating these in open areas with good access for firefighting. Where car parks are located beneath ground level, consideration should be given at the planning stage to providing sprinkler protection. Where a car fire may spread to an external wall of a hospital, this should be considered as part of the external wall FRAEW.

5.80 Further information on the fire risk associated with electric car charging can be found in the Fire Protection Association/ RISCAuthority's (2023c) 'RC59: Recommendations for fire safety when charging electric vehicles'.

Battery energy storage systems

5.81 Battery energy storage systems (BESS) are used to store energy from intermittent energy sources, typically from renewables. They may also be found as part of an uninterruptible power supply system

5.82 They contain a flammable electrolyte with stored electrical energy that can lead to a fire (thermal runaway). As the battery system is not able to remove the generated heat, this can not only result in a fire but also lead to the production of combustible gases that can explode.

Assessing the risk

5.83 Depending on the use of the batteries, there can be a range of electrical equipment associated with the BESS installation.

5.84 A BESS should be installed in accordance with the appropriate electrical regulations and best practice as defined in HTM 06-01.

5.85 As part of the general risk assessment process, any BESS installations should have been appropriately installed and should be subject to ongoing maintenance. This should be verified with the appropriate electrical Authorising Engineer.

5.86 A BESS can be installed within a hospital building or as a separate installation on the hospital site. These present different immediate risks to life.

5.87 Within a building, the fire protection measures should be based on the principles outlined in HTM 05-02 and the requirements for the location and fire separation of fire hazard departments from patient-access areas. The level of protection will depend on the extent and nature of the electrical installation. The following areas should be considered:

- the level of fire separation from the remainder of the hospital
- the means of escape provision
- firefighting access and the provision off appropriate control and isolating facilities to aid firefighting
- suitable fire detection and alarm systems
- appropriate staff training, particularly the initial response to an incident of fire alarm actuation
- the provision of a fire suppression system
- the development of an appropriate emergency plan that considers the possibility of prolonged firefighting operations where lithium-ion and other battery chemistries are used that present the hazard of reignition due to thermal runaway.

5.88 Where BESS installations are stand-alone facilities, an assessment should be completed that takes into account the following factors:

- The battery chemistry: some batteries used in longer term storage do not contain lithium.
- The location of the facility: this should consider areas in the hospital that are vulnerable to the spread of fire and smoke, particularly the potential for smoke and toxic gases entering ventilation ducts. There should be a suitable separating distance from any combustible buildings, structures or equipment.
- The combustibility of the buildings or containers used to store the batteries.
- The general layout for means of escape and firefighting access including the access to appropriate water supplies.

5.89 In principle, the fire safety measures provided for BESS installations should be based on those of plantrooms. However, they should take into account the distinct hazard of the batteries being used. The means of escape from plantrooms should be designed to take account of the fire hazard presented by the batteries and other equipment or contents of the room.

5.90 In all BESS installations, there should be monitoring of any failure conditions that could lead to a thermal runaway. Consideration should be given to the automatic shut-down and isolation of BESS units where any such conditions are detected. The early detection of off-gas electrolyte vapour (i.e. gas released from the electrolyte solution) associated with thermal runaway should be considered as should the potential for the use of an automatic fire extinguishing system.

5.91 As with all electrical facilities, the fire safety approach will depend on the nature of the hazard presented by the electrical installation and the fire strategy. If there is no suitable fire strategy for a BESS installation, advice should be sought from the Fire Safety Adviser. With significant installations, the Authorising Engineer (Fire) in conjunction with the healthcare organisation's Electrical Safety Group should be consulted.

5.92 Further details can be found in the Fire Protection Association/RISCAuthority's (2022b) 'Need to know guide RE1: Battery energy storage systems – commercial lithium-ion battery installations'.

Battery installations and firefighting

5.93 New battery technology has presented new challenges for firefighting. Due to the nature of thermal runaway, firefighting can be more difficult and prolonged. This factor should be considered in the evaluation of fire risk, particularly for business continuity. It may also present a life safety risk (for example, a fire involving an electric vehicle (possibly on charge) adjacent to a building).

Control of building works and outside contractors

5.94 Fires on construction sites are common, potentially putting the lives of workers and members of the public at risk. Fire safety on construction sites is not covered in this HTM. The overarching requirement for appropriate fire safety measures comes from the Construction (Design and Management) Regulations 2015 as well as the FSO. Any risk from any work activities involving dangerous substances must be assessed in compliance with DSEAR 2002.

5.95 During construction:

- any compromise to existing fire safety systems and escape routes should be agreed, and
- actions and measures for mitigation should be captured and agreed through the healthcare organisation's fire safety committee as part of the design stage fire strategy.

5.96 Where a construction is adjacent to a hospital building on the same site, the consequence of a fire spreading to the hospital should be assessed, as should the effect of the construction site on fire and rescue service attendance and fire assembly points. Temporary buildings such as prefabricated cabins, site huts, storage containers, caravans that are used as offices, stores, workshops and welfare facilities have the potential to compromise the fire safety in the hospital either by affecting the emergency plan for the hospital or by presenting a risk of fire spread to the hospital. Appropriate fire separation distances will need to be provided.

5.97 Where construction work is carried out within an operational hospital, an FRA will need to be carried out for that area. It is essential that this is coordinated with both the primary and secondary FRAs for the hospital. This should include such activities as the nature of the work activity being carried out in the construction area, the use of any hazardous materials, the fire separation from the main hospital, and the control and storage of construction material and waste.

5.98 Appropriate arrangements will need to be made for providing fire detection and alarms, where necessary linking these to the alarm receiving centre or switchboard so that the fire service is summoned, especially out of hours. The emergency plan for the construction area will need to be integrated into that of the hospital. This will include the integration of the fire management plans and ensuring that people employed on the construction site receive appropriate fire safety training, including any required due to the location of the construction site.

5.99 Further information can be found in the Health and Safety Executive's (2022) 'HSG168: Fire safety in construction' and the Fire Protection Association's (2023) 'Fire prevention on construction sites: the joint Code of Practice on the protection from fire of construction sites and buildings undergoing renovation'.

Temporary occupancy

5.100 In situations when a hospital needs to expand its patient care capacity by providing temporary structures or increasing the capacity of existing areas, the same levels of safety must be achieved. This also applies if non-healthcare buildings are taken over for healthcare use or areas not normally used for patient care. Temporary spaces must achieve the same levels of safety as permanent healthcare facilities.

5.101 Prior to any part of the hospital being brought into use for patient treatment or care or increasing the capacity of existing areas, the following should occur:

- The advice of the Fire Safety Adviser regarding the use of such areas should be obtained and a new or revised fire safety risk assessment should be completed. If changes are minor (for example, one or two additional beds), then the existing FRA should be reviewed. All FRAs should be written in line with this HTM and be completed by a competent person with extensive site knowledge.
- The area should be compliant with the design guidance in HTM 05-02. Where there are minor variations from the HTM and the Fire Safety Adviser considers that the areas remain suitable, such variations (along with any compensatory measures) should be recorded in the FRA including the name of the adviser. Consultation with the local Building Control Authority may be required for any building works.
- Fire safety management should be compliant with HTM 05-01. Records of the above should be kept for auditing purposes.
- The fire and rescue service should be advised of the additional areas being used including (a) location, (b) additional numbers of persons, and (c) fire and rescue service access and facilities. Should the changes in use affect fire service access or significantly alter the emergency plan, the fire and rescue service should be advised.

5.102 Following occupation, either a new FRA will be required or the existing FRA will need to be updated. The FSO makes no distinction between temporary and permanent occupancies. Appropriate fire protection and prevention measures should be applied. The fire safety risk assessment should be reviewed to make sure that fire safety arrangements are appropriate, including arrangements for planning, organisation, control, monitoring and review.

5.103 Further guidance can be found in NHS England's (2022) 'Reminder of fire safety considerations when increasing the estate capacity of existing areas'.

6 Fire protection advice

6.1 The purpose of an FRA is not to audit existing premises against design guidance such as HTM 05-02. While HTM 05-02 provides guidance to establish best practice of newly designed healthcare premises, this HTM provides an overview in the context of how protection measures may be viewed when performing an FRA. Emphasis is placed on the ALARP principle.

6.2 Where installed systems do not comply to the provisions of existing design guidance, consideration should be given to any specific fire protection measure in a proportionate manner. The risk presented by any shortfall should be considered against the potential consequences. It is important that the risk is reduced to a level that is as low as reasonably practicable and that general fire precautions are in place for the safety of all relevant persons.

6.3 A potential issue of using standards is that once adopted they may be regarded as applying to the hazard rather than to the risk. They are applied to control risks whatever the circumstances. It is important that any risk is assessed holistically. In the built environment it may not be possible or reasonably practicable to continually upgrade every fire protection element. The risk has to be assessed, taking into account all control measures, using the principle of ALARP. Any specific guidance in this document should be set in the context of all the protection measures provided and the ultimate risk.

Hazard rooms

6.4 Certain rooms within patient-access areas of healthcare premises constitute a particular fire hazard. These are known as “fire hazard rooms” and are locations where a fire could be more likely to develop.

6.5 These rooms are likely to require a greater degree of attention owing to the heightened risk of a fire starting and developing. A risk assessment tool is provided in Appendix B to assist in assessing the risk of hazard rooms.

Non-patient access areas

6.6 Non-patient access areas of healthcare premises (particularly hospitals) can present a hazard to patient-access areas due to fires starting outside the assessment area, for example:

- boiler houses
- sterile services departments
- central staff changing areas
- flammable stores
- laundries
- main electrical gear
- main kitchens
- main stores
- medical gas stores
- medical records
- pathology departments

- patient services
- pharmaceutical (manufacturing) areas
- rooms containing battery storage
- waste collection/disposal areas, incineration works.

6.7 Non-patient access areas are likely to present a greater fire risk and as such should receive the attention necessary. Many of the areas identified above are likely to involve other risk assessments such as process risk assessments and dangerous substances assessments. The secondary risk (or primary if applicable) assessment should ensure that these risk assessments have been performed.

Fire detection and alarm systems

6.8 Fire detection and alarm systems are a critical component of any healthcare fire strategy. Such systems should comply with HTM 05-03 Part B, which provides general principles and technology guidance on the design, specification, installation, commissioning, testing, operation and maintenance of fire-alarm systems in healthcare premises. It should be read in conjunction with BS 5839-1.

6.9 Consideration should be given to the appropriateness of any audible fire alarm system, including any special arrangements that may be needed for staff or patients with additional requirements (such as hearing loss). In mental health facilities, it may not be appropriate to have an audible fire alarm. As such, the management of the department should be able to demonstrate a suitable alternative where such variation from the standard is required.

6.10 Consideration should be given to the extent of detection coverage, the age, overall condition and reliability of the system, as well as the validity of zoning arrangements, cause-and-effect programming and associated documentation.

6.11 False alarms from fire warning systems are a major problem and result in many unwanted calls to the fire and rescue service every year. To help reduce the number of false alarms, the design and location of activation devices should be reviewed against the way the premises are currently used. See HTM 05-03 Part B for more information.

False alarms and unwanted fire signals (UwFS)

6.12 HTM 05-03 Part B specifies a BS 5839-1 L1 standard (L2 for treatment centres) for automatic fire detection and alarms. The provision of automatic detection as a compensating feature for deficiencies in general fire precautions is unacceptable. The benefits of automatic detection in providing an early warning of fire to allow the early detection and extinguishment of fires and where necessary evacuation of patients, public and staff before being affected, is well-established.

6.13 False alarms have a significant impact and impose a substantial burden. If healthcare organisations fail to act to reduce UwFS, the FA may require local assessment of an actuation of the fire alarm before a call is placed to the FA.

6.14 Where hospitals have significant numbers of unwanted fire signals from automatic fire-detection systems, FAs are increasingly recognising that this may be evidence of non-compliance with the requirements of the FSO in that it may be an indication that:

- the fire warning system is not fit for purpose (standard and design), or
- the premises and/or system are not being adequately managed and maintained.

6.15 HTM 05-03 Part B gives guidance on fire detection and alarm design and methods for reducing UwFS and should be referred to in consultation with the FA.

6.16 FAs will have policies on taking action to reduce unwanted fire signals as part of their CRMP. This will include variations in emergency response as well as potentially taking action using the FSO in dealing with premises with high numbers of UwFS. Consequently, this may be an additional reason for hospital premises to attract audit, inspection or even enforcement action by FAs.

6.17 The FRA process should include a review of the number of false fire alarm actuations and UwFS as recommended in HTM 05-03 Part B. This includes a formal reporting process as part of a healthcare organisation's fire safety management process. This will provide an indication for whether the fire detection and alarm system has been designed, installed, maintained and managed appropriately.

Firefighting equipment and facilities

6.18 Extinguishers should be provided for the purposes of fighting small fires, protecting life accordingly.

6.19 People with no training (for example, visitors and members of the public) should not be expected to attempt to extinguish a fire. However, all staff should be familiar with the location and basic operating procedures for the equipment provided in case they need to use it. If the fire strategy means that certain people, for example fire marshals, will be expected to take a more active role, they should be provided with more comprehensive training. Further information on fire extinguisher training can be found in HTM 05-03 Part A.

6.20 Other fixed installations and facilities, such as dry rising mains, access for fire and rescue service vehicles or automatically operated fixed fire-suppression systems (for example sprinklers and gas or foam flooding systems), may also have been provided. Where provided, such equipment and facilities must be maintained.

Manual firefighting equipment

6.21 Hand-held extinguishers and fire blankets should be provided, as necessary. Portable extinguishers should comply with BS EN 3 parts 7 and 8 and should be inspected and maintained in accordance with BS 5306-3 or the manufacturer's instructions. Hose-reel installations should conform to the relevant section of BS 5306-1.

6.22 Generally, there should be one 13A-rated extinguisher for every 200 m², or part thereof, or at least two extinguishers per floor. Extinguishers using carbon dioxide or other media should be provided as required. Fire blankets should be provided in all cooking and pantry areas. BS 5306-8 provides further information. Where multi-purpose fire extinguishers are provided, the number and disposition may be decided on the risk and fire strategy. Dry powder extinguishers should not be used within buildings unless a specific risk assessment is completed.

6.23 The use of fixed hose reels should be considered for their appropriateness. The provision of an inexhaustible supply of water has the potential to place persons in danger and the use of hose reels requires specialist training. It is likely to be more appropriate to replace hose reels with an appropriate level of portable extinguishers. Any proposed replacement should be agreed with the local fire and rescue service.

Automatic fire suppression

6.24 Fire safety in healthcare premises does not normally require the installation of any form of automatic suppression system such as sprinklers/foam/gaseous/chemical systems; however, it may be present for a range of reasons including:

- the facilitation of delayed evacuation
- property protection
- business/service continuity where the facility provides specialist services (for example, a regional cancer centre)

- part of a fire-engineered solution, either provided at the time of design or as a temporary risk reduction measure
- risk reduction in cooking facilities.

6.25 Automatic fire-suppression systems will normally form part of a fire-engineered solution and may mitigate some of the risks associated with:

- dependent and very high dependency patients
- lack of fire-resisting construction around fire hazard rooms
- reduced fire protection to elements of structure, or
- insufficient external-envelope protection.

6.26 The installation of life-safety automatic water fire-suppression systems should be considered in all new healthcare premises (see paragraph 5.68 of HTM 05-02). Where the premises provide specialist care, for example a regional cancer centre, the impact of fire, however small, could have a devastating effect on patient care. In existing healthcare premises, consideration should be given to the fitting of fire-suppression systems where the FRA justifies such a provision.

6.27 Although not required by fire safety law, the benefit of automatic suppression systems should also be considered with regard to business continuity of acute facilities.

Surface finishes

6.28 The finish applied to walls and ceilings can contribute to the spread of fire. Some finishes will transfer fire from one area to another very quickly by surface spread of flame. This not only makes the fire difficult to control, but provides additional fuel, which will increase the severity of the fire.

6.29 Fire classifications are now generally in line with the Euroclass classifications as defined in BS EN 13501-1. However, owing to the large number of products that are commercially available that have not yet showed compliance to the Euroclass system, national classes are still relevant.

6.30 Class 0 is the highest product performance classification under the national classification but is not identified in any British Standard test. Class 0 is defined in Approved Document B of the Building Regulations.

6.31 The classes normally used in healthcare premises are Class 0 or Class 1. However, where possible, the default classification should be the corresponding Euroclass. Table 2 gives guidance on classifications for use in specific areas.

6.32 For risk assessment purposes, the following generic materials and products all achieve a Euroclass B-s3,d2 rating:

- products classified as non-combustible when tested to BS 476-4
- brickwork, blockwork, concrete and ceramic tiles
- plasterboard (painted or not, or with a PVC facing not more than 0.5 mm thick) with or without an airgap, or fibrous or cellular insulating material behind
- wood-wool cement slabs, and
- mineral-fibre tiles or sheets with cement or resin binding.

6.33 The following materials may also achieve Class 0 but may not achieve the appropriate Euroclass, as the properties of different products with the same generic description vary. The ratings of these materials/products should be substantiated by test evidence:

- aluminium-faced fibre-insulating boards
- flame-retardant decorative laminates on calcium-silicate board
- thick polycarbonate sheet
- foil-faced phenolic sheet, and
- unplasticised polyvinyl chloride (uPVC).

Location	National classification	European class
Small room (not more than 4 m²)	1	C-s3,d2
Circulation spaces	0	B-s3,d2
Other rooms	0	B-s3,d2
Notes: The limitations on surface finishes do not apply to: (a) IPS panels and (b) rooms providing a specialist function (for example, audiology booths) where other functional criteria dictate the surface finish. The national classifications do not automatically equate with the equivalent classifications in the European column; therefore, products cannot typically assume a European class unless they have been tested accordingly. When a classification includes “s3,d2”, this means that there is no limit set for smoke production and/or flaming droplets/particles.		

Table 2 Classifications of surface finish

6.34 The following materials may achieve Class 1 but may not achieve the appropriate Euroclass, as the properties of different products with the same generic description vary. The ratings of these materials/products should be substantiated by test evidence:

- timber
- hardboard
- blockboard
- particleboard (depending on the composition may be non-combustible)
- heavy flock wallpapers
- thermosetting plastics – if flame-retardant-treated to achieve a Class 1 standard
- phenolic or melamine laminates on a calcium-silicate substrate, and
- flame-retardant decorative laminates on a combustible core.

6.35 The use and location of all the above materials should be considered in the context of risk. If any doubt exists as to the fire performance of a construction or lining material, support from the Authorising Engineer (Fire) should be sought.

Additional finishes

6.36 Where walls are covered by temporary surfaces (such as posters, fabrics, prints and decorations), the significance of these needs to be considered:

- Small, adequately separated areas with surface finishes of a lower classification than specified may be acceptable provided they do not amount to a small area greater than 5% of the total wall area (for example, noticeboards).
- Where walls have been subject to repeated painting over a number of years with gloss paints, the accumulated thickness of paint film may present a high fire hazard and provide for rapid transfer of fire over its surface. Where this situation exists, specialist technical advice should be obtained.
- The use of anti-graffiti and intumescent paints requires careful consideration, especially when they are applied over existing painted surfaces. Full technical guidance should always be obtained from the manufacturer.
- It is likely that the support of the Authorising Engineer (Fire) will be

required for complex or out-of-the-norm situations.

Floor coverings

6.37 The finish applied to a floor may also contribute to the spread of fire. (HBN 00-10 Part A – 'Flooring' gives guidance on the selection of floor finishes for hospitals.) Although hardwood flooring is not considered a fire hazard, the finish applied to certain flooring materials may, over a period of time, accumulate and constitute a fire hazard. The accumulation, over a number of years, of wax polish applied to a timber floor will pose a significant fire hazard.

Emergency escape lighting

6.38 If there is a fire, occupants must be able to find their way to a place of safety by using escape routes that have enough lighting. Where any escape routes are internal and without windows or the premises are used during periods of darkness (including early darkness on winter days), emergency escape lighting should be provided.

6.39 In most healthcare premises, a comprehensive system of automatic emergency escape lighting should be in place to illuminate all the escape routes. In addition, where people have difficulty seeing conventional signs, a "way guidance" system may need to be considered.

6.40 Escape lighting is required to illuminate the circulation spaces in the event of a fire and to guard against a failure of electrical supply. HTM 06-01 gives guidance on escape lighting and details of the electrical supply required. Emergency lighting should be designed in accordance with BS 5266-1 and BS EN 1838.

Signs and notices

6.41 In some premises, it is important to avoid an institutional environment. However, signs must be used, where necessary, to help people to identify escape routes and firefighting equipment.

6.42 Where the locations of escape routes and firefighting equipment are readily apparent and visible at all times, signs may not be necessary.

6.43 Notices must be used, where necessary, to provide the following:

- instructions on how to use any fire safety equipment
- the actions to be taken in the event of a fire, and
- information for the fire and rescue service (for example, location of sprinkler valves or electrical cut-off switches).

6.44 All signs and notices should be positioned so that they can be easily seen and understood.

6.45 Fire signs should be provided where appropriate in conspicuous positions. Fire signs should be recognisable, readable and informative. They should convey essential information to regular and infrequent users of the premises and the fire and rescue services. The visibility, illumination and height of display should be carefully considered.

6.46 Fire action notices should be permanently displayed in conspicuous positions throughout the assessment area and should be specific to it. Additional fire action notices giving further instruction should be displayed on staff noticeboards, in staff rooms and in residential accommodation. The purpose of fire action notices is to give concise instructions on the actions to be taken on discovering a fire and on hearing the alarm. Details of the emergency evacuation plan relevant to the assessment area should be included. Consideration may also need to be given to providing information in languages other than English and accessible communication formats (also known as alternative formats).

7 Fire safety design

Staff-assisted evacuation

7.1 For dependent and very high dependency patients, it is the responsibility of local management to devise suitable arrangements to ensure that adequate numbers of staff are on duty and available at all times (for example, during meal breaks). These numbers should be assessed as being suitable and recorded in the secondary FRA.

7.2 Staff members should have received training in the methods of patient evacuation appropriate to the dependency of the patient and should be familiar with the evacuation procedures of their place of work. It is recognised that an effective evacuation, particularly in the initial stages, will depend on assistance given by staff from adjacent, and other, compartments in accordance with the hospital's emergency response procedures.

Means of escape for disabled people

7.3 It is the responsibility of the responsible person to provide a fire safety risk assessment that includes an emergency evacuation plan for all people likely to be in the premises, including disabled people, and how that plan will be implemented. Such an evacuation plan should not rely on the intervention of the fire and rescue service to make it work.

7.4 Although complex hospitals will by their very nature need to be able to evacuate dependent patients, plans must be put in place for disabled staff and visitors where necessary.

7.5 For staff this can be in the form of a personal emergency evacuation plan (PEEP). This will be specific to an individual and developed between the member of staff and their management.

7.6 It will not be possible to provide individual PEEPs for visitors. Disabled people who require their escape to be facilitated will need to be considered in more depth in the general plan. Disabled people may need to have more information about the options available to them. In some instances, they may need to be allocated people to assist their escape; however, the aim should be to facilitate disabled people's independent escape as far as possible. As such, a general PEEP will need to be developed for areas where visitors are present.

7.7 Further guidance can be found in the HM Government's (2007) 'Fire safety risk assessment: means of escape for disabled people'.

Escape lifts

7.8 If dependent or very high dependency patients are present in the assessment area, escape bed lifts can be used to partly reduce the fire risk they experience due to their dependency. Escape lifts can support the vertical evacuation strategy for mobility-impaired persons including staff, visitors and particularly those patients whose physical or

medical condition may be aggravated through stairway evacuation.

7.9 Where escape lifts are installed, ideally there should be a minimum of two and they should comply with the guidance in HTM 05-03 Part E – 'Escape lifts in healthcare premises'. The lift lobby at ground or access level should provide access, or protected access, to the outside.

Basements

7.10 In all buildings with basements (other than very small basements), stairways serving upper floors should preferably not extend to the basement, and in any case should not do so where there is only one stairway serving the building. Continuous stairways linking basements to upper floors are not usually acceptable.

7.11 Any stairway that extends from the basement to upper floors should be separated at basement level by a fire-resisting lobby or corridor between the basement and the stairway.

7.12 All basements where there are more than 60 people likely to be present or where there are no fire exits direct to a place of safety should be provided with at least two stairways.

7.13 Where patients who are not fully ambulant have access to the basement, their escape should not necessitate travelling vertically up a stairway to a final exit (see HTM 05-02 for further information).

7.14 Wherever possible, all stairways to basements should be entered at ground level or have an access level from the open air (i.e. access to the staircase is directly from outside the building) and should be positioned so that smoke from any fire in the basement would not obstruct any exit serving the other floors of the building.

7.15 Where any stairway links a basement with the ground floor, the basement should be separated from the ground floor by two 30-minute fire-resisting doors, one at basement level and one at ground-floor level.

7.16 Any floor over a basement should provide 60 minutes' fire resistance. Where this is impractical, provided no smoke can pass through the floor, automatic smoke detection linked to a fire-alarm system that is audible throughout the premises could be provided as an alternative in the basement area. The assessment should take account of the general evacuation strategy for the building. This will only be appropriate for those buildings that are accessed by independent patients and staff.

7.17 Areas containing significant fire risks should be segregated by fire-resisting construction from the remainder of the premises, and be equipped with automatic fire detection or, where justified, with fixed firefighting equipment appropriate to the assessed risk.

7.18 Designated means of escape should be provided for occupants and maintenance staff, and means of giving and receiving fire warnings should be provided as a separate zone off the main fire detection and alarm system.

7.19 Ventilation systems should be so arranged as to minimise the risk of their spreading fire, smoke and toxic fumes throughout the area or affecting other parts of the premises. Basement areas may have, or require, specialised smoke heat exhaust ventilation systems (SHEVS) as part of a fire-engineered strategy.

7.20 HTM 05-02 provides further information on the fire safety design of underground accommodation and facilities. In addition, service ducts and service tunnels will need bespoke secondary risk assessments. These may have an impact on areas above the basement. These facilities may breach fire compartmentation.

Escape routes and strategies

7.21 Once a fire has started and been detected, and a warning has been given, occupants should be able to escape safely, either unaided or with assistance, but without the help of the fire and rescue service. The escape routes and their evacuation strategy should form part of a fire safety strategy for the premises, which should also include the procedures for operating and maintaining any fire protection measures necessary for the safe operation of the building. HTM 05-01 and Appendix G of HTM 05-02 provide further guidance on the development and documentation of fire safety strategies and procedures.

Evacuation

7.22 In all cases, escape routes should be designed to ensure, as far as possible, that any person confronted by fire anywhere in the building should be able to turn away from it and escape (or be evacuated), either direct to a place of total safety (single-stage evacuation) or initially to a place of relative safety (progressive horizontal evacuation), depending on the escape strategy adopted.

7.23 A place of reasonable safety can be an adjacent sub-compartment or compartment on the same level. From there, further escape will be possible either to another adjacent compartment or to a protected stairway or direct to final exit.

Means of escape and security

7.24 Exit doors on escape routes and final-exit doors should normally open in the direction of travel and be quickly and easily openable without the need for a key or special knowledge (for more information, see Appendix C on the provision and use of electronic locks on doors).

Powered sliding doors

7.25 Sliding doors are acceptable on escape routes in healthcare premises, provided they convert to outward-opening doors when subjected to reasonable pressure from any direction. In the case of powered sliding doors, they should be installed to ensure that they fail-safe to the fully open position in the event of a power failure or a fire alarm activation. For further information on actuation of release mechanisms, see BS 7273-4.

Single-direction escape

7.26 The maximum distance to be travelled before there is a choice of escape route or a protected escape route should ideally be no more than 15 m (see Figure 3).

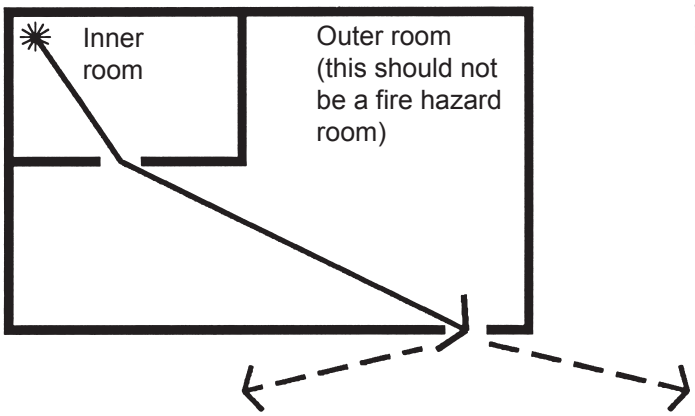
7.27 The risks from an increased single-direction-escape travel distance could be mitigated by:

- a high degree of observation
- adequately trained staff and use only by independent patients
- a reduced overall travel distance
- a reconsidered configuration or use of the area
- an engineered solution including ASET/RSET analysis, which may include enhanced protective measures. Any such solution should be agreed by the Authorising Engineer (Fire).

7.28 Single-direction escape may include escape from an inner room (a room only accessible through an access room), provided that:

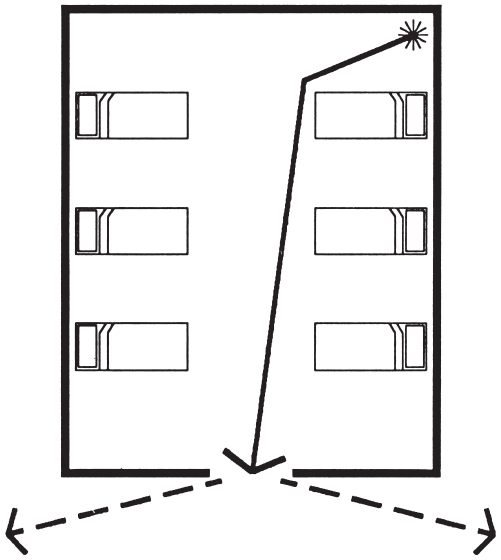
- the total distance to be travelled before there is a choice of escape route is carefully considered
- the access room is not a fire hazard room and
- the access room is fitted with automatic fire detection.

The maximum travel distance in a single direction of escape, before there is a choice of escape routes, should be no more than 15 m

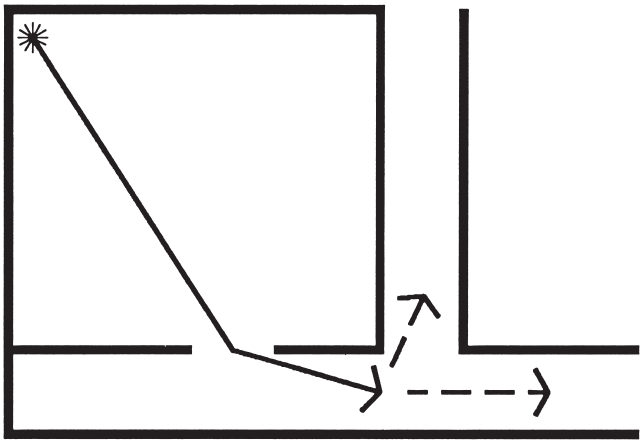


Single direction escape in this instance includes:

- travel within the inner room; and
- travel within the outer room.



Single direction escape in this instance includes only travel within the room



Single direction escape in this instance includes:

- travel within the room; and
- travel within the circulation space until there is a choice of escape routes.

Figure 3 Travel distance and alternative escape routes

Note:

"Inner, inner rooms" are not normally acceptable.

Overall travel distance

7.29 Travel distance is the maximum horizontal distance to be travelled between any point to one of the following:

- an adjoining compartment
- a sub-compartment
- an escape stairway, or
- the outside.

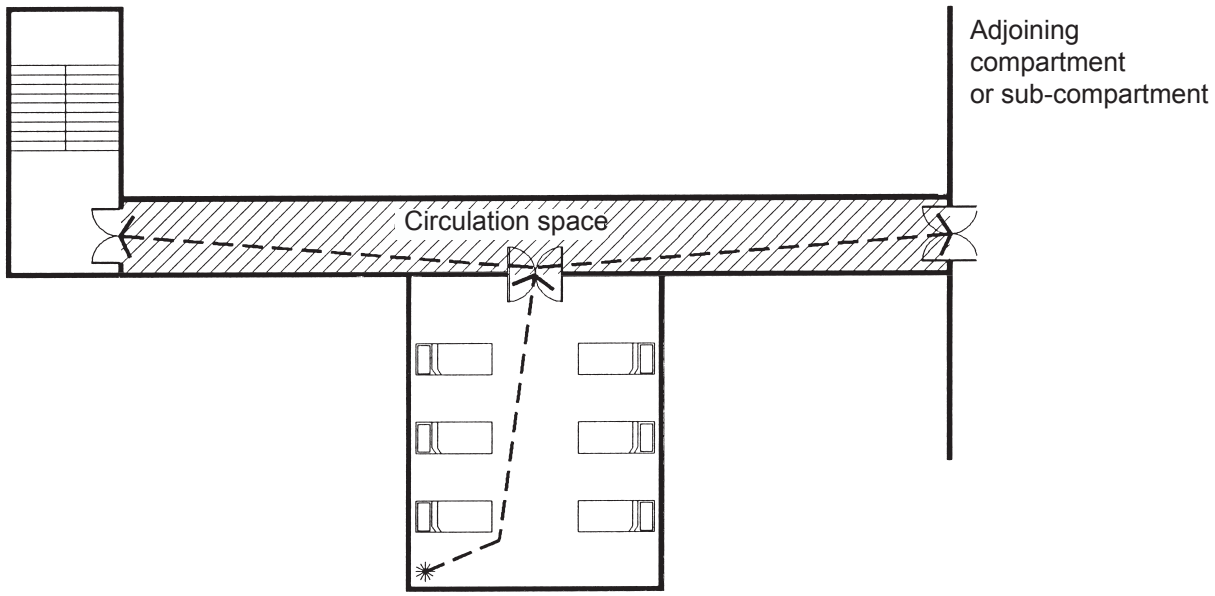
7.30 The first part of this may be escape in a single direction before there is a choice of escape (see Figure 4).

7.31 The maximum overall distance to be travelled within a sub-compartment should not exceed 30 m.

7.32 The design of circulation spaces (corridors or defined routes in open-plan areas) should ensure that it is possible to evacuate patients by the most appropriate method. In order to assess the suitability of circulation spaces, there should be an emergency evacuation plan, stating the preferred methods of evacuation.

7.33 A flat roof may form part of an escape route, provided that:

- there are an adequate number of staff available to assist with the evacuation
- the patients are not categorised as "dependent" and "very high dependency" (see HTM 05-02)
- smoke and flames from openings in the building envelope do not impede its use
- the roof construction provides a period of fire resistance of at least 60 minutes
- the route is defined, has a non-slip surface and has adequate handrails
- escape lighting is provided for the route.



Note:
Travel distance includes single-direction escape

Figure 4 Escape via a corridor

Subdivision of corridors

7.34 In healthcare premises (other than those accommodating dependent or very high dependency patients) where the corridors are more than 30 m long, the corridors should be subdivided near their centre by fire doors and, where necessary, fire-resisting construction so as to limit the spread of fire and smoke and to protect escape routes if there is a fire. Very often this can be achieved through sub-compartmentation.

7.35 In premises where there are dependent or very high dependency patients, hospital streets (where used) should be subdivided at 30 m intervals.

7.36 Where other corridors form part of the circulation routes, subdivision with fire doors and fire-resisting construction should be in line with the travel distances for sub-compartmentation.

Note:

Hospital design – even those with a hospital street – is based on the principle of protected areas (or sub-compartments and compartments) rather than protecting corridors, which would be functionally restrictive.

7.37 Where a corridor serves two exits from a floor, these corridors should be subdivided with fire doors to separate the two exits.

7.38 Where the fire strategy identifies that doors are provided solely for the purpose of restricting the travel of smoke, these need not be fire doors, and will be suitable as long as they are smoke-control doors and have the following features:

- are of substantial construction
- are capable of resisting the passage of smoke, and
- are self-closing.

7.39 Doors on circulation routes fitted with a self-closing device should incorporate an electromagnetic hold-open device that is activated by the operation of the fire detection and alarm system (see HTM 05-03 Part B). Smoke should not be able to bypass these doors (for example, above a false ceiling, or via alternative doors from a room or adjoining rooms that open on either side of the subdivision).

Fire-resisting doors

7.40 Doors forming either part of the protected escape route or part of compartmentation are normally specified as either an FD30s or FD60s door.

7.41 It is quite likely that at older premises, doors may not comply to modern standards. At the time they were fitted, most of these doors would have complied with the test standard or specification for a 30-minute fire-resisting door or, in some cases, this may also apply for a 60-minute door. Doors of this standard have performed satisfactorily in a fire situation and are likely to continue to do so, providing they remain in good condition.

7.42 A modern (FD30s) fire-resisting door has intumescent strips fitted along its side and top edges (or within the frame in these locations). The door may be fitted with an overhead self-closing device or a concealed closer in the door jamb or frame, depending on location or use. The doorset, the complete entity incorporating door hardware and furniture, would be tested for its performance as a whole.

7.43 Upgrading existing doors simply because they are not fitted with intumescent strips or smoke seals, or they fail to meet some other requirement of current standards, should not be made a generic recommendation.

7.44 It will not be practicable to test existing doors to confirm their actual fire resistance. Therefore, three options exist in relation to

original fire-resisting doors that do not meet current benchmark standards. These are:

- Accept the door as it is, provided it is a good fit in its frame and that in the professional opinion of the fire assessor it is likely to have satisfied the standard applicable to fire-resisting doors at the time of construction of the building or manufacture of the door ("notional FD30" door).
- Upgrade the door by, for example, fitting intumescent strips and smoke seals along the edges ("upgraded FD30s" door).
- Replace the door with an FD30s door ("replacement FD30s" door).

7.45 Any risk assessment methodology of existing doors should consider factors such as:

- reduced ligature (see the Design in Mental Health Network (DiMHN)/ Building Research Establishment's (BRE) (2020) 'Informed choices')
- location and purpose of door (for example, a small storage cupboard presents a much lesser risk than the door protecting a staircase or sub-compartment)
- fire loading that the door protects (considering the likely speed of fire development and fire severity that the door will be subjected to)
- likely required protection time (what would be the likely evacuation time? Acute care is likely to require a greater degree of protection). This may also include intervention time, the time taken before the fire and rescue service commences firefighting operations in that proximity.

7.46 An upgraded FD30s door cannot be guaranteed to achieve the same performance as a replacement FD30s door, for which there will be a fire test certificate. This is to be expected and is reasonable provided that the door has sufficient thickness of timber (for example, 44 mm for a 30-minute door; 54 mm for a 60-minute door). It should also be remembered that fire-resisting doors are available that are less than the widely accepted 44 mm thickness.

7.47 It may be appropriate for self-closing devices to be omitted in mental health facilities where the risk posed by the self-closing device outweighs the fire risk.

7.48 Healthcare organisations should have fire door schedules. These should identify each door and their criticality in the fire strategy, and in relation to the fire compartmentation scheme. These should include any test and installation evidence, including the hardware fitted to the door. Alternatively, for a notional fire door a record of the assessment should be made. The schedules should reference the fire strategy and or compartmentation drawings.

7.49 Each fire door will be required to achieve a certain fire resistance standard defined in the fire strategy. The fire strategy and the primary FRA should provide information setting out the particular purpose of a fire door and the level of fire resistance it needs to achieve. This is often in the form of fire compartment drawings.

7.50 When completing an FRA, the assessor will need to conduct an assessment as to whether the fire door can perform the function required, including the condition of the door. Where a door – including its frame, associated hardware and installation into the fire-resisting element – is of a known standard with appropriate test evidence that the door and its installation meets the required standard set out in HTM 05-02 or the fire strategy, the assessor will need to verify that it is still appropriate for its intended use. The assessor will need to review the doors condition and specify any required maintenance.

7.51 Where the appropriate specification and test data is not available for a doorset, the

assessor will need to undertake an assessment of whether the door is suitable for its intended use. Older fire doors with no appropriate test evidence are known as notional fire doors (i.e. a door or a door assembly that satisfied the current specification or fire resistance test at the time of installation or manufacture of the door). These doors may have been upgraded over time with the addition of intumescent strips and smoke seals. The door should closely match or have a number of features that identify it as an intended fire-resisting door. Features such as door thickness, the correct number of hinges, the correct door furniture, the frame and associated construction need to be appropriate.

7.52 It is reasonable to accept notional fire doors and maintain them to the standard they were manufactured/installed or upgraded to. Assessment should be made by persons competent at assessing fire doors in healthcare premises. Maintenance should be carried out by competent persons who are familiar with approved repair techniques. It is important to note that the assessment of any door should also include the purpose of that door and its function in terms of the risk it is intended to mitigate, and other relevant fire protection measures, to understand the risk holistically. This will include the dependency of the patients, the level of use that the door is subject to including the likelihood of it suffering impact damage and any business continuity factors that are relevant. This will assist an assessor in recommending a priority for any remediation that is required. The fire door protocol should take these factors into account.

7.53 The primary FRA should concentrate on assessing the standard of the door, its location, its role in the fire strategy of the hospital and the standard of installation. The secondary FRA should concentrate on the condition of the door and on the interim visual check/testing regime that is in place for periodic testing. Once the fire door has been assessed to ascertain that it is appropriate for its use, the periodic visual check/testing, such as daily, weekly and monthly checks during the year, does not need to be carried out by a fire risk assessor. It is acceptable for inspections to be carried out by estates personnel or Fire Wardens who have received suitable instruction and who are not expected to be experts in fire door compliance.

7.54 The daily fire door checks should ensure that all fire doors are not obstructed and can open freely and fully close. This could be carried out by local staff (for example, fire marshals). No additional training would be required for this and there is no requirement to record this. The weekly check should test any hold-open devices, electronically controlled locking mechanisms and other devices interfaced with the fire-alarm control panel. The monthly check should make sure that all fire doors are in good working order and closing correctly, and that the frames and seals are intact. These principles apply to any fire door regardless of its type or construction (for example, steel fire doors, sliding fire doors and roller shutter doors that have a fire-resisting function).

7.55 Further details can be found in the NFCC-approved documents:

- National Association of Healthcare Fire Officers' (NAHFO) (2022) 'Fire door inspections in healthcare buildings'
- Institute of Healthcare Engineering and Estate Management's 'Fire safety technical platform (FTSP) guidance document No. 2: Fire door PPM'.

Protected stairways

7.56 The positioning and design of stairways should ensure that it is possible to evacuate all patients from the assessment area by the most appropriate method. To assess the suitability of stairways, consideration should be given to the size of each stair and the landing to suit the method of evacuation stipulated in the emergency evacuation plan

for the assessment area, stating the preferred methods of evacuation (see HTM 05-01).

7.57 A protected stairway can be considered suitable if it is in a protected shaft and has direct access, or protected access, to the outside at ground or access level. Such access should be suitable for the evacuation of patients and lead to a place of total safety away from the building.

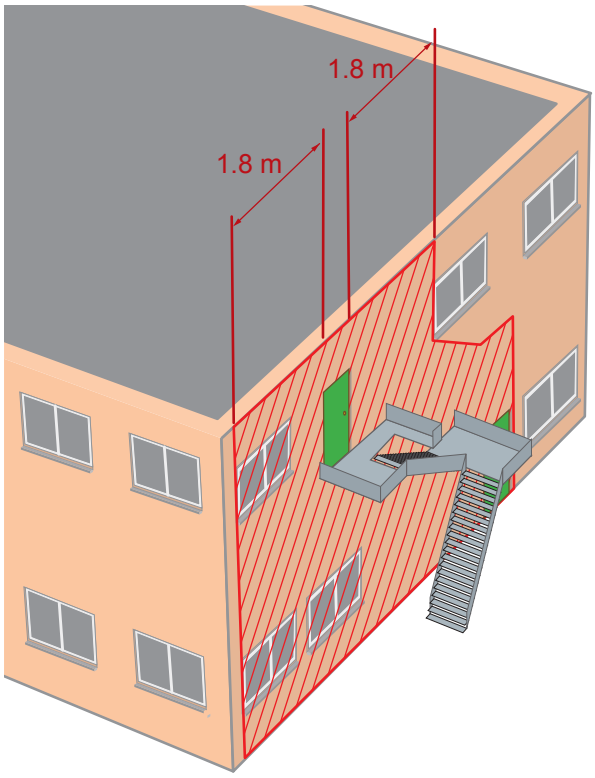
7.58 A stairway may serve more than one assessment area, but the aggregate width of the stairways provided should be sufficient for the number of people likely to be evacuated, taking into account the evacuation policy of the healthcare premises. Evidence of such calculations should be available in the building strategy. If they are not available, consideration should be given to this in the primary risk assessment.

7.59 Unless suitable alternative escape routes are available, external stairways should not be jeopardised by smoke and flames issuing from openings in the building envelope (see Figure 5).

7.60 Where assessment areas are higher than the third storey (that is, higher than three storey heights above ground level), increased risk to dependent or very high dependency patients can typically be mitigated by combinations of:

- increased number of compartments
- additional staircases
- provision of escape lifts, and
- small compartment sizes.

7.61 If an assessment area is on two floors, the position of the higher floor should be considered in determining the height above ground level.



Defined zone for fire-resisting walls, doors and windows on an external stairway. Windows within this area should provide a period of resistance of at least 30 minutes

Figure 5 Protection to external escape routes

Fire-resisting structures

Fire hazard rooms

7.62 Fire hazard rooms should be enclosed in fire-resisting construction to ensure that they do not represent a serious fire hazard. Alternatively, an automatic fire-suppression system could be used to ensure that fire hazard rooms do not represent a serious fire hazard (further guidance on the choice of fire extinguishing options is covered in BS 5306-0). The level of protection to fire hazards rooms can vary, although it is expected that a minimum of 30 minutes' fire resistance is provided (see Appendix B).

Non-patient access areas

7.63 If dependent or very high dependency patients are in a compartment adjoining a non-patient access area listed in paragraph 6.6 (either horizontally or vertically), additional

fire precautions may be necessary. In certain cases, the adjacency should not be permitted (see Table 1 in HTM 05-02).

7.64 The secondary risk assessment of the risk area should consider the likely impact upon other secondary areas.

Compartmentation

7.65 When assessing the secondary FRA area, it is important to check that the boundaries of the assessment area are either compartment or sub-compartment walls. A compartment should have a fire-resisting floor that is used to separate one fire compartment from another and should have a minimum period of fire resistance of 60 minutes (see Table B1 in HTM 05-02).

7.66 As a general principle, healthcare premises should be compartmented to floor areas of a manageable size. Compartment areas should not exceed 2000 m² (3000 m² in single-storey buildings) although sub-compartments should not exceed 750 m². Further information is provided in chapters 3 and 5 of HTM 05-02.

7.67 It is possible that some areas may exceed the dimensions stated. An assessment should be made against the proportionality of any significant upgrades versus the benefits achieved.

7.68 To maintain the integrity of compartmentation, openings should be adequately fire-stopped and limited to:

- doors that have a period of fire resistance suitable and sufficient for their location
- pipes provided as per the recommendations of Table 3
- pipes such as those used for pneumatic tube transfer systems; these pipes should be protected by an appropriate proprietary seal that has been proven through testing to maintain the fire resistance of the compartment structure
- any ventilation ducts that breach a fire-resisting element that comply with the requirements of BS 9999 or HTM 05-02
- waste and laundry chutes of non-combustible construction which are accessed through fire-resisting doors, and
- protected shafts (see paragraphs 5.26–5.28 in HTM 05-02).

7.69 Openings in compartment floors for stairways, lifts and escalators, and pipes and ducts not complying with paragraph 7.68 should be enclosed in a protected shaft that has the same period of fire resistance (integrity, insulation and, where applicable,

	Pipe material and maximum nominal internal diameter (mm)		
	(a) Non-combustible material [1]	(b) Lead, aluminium, aluminium alloy, uPVC [2], fibre cement	(c) Any other material
Structure enclosing a protected shaft that is not a stairway or lift	160	110	40
Any other situation	160	40	40

Notes:

1. Any non-combustible material (such as cast-iron, copper or steel) which if exposed to a temperature of 800°C will not soften or fracture to the extent that flame or hot gas will pass through the wall of the pipe.

2. uPVC pipes complying with BS 4514 and BS EN 1566-1.

Table 3 Fire protection to piped services

load-bearing capacity) as the compartment floor.

7.70 The protected shaft/stairway should form a complete barrier to fire between different compartments to which the shaft connects.

7.71 Access to a protected shaft from a circulation space should be through doors and doorsets that provide a period of fire resistance of at least 60 minutes.

7.72 Access to a protected shaft from a room should be through a lobby. The combined fire resistance of the two sets of doors or doorsets to the lobby should be at least 60 minutes.

7.73 Means of ventilating protected shafts in the event of fire should be provided as follows:

- for a protected shaft containing a stairway – at the top of the stairway, an openable window, or similar, providing an area of 1 m²
- for a protected shaft containing a lift or lifts, a permanent opening of 0.1 m² for each lift.

Subdivision and cavity barriers

7.74 Concealed spaces or cavities in the construction of a building may permit the rapid spread of fire and smoke. It is possible for fire and smoke to be transferred to areas remote from the seat of the fire by way of uninterrupted concealed spaces. For this reason, it is essential that fire-resisting barriers are provided to restrict the size of these concealed spaces.

7.75 In healthcare premises, the subdivision provided through the requirements for hazard protection, sub-compartmentation and compartmentation is such that generally the additional subdivision of ceiling voids for cavity barriers is not required.

7.76 Irrespective of the above, there is a requirement to prevent the interconnection of horizontal and vertical cavities.

7.77 With the exception of the ceiling void above operating departments, 30-minute fire-resisting barriers should be provided to subdivide concealed roofs or ceiling voids, so that the maximum dimension of uninterrupted roof or ceiling void should not exceed 20 m. Wherever possible, cavity barriers should be positioned to coincide with fire-resisting walls. However, a degree of judgement should be exercised when assessing the existing provision.

Passive fire protection

7.78 Passive fire protection is required to prevent fire spread between or within buildings. This also supports the protection of escape, containment of fire and prevention of premature collapse of a building. See also Appendix A.

7.79 Passive fire protection (PFP) products are those built into the fabric of the building to restrict the growth and spread of fire and smoke. PFP usually remains inert during normal conditions but may become active in a fire situation, such as fire-resisting walls, floors and the fire protection to structural elements. Where there is an opening in these elements, suitable passive fire safety measures will be needed to maintain the level of fire resistance required. These include cavity barriers, fire doorsets, fire-dampers in ductwork and fire shutters. Where services penetrate fire-resisting compartmentation, they will need to be protected by appropriate fire-stopping.

7.80 There should be a record of all the PFP in the building. This should be detailed in the fire strategy and in a detailed plan showing all of the fire compartmentation. Healthcare organisations should ensure that there is a full set of plans showing the location of all fire compartmentation and the fire rating of that compartmentation and associated structural elements (see also NHS England's (2014)

'Estates and Facilities Alert DH/2014/003 – Reminder for the testing of fire & smoke dampers and ensuring the integrity of fire stopping').

7.81 As a part of the FRA, the management of the PFP should be checked. The healthcare organisation should have a protocol for the checking of PFP that follows the guidance in IHEEM's 'Fire safety technical platform (FTSP) guidance document No. 1 – Fire compartmentation'. During an FRA it is not necessary to carry out an in-depth check of the PFP further than carrying out a visual inspection of the visible PFP to see if there has been any damage or alterations that may reduce its effectiveness below than the standard expected. A physical check of the condition of easily accessible elements such as fire-resisting walls, floors, ceilings and ducting should be made including the sampling of areas above ceilings.

7.82 As part of the FRA, the risk assessor should check that the healthcare organisation has developed a risk-based protocol for checking these components. This should be based on:

- What are the procedures for carrying out fire-stopping?
- What is the specification for fire-stopping?
- What are the requirements for product certification?
- What are the requirements for fire-stopping contractor certification?
- How are the details of fire-stopping recorded?
- Are details of location, product type (including manufacturer and quantity), date of installation, contractor's details and batch numbers recorded?
- Are details identified locally on the fire-resisting element to which the fire-stopping is applied, and records collated centrally?
- Is the application of fire-stopping inspected prior to the completion of works and the closing of ceilings, etc? If so, who carries out the inspection? How is the inspection recorded?
- Is there a permit to work system for works that have the potential to compromise the PFP?

7.83 This should reduce the likelihood of unplanned and uncontrolled damage to the PFP systems and give ownership to the appropriate department of the control of works. It should also provide information to establish if the PPM system is not being followed and the nature of activity that leads to unplanned damage to the PFP system.

7.84 This should also include the risk profile of the areas that are being protected by the PFP taking into account the dependency of the patients, firefighting access and business continuity.

7.85 Further guidance can be found in NHS England's (2014) 'Estates and Facilities Alert DH/2014/003' and IHEEM's 'Fire safety technical platform (FTSP) guidance document No. 1 – Fire compartmentation'. More general information on PFP can be found in the Association for Specialist Fire Protection's (2012) 'Guide to inspecting passive fire protection for fire risk assessors' and its 2014 guide 'Ensuring best practice for passive fire protection in buildings'. See also the National Association of Healthcare Fire Officers' (NAHFO) (2024) 'Fire damper, firestopping & cavity barrier inspections in healthcare buildings'.

7.86 Some constructional aspects associated with prefabricated or modular buildings may be difficult to assess as part of a fire risk assessment (such as cavity protection between modules). Where this method of construction exists, the risk assessor should seek advice from the Authorising Engineer (Fire).

Elements of structure

7.87 For the safety of dependent and very high dependency patients, staff and firefighters, elements of structure (such as a column or other parts of a structural frame, a load-bearing wall or a floor) should possess the following minimum levels of fire resistance:

- single-storey healthcare premises – 30 minutes
- healthcare premises with floors between one and four storey heights above ground – 60 minutes
- healthcare premises with floors above four storey heights above ground – 90 minutes
- healthcare premises with basements two or more storeys deep – 90 minutes.

7.88 A level of fire resistance 30 minutes lower than the levels given in paragraph 7.87 (with a minimum fire resistance of 30 minutes) can only be mitigated by an automatic suppression system (such as sprinklers).

7.89 In practice, it may be challenging to identify failings during an FRA except for obvious concerns such as timber floors, peeling intumescent protection to steelwork or exposed reinforcing bars (rebar) in spalling concrete. Where these come to light, advice should be sought from the healthcare organisation's Authorising Engineer.

Sandwich panels

7.90 Some buildings used as healthcare premises, or as part of a healthcare facility, have insulated core panels used for exterior cladding or for internal structures and partitions. Insulated core panels are easily constructed, which enables alterations and additional internal partitions to be erected with minimum disruption.

7.91 They normally consist of a central insulated core that is sandwiched between an inner and outer metal skin with no air gap. The external surface is then normally coated with a PVC covering to improve weather resistance or the aesthetic appeal of the panel. The central core can be made of various insulating materials, ranging from virtually non-combustible through to highly combustible materials with different thermo-mechanical behaviours.

7.92 As it can be difficult to identify the material that makes up a panel's central core without specialist assistance, best practice can help to reduce any additional risk:

- Do not store highly combustible materials or install heating appliances against the panels.
- Control ignition sources that are adjacent to, or penetrating, the panels.
- Have damaged panels or sealed joints repaired immediately and make sure that jointing compounds or gaskets used around the edges of the panels are in good order.
- Where openings have been made for doors, windows, cables and ducts, check that these have been effectively sealed and the inner core has not been exposed.
- Ensure that there has been no mechanical damage (for example caused by mobile equipment such as wheelchairs) – if so, repair any that has occurred.
- Ensure that any loads, such as storage and equipment, are only supported by panels that have been designed and installed to perform this function.

7.93 The panels should be installed by a competent person in accordance with industry guidance.

7.94 The use of combustible panels in healthcare premises should be carefully considered. The FRA may need to be revised to ensure that any increased risk resulting from this type of construction is considered.

Wherever possible, panels with a non-combustible core should be used.

7.95 Further guidance on insulated core panels and the panel-labelling scheme can be found in HTM 05-02.

External-envelope protection

7.96 The external wall or roof should provide sufficient fire resistance to prevent external fire spread from adjacent buildings or part of the same building in different compartments.

7.97 The risk assessment of external walls should follow the principles set out in PAS 9980.

Fire-engineered solutions

7.98 Certain hospital designs may depend on the implementation of fire-engineered solutions. Engineered solutions can be provided for various reasons but will generally be provided to compensate for situations that do not comply with building codes or guidance. Engineered solutions can utilise many methods to show compliance, including the provision of different/additional passive or active protection measures.

7.99 A fire-engineered solution should always be supported by a fire strategy which details the rationale for the design and a detailed explanation of the provisions in place, including necessary cause-and-effect logic. The FRA should assess whether any management constraints imposed by the engineered solution are being appropriately implemented.

7.100 In the case that a fire strategy does not exist, it is important that the necessary information is available for building operators. A fire risk assessor should be able to carry out an assessment without a fire strategy. However, to understand any fire-engineered solution, it is important to have access to the design and operating & maintenance information. If a fire strategy does not exist, it may be necessary to obtain a retrospective fire strategy which would support the primary/secondary FRA as appropriate.

Smoke control

7.101 Fire safety in healthcare premises does not normally require the installation of any form of mechanical smoke control; however, it may be present for a range of reasons including:

- an atrium smoke-control/extract system
- a pressurised stairway in accordance with BS EN 12101-6
- a Nucleus or other hospital with smoke extraction from the hospital street
- basement, car park and plantroom smoke extraction.

7.102 Smoke control can also form part of a fire-engineered solution and may mitigate some of the risks associated with extended single and/or overall travel distance.

7.103 The design of smoke control is a specialist area. If any doubt exists regarding the provision/use or operation of the system, a specialist fire engineer should be consulted.

Power supplies

7.104 Consideration should be given to the appropriateness of power supplies provided for any engineered solution including smoke control or other active measures. Importantly, it should be ensured that a secondary power supply is provided to ensure that any necessary systems can operate at all material times. The guidance should be followed from the appropriate British Standard or industry guidance.

7.105 Firefighting facilities such as firefighting lifts would normally require additional power supplies.

Access and facilities for fire and rescue services

7.106 Access and facilities should be provided for the fire and rescue services to respond to a fire, including:

- adequate site access for firefighting appliances, which may need to attend in significant numbers, points of access having been agreed with the local FA
- access for fire and rescue service appliances to the perimeter, depending on the building size
- access points into the building for firefighting personnel at suitable locations around the building
- suitable staircases for use by firefighting personnel, which can be entered at ground level from a suitable access for fire and rescue service appliances
- ventilation systems provided with firefighter controls should be accessible by the fire and rescue service and provided with the appropriate signage with regard to their function; general mechanical ventilation systems should not be operated without the attendance of on-call engineers.
- rising mains in firefighting shafts
- firefighting lifts
- fire hydrant locations
- basement ventilation.

7.107 HTM 05-02 provides detailed design guidance for the provision of firefighting facilities, which can be used as a benchmark. However, the purpose of an FRA is to provide a reasonable level of access.

7.108 Hospital roads used by firefighting appliances should be kept clear of obstructions at all times.

7.109 If parking is allowed, sufficient safe clearance should be provided and maintained to allow firefighting appliances clear passage at all times.

7.110 Fire and rescue service access should be indicated on site plans and any associated mimic displays with all facilities for firefighting to be made obvious.

7.111 Consideration needs to be given to the provision of firefighting information made available for attending fire and rescue personnel. The information should be made available in a conspicuous location, in a secure receptacle.

8 Management

8.1 Good management of fire safety is essential to ensure that fires are unlikely to occur. However, if they do occur, they must be rapidly detected and extinguished or contained. If a fire does develop, everyone in the premises should be able to escape to a place of safety in accordance with the fire emergency plan for the hospital. While this HTM provides guidance on FRAs in complex hospitals and is intended to assist in determining the appropriate fire safety management system to be applied to healthcare organisations, HTM 05-01 provides guidance on fire safety management.

8.2 Effective fire safety depends on a combination of physical fire precautions and a robust system of effective management. Fire safety in the healthcare environment is particularly challenging, since many healthcare building occupants will require some degree of assistance from healthcare staff to ensure their safety in the event of a fire.

8.3 In a complex hospital the proportion of building occupants that may require some assistance to quickly escape the effects of a fire will be greater than that which would be expected from a cross-section of the general population. While physical fire precautions within a building are intended to provide protection to building occupants, effective fire safety management ensures that the incidence of fire is minimised, the physical fire precautions are maintained in an operational state, the organisation is able to respond effectively should a fire occur, and that the impact of a fire incident is minimised.

8.4 In a complex hospital with very high dependency patients, it is unlikely that any amount of physical fire precautions on their own can reduce fire risks to an acceptable level. Adequate risk mitigation can only be achieved with the provision of a sufficient number of suitably trained staff, an environment in which the fire precautions are well maintained, and effective emergency action plans that have been sufficiently rehearsed. It is the non-physical elements of these fire precautions that are provided as a function of fire safety management.

8.5 An essential element of the fire safety management system is the audit process. The performance of key elements of the fire safety management system should be periodically audited. The outcomes should be communicated to the board, partners or equivalent controlling body as part of their monitoring function and validation against the fire safety objectives stated in the policy. To provide adequate assurance and robust governance, the fire safety management system should be periodically reviewed by parties independent of those responsible for the delivery of the fire safety outcomes.

8.6 As a part of the primary risk assessment, the organisational management should be assessed. While this is unlikely to require a full management review, an assessment of the management structure and its effectiveness should be completed.

8.7 HTM 05-01 recommends that the organisation should produce an annual statement of fire safety to provide a clear

indication in respect of the status of fire safety management within the organisation and a statement of assurance that adequate fire safety measures are in place. The outcome of any fire safety audit and internal reports should be used as the basis on which to formulate the annual statement of fire safety.

8.8 As set out in HTM 05-01, a fire safety audit should be carried out on a regular basis (ideally annually for larger and more complex premises) and should include a review of the following issues:

- Does the fire safety policy contain clear fire safety objectives and appropriate commitment to facilitate the management of fire safety in the organisation?
- Are management roles and responsibilities clearly described and are post holders aware and accepting of the roles they are required to fulfil?
- Do the fire safety protocols provide sufficient and clear instruction on important fire safety matters, and in particular to those whose role may not immediately appear to significantly impact upon fire safety?
- Are adequate FRAs in place for all areas under the organisation's ownership, occupation and/or control?
- Have suitable fire safety improvement action plans been developed to mitigate the risks identified in the FRAs?
- Have the significant findings from FRAs been communicated to the board, partners or equivalent controlling body, and has appropriate action been implemented?
- Has an appropriate training needs analysis been undertaken and a suitable fire safety training programme been implemented?
- Has the fire safety training activity been effective in ensuring that staff are aware of their fire safety responsibilities and their role in fire prevention and in implementing the fire emergency action plan?
- Has the fire safety training activity been effective in ensuring that every member of their staff attends fire safety training as set out in the healthcare organisation's fire safety training matrix?
- Have sufficient robust fire emergency action plans been developed, disseminated and suitably rehearsed for all parts of the organisation?
- Is a suitable programme of maintenance activity by sufficiently competent persons in place to adequately maintain the fire precautions, systems and equipment?
- Is sufficient information in respect of the emergency procedures, fire precautions, systems and equipment readily available in an appropriate form to facilitate firefighting activities?
- Where applicable, has a detailed plan of action been implemented to reduce false alarms and unwanted fire signals?
- Have any notices been issued by the fire and rescue services in respect of the organisation's compliance with statutory fire safety duties?
- Is the fire safety management system delivering the appropriate outcomes to meet the fire safety objectives set by the organisation's fire safety policy?

8.9 This list is not exhaustive but reflects many of the key questions that the audit should seek to answer. Actions advised by the audit should be implemented within the agreed timescales and their progress monitored.

8.10 The secondary FRAs should ensure that effective local fire safety management is in place. This would include:

- ensuring that staff understand the local emergency plan
- understanding the process for reporting defects in fire precautionary equipment or any significant change of use
- ensuring the availability of a sufficient number of appropriately trained staff at all times to implement the local fire emergency action plan
- ensuring that the fire policies and relevant fire safety instructions are brought to the attention of staff through local induction and ongoing staff briefings
- ensuring that all new staff, on their first day in the ward/department, are given basic familiarisation training within their workplace
- ensuring that sufficient trained Fire Wardens are identified and appointed for their specific areas of responsibility
- ensuring that staff are trained in the procedures for using evacuation equipment and in any appropriate PEEPs
- ensuring that the condition of local fire precautionary measures provide assurance that fire safety maintenance is effective.

9 Maintenance

General maintenance

9.1 HTM 05-03 Part B introduces the role of Authorised Person (Fire Safety Maintenance):

> In addition to the Authorised Person (Fire) described in HTM 05-01, this document introduces the new role of Authorised Person (Fire Safety Maintenance). Where necessary, this function may be shared by more than one person. …This person should be directly employed by the healthcare organisation.

The fire risk assessor should liaise closely with the AP (Fire Safety Maintenance) to ensure that fire safety maintenance meets legislative requirements.

9.2 The fire safety systems in any hospital will primarily comprise life safety systems; however, some systems will be provided for business continuity (for example, fire suppression in computer hub rooms). Fire safety systems may be complex and may interface with other building service systems that will affect patient safety such as ventilation or security. Appropriate checks, testing and maintenance of fire safety provisions is critical to ensure that they operate correctly when required.

9.3 Maintenance will include a wide range of checks and tests, some of which will be completed by competent persons. However, many – usually more frequent – basic checks can be completed by local staff provided with the necessary training. This may include checking such items as escape routes, fire exit doors, fire doors, fire extinguishers, fire alarm call points and fire detectors. The fire risk assessor is in a unique position to be able to ensure that such routines are in place and that checks are completed in accordance with them. This will require a dialogue with the persons carrying out these checks.

9.4 Health Technical Memorandum 00 - 'Policies and principles of healthcare engineering' provides guidance on issues relating to the management of engineering and technical service provision. This is a complex area. The fire risk assessor will need to rely on the expertise of professionals in technical areas. However, the FRA process will need to provide assurance that fire-related systems are being maintained appropriately and may also provide recommendations for such maintenance in terms of both frequency and the applied standard.

9.5 All relevant provisions should be maintained to a suitable standard, regardless of the assessment area they may fall under. There is a potential risk that the maintenance of shared facilities could be overlooked if the responsibility for maintaining the shared system falls outside the scope of the assessed area. For example, an automatic fire detection and alarm system is likely to span the entirety of the building, yet a small number of smoke detectors and manual call points may exist in an assessed area. Focusing solely on maintaining the system for a small area of the total system could lead to confusion. This is particularly important when testing interrelated systems via a cause-and-effect test.

9.6 HTM 00 sets out the need for information to be made available to the client for any new development or alteration as part of the CDM

regulations and is a requirement of Regulation 38 of the Building Regulations. The HTM also states that a maintenance policy/asset management strategy should be in place which ensures that equipment is regularly inspected and maintained. This policy/strategy should outline the importance of the role and the benefits of maintaining buildings and equipment at optimum performance levels in order to support healthcare activities. There should be accurate and up-to-date records and/or drawings. Where possible, these should be backed up electronically within the building management system. They should be readily available on site, in an appropriate format, for use by any Authorised Person responsible for engineering services and any competent persons inspecting or maintaining them.

9.7 This information may have been developed within the BIM (building information modelling) process during the design of the system and managed in line with HM Government's (2021) 'Government functional standards for property GovS 004: Property'. In operation, this information may be stored in a computerised maintenance management system. These systems should facilitate easy access to the required information to demonstrate that fire safety systems are being suitably maintained.

9.8 HTM 00 states that any design, installation, commissioning or maintenance work should only be carried out by suitably qualified and authorised competent persons, who may be employees of the organisation or appointed contractors. Evidence of current authorisation should be by sight of the correct certificate of approval. The use of third-party certified organisations is recommended. Third-party schemes of certification and accreditation of installers can provide confidence that the required level of performance for a system, product or component is achieved. Where non-third-party accredited competent persons are utilised, they may require a greater degree of monitoring and supervision by someone competent to do so.

9.9 The frequency of any particular maintenance activity and the need for planned preventive maintenance of the engineering services should be determined and continually assessed throughout its operation. This is to avoid unnecessary routine maintenance while ensuring the services are maintained in an efficient state, in efficient working order and in good repair.

9.10 The frequency of maintenance should be risk-based and evidence-backed. A good starting point being the relevant British/ European standards, manufacturers' recommendations and the circumstances of application. This should be developed for all fire safety systems as well as associated fire safety features such as fire doors and passive fire protection. Owing to the overriding risk to healthcare from contamination and the risk of infection, it should be ensured that the maintenance programme is proportionate and unlikely to pose a risk to patient safety. This may result in varying the frequency of checks from the above standards and recommendations.

9.11 HTM 05-01 states that the fire safety policy should be underpinned with a series of supporting fire safety protocols. One of these protocols (see Appendix E in HTM 05-01) should address the maintenance of fire precautions and systems and should include:

- What procedures should be followed for the maintenance of fire precautions and systems?
- What should be the maintenance intervals for each system or element of the fire precautions?
- What arrangements are in place for a degradation of the fire precautions or system during maintenance activities or as a result of an event such as a flood or power failure?
- How are building occupants notified?

9.12 Healthcare organisations should develop a protocol for the maintenance of fire safety systems that complies with legal requirements and considers the relevant British Standards, industry guidance and manufacturers' recommendations.

9.13 Monitoring technology can assist in ensuring that systems will be adequately responsive; however, this will usually need to be augmented by some level of physical checks.

9.14 Frequency of inspection should be based on three factors:

- The criticality of the system, including patient dependency. What is the risk if the system or an individual element within it were not to work as designed?
- The operating environment including frequency of usage. For example, fire dampers in a more challenging environment may require more frequent checks than those in a favourable one; a fire door rarely opened may require less frequent checks than one in constant use. Such revision should be based on a documented risk assessment.
- Past history. If similar items or items in similar locations have shown a high failure rate, maintenance should be more frequent. Conversely if the failure rate is particularly low, maintenance may be less frequent.

9.15 Further guidance on specific areas such as the maintenance of fire and smoke dampers, fire doors and fire compartmentation can be found on the IHEEM Fire Safety Technical Platform website.

9.16 Maintenance standards are generally provided by manufacturers, industry or best practice. The application of these standards must be based on the principles of ALARP. The risk to persons in a hospital will vary considerably depending both on the use of the area and the dependency of the patients. Simplistic standards with blanket application are unlikely to meet ALARP. It can take a considerable effort to devise and enact a maintenance programme which varies both the frequency and applicable standards. However, once devised and applied, it is likely to be the most efficient means of meeting legal requirements.

9.17 The fire risk assessor will be able to assess the overall impact of checks and maintenance and will have an appreciation of the risk posed in a particular area bearing in mind all aspects of fire safety. This puts them in a unique position to be able to state whether the level of maintenance meets the legal requirements in terms of FSO Article 17-1: "where necessary in order to safeguard the safety of relevant persons … the premises and any facilities, equipment and devices … are subject to a suitable system of maintenance and are maintained in an efficient state, in efficient working order and in good repair". If in the opinion of the assessor this standard is not being met, they should detail what proportionate measures are required to reduce the risk to ALARP and thus meet this standard. Simply stating that a survey should be completed and maintenance completed in line with a particular British Standard may not be helpful (although in certain circumstances may be necessary).

9.18 If a significant variation from published guidance is considered appropriate and proportionate for the maintenance programme, this should be suitably detailed, including any additional control measures (for example, the use of self-testing systems). However, any variation should not be uniformly applied across the entire premises without adequate justification. Additionally, these variations should form a protocol as detailed in HTM 05-01 and be endorsed by the Fire Safety Committee. (Further information on the risk assessment of planned maintenance programmes is contained in HTM 00, which advises annual reviews.)

9.19 The primary FRA should examine the testing record of systems and the protocols/ maintenance policies that are in place for fire safety systems. These would typically be the planned testing and maintenance carried out by specialist staff. The output from the yearly review of planned maintenance can provide valuable insights into the effectiveness of the maintenance programme for fire safety systems. If other occupiers on the site share responsibility for maintaining fire systems, it is crucial to ensure that these systems are being maintained appropriately, particularly any cause-and-effect link to the hospitals main systems.

9.20 The secondary FRA should examine the user testing carried out in defined areas. This would typically include daily, weekly and monthly checks carried out by a Fire Warden or suitably instructed local staff. These checks may involve ensuring fire extinguishers are available, fire doors are in apparently good order, smoke detector heads are uncovered, emergency lights are charging, etc. These checks should also cover basic fire safety requirements such as the availability of escape routes and whether fire exits are easily openable. An example of a basic fire safety maintenance list can be found in Annex A of HM Government's (2006) 'Fire safety risk assessment: healthcare premises'. It should be noted that the guidance contained in both BS 9999 and the HM Government guide will need to be adapted for the situation found in a particular hospital. Non-technical staff carrying out user checks should receive appropriate training.

9.21 Fire safety equipment may be taken offline for maintenance, repair or modification. In such situations, suitable alternative procedures and arrangements will need to be put in place while systems, equipment and other arrangements are not available or fully functioning. These alternative procedures should address:

- what arrangements there are for a degradation of the fire precautions or system
- how building occupants are notified
- how this affects the fire safety risk.

9.22 This will largely depend on the extent and period of time that any system is affected. This should be subject to a defined protocol or permit to work agreed with the Fire Safety Adviser.

Appendix A – Guidance on assessing the remediation of existing passive fire protection

Introduction

A1 Most hospitals will have some form of PFP which may degrade over time due to any of the following reasons:

- damage caused by further penetrations or the removal of services
- damage caused by movement
- damage caused by water
- cracking of surface finish as it ages
- carelessness or other damage.

A1 In addition, it may be necessary to complete further penetrations of services through existing PFP, for instance electrical cabling or medical gas pipeline. Therefore it will be necessary to assess any penetrations and associated remediations in fire-resisting walls.

A2 There will be plasterboard walls forming fire compartment walls, which comprise boards whose manufacturer and specification are unknown.

Scope

A3 This Appendix does not cover work which requires building regulations approval under the Building Regulations 2010. It covers healthcare buildings provided for the treatment or care of patients which come within the scope of the FSO.

A4 This does not cover air transfer grilles or structural steel protection or cavity barriers (unless cavity barriers are plasterboard).

Legal requirements

A5 Under Article 17 of the FSO, there is a requirement to maintain PFP “in an efficient state, in efficient working order and in good repair”. Guidance issued under Article 50 of the Order states that the objective should be to reduce the remaining risk to a level as low as reasonably practicable:

A6 As low as reasonably practical is a concept where risks should continue to be reduced until you reach a point where the cost and effort to reduce the risk further would be grossly disproportionate to the benefit achieved.

Third-party accreditation

A7 Reputable manufacturers of fire-stopping material will have their products tested and verified by a third party. HTM 05-02 states:

> 1.27 There are many UK product certification schemes. Such schemes certify compliance with the requirements of a recognised document which is

appropriate to the purpose for which the material is used. Materials that are not certified may still conform to a relevant standard.

1.28 independent schemes of certification and accreditation of installers and maintenance firms can offer confidence in the standard of workmanship provided.

Regulation 7 of the Building Regulations states that materials must be adequate and proper, adequately fixed and in a workmanlike manner.

A8 The use of third-party accredited contractors for fire-stopping, although not a legal requirement, will offer confidence in the standard of workmanship provided. Such schemes require that fire-stopping is fitted in accordance with manufacturer's specification. As a general rule, manufacturers will only specify that their materials are fitted as part of a system that they have had tested. This means that, for example, an ablative coated mineral wool batt from one manufacturer can only be sealed with intumescent acoustic mastic, or indeed other products, from the same manufacturer. This does not mean that the products from another manufacturer will not work effectively, just that they have not been tested together.

A9 Where the manufacturer of the original seal is known, their products should be used in accordance with their technical details. Where the manufacturer is not known, this can lead to a situation in which contractors either:

- refuse to remediate an existing seal, insisting on replacing the whole seal
- agree to remediate the existing seal but refuse to certify it.

Using non-third-party accredited contractors or using local staff to complete fire-stopping

A10 There is no legal requirement to use the services of third-party accredited contractors. If non-third-party accredited contractors or staff are used, there is a legal requirement that they are competent to complete the work, having "sufficient training and experience or knowledge and other qualities to enable them properly to implement the measures". It is important that:

a. details of competence such as records of training, knowledge and experience are checked, including the risk assessment and method statements

b. a sample of the work is checked to confirm that it is in line with manufacturer's technical details insofar as is possible, suggested minimum 5% sample

c. records are kept of points (a) and (b).

Remediating or fire-stopping existing seals

A11 In the case of existing seals that require remediation, the process in Figure A1 should be adopted.

Certification

A12 In the case of newly fitted seals, one would expect to be provided with either a certificate or else details of the seal including materials used. In the case of a remediated seal, the installer cannot certify the original seal for which they were not responsible. There is no legal requirement for a certificate to be issued. In this case the following information is required:

a. details to be provided when remediating fire seal with unknown manufacturer

b. photograph of original seal before remediation

c. approximate size of the original seal

d. details of the remediation e.g. "new penetration", "make good minor cracking of surface", "removed service

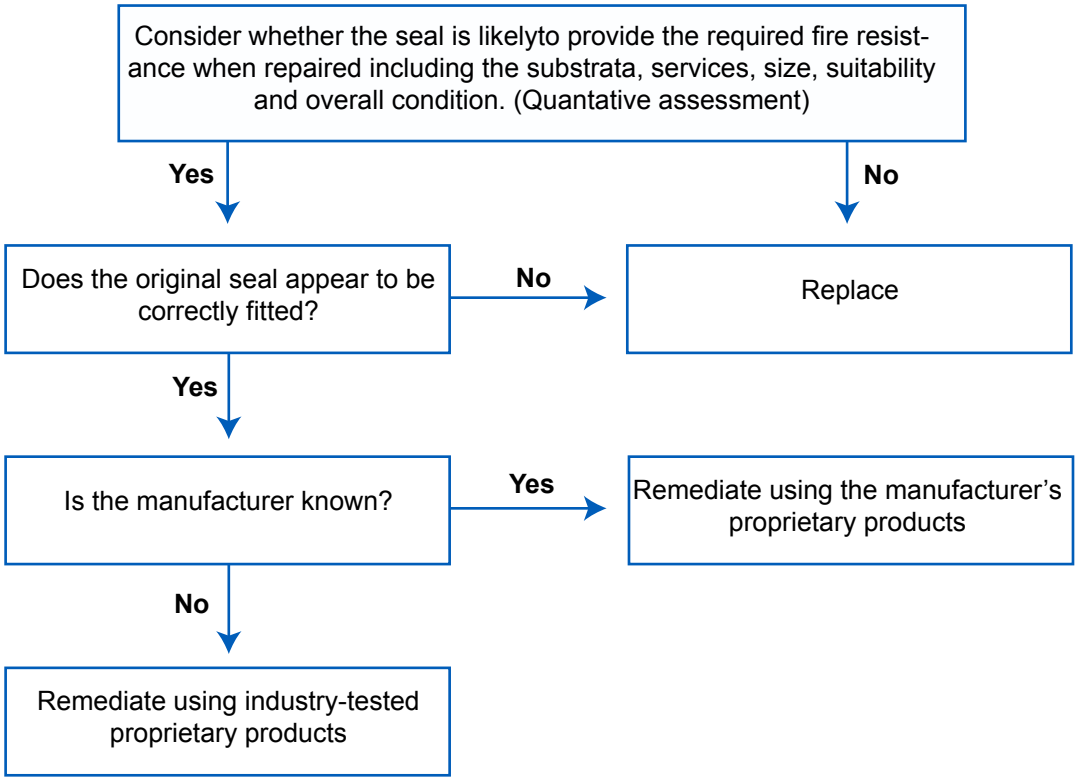


Figure A1 The remediation process for existing fire-stopping seals

made good" including size of remediation

e. details of materials used for remediation including manufacturer, product name, batch number, where appropriate expiry date or manufacture date

f. photograph of seal after remediation

g. plan of area showing location of seal

h. photo of sticker adjacent to seal showing remediation, date, installer company, operative name, manufacturer and materials used

i. unique identifying number.

Example situation 1

A13 A new penetration is being fitted to an existing ablative coated mineral wool batt of unknown manufacture. The batt appears to be sound and correctly fitted. The contractor is saying that, as they do not know the manufacturer, they cannot fire-stop the new penetration as they will not be able to certify it, but must re-do the whole seal.

A14 Solution: this is ALARP. The new penetration should be sealed using a proprietary product as far as is possible following the manufacturer's specification and details provided as outlined above. It is not necessary to replace the whole seal.

New services being fitted through existing seal – manufacturer unknown; original seal likely to provide appropriate period of fire resistance when remediated and appears to be correctly installed.

Example situation 2

A15 A new penetration is being fitted to an existing ablative coated mineral wool batt of unknown manufacture. The batt is in poor condition with extensive cracking present and has had services removed without re-sealing. The contractor reports that, as they do not know the manufacturer, they cannot fire-stop the new penetration but must replace the whole seal.

A16 Solution: this is ALARP. The batt is in poor condition with excessive cracking and obvious damage. Even if remediated, the seal would be unlikely to provide the requisite fire resistance. It would be appropriate to replace the whole seal.

Substrata

A17 The substrata into which fire seals are fitted must be suitable for the seals.

A18 There have been cases in which contractors have been unwilling to fit seals or certificate seals in existing substrata because they do not have details of the manufacture/ specification. The advice above regarding certification is applicable in these cases. In this case the following may be used as reaching the threshold of ALARP:

30-minute fire resistance:

- 75 mm brick or 50 mm blockwork

- timber or steel stud, 1 sheet of 12 mm (or greater) plasterboard on each side with the joints taped and sealed.

60-minute fire resistance:

- 75 mm brick or 75 mm thick blockwork
- timber or steel stud, 1 sheet of 12.5 mm (or greater) fire-rated plasterboard or 2 x 12.5 mm plasterboard (joints staggered, not aligned) on each side with the joints taped and sealed.

Note:

Where fire resistance is provided on only one face of the studwork (for instance, a fire-rated ceiling), the above may be provided to one side only, usually being the risk side (for instance, a fire-rated ceiling to a storeroom as in paragraph 5.42 of HTM 05-02).

Appendix B – Hazard room risk assessment matrix

B1 The following methodology may be utilised in line with paragraphs 5.40–5.43 of HTM 05-01 and this HTM in assessing whether a room poses a higher hazard than the general area and should be regarded as a hazard room. The methodology included within this Appendix can support the findings within both primary and secondary FRAs. This is designed to assist the risk assessment process and should not be used as a design guide, where HTM 05-02 should be followed instead.

B2 This matrix should not be used where a higher level of protection is required due to other specific guidance (for example, mental health services).

B3 A fire hazard room is a room or other area which, because of its function and/or contents, presents a greater hazard of fire occurring and developing than elsewhere. Rooms for storing or charging of lithium batteries may be considered a hazard room in line with the healthcare organisation's protocol.

B4 Are there any highly flammable items such as alcohol hand gel?

Grading	Description	Score
1	No	
2	Very small quantities (up to 1 L) in correct container safely stored or for immediate use e.g. alcohol gel for local use.	
3	Larger quantity in correct container or locked flammable cabinet.	
4	Smaller quantities (1–5 L) incorrect container or incorrectly stored.	
5	Larger quantities, incorrect container, incorrectly stored.	
Total		

B5 Are there Class A combustibles – wood, plastic, paper, card, etc?

Grading	Description	Score
1	No	
2	Similar quantity to surrounding general area	
3	Larger quantity than surrounding area	
4	Considerable quantity	
5	Fully racked out and extensive quantities or bins containing large quantities	
Total		

B6 What is the fire growth rate likely to be?

Grading	Description	Score
1	Very low, difficult to ignite or burn items, few in number	
2	Normal fire loading associated with office use or the areas in close proximity	
3	Larger quantity of paperwork, stationery, etc. on either non-combustible or limited combustibility shelving	
4	Plastic shelving with plastic products or other products likely to burn rapidly	
5	High storage racking with plastic or other large surface area combustible storage, or larger quantities of highly flammable items or bins containing various combustible items	
Total		

B7 Are there ignition sources?

Grading	Description	Score
1	Essential lighting only	
2	Lighting and small number of power points with low current devices Very well-controlled environment (for example, no use of untested electrical equipment and extension cables)	
3	Fire load typical for hospitals with controlled sources of ignition (for example, PAT testing of electrical equipment)	
4	Lack of control of use of electrical equipment (for example, portable electric heaters or several cooling fans in use)	
5	Hot works, incandescent materials, open flame	
Total		

B8 Is there oxygen present including medical gases?

Grading	Description	Score
1	Only atmospheric oxygen but generally a sealed room with limited windows	
2	Only atmospheric oxygen but well-ventilated with windows or other means of ventilation	
3	Medical gas pipeline system but well managed with minimal outlets	
4	Cylinders containing oxygen or other gases which may be flammable or oxidising in well-managed storage/racks	
5	Cylinders containing oxygen or other gases which may be flammable or oxidising, storage haphazard and not well-managed	
Total		

Total score (adding the totals from each section above)	

Note:

Where possible, the risk should be reduced as far as reasonably practicable, for instance by removing inappropriate storage or storing items correctly and in the correct manner.

The area should be subject to an FRA and any actions from that risk assessment implemented prior to using the matrix

If any individual item above scores a “5”, the risk should be reduced and if it is not possible to do so, it should be classed as a hazard room.

Scoring: using the total score from above

Non-sprinklered building:

5–9 Low or normal fire risk, unlikely to be a hazard room.

10–12 Use professional opinion to decide whether a hazard room: the greater the dependency of the patient, the more likely to be considered a hazard.

13–25 Likely to be a hazard room.

Sprinklered building

5–14 Unlikely to be a hazard room.

15–19 Use professional opinion to decide whether a hazard room: the greater the dependency of the patient, the more likely to be considered a hazard.

20–25 Likely to be a hazard room.

Appendix C – Assessment of escape routes including electronic locks on doors

Introduction

C1 The use of electronic locks on doors throughout healthcare premises is common practice. In order to use these devices effectively, see BS 7273-4.

C2 Effective security is a serious matter in hospital design and use and the proliferation of security devices in use on escape routes is increasing.

C3 Before deciding on the use of electronic locks, other methods of providing security should be considered. Advice should be sought from the healthcare organisation's local security management specialist as well as its Fire Safety Adviser.

C4 Where the use of an electronic lock is the only suitable solution, variations from the British Standard and HTMs will need to be justified on an individual risk assessment basis.

C5 A security risk assessment should consider the impact on means of escape and vice-versa. It is likely that the fire risk assessor will need to consult the security manager.

Escape routes and security

C6 All doors on escape routes and final exit doors should normally open in the direction of travel and be quickly and easily openable without the need for a key. This is the starting point for all securing devices.

C7 Exceptionally, there are specific life-safety protection reasons for additional security. If this is the case, each circumstance should be assessed individually. Such circumstances may include:

- maternity areas, where there is demonstrable evidence of abduction risks
- mental health units where the safety of patients, staff and members of the public could be at risk
- where security of drugs is particularly important.

C8 Additional security measures put in place simply to secure areas from theft or to manage the movement of people are not appropriate. The need for extensive escape routes through sensitive areas should be addressed at the design stage.

C9 However, it is accepted that in certain situations issues may arise, particularly in

premises that provide accommodation for people with mental health conditions, where it may be essential to maintain a high level of supervision during an evacuation. In these situations, doors that open automatically on the activation of the fire-alarm system may not be acceptable, since patients would be able to leave and not necessarily follow the safest evacuation route, or could abscond, possibly placing themselves or others at risk. It would also be more difficult to establish that everyone had been safely removed from the fire-affected area.

C10 In areas where this type of security is important, the staffing levels should be sufficient to allow the operation of a key-operated, or other staff-controlled, evacuation system. Any slight delay in opening doors compared with an automatic system should be compensated for by the ability of a well-trained staff team to organise a controlled evacuation more quickly.

C11 The relationship between the securing of doors against unwanted entry and the ability to escape through them easily in an emergency has often proved problematical. Careful planning and the use of quality materials remain the most effective means of satisfying both of these objectives. Any device that impedes people making good their escape, either by being unnecessarily complicated to manipulate or not being readily openable, is not acceptable. It is at this stage where close cooperation between fire safety and security personnel is essential.

C12 Acceptable securing devices that deny unauthorised access can take many forms, but in most premises where there are members of the public present or where users are not familiar with the building, panic exit bars (that is, push bars or touch bars) should be used. For further information, see BS EN 1125.

C13 Premises that have limited numbers of staff or where most users are familiar with the building and where panic is not likely may use alternative devices (that is, push pads or lever handles). For further information, see BS EN 179.

Electrical locking devices

C14 Electrically operated entry-control devices have been developed and adapted for use as securing devices on fire exits. They fall into two main categories – electromechanical and electromagnetic:

- Electromechanical devices comprise electromechanical lock-keeps and draw-bolts, which can be controlled by people inside the premises by entering a code or by using smart cards, which have been adapted to control the exit from certain areas. Electromechanical locking devices are not acceptable on escape doors, unless:
  - they are fitted with a manual means of overriding the locking mechanism such as a push bar, push pad or lever handle, or
  - they do not rely on a spring mechanism, they fail-safe open and they are not affected by pressure, in which case the criteria for electromagnetic devices should be applied.
- Electromagnetic devices comprise an electromagnet and a simple fixed retaining plate with no moving parts and are therefore generally considered to be more reliable. Correctly designed and installed, they should “fail-safe unlocked” in operation. The release of this type of device is controlled by the interruption of electrical current to the electromagnet, either manually via a switch, or by a break-glass point (typically coloured green, often with an alarm to alert operation), or by linking via a relay to the fire-warning and detection system of the premises.

Time-delay devices on escape routes

C15 A further development is the fitting of a time-delay system to the electronic door-locking device. This delays the actual opening of an exit door for a variable period following operation of the panic bar or other exit device. Periods of between 5 and 60 seconds can be pre-set at the manufacturing stage or can be adjusted when fitted.

C16 These are not normally acceptable for use by members of the public. However, they may be acceptable for use by staff who are familiar with their operation and are suitably trained in their use.

C17 The use of a time-delay system that prevents the opening of emergency exits for a pre-set time is primarily used to improve security. These add a further layer of complexity to the fire strategy and should only be used in non-public areas when all other options, such as relocating valuable equipment or exterior boundary management, have been addressed.

C18 A time-delay arrangement may be acceptable in areas such as mental health and baby units, but the implications of panic for escapees finding their escape apparently blocked should be fully considered.

Design, installation and management of electronic exit-door control devices

C19 Access control should not be confused with exit control. Many devices are available which control the access to the premises but retain the immediate escape facility from the premises.

C20 The use of any such devices (that is, other than those complying to BS EN 1125 or BS EN 179) may be accepted by enforcing authorities if the responsible person can demonstrate, through a suitable risk assessment for each individual door, both the need and the adequate management controls to ensure that people can escape safely from the premises. In particular, all other alternatives should have been explored and evaluated prior to considering the use of these devices.

C21 The requirement for additional exit control systems should be carefully assessed and should not be seen as a substitute for good management of the employees and occupants.

C22 All such devices, if fitted, must be in accordance with BS 7273-4 and fully meet the requirements for category A actuation:

- There should be an additional means of manually overriding the locking device at each such exit (typically a green break-glass point) and any variation must be justified by an individual risk assessment (for example, the fitting of a remote override at a continually staffed nurse station).
- The device should be connected to the fire-warning and/or detection system.
- In premises where there may be large numbers of people, the devices should only be considered when linked to a comprehensive automatic fire-detection and alarm system in accordance with BS 5839-1 (for example L1, L2).
- The emergency exit doors should be clearly labelled with instructions on how to operate them.
- In public areas, when push bars are fitted on escape doors, they should release the electromagnetic locks immediately and allow the exit doors to open.
- Each emergency exit door should be fitted with a single securing device when the premises are occupied.

C23 The use of electronic door-locking devices should be considered with particular

care in premises with a number of different occupancies. The management of a complicated system of evacuation for many different groups is unlikely to be practicable.

C24 The technical standards in respect of sourcing, maintaining and testing must be extremely high. When part of the management control system involves trained personnel helping others at these doors, it is vital to ensure these people are available at all times.

C25 The use of electronic exit-door control devices should not be considered where the number of trained staff is low or where members of the public would be expected to operate the devices without help.

C26 BS 8220 gives further advice on security in buildings and, while this standard does refer to electronic locking devices, it also acknowledges that the balance must remain on the side of emergency escape rather than security.

Appendix D – Catering vending machines

Introduction

D1 The requirement to provide 24-hour catering at many hospitals has led to the introduction of vending machines in various locations where they are easily accessible by members of the public and staff.

D2 Vending machines other than for catering purposes are out of scope.

The risk

D3 Vending machines may cause restrictions to the capacity of exit routes, reducing the effectiveness of emergency evacuation plans.

D4 Vending machines may take up space designed to be used during an evacuation for temporary placement of dependent patients on beds or chairs, reducing the effectiveness of emergency evacuation plans.

D5 As with any electrical equipment, vending machines generally may pose a fire risk. This risk may vary depending on the type of machine and the level of maintenance, and is likely to range from lower to higher in the following order:

a. those that do not have chillers or heating mechanisms (most vending machines will not be in this category)

b. those including chillers

c. those providing hot beverages

d. those providing hot meals either within the device or utilising a separate microwave oven.

D6 There may also be an arson risk, especially with the deliberate misuse of a microwave oven associated with a vending machine.

Areas covered

D7 The areas specified in this Appendix are:

- hazard rooms as defined in HTM 05-02
- single direction (dead-end) escape routes (corridors) whether there is a requirement for these to be fire-protected (see paragraphs 3.30–3.32 in HTM 05-02)
- circulation spaces not including a staircase or hospital street, referred to as a “circulation area”
- circulation spaces being a hospital street, referred to as a “hospital street” (see paragraph 2.14 in HTM 05-02)
- circulation spaces being a staircase enclosure used for vertical travel, referred to as “staircase enclosure”
- catering areas, such as a restaurant, which form a fire compartment.

Action

a. For premises where vending machines are already installed, it should be ensured that the fire risk assessment for that area has been reviewed subsequent to their provision. If this is not the case, the FRA should be reviewed for that area.

b. Before vending machines are provided in any areas other than hazard rooms, a specific fire risk assessment should be conducted by the Fire Safety Adviser/Authorised Person (Fire) who performs fire risk assessments for the healthcare organisation. This assessment should be done in conjunction with the local manager and should include consultation with the vending machine company.

c. Vending machines should not be placed in single-direction “dead end” corridors or within 4.5 m from the end of such corridors, regardless of whether the corridor is required to be fire-resisting (less than 4.5 m in length).

d. Any vending machines may be located in “hazard rooms” which meet the guidance in paragraphs 5.40–5.44 of HTM 05-02.

e. Vending machines should not be located in a hospital street.

f. Vending machines should not be located in a staircase enclosure.

g. Vending machines should not be located in positions where persons have no alternative but to pass close to them (within 4.5 m) when evacuating.

h. Vending machines which include chillers may be located in circulation areas subject to (2) above.

i. Vending machines which provide hot beverages may be located in circulation areas subject to (2) above.

j. Vending machines that provide food to be heated in a microwave may be located in catering areas subject to (2) above.

k. Vending equipment should meet the following criteria:

   – It should be designed, built and tested to safety standards that address fire risks (BS EN 60335-1 and BS EN 60335-2-75 for vending machines, and BS EN 60335-2-24 for refrigerated vending machines).

   – It should undergo annual portable appliance testing (PAT) to verify the integrity of electrical insulation.

   – It should be regularly serviced and maintained to ensure proper and safe functioning, following the manufacturer’s guidelines.

Specific fire risk assessment

D8 Where a specific fire risk assessment is required above, the FRA should be completed by the healthcare organisation’s Fire Safety Adviser/Authorised Person (Fire) or the person responsible for conducting FRAs for those specific premises, in collaboration with the local manager. Additionally, dialogue with the vending machine company should be included in the assessment process.

D9 The FRA may require additional measures to be provided to reduce the risk to a tolerable level. These should be provided before the vending machine is deployed.

Appendix E – Primary fire risk assessment templates

Note:

This Appendix shows example templates for conducting primary fire risk assessments. Downloadable Microsoft Word versions of these fire risk assessment templates are available. The Word document templates allow users to complete and customise the assessments according to their specific healthcare facility or situation. For convenience and ease of updating, these editable Word templates should be used when conducting and documenting fire risk assessments for complex healthcare premises. Word templates can be accessed and downloaded from the HTM 05-03 web page.

Fire safety management coordination

Fire risk assessment review

Assessments should be kept under constant review, and in any case reviewed whenever circumstance change which affect the validity of the current assessment. Whilst there is no maximum period between assessments, it is recommended that the review period should not exceed 12 months.

Revision	Date	Assessor details	Signature
Initial Assessment			
Revision 1			
Revision 2			
Revision 3			
Revision 4			
Revision 5			
Revision 6			
Revision 7			
Revision 8			
Revision 9			
Revision 10			

Schedule of secondary fire risk assessments

Reference No.	Location name	Floor	Responsibility	Date of last FRA	Findings relevant to the primary assessment	Initial/Final risk rating

Significant findings

Consequence of fire

Severity of outcome (S)	Value	Examples
Negligible	1	Negligible
Low	2	Slight damage to property Minor injury to occupants, first aid required
Moderate	3	Moderate damage to property Partial evacuation required Injury to occupants, medical attention required
High	4	Large scale damage to property Complete evacuation required Occupants require hospitalisation
Catastrophic	5	Major loss of property Major loss of life

Probability of fire

Likelihood (L)	Value	**Examples**
Rare	1	Combination of few ignition sources and low fire load in a highly controlled environment.
Unlikely	2	Very well-controlled environment (for example, no use of untested electrical equipment and extension cables), effective management of contractors and hot works, controlled access to members of the public.
Possible	3	Fire load typical for hospitals with controlled sources of ignition (for example, PAT testing of electrical equipment).
Likely	4	Lack of control of use of electrical equipment (such as portable electrical heaters), uncontrolled access to members of the public combined with readily accessible fire loads (for example, poorly controlled waste areas).
Almost certain	5	Uncontrolled hot works with immediate risk of ignition combined with fire load.

Considering 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:

- ☐ Rare
- ☐ Unlikely
- ☐ Possible
- ☐ Likely
- ☐ Almost certain

Considering 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:

- ☐ Negligible harm
- ☐ Low harm
- ☐ Moderate harm
- ☐ High harm
- ☐ Catastrophic harm

Risk rating

	Rare	Unlikely	Possible	Likely	Almost certain
Negligible	1	2	3	4	5
Low	2	4	6	8	10
Moderate	3	6	9	12	15
High	4	8	12	16	20
Catastrophic	5	10	15	20	25

Final risk rating

Risk rating	Risk description	Action
1	Trivial	None
2–3	Tolerable	Review findings at next FRA
4–9	Moderate	Implement additional control measures within programmed maintenance/management process
10–16	Substantial	Implement interim measures immediately and full controls as soon as practicable
20–25	High	Cease use of area or activity giving risk until additional controls are in place

Risk level	Action and timescale
Trivial	No action is required.
Tolerable (low risk)	No major additional controls required. However, there might be a need for improvements that involve minor or limited cost. Review findings at next FRA
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures should be implemented within a defined time period. Implement additional control measures within programmed maintenance process 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 building is unoccupied, it should not be occupied until the risk has been reduced. If the building is occupied, urgent action should be taken. Implement interim measures immediately and full controls as soon as practicable
High	Building (or relevant area) should not be occupied until the risk is reduced. Cease use of area until additional controls are in place

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

- ☐ Trivial
- ☐ Tolerable
- ☐ Moderate
- ☐ Substantial
- ☐ High

Comments

Action plan

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

Ref No.	Location	Findings	Variation/ justification or action required	Review secondary risk assessment affected by this defect	Interim control measures	Initial/final risk rating		Person responsible/ allocated job number	Date Completed/ Competent Person Initials

Assessment details and scope

Premises

Premises full address	
Owner & occupier (provide details of both if different)	

General description of premises

Responsible person(s)

Name & position of responsible person	
Details of the Authorising Engineer (name, company, address)	
Name of the person(s) providing the information	
Contact details	

Dates

Date of fire risk assessment	
Date of previous fire risk assessment	
Suggested date/period for review	

Relevant fire safety legislation and guidance

Any informal notices, alterations, enforcement or prohibition notices applicable to these premises. Please note the enforcement authority issuing the notice.

Relevant guidance used in the production of this fire risk assessment

Fire risk assessor

Name of fire risk assessor

Details of competence (such as fire risk assessment qualifications, professional organisation membership and membership of third party accreditation scheme)

I certify that to the best of my knowledge, the information contained in this fire risk assessment is correct, based on information provided at the time the assessment was undertaken.

Signature of fire risk assessor

Report authorised by Fire Safety Manager (name and date)

Signature

Building schedule

The building schedule should correspond to the site plans referenced on the next page. Descriptions should include:

- building use
- building contents (gas and chemical storage, plantrooms, high voltage equipment, etc.)
- hours the buildings are in use
- the original design guidance should be specified (if known) and/or guidance used at the last renovation.

Ref.	Name	Description	Year of build	Design guidance	No. of floors	No. of basements

General site plan

Include a site plan with the buildings listed in the schedule marked accordingly.

Building information

Building height

Height (m) (from access level to top occupied storey excluding any plantrooms on the roof)	
Number of floors at ground level and above	
Number of floors entirely below ground level	

General description of building construction and layout

Floor area

Approximate floor area per floor (m^2)	
Approximate total floor area (m^2)	

Original design guidance (if known) or guidance used when last renovated (please tick):

- ☐ HTM 81 (grey)
- ☐ Nucleus
- ☐ HTM 81 (yellow)
- ☐ HTM 05-02
- ☐ Other

Comments:

Building uses & hours of use

Maximum number of persons:

Staff	
Patients	
Others	
Total	

Details of others (i.e., are there other employers in the building, members of the public, etc.)

Minimum number of staff on duty	

Typical occupant dependency (please tick):

- ☐ Independent
- ☐ Dependent
- ☐ Very high dependency

Building plans

(Reference to appropriate plans for the building or the building fire strategy)

Occupancy

Does the healthcare facility contain (tick those applicable)?

- ☐ Sleeping areas
- ☐ Patient access areas
- ☐ Non-patient areas
- ☐ Operating theatres
- ☐ Acute care
- ☐ Emergency care

Details of activities at the healthcare facility (types of care, long stay, secure facilities, operations, etc.)

People in and around the building (tick those applicable):

- ☐ Medical staff
- ☐ Non-medical staff
- ☐ Patients
- ☐ Members of the public
- ☐ Lone workers
- ☐ Non-patients with disabilities
- ☐ Others (specify)

Comments

Maximum number of persons:

Staff	
Patients	
Others	
Total	
Minimum number of staff on duty	

Those requiring special consideration (tick those applicable):

☐ Young workers
☐ Children
☐ Those with language difficulties
☐ Those with mental health conditions
☐ Other (specify)

Comments

Typical occupant dependency (please tick):

☐ Independent
☐ Dependent
☐ Very high dependency

Describe the management policies and procedures to identify and address the needs of those requiring special consideration or who are dependant

Means of escape

Describe the escape route(s) from the building (common stairs, final exits, etc.)

Fire exits

	Y/N/ NA	Comment
Are exit capacities adequate for the number of occupants?		
Do fire exits open in the direction of escape (where necessary)?		
Are all fire exits easily and immediately openable?		
Are the arrangements provided for securing exits satisfactory?		
Are there satisfactory arrangements for escape where revolving doors or sliding doors are used as exits?		
Is there adequate provision of exits?		

Further details (including description of arrangements and deficiencies observed)

Are means of escape adequate?

	Y/N	Comment
Is a suitable standard of protection designed for escape routes? Is the standard of protection aligned to the fire strategy for the building?		
Is the means of escape design in line with the fire strategy?		
Are travel distances in line with guidance?		
Are lifts capable of being used in an emergency provided?		
Are means of escape routes suitably maintained? Are the common escape routes clear of obstructions and combustible materials?		

Further details (including description of arrangements and deficiencies observed)

Are escape routes suitably signed? Are fire action notices or other fire safety signs provided?	
Has a reasonable standard of emergency escape lighting system been provided?	

Assisted evacuation

	Y/N	Comment
Are evacuation lifts provided under the assisted evacuation?		
Are refuges provided? Are refuges unobstructed? Are refuges equipped with an Emergency Voice Communication (EVC) system and in line with the recommendations of guidance?		
Is equipment provided in common areas to assist with evacuation of disabled people? Where equipment is provided is it in good condition or otherwise maintained?		
Are there reasonable arrangements for means of escape for disabled people?		
List fire safety systems critical to maintaining the means of escape		

HTM 05-01 states that the Fire Safety Manager should monitor the inspection and maintenance of fire safety systems to ensure it is carried out. Describe the maintenance regime for fire safety systems that means of escape relies on. Are these being maintained to a satisfactory level?

Describe the maintenance regime for the escape routes, are they subject to regular checks?

Describe the maintenance regime for the fire doors

Building fabric & maintenance

Compartmentation

	Y/N	Comment
Is compartmentation provided to a reasonable standard in-line with the fire strategy?		
Is compartmentation fire-resisting construction in a reasonable state of repair?		
Are there any fire-stopping defects? Do any services penetrating compartment walls require firestopping works?		

Describe the maintenance regime for compartmentation (as detailed in IHEEM's 'FTSP guidance document No. 1 – Fire compartmentation') and the management controls for firestopping works in this building

Further details (including description of arrangements and deficiencies observed)

Describe the maintenance regime for fire doors

Fire doors protecting the common escape routes (this should include details of all defective fire doors)

	Y/N	Comment
Are fire doors installed correctly and in a reasonable state of repair?		

Are fire doors equipped with smoke seals where necessary? Are the seals unbroken and unpainted?		
Are fire doors equipped with a self-closing device where necessary? Does the self-closing device operate properly?		
Are any fire doors wedged open?		
Are fire doors equipped with suitable signage?		

Further details (including description of arrangements and deficiencies observed)

	Y/N	Comment
Do heating and ventilation systems within the building pose an unacceptable fire risk?		
Within the common escape routes: As far as can reasonably be ascertained, are fire dampers provided as necessary to protect critical means of escape against passage of fire, smoke and products of combustion in the early stages of a fire?		

Describe the maintenance regime for building-wide/common heating and ventilation systems

Describe the maintenance regime for fire dampers (see IHEEM's 'FTSP guidance document No. 3 – Maintenance, fire/smoke dampers')

Fire detection and alarm systems

Details of fire detection and alarm system and the name of the Authorised Person (Fire Safety Maintenance) responsible for the system (category/coverage, detector types, zones, MCPs, etc.)

Is the alarm linked to an alarm receiving centre?	

	Y/N	Comment
Is the design, installation, and commissioning/handover of the fire detection and alarm system in line with the relevant British Standards and HTM 05-03 Part B? (Comments should include any variations/modifications.)		

Detail the provisions for the testing (including cause-and-effect of the fire detection and alarm system), maintenance of the alarm system and management controls on the specification of alarm systems and works

	Y/N	Comment
Are the maintenance arrangements in line with the relevant British/Design Standards and HTM 05-03 Part B? (Comments should include any variations.)		

Is there any experience of false alarms? (As this is the primary FRA, it is expected that this will cover the system as a whole.)	
Are detectors and call-points in the common areas uncovered, accessible and operable?	

Describe management procedures for the control/reduction of control of false alarm signals

Are the provisions for the fire detection and alarm system acceptable?	

Smoke control and ventilation systems

Details of smoke control systems (locations, type, design standards, etc.)

Detail the provisions for the testing and maintenance of the smoke control systems.

Is there a suitable system for integrating the smoke control system into the cause-and-effect of the fire alarm and ventilation system?

	Y/N	Comment
Are the maintenance arrangements in line with the relevant British/Design Standards? (Comments should include any deviations.)		
Does the outlet of any smoke control system open near the external wall? If so, explain the wall construction in these areas.		
Are the provisions for smoke control acceptable?		

Fire suppression systems

Suppression systems at this facility include (tick those identified):

- ☐ Sprinklers
- ☐ Water-mist
- ☐ Gaseous suppression
- ☐ Other (Specify)

Brief summary

Details of fire suppression system (type, coverage, design standards, etc.)

Detail the provisions for the testing and maintenance of the fire suppression systems

	Y/N	Comment
Are the maintenance arrangements in line with the relevant British/Design Standards? (Comments should include any deviations.)		
Are the provisions for fire suppression acceptable?		

Firefighting facilities

Facilities available to assist firefighting (tick those identified):

- ☐ Firefighting shafts
- ☐ Dry rising mains
- ☐ Wet rising mains
- ☐ Firefighting lifts
- ☐ Evacuation lifts
- ☐ Premises information boxes
- ☐ Private hydrants
- ☐ Manual firefighting equipment e.g. hose reels
- ☐ Fire appliance access routes

Provide details of firefighting facilities:

Firefighting shafts	
Rising mains	
Firefighting and evac. lifts	
Premises information boxes	
Hydrants (public & private)	
Manual firefighting equipment	

Detail the provisions for the testing and maintenance of these facilities:

Firefighting shafts, including smoke control provision	

Rising mains	
Firefighting and evac. lifts	
Premises information boxes	
Hydrants (public & private)	
Manual firefighting equipment	

Please provide details as in on any other measures provided to assist the fire service

Are there any basements, what are their contents and are facilities to assist the fire service in place?

Are there appropriately sited facilities for electrical isolation of any photovoltaic (PV) cells, with appropriate signage, to assist the fire and rescue service?	

Are there any other specific risks that might affect firefighter safety?

	Y/N	Comment
Are firefighting facilities adequate?		

Fire service site plan

(Provide a site plan, marking the following: fire tender access and parking, hydrant locations, personnel access, firefighting shaft locations, rising main inlets, premises information box locations, etc.)

Fire hazards

Hazard areas (tick those identified):

- ☐ Storage areas containing combustible items
- ☐ Storage areas containing flammable chemicals
- ☐ Storage areas containing compressed gas (explosion risk areas)
- ☐ Commercial kitchens
- ☐ Laundries
- ☐ Refuse stores
- ☐ Plantrooms
- ☐ Electrical transformers or substations and generators

Provide details of hazard areas (locations, structural protection, compensatory fire systems management activities, etc.):

Combustible storage	
Flammable chemical storage	
Explosion risk areas	
Commercial kitchens	
Laundries	
Plantrooms	
Electrical transformers and generators or battery storage systems	

Detail the provisions for the maintenance of these high-risk areas and management controls on the specification of any works:

Combustible storage	
Flammable chemical storage	
Explosion risk areas	
Commercial kitchens	
Laundries	
Plantrooms	
Electrical transformers and generators	

Are there rooms utilised as fire hazard rooms, which do not meet current standards? (Refer to HTM 05-02 for fire protection requirements in fire hazard rooms.)

Describe refuse management and general housekeeping arrangements

Describe the management arrangements to ensure areas covered by secondary FRAs mitigate and control local fire risks. Are appropriate cooperation and coordination measures in place?

Do all enterprises outside the body carrying out the primary FRA have suitable and sufficient FRAs (see also HTM 05-03 Part D)?	
Are all textiles and furniture specified to HTM 05-03 Part C?	
Are there appropriate measures to combat the risk of arson?	
Describe the management procedures in place to prevent smoking within the healthcare facility, or in proximity to the healthcare facility or high-risk areas. Is there any evidence of illicit smoking?	

Are there any other significant hazards that warrant consideration?

	Y/N	Comment
Is the control of fire hazards adequate?		

External considerations

Outline the external wall construction, materials, and locations. Where the configuration of external walls intersect with fire compartment lines, has adequate protection been provided to prevent external fire spread? Is the space separation from other buildings adequate?

	Y/N	Justification
Is a Fire Risk Appraisal of the External Wall (FRAEW) to PAS 9980 required?		

State relevant conclusions of the FRAEW regarding the external wall

	Y/N	Comments
Has any action been taken on recommendations of the FRAEW to date? If so, state what actions?		

State relevant conclusions of the FRAEW regarding other fire safety issues

Description of car parking provided?	

	Y/N	Justification
Does the car park require a secondary fire risk assessment?		

	Y/N	Description
Is the car park covered?		

Position of car parking in relation to the building? (Consider position in relation to high risk areas, acute care, combustible wall types, openings to the building, etc.)	
Is electric vehicle (EV) charging provided in the car park? Is charging provision provided for electric bikes and scooters and suitable protection measures in place?	

Where the car park is a building, describe the fire safety provisions in place

	Y/N	Comment
Where the car park is a building, are the fire safety provisions acceptable?		

Lightning protection systems

	Y/N	Comment
Is the building equipped with a lightning protection system in accordance with HTM 06-01?		
Is the system appropriately designed and in a good working condition?		
Are annual inspection and testing of the lightning protection system undertaken?		

Control of building works & outside contractors

Hazards introduced by outside contractors and building works:

	Y/N	Comment
Where appropriate, are fire safety conditions imposed anyone carrying out building works including outside contractors? Are suitable RAMS in place?		
Is there a permit to work system in place that covers contractors including “hot works”?		
Are suitable precautions taken by in-house maintenance personnel who carry out works?		
Is there satisfactory control over works carried out in the building?		

Further details (including description of arrangements and deficiencies observed)

Set out the relevant management policies and procedures in place to limit fire risks introduced by outside contractors

Where an area of the building is taken out of use (for example, under the control of contractors), or a safety system taken offline are there appropriate procedures to consider the impact on the fire strategy/fire safety level within the building and any interim measures that might be required? Are there appropriate checks on any contractors?	

Outline the fire safety training received by outside contractors	
Are contractors required to ensure fire-stopping works are carried out to maintain compartmentation?	

Management

Which body is responsible for fire safety in the building?	
Who is the competent person(s) appointed under Article 18 of the FSO to assist the responsible person in undertaking the preventive and protective measures (i.e. relevant general fire precautions)?	
Are the healthcare organisation's policies available and are staff trained on its fire/arson/security policy?	
When the employees of another employer work in the premises, is appropriate information on fire risks and fire safety measures provided?	
Details of cooperation (as relevant to fire safety and this building) with other healthcare organisations	
Details of fire service liaison, and arrangements for familiarisation visits	

Are procedures in the event of fire appropriate and properly documented, where appropriate?

	Y/N	Comment
Are there adequate procedures for investigating fire alarm signals?		
Are there suitable arrangements for summoning the fire and rescue service?		
Are there suitable arrangements to meet the fire and rescue service on arrival and provide relevant information, including that relating to hazards to firefighters?		

Are there suitable arrangements for ensuring that the premises have been evacuated?		
Is there a suitable fire assembly point(s)?		
Are there adequate procedures for evacuation of any disabled people who are likely to be present?		

Further details (including description of arrangements and deficiencies observed)

Detail procedures for developing personal emergency evacuation plans (PEEPs)

Outline training procedures for staff with evacuation duties

Are there any special evacuation aids present in common areas? If so, are staff trained in their use?	
Are staff numbers adequate for the risk/ sufficient to perform evacuation duties within common areas?	

With respect to fire safety training, are there appropriate policies and procedures to ensure:

	Y/N	Comment
Staff are trained on induction?		

Staff are given periodic refresher training?		
Staff are given additional training to cover any specific roles and responsibilities?		
The content of training is adequate?		
Staff are given adequate fire safety instruction and training?		
There are appropriate records of fire safety training?		

Further details (including description of arrangements and deficiencies observed)

Are fire wardens used in common areas? Are fire wardens completing and recording any routine checks?

	Y/N	Description of arrangements
Are routine in-house inspections of fire precautions undertaken in common areas?		

	Y/N	Outline of arrangements
If the premises are in multiple occupation, are there adequate arrangements for cooperation between duty holders to ensure coordination of their fire safety arrangements?		

Describe how the fire safety management of the building considers and implements findings of secondary fire risk assessments

Are arrangements in place to ensure the maintenance regime of the primary risk assessment is implemented in areas covered by a secondary assessment?

Are arrangements in place to ensure the maintenance regime of the primary risk assessment is implemented in the common areas not covered by a secondary assessment?

Maintenance management checklist (tick those confirmed):

- ☐ Is appropriate testing and periodic servicing of the fire detection and alarm system undertaken? Does this include a suitable protocol for cause-and-effect testing? Is the cause-and-effect testing protocol being carried out?
- ☐ Are monthly and annual testing routines in place for the emergency escape lighting?
- ☐ Is annual maintenance of fire extinguishing appliances undertaken?
- ☐ Are periodic inspections of internal and external escape staircases and external gangways undertaken?
- ☐ Are six-monthly inspection and annual testing of rising mains undertaken?
- ☐ Are weekly and monthly testing, six-monthly inspection, and annual inspection and testing undertaken of lift(s) provided for use by firefighters or evacuation of disabled people (evacuation lifts)?
- ☐ Are weekly testing and periodic inspection of sprinkler installations undertaken?
- ☐ Are routine checks of final exit doors and/or security fastenings undertaken?

Outline the arrangements for inspection, testing and maintenance of fire safety systems, on a weekly, monthly, and annual basis. State the responsibility of each inspection and whether validation of these checks is considered responsibility of those in the secondary areas or those with overall responsibility for the building (including: alarms, suppressions systems, emergency lighting, first-aid firefighting, firefighting facilities, escape routes, etc.)

Outline the arrangements for record keeping with respect to the maintenance of fire safety systems (including the building fabric and compartmentation)

	Y/N	Justification
Is the management of the maintenance regime adequate? (Considering the maintenance requirements set out by the HTMs, healthcare organisation policies and relevant British/design standards; but also, the actual number of checks recorded, and the nature of those checks)		

Are there appropriate records of:

	Y/N	Comment
Fire drills		
Fire training		
Fire safety maintenance		
Fire safety planning and consideration in operation of the facility		
Fire safety responsibility		

Fire incidents and actions taken in response		
Fire safety remedials and upgrades		

	Y/N	Outline of arrangements
Overall, Is there a suitable record of the fire safety arrangements?		

Is the building the subject of an action plan or enforcement notice from the fire service?	

Appendix F – Secondary fire risk assessment template

Note:

This Appendix shows example templates for conducting secondary fire risk assessments. Downloadable Microsoft Word versions of these fire risk assessment templates are available. The Word document templates allow users to complete and customise the assessments according to their specific healthcare facility or situation. For convenience and ease of updating, these editable Word templates should be used when conducting and documenting fire risk assessments for complex healthcare premises. Word templates can be accessed and downloaded from the HTM 05-03 web page.

Fire safety management coordination

Fire risk assessment review

Assessments should be kept under constant review, and in any case reviewed whenever circumstances change that affect the validity of the current assessment. While there is no maximum period between assessments, industry guidance recommends that the review period should not exceed 12 months. In healthcare premises, the review period should be based on the risk, including the dependency of the patient. Whereas for high risk (including very high dependency) the review period may be considerably less than 12 months, where the risk is low, it may exceed 12 months. The frequency is to be included in the “suggested date for review” below.

Revision	Date	Assessor details	Signature
Initial assessment			
Revision 1			
Revision 2			
Revision 3			
Revision 4			
Revision 5			
Revision 6			
Revision 7			
Revision 8			
Revision 9			
Revision 10			

Significant findings

Consequence of fire

Severity of outcome (S)	Value	Examples
Negligible	1	Negligible
Low	2	Slight damage to property Minor injury to occupants, first aid required
Moderate	3	Moderate damage to property Partial evacuation required Injury to occupants, medical attention required
High	4	Large scale damage to property Complete evacuation required Occupants require hospitalisation
Catastrophic	5	Major loss of property Major loss of life

Probability of fire

Likelihood (L)	Value	**Examples**
Rare	1	Combination of few ignition sources and low fire load in a highly controlled environment.
Unlikely	2	Very well-controlled environment (for example, no use of untested electrical equipment and extension cables), effective management of contractors and hot works, controlled access to members of the public.
Possible	3	Fire load typical for hospitals with controlled sources of ignition (for example, PAT testing of electrical equipment).
Likely	4	Lack of control of use of electrical equipment (such as portable electrical heaters), uncontrolled access to members of the public combined with readily accessible fire loads (for example, poorly controlled waste areas).
Almost certain	5	Uncontrolled hot works with immediate risk of ignition combined with fire load.

Considering 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:

- ☐ Rare
- ☐ Unlikely
- ☐ Possible
- ☐ Likely
- ☐ Almost certain

Considering 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:

- ☐ Negligible harm
- ☐ Low harm
- ☐ Moderate harm
- ☐ High harm
- ☐ Catastrophic harm

Risk rating

	Rare	Unlikely	Possible	Likely	Almost certain
Negligible	1	2	3	4	5
Low	2	4	6	8	10
Moderate	3	6	9	12	15
High	4	8	12	16	20
Catastrophic	5	10	15	20	25

Final risk rating

Risk rating	Risk description	Action
1	Trivial	None
2–3	Tolerable	Review findings at next FRA
4–9	Moderate	Implement additional control measures within programmed maintenance/management process
10–16	Substantial	Implement interim measures immediately and full controls as soon as practicable
20–25	High	Cease use of area or activity giving risk until additional controls are in place

Risk level	Action and timescale
Trivial	No action is required.
Tolerable (low risk)	No major additional controls required. However, there might be a need for improvements that involve minor or limited cost. Review findings at next FRA
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures should be implemented within a defined time period. Implement additional control measures within programmed maintenance process 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 building is unoccupied, it should not be occupied until the risk has been reduced. If the building is occupied, urgent action should be taken. Implement interim measures immediately and full controls as soon as practicable
High	Building (or relevant area) should not be occupied until the risk is reduced. Cease use of area until additional controls are in place

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

☐ Trivial

☐ Tolerable

☐ Moderate

☐ Substantial

☐ High

Comments

Action plan

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

Ref No.	Location	Findings	Variation/ justification or action required	Review primary risk assessment	Interim control measures	Final control measures and date	Initial/final risk rating		Person responsible	Date Completed/ Competent Person Initials

Assessment details & scope

Premises

Premises full address

Assessment location

Reference No.	Location Name	Floor	Responsibility	Date of Last FRA

Dates

Date of fire risk assessment

Date of previous fire risk assessment

Suggested date for review

Relevant fire safety legislation and guidance

The following fire safety legislation applies to these premises

The above legislation is enforced by

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

The above legislation is enforced by

Relevant guidance used in the production of this fire risk assessment

Fire risk assessor

Name of fire risk assessor	
Details of competence	

I certify that to the best of my knowledge, the information contained in this fire risk assessment is correct, based on information provided at the time the assessment was undertaken.

Signature of fire risk assessor	
Report authorised by Fire Safety Manager (name and date) or if peer reviewed, name of reviewer	
Signature	

General

General description of the use of the assessment location & hours of use

General description of layout

Approximate total floor area (m^2)

Original design guidance (if known) or guidance used when last renovated (please tick):

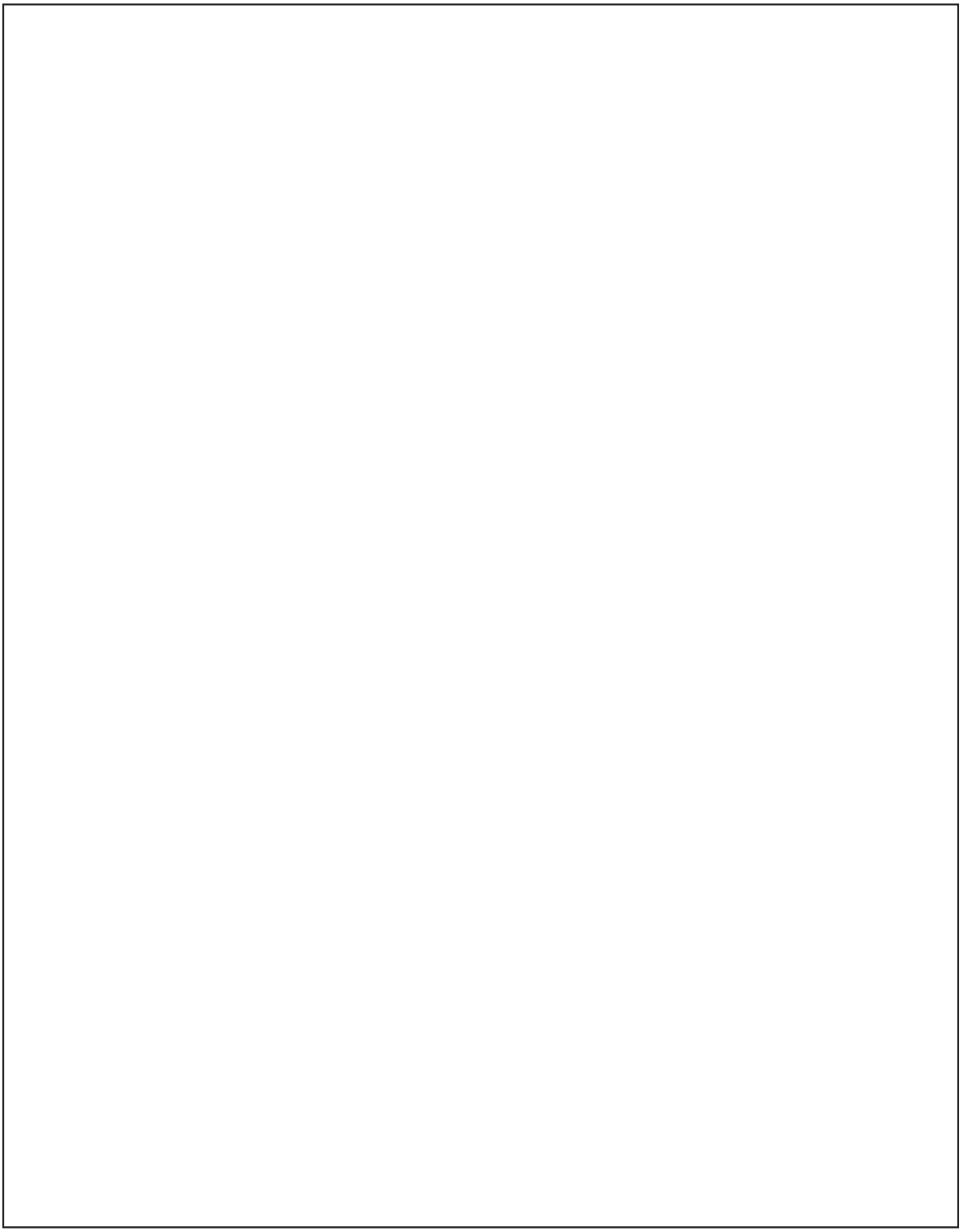
- ☐ HTM 81 (grey)
- ☐ Nucleus
- ☐ HTM 81 (yellow)
- ☐ HTM 05-02
- ☐ Other

Comments:

Fire loss experience

Other relevant information

Assessment location plans



Occupancy

Is the assessment location (tick those applicable)

☐ A sleeping area

☐ A patient access area

☐ A non-patient area

People in and around the assessment location (tick those applicable):

☐ Medical staff

☐ Non-medical staff

☐ Patients

☐ Members of the public

☐ Lone workers

☐ Non-patients with disabilities

☐ Others (specify)

Comments

Maximum number of persons:

Staff	
Patients	
Others	
Total	
Minimum number of staff on duty	

Those requiring special consideration (tick those applicable):

☐ Young workers

☐ Children

☐ Those with language difficulties

☐ Those with mental health conditions

☐ Other (specify)

Comments

Typical occupant dependency (please tick):

☐ Independent

☐ Dependent

☐ Very high dependency

	Y/N	Comment
Are personal emergency evacuation plans (PEEPs) required/in place?		

Provisions for those requiring special consideration or who are dependent*

Means of escape

Describe the escape route(s) from the assessment location

Fire exits

	Y/N/ NA	Comment
Are exit capacities adequate for the number of occupants? (This may include staircases where secondary areas span multiple floors.)		
Do fire exits open in the direction of escape (where necessary)?		
Are all fire exits easily and immediately openable?		
Are the arrangements provided for securing exits satisfactory?		
Are there satisfactory arrangements for escape where revolving doors or sliding doors are used as exits?		
Is there adequate provision of exits?		

Further details (including description of arrangements and deficiencies observed)

Are means of escape adequate?

	Y/N	Comment
Is a suitable standard of protection designed for escape routes? (Considering the evacuation strategy for the assessment location.)		
Are single-direction travel distances reasonable?		
Are multiple-direction travel distances reasonable?		
Are there reasonable arrangements for means of escape for disabled people?		
Are refuges provided? Are refuges unobstructed? Are refuges equipped with an emergency voice communication (EVC) system?		
Is the design and maintenance of the means of escape considered adequate?		

Further details (including description of arrangements and deficiencies observed)

Are escape routes suitably signed? Are fire action notices or other fire safety signs provided?	
Has a reasonable standard of emergency escape lighting system been provided?	

Maintenance of escape routes

	Y/N	Comment
Are all escape routes clear of obstructions?		
Are fire-resisting doors maintained in sound condition and self-closing, where necessary?		
Is the fire-resisting construction protecting escape routes in sound condition (i.e. single-direction corridors longer than 4.5 m and hospital streets)?		

Further details (including description of arrangements and deficiencies observed)

Building fabric & maintenance

Compartmentation

	Y/N	Comment
Is compartmentation provided to a reasonable standard? Is fire-resisting construction in a reasonable state of repair?		
Are there any fire-stopping defects? Do any services penetrating compartment walls require firestopping works?		
Have hazard rooms been identified (see Appendix B)?		

Further details (including description of arrangements and deficiencies observed)

Fire doors

	Y/N	Comment
Are fire doors installed correctly and in a reasonable state of repair?		
Are fire doors equipped with smoke seals where necessary? Are the seals unbroken and unpainted?		
Are fire doors equipped with a self-closing device where necessary? Does the self-closing device operate properly?		

Are any fire doors wedged open?		
Are fire doors equipped with suitable signage, where necessary? (i.e., blue fire door keep shut signs)		

Further details (including description of arrangements and deficiencies observed)

	Y/N	Comment
As far as can reasonably be ascertained, are fire dampers provided as necessary to protect critical means of escape against passage of fire, smoke and products of combustion in the early stages of a fire?		

Fire safety systems

Building-wide fire safety systems, such as fire detection and alarm systems are detailed in the primary fire risk assessment. However, the condition of the systems in individual assessment locations is still considered as part of the secondary fire risk assessment. System specifications should be noted for completeness.

Details of fire detection and alarm system (category/coverage, detector types, zones, MCPs, etc.)

Detail the provisions for the local testing and maintenance of the alarm system in this area

Is there any experience of false alarms? (If so, provide details)	
Are detectors in the assessment location uncovered and operable?	
Are the provisions for the fire detection and alarm system acceptable?	

Details of smoke control systems (smoke shafts, AOVs, sizes, controls, etc.)

Detail the provisions for the testing and maintenance of smoke control systems in this area

Are the provisions for smoke control acceptable?	

Details of fire suppression system (type, coverage, heads, etc.)

Detail the provisions for the local maintenance of the fire suppression system in this area

Are the provisions for the fire suppression system acceptable?	

Manual firefighting equipment provided (tick those identified)

- ☐ Portable fire extinguishers
- ☐ Hose reels
- ☐ Fire blankets

Further details (including description of arrangements and deficiencies observed)

	Y/N	Comment
Is all firefighting equipment readily accessible?		

Details of any other relevant fire safety system in this area (including description of design & maintenance arrangements and deficiencies observed)

Fire hazards

Fuel sources (tick those identified):

- ☐ Office Supplies (paper and card, etc.)
- ☐ Wood
- ☐ Furniture including fixtures and fittings
- ☐ Flammable liquids
- ☐ Waste materials
- ☐ Other (specify)

Comments

Fuel source details:

	Y/N	Comment
Are highly flammable materials stored or used?		
Is combustible waste allowed to accumulate?		
Are combustible materials used/stored?		
Are substantial areas of walls or ceilings covered with flammable linings or materials?		
Are there any other combustible materials that represent a hazard i.e., aerosols?		

Ignition sources (tick those identified):

- ☐ Office supplies (paper and card, etc.)
- ☐ Electrical equipment
- ☐ Overloaded electrical sockets
- ☐ Waste materials
- ☐ Static electricity
- ☐ Hot works
- ☐ Other (specify)

Comments

Ignition source details:

	Y/N	Comment
Do any activities produce large amounts of heat?		
Are there cooking facilities within this area?		
Are there wander or extension leads/multi-point adapters in sockets?		
Is there suitable control over the use of personal electrical appliances?		
Are fixed installations periodically inspected and tested?		
Does electrical equipment have a current PAT test?		
Are portable heaters in use? Are they unobstructed and secured?		

Sources of oxygen:

	Y/N	Comment
Is there piped oxygen in use?		
Are there oxygen cylinders used/stored?		
Are nitrous oxygen cylinders used/stored?		
Is storage and use of cylinders in accordance with legislation/guidance?		
Are medical gas shut off switches identifiable and suitably located?		
Is there an operational procedure for isolation?		
Are oxidising materials used or stored?		

Housekeeping:

	Y/N	Comment
Is the standard of housekeeping generally good?		
Are combustible materials separated from ignition sources?		

Further details (including description of arrangements and deficiencies observed)

Hazards introduced by outside contractors and building works:

	Y/N	Comment
Where appropriate, are fire safety conditions imposed on outside contractors?		
Where appropriate, is a permit to work system used (e.g. for “hot work”)?		
Are suitable precautions taken by in-house maintenance personnel who carry out works?		
Is there satisfactory control over works carried out in this area?		

Further details (including description of arrangements and deficiencies observed)

Are there specific risks that might affect firefighter safety? Are they controlled?	
Are there rooms utilised as fire hazard rooms, which do not meet current standards? (Refer to HTM 05-02 for fire protection requirements in fire hazard rooms.)	

Provide details of any relevant process risk assessments for processes such as emollient creams, oxygen-rich environments, hand gels, etc.

Is the management of oxygen cylinders stored and used in accordance with HTM 02-01?	
Are there any other significant hazards that warrant consideration?	

Management

Who is responsible for fire safety management in this area?	
Are the healthcare organisation's policies available and do staff know where and how to access its fire/arson/security policy?	

Describe how the fire safety management of this area considers and implements the findings of the primary risk assessment. This includes actions that result directly from the primary FRA.

Provide details of any variations resulting for the primary FRA

Details of fire safety procedures:

	Y/N	Comment
Are there adequate procedures for investigating fire alarm signals?		
Are there suitable arrangements for summoning the fire and rescue service?		
Are procedures in the event of fire appropriate and properly documented, where appropriate?		
Are there suitable arrangements for ensuring that the assessment location has been evacuated?		
Has the emergency plan been practiced within the last 12 months?		
Is there a suitable record of the fire safety arrangements		

Are there persons nominated to use fire extinguishing appliances?		

Are there persons nominated to assist with evacuation, including evacuation of disabled people? Provide details of procedure?

Are there any special evacuation aids present? If so, are staff trained in their use?		
Are staff numbers adequate for the risk/ sufficient to perform evacuation duties at all material times		

Staff training

	Y/N	Comment
Are staff trained on induction?		
Are staff given periodic refresher training?		
Are staff given additional training to cover any specific roles and responsibilities? Is the content of training provided considered adequate?		
Are all staff given adequate fire safety instruction and training?		
Are there appropriate records of fire safety training?		

Are fire wardens used in the assessment location? Are there sufficient numbers of Fire Wardens on duty? Are Fire Wardens completing and recording any routine checks?

	Y/N	Description of arrangements
Are routine in-house inspections of fire precautions undertaken in the assessment location?		

Are arrangements in place to ensure the maintenance regime of the primary risk assessment is implemented in the inspection location?

References

Note:

The publication dates provided in the references list below correspond to when this edition of HTM 05-03 Part K was drafted. The dates give context on the currency of referenced sources at the time of writing.

Standards and other specification documents are continually being updated, and readers should ensure they consult the latest editions of such documents, including any amendments issued after publication, to ensure they remain up to date with and can react to changing requirements.

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NHS England
Wellington House
133–155 Waterloo Road
London
SE1 8UG

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Publications approval reference: PRN00619_iii