

NHSScotland 'Firecode'
Scottish Health Technical
Memorandum 86
Fire Risk Assessment



Contents

	Page
1. About this publication	4
1.3 Previous versions	4
1.4 Existing fire risk assessments	4
2. Introduction and scope.....	6
2.1 General application	6
2.7 Scope of SHTM 86	7
2.9 Fire precautions guidance	7
2.12 The interpretation of benchmark standards	8
2.13 Use by competent persons.....	8
2.17 Fire risk assessor accreditation	9
2.21 Fire risk assessment in small premises.....	9
2.23 Alternative methods of fire risk assessment.....	10
2.25 Fire risk assessment review	10
3. Statutory requirements.....	12
4. Assessment areas.....	13
5. Using the guidance notes.....	14
5.1 General	14
5.6 Assessment notes	14
6. Guidance notes	16
GN 00: general information.....	16
GN 01: persons at risk	17
GN 02: ignition sources - smoking	20
GN 03: ignition sources – wilful fire raising	22
GN 04: ignition sources – work activities	24
GN 05: ignition sources – equipment.....	27
GN 06: ignition sources – lightning	29
GN 07: combustible materials – surface finishes.....	30
GN 08: combustible materials – textiles and furniture	32
GN 09: combustible materials – other materials	34
GN 10: combustible materials – dangerous substances and explosive atmospheres	36
GN 11: prevention – management.....	39
GN 12: prevention – training.....	42
GN 13: prevention – fire notices and signs	45

GN 14: communications – alarm and detection systems	47
GN 15: means of escape: patient care - progressive horizontal evacuation	49
GN 16: means of escape: non-patient care	51
GN 17: means of escape: supporting provisions	53
GN 18: means of escape: travel distance	55
GN 19: means of escape: stairways	59
GN 20: means of escape – escape lighting	62
GN 21: means of escape: escape bed lifts	64
GN 22: containment: structural fire protection	66
GN 23: containment: compartments	69
GN 24: containment: fire hazard rooms and departments	71
GN 25: containment: sub division of floor, wall, ceiling and roof voids	72
GN 26: containment: external envelope protection	75
GN 27: extinguishment: manual fire fighting equipment	78
GN 28: extinguishment: access and facilities for the Fire and Rescue Service. 79	
GN 29: extinguishment: automatic fire control systems	81
GN 30: fire strategy: fire engineering	82
 Appendix 1: Glossary of terms	84
Appendix 2: Competency	86
Appendix 3: Inspection proforma	89
Appendix 4: References	91

Disclaimer

The contents of this document are provided by way of general guidance only at the time of its publication. Any party making any use thereof or placing any reliance thereon shall do so only upon exercise of that party's own judgement as to the adequacy of the contents in the particular circumstances of its use and application. No warranty is given as to the accuracy, relevance or completeness of the contents of this document and Health Facilities Scotland, a Division of NHS National Services Scotland, shall have no responsibility for any errors in or omissions therefrom, or any use made of, or reliance placed upon, any of the contents of this document.

1. About this publication

1.1 Scottish Health Technical Memorandum (SHTM) 86 Version 5.0, is a complete revision of the fire risk assessment guidance for NHSScotland premises, to support the use of the 3i Studio FireManager web based fire risk assessment system, mandated by virtue of the Fire Safety Policy for NHSScotland 2011; CEL 11 (2011).

1.2 The guidance recognises the statutory and mandatory requirements that NHSScotland bodies must comply with, in particular;

- the Fire (Scotland) Act (2005) as amended; and
- the Fire Safety (Scotland) Regulations (2006); and
- the Fire Safety Policy for NHSScotland 2011; CEL 11 (2011).

These are referred to throughout this document as 'the Act', 'the Regulations' and 'the Policy' respectively, inclusive of subsequent amendments, revisions and reviews. Where the term 'local fire policy' is used it means a fire safety policy of an individual NHSScotland Health Board, or a single building or site under the management control of an NHSScotland Health Board.

Previous versions

1.3 SHTM 86 version 5.0 replaces all previous versions of SHTM 86 Part 1 and SHTM 86 Part 2. Previous versions should therefore no longer be used as guidance for the conduct of fire risk assessments.

Existing fire risk assessments

1.4 Fire risk assessments carried out in accordance with previous versions of SHTM 86 are not automatically invalidated by the introduction of this guidance. They may remain adequate for the purpose of statutory compliance, but will be subject to scrutiny by the enforcing authority during any compliance audit they undertake. Assessments must in any case be properly recorded, reviewed and the significant findings and action plan acted upon.

1.5 NHSScotland bodies should put in place a programme to migrate existing fire risk assessments to the 3i Studio FireManager system in accordance with the mandatory requirement of the Fire Safety Policy for NHSScotland 2011; CEL 11 (2011).

1.6 As the number of existing fire risk assessments is likely to be substantial, it may be appropriate to transfer existing assessments to the FireManager system routinely, as they are reviewed. The transfer time may therefore be lengthy, and will mean that the old and new systems will run concurrently during the transitional period. The completion of one full review cycle will ensure that all assessments have been transferred to the new system. The duty to maintain

statutory compliance during the migration period is not suspended, and the action plans of older assessments will still have to be acted upon.

- 1.7 Boards may, however, prefer to assimilate the new system as quickly as possible and undertake a concentrated programme of migration.

Note: SHTM 86 Version 5.0 aligns the fire risk assessment guidance with the web based 3iStudio Fire Manager system, mandated by virtue of the Fire Safety Policy for NHSScotland 2011; CEL 11 (2011).

Version 5.0 is a major departure from the NHSScotland fire risk assessment system contained in previous versions of SHTM 86. The new system to which this guidance applies has been subject to wide consultation and has been developed to enable NHSScotland Health Boards to meet their compliance obligations under the terms of the Fire (Scotland) Act 2005 as amended and the Fire Safety (Scotland) Regulations 2006.

2. Introduction and scope

General application

- 2.1 This SHTM provides guidance on fire risk assessment in NHSScotland hospitals and other healthcare premises. Assessments using the guidance in this document are required in all hospitals and other NHSScotland premises and buildings occupied by NHSScotland bodies from which healthcare services are provided. See also [paragraph 1.2](#).
- 2.2 SHTM 86 is a technical guide to fire risk assessment in NHSScotland premises, supporting the use of 3i Studio FireManager. The guidance does not cover related IT issues such as access to the FireManager system or software functionality matters.
- 2.3 In the case of stand alone office and administrative buildings, laboratories, workshops, stores, garages and other buildings that do not provide healthcare services; the fire safety guidance that should be used is contained in the Scottish Government; Safer Scotland series of guides to statutory compliance covering a range of specific occupancy uses. These guides, and other compliance information, may be accessed at www.firelawscotland.org. Assessments should still be done using the FireManager system which contains an alternative Publicly Available Specification (PAS) 79 assessment template for use in buildings not providing healthcare services.

It is recommended that so far as possible the Healthcare and PAS 79 templates should not both be used to conduct fire risk assessments in different assessment areas of the same building.

- 2.4 In buildings jointly occupied by NHSScotland bodies and other non NHSScotland occupiers, the statutory obligation to conduct a fire risk assessment applies equally to all the occupiers and/or owners who are identified as duty holders in sections 53 and 54 of the Act. NHSScotland occupiers in such buildings must therefore conduct a fire risk assessment in the part/s of the building they occupy, including any communally occupied parts that form part of an escape route/s leading to final exits.

However, where an NHS body has entered a contract to place patients in premises occupied and managed by another body, whether they are a private or other public body; and no NHSScotland staff are employed in those premises, responsibility for ensuring the fire safety measures meet at least the statutory requirements of the Act and the supporting regulations, lies with the body or bodies who own, operate and/or manage the premises; and not the procuring NHSScotland body. See also CEL11 (2011); Fire safety policy for NHSScotland; Annex B; Requirements; 4. General; 2nd last bullet point.

- 2.5 The statutory duty holder for the common parts will usually be the owner/s of the building [the Act; section 54], and they should conduct a fire risk

assessment of those parts and implement measures to make the common escape routes safe from fire or the effects of fire.

- 2.6 The Regulations, paragraph 21; headed, 'Co-operation and co-ordination', specifies clearly the requirement and conditions under which two or more persons who have duties under sections 53 or 54 of the Act must co-operate and co-ordinate their fire safety activities. In premises to which this regulation applies, the arrangements should be formally agreed and recorded.

Scope of SHTM 86

- 2.7 SHTM 86 version 5.0; provides guidance that may be used to inform fire risk assessments conducted using the FireManager software, which is mandated in the Fire Policy for NHSScotland; CEL 11 (2011), for use by all Boards comprising NHSScotland.
- 2.8 The system conforms with the principles for the conduct of fire risk assessments contained in the statutory compliance guide; 'Practical fire safety guidance for healthcare premises' and other guides in the series; Safer Scotland, Scottish Government i.e.

Step 1. Identify people at risk;

Step 2. Identify fire hazards;

Step 3. Evaluate the risk and decide if existing measures are adequate;

Step 4. Record fire risk assessment information;

Step 5. Review the fire risk assessment.

Fire precautions guidance

- 2.9 SHTM 86 version 5.0, is the main companion document for FireManager, and should be used as the main resource for guidance or information when undertaking a fire risk assessment. It identifies the benchmark standards and covers most situations fire risk assessors are likely to encounter. The Guidance Notes cite further resources for additional or more detailed information and guidance.
- 2.10 NHSScotland Firecode guidance documents complement the statutory compliance guidance contained in the Scottish Government; Safer Scotland guide; 'Practical fire safety guidance for healthcare premises': www.firelawscotland.org which may also be referred to for further guidance.
- 2.11 Where other standards may apply e.g. British or European Standards, (BS; BS EN) to support equipment or other fire safety provisions, their use, performance, installation, maintenance and testing standards; those standards should be applied as appropriate, and are widely referred to and cited in this and other NHSScotland Firecode documents.

The interpretation of benchmark standards

- 2.12 The benchmarks in this and other guidance provide a standard of fire safety that should be aimed for and the benchmark objective is set out at the start of each guidance note. However, the standards are not intended to be applied prescriptively, without proper consideration of all the circumstances. The fire safety measures should be considered holistically, taking into account all the relevant factors i.e. the management arrangements, the installations and fire safety equipment, the maintenance and testing of relevant fire safety systems and equipment, construction, age and layout of the building, the abilities and disabilities of the occupants, the relevance of fire safety policies and procedures, the extent and quality of the training staff has received, the means of escape and all other relevant factors.

The conclusions drawn by the assessor should always be 'risk appropriate'. Judgements based on the experience, knowledge and overall competency of fire risk assessors will commonly have to be made, and assessors may in some circumstances accept a standard that is lower than that suggested in the guidance, and in others determine that a higher standard is required; see also [paragraphs 2.13 to 2.17](#).

In such cases it is most important that the assessor records the reasons for their determination, so that it may be understood by an auditor or other person who has reason to examine, act on or interpret the findings of the assessment at a later date.

Use by competent persons

- 2.13 SHTM 86 version 5.0 and the associated fire risk assessment templates should be used only by those who are competent to do so.
- 2.14 The conduct of fire risk assessments is likely to require judgements to be made to determine the level of tolerance that may, or may not, be acceptable in the particular circumstances of each assessment area. See also [paragraph 2.12](#).
- 2.15 The definition of 'competent' contained in The Fire Safety (Scotland) Regulations 2006; Part 1; Preliminary; Interpretation; 2(1) establishes the level of competency required in regard to the compliance requirements of the Regulations.
- 2.16 The following definition of competency shall also apply, being broadly consistent with the regulatory definition, but more widely applicable to the range of matters covered by NHSScotland Firecode.

Competent person: *A person with sufficient training and experience, or knowledge and other qualities to enable that person properly to assist in undertaking the preventive and protective measures.*

Fire risk assessors must therefore be able to identify the full range of fire hazards that may exist in a workplace, to recognise the potential outcome

should the hazard result in a fire, and be able to evaluate the risk taking into account all the relevant factors; and to know what needs to be done to eliminate or reduce the risk to an acceptable level.

Fire risk assessor accreditation

- 2.17 Whilst accreditation by an appropriate professional body is identified in the Fire Safety Advisor post exemplar, see [Appendix 2](#), as a 'desirable' attribute; it is not mandatory. Neither is professional accreditation a statutory requirement for fire risk assessors. The Fire Risk Assessment Competency Council has published a comprehensive competency exemplar, to be used by accrediting agencies when considering applications for accreditation. The relevant guidance may be found at www.britishfireconsortium.org.uk/.
- 2.18 It is recommended that NHS Boards should support and encourage fire safety advisors currently employed by them to work towards formal fire risk assessor accreditation by an appropriate, recognised professional body.
- 2.19 When recruiting a new entrant to a fire safety advisor post, they should look for appropriate fire risk assessor accreditation as a desirable (but not essential) attribute of applications for employment. Where a person is appointed who is not accredited by an appropriate professional body, the NHS body should encourage and provide appropriate support so that the appointee may subsequently work toward accreditation.
- 2.20 Whilst accreditation is desirable, it is important to note that a person who is not accredited by a professional body is not excluded from fair consideration when they apply for a relevant post, since they may be fully competent in all the attributes necessary for it. Accreditation is helpful to the employer by providing some degree of assurance that the competency of the applicant has already been tested and established by the accrediting body.

Note: The Fire Risk Assessment Competency Council comprises around thirty stakeholder participant bodies active in the fire safety sector, including industrial, commercial and professional interests. It was set up with government encouragement and the government acknowledges the benefits of third party certification of fire protection products and services as a means of assisting in compliance with legislation. **Competency criteria for fire risk assessors; Foreword; version 1 published 21/12/11.**

Fire risk assessment in small premises

- 2.21 Nothing in [paragraphs 2.13 to 2.20](#) shall prevent a local Manager or other appointed person from undertaking a fire risk assessment in small premises of very limited size and simple layout e.g. a small health centre or surgery; so long as there are no circumstances that indicate the need for assessment by someone who is fully competent. Such circumstances might include any potential for delayed evacuation e.g. minor surgical or invasive procedures, the premises are multi-occupied or are situated in a multi floored building shared by

others, it has a complicated layout or complex escape arrangements, it involves escape from an upper floor where there is only one escape stair, or any other similarly complex circumstance.

- 2.22 Where assessments are carried out in small premises by a local manager or other appointed person, they should have access to guidance from a suitably competent person, and know how they may be contacted for advice and guidance. It is important that sufficient training and appropriate information on how to conduct an assessment is given, and appropriate resources to enable them to conduct the assessment properly.

Where such a procedure implemented, consideration will need to be given as to how the actual assessment will be done i.e. the template content, and how the relevant assessment data will be recorded in the FireManager system once it has been completed.

It is recommended that where assessments are done in this way, they are checked and signed off by a person who is fully competent in the conduct of fire risk assessment.

Alternative methods of fire risk assessment

- 2.23 FireManager, the fire risk assessment software licensed for use throughout NHSScotland by 3i Studio, is mandated for use throughout NHSScotland and NHSScotland holding bodies are directed to use this system, by virtue of the Fire Safety Policy for NHSScotland; CEL 11 (2011).
- 2.24 It is therefore not appropriate for other systems of fire risk assessment to be adopted, other than in exceptional circumstances where 3i Studio FireManager is not appropriate to the matter being considered e.g. assessments necessary for specific purposes such as assessing and recording the fire risk related to the employment of young persons or assessing the potential impact of the fire risk related to a specific substance or material.

Fire risk assessment review

- 2.25 The requirement to review assessments is contained in the Fire (Scotland) Act 2005 as amended; 53 (3)(a); *".....the employer shall; in accordance with regulations made under section 57, review the assessment"*. (Section 57 confers power on Scottish Ministers to make regulations about carrying out assessments and reviews under sections 53 and 54)

The Fire Safety (Scotland) Regulations 2006 Part 2 paragraph 3 (1) and (2) and paragraphs 4 to 6 set out the specific requirements and details in regard to fire risk assessment reviews.

- 2.26 Neither the Act nor the Regulations set out, or suggest any review frequency. Similarly, the Practical Fire Safety Guidance for Healthcare Premises makes no suggestion as to the frequency of reviews. However the term 'regularly' is used in both the legislation and supporting compliance guidance although the

meaning of the term is not further defined. An explanation is provided as to the circumstances under which it may be appropriate to review an assessment, and this list is summarised as follows:

1. a change in the number of persons present or their characteristics;
2. changes in work procedures, including the introduction of new equipment;
3. alteration to the building or its internal layout;
4. significant changes to the furniture or fixings;
5. the introduction or increase in the storage of dangerous substances;
6. becoming aware of shortcomings in the fire safety measures or potential improvements.

Additional indicators as to when a review of the assessment may be considered appropriate might include:

1. a significant change in the management arrangements;
2. a high turnover of staff may indicate the need to review the assessment more often than might otherwise be considered routine;
3. as a consequence of a fire, or near miss fire event.;
4. departments that are inherently high risk because of the activity, materials used or stored, or the type of patients accommodated may be reviewed more often than might otherwise be considered routine;
5. indicators that may suggest the fire safety performance is deteriorating e.g. increased unwanted fire signals, persistent waste disposal issues, system failures due to poor or failing maintenance regimes.

2.27 In any case it is recommended that a review protocol is established so that there is no doubt as to when and how fire risk assessments are reviewed. An example of such a protocol is as follows:

Stage 1. reviews; Annual; shall comprise a review of in-patient or other facilities containing high or medium risk patients. Other facilities containing significant fire risks.

Stage 2. reviews; Bi-annual; shall comprise a review of all those not subject to a Stage 1 review.

Stage 3. reviews; More frequent than annual; facilities containing very high fire or life risks e.g. ITU or Operating departments with a significant potential for delayed evacuation.

Stage 4. reviews; A periodic desktop analysis of all assessments to identify those with relevant (known) changes that require re-assessment.

Having this or a similar defined protocol in place ensures that there is documented evidence of a properly managed review process, and consequently that all fire risk assessments are subject to regular and routine review.

3. Statutory requirements

The Fire (Scotland) Act 2005 as amended

The Fire Safety (Scotland) Regulations 2006

- 3.1 The Fire (Scotland) Act 2005, Part 3, together with the Fire Safety (Scotland) Regulations 2006, came into force on the 1st October 2006 and these enactments comprise the primary fire safety legislation in Scotland.
- 3.2 The Act and supporting Regulations are applicable to NHSScotland healthcare and other premises as determined by the Act, including care homes and houses in multiple occupation. Compliance with the Act and supporting Regulations is based on a fire risk assessment regime and the enforcing authority is the Fire Authority in whose area the premises are situated.
- 3.3 The term 'duty holder' is a generic term commonly used to describe any person who has a statutory obligation set out in the Act. Those with specific duties, including owners, employers and employees, and others who may have control to any extent, are responsible for compliance with the Act and Regulations. Duty holders are required to take steps to assess, evaluate, prevent and mitigate the effects of fire, amongst of range of other specified duties. Compliance audits will be conducted by the Fire & Rescue Service, at a frequency related to the life risk profile of the occupancy, and other factors they determine.
- 3.4 Guidance for those affected by the legislation, titled 'Fire Safety Guidance – Are you aware of your responsibilities' has been widely distributed and is publicly available free of charge online at www.firelawscotland.org, or in print from Blackwell's Bookshop, 53 South Bridge Street, Edinburgh, EH1 1YS. The Act, Regulations and related Statutory Instruments together with sector specific guidance documents will also be found on the website.
- 3.5 For the purposes of this guidance and its use to support the conduct of fire risk assessments in NHSScotland healthcare premises, it is assumed that competent risk assessors using the guidance will have sufficient working knowledge of the compliance requirements contained in the Act and supporting Regulations.

4. Assessment areas

- 4.1 To evaluate the existing life risks, fire hazards and fire precautions of a hospital or other healthcare facility it will normally be appropriate to divide the building into a number of assessment areas. However, in smaller premises it may be deemed appropriate to consider the building as a single assessment unit.

The assessor shall determine the number and size of assessment areas taking into account the management arrangements, operational use, structure and layout of the particular premises. Where it is considered appropriate to subdivide the building into a number of assessment areas, the following guidance should be taken into account.

It is not possible to undertake the assessment before the assessment area is fully occupied and functioning as the operational working practices, management, workplace layout, storage and general housekeeping practices cannot be properly observed until then.

Assessment areas may consist of more than one fire compartment, but the boundaries of the assessment area should always be compartment or sub-compartment walls and floors, as follows;

- in assessment areas that do not contain 'very high' risk patients, sub-compartment walls may be accepted as boundaries;
- assessment areas that do contain 'very high' risk patients should always be enclosed by compartment walls;
- assessment areas should not normally cover more than one floor, but may do so where a single management unit incorporates sleeping areas and day spaces on separate storeys;
- the full extent of escape routes including the potential for progressive horizontal evacuation (PHE), escape bed lifts, circulation spaces, stairway enclosures, and final escape to a place of safety from any specific assessment area should be included in the assessment;

Note: In buildings with a number of assessment areas, it may be appropriate to include hospital streets, circulation spaces, stair enclosures, communal spaces and escape routes as a single assessment area, to avoid duplication where assessment areas share escape routes. Care should be taken to cross reference the assessment covering common space with each adjoining assessment area.

- where a building has been subdivided into a number of separate assessment areas it may be necessary to conduct an overall building assessment to cover those aspects of the fire safety provisions that relate to the building as a whole, such as access for fire appliances, fire hydrants where installed, dry or wet rising fire mains and other facilities for the Fire and Rescue Service.

5. Using the guidance notes

General

- 5.1 The following guidance notes (GN's) will assist fire risk assessors when using the FireManager fire risk assessment software for assessments in healthcare premises.
- 5.2 This document does not provide guidance in the use of the PAS 79 fire risk assessment template, to be used for assessment areas not providing healthcare. The assessor should consider whether the predominant use of the premises is for healthcare or non healthcare purposes, and the nature of the healthcare component e.g. does the healthcare use include invasive treatments, anaesthetic administration, significantly delayed evacuation etc. In any case the assessor must be satisfied that the particular template used adequately covers all the circumstances of the premises being assessed. Where appropriate the compliance guide covering the particular occupancy use should be referred to if guidance is required to support use of the PAS 79 template.
- NB: Publicly Accessible Specification (PAS) is a sponsored fast track standard developed according to guidelines set by the British Standards Institute.
- 5.3 The guidance notes are linked to specific questions in the FireManager software and should not therefore be used to support the use of other systems of fire risk assessment.
- 5.4 Each guidance note number corresponds with a group of questions having the same number in the assessment template e.g. GN.07 in this document relates to the Q.07 group of questions in the question set template.
- 5.5 Where additional, more detailed information may be required, the relevant resources are cited to assist further research.

Assessment notes

- 5.6 The selection of simple yes/no or n/a answers questions will not generally provide any explanation of the reasons why a particular answer has been given. Nor will it record details of any evidence that was identified at the time of the assessment to support the particular answer or decision. Additional information is often necessary to enable an auditor or others who may have to refer to the assessment, or for those who may subsequently review the assessment, to understand the reason why the particular answer was entered in the assessment.
- 5.7 Assessors must make full and appropriate use of the 'notes' column to input text that explains, or records supporting evidence for, the answers that have been provided. The notes section is therefore a major and very important component of the assessment. Not all questions will require explanation in this way, and the

notes section is for use at the discretion of the assessor and especially where the information provided will add value to the assessment record.

Archived Sept 2023

6. Guidance notes

GN 00: general information

This section provides a description of the building and the assessment area within it so that users, such as estates and facilities staff or statutory auditors, are provided with a written description of the use/s, size, extent and some brief details of the construction of the building. Whilst these elements are not evaluated in terms of risk, they are part of the assessment, essential to establish a physical context for the assessment area, within the wider building.

Also identified in this section are those persons having specific 'duty holder' responsibilities for the assessment area.

Duty holder responsibilities are set out in the Fire (Scotland) Act 2005 as amended sections 53, 54 and 56, and the auditing authority will normally wish to identify who the duty holder(s) is for the particular assessment area being considered. It is therefore important that assessors take care to identify in each case those who have responsibility for the action/s that are required as a consequence of the assessment.

The notes column should be used to record text entries against each question.

Note

- 1 The number of staff required in this section is for information purposes only in order to provide a complete picture of the building and its use/s. An evaluation of the risk to persons is covered more fully in the following question section 01.

GN 01: persons at risk

In this section assessors should consider the risk to patients and others in the assessment area, based on their ability to respond, both mentally and physically, to an alarm of fire. The ability to recognise and respond to the fire alarm signal and the extent to which they may require physical assistance and/or supervision to escape safely should be taken into account.

All persons including patients should be considered and the evaluation should consider not only the ability or disability of patients and others, but the standard and effect of the existing fire precautions.

Normal risk

All patients and other persons except those identified to be 'high risk' or 'very high risk', including all others present such as visitors, contractor staff and volunteers providing a service.

i.e. Those who can escape safely without supervision or assistance. It is assumed that patients and others in this category can escape independently with minimal supervision or assistance. They will be ambulant and able to negotiate stairs safely and have little or no difficulty in understanding pictographic, written or oral instructions and carrying them out.

High

Those who can walk only with difficulty and require assistance or close supervision at all times by at least one other person, and who are slow and/or unsteady on their feet.

Those with learning difficulties.

Those who suffer from mental illness.

i.e. Those who will always require at least some degree of assistance or supervision from one or more members of staff, whether or not they have a mobility impediment. Some patients in this category may have a limited degree of mobility, but are unable to act independently. Some may have full mobility, but may be unable to take rational action or are distressed or fearful when the fire alarm operates, and will therefore always require staff supervision, assistance and direction.

A significant number of persons in this category with individual assistance requirements may indicate that it is appropriate to assign a higher risk value because of the number of staff required for supervisory duties, and the greater obligations imposed on those who will have to manage, supervise and control the evacuation. The assessor must evaluate the risk presented not only by an individual, but the collective risk of all those with similar assistance requirements.

Very High

Those who cannot walk.

Those whose clinical treatment and/or condition creates a high dependency on clinical staff. For example: those in intensive therapy units/high dependency units, special care baby units, and operating departments.

i.e. Those who are entirely dependent on staff for their escape in any circumstances, including preparation for escape due to dependence on equipment for their ongoing treatment or life support, usually requiring more than one member of staff. Persons in this category will commonly be highly dependent on medical devices and/or equipment and the continuity of treatment and care during movement for their survival.

It is assumed that persons in this category will always require skilled medical assistance and attention throughout the entirety of their evacuation and subsequently at the receiving area.

Notes

- 1 If the risk is higher than 'normal', the assessor must consider whether or not it is necessary to provide a higher standard of life safety by means of additional precautions. Examples of such additional precautions include e.g.
 - a higher standard of alarm and fire detection; not only in the assessment area itself but in areas adjacent to the assessment area so that the earliest possible warning of any fire is given; (where the existing alarm and detection system is not already category L1.)
 - a minimum of two independent exits routes from each sub-compartment complying with the Non-domestic Technical Handbook Annex 2.B; 2.B.3;
 - the provision of, or additional, specialist evacuation equipment such as evacuation chairs, ski pads, under mattress ski sheets or mattress belts;
 - limitation of height above ground level for the accommodation of persons at risk;
 - reduction of travel distance e.g. relocating high or very high risk patients nearer to a refuge compartment;
 - a higher standard of escape lighting;
 - additional staff, or improved assistance arrangements, to ensure the higher number of staff required for the safe evacuation of patients is provided;
 - the provision of a life safety automatic fire suppression system.
- 2 The assessment will generally be based on the clinical dependency of the majority of persons in the assessment area, but where a minority of higher risk patients are present, arrangements for their safe evacuation must be operationally realistic and achievable with the equipment and properly trained staff available.

- 3 Where very high risk patients are present, the assessor must ensure that the procedure, staff numbers and equipment necessary to support an evacuation are both appropriate and sufficient e.g. where patients are dependent on respiratory or other powered medical equipment, that it can be disconnected and powered from a portable supply during the evacuation; that sufficient supplies of portable medical oxygen are available for emergency use.
- 4 The assessor should consider the suitability of the receiving area(s), their location and the routes to them. Suitability means not only occupant capacity, but the facilities appropriate for the continuing care of the patients and the route/s to be taken during evacuation e.g. are there any changes of level that would hinder bed movement; is there sufficient corridor and doorway width?
- 5 Where escape may involve stairways or escape bed lifts, consideration must be given as to how this will be conducted e.g. have staff received sufficient and appropriate training in the movement of patients down stairs? Is any equipment provided for the movement of patients vertically down stairs? Is the equipment appropriate, sufficient, available and properly maintained? Have any practical exercises been conducted involving the use of the escape bed lifts? Have those who may be required to use an escape bed lift been given specific instruction and training in its use, management and controls, and what to do if the lift is unavailable?
- 6 The assessor should also consider the viability of assistance arrangements i.e. is a system in place to summon additional staff from other areas? How will the call for assistance be initiated? Will additional staff arrive in good time (where are they coming from and what distance do they have to travel?)
- 7 Are the procedural arrangements for visitors and other non-patients suitable and sufficient? i.e. Is a personal evacuation plan (PEEP) system adopted for disabled persons? Who will be responsible for ensuring a disabled person receives assistance etc? In ward areas, disabled persons may be included in the progressive horizontal evacuation plan already in place for patients. For other areas of the premises evacuation plans for the disabled may need to be more specific, identifying how vertical evacuation will be undertaken etc.
- 8 Assessors should be aware of, and take account so far as possible, the changing nature of the in-patient profile during their stay in hospital e.g. the impact of medication, sedation, post operative condition and the impact on their mobility during recovery etc. This may mean, for example, that the proportion of those with a significant mobility or other disability may actually be higher than is immediately apparent when the impact of their treatment is taken into account.

The assessor must, in any case, be satisfied that the procedures cover the evacuation requirements of all persons who may be present in the assessment area, and that the procedure identifies and covers the range of disabilities that might reasonably be expected to be encountered.

GN 02: ignition sources - smoking

Smoking remains a significant potential ignition source. The assessor should determine the potential for fire from the accidental or deliberate misuse of smokers materials, and where smoking is permitted, that the physical arrangements are suitable and appropriate and that the level of risk is reduced to the lowest possible level.

Acceptable

The fire hazard will normally be acceptable if:

- smoking is prohibited in accordance with The Smoking, Health and Social Care (Scotland) Act 2005 and The Prohibition of Smoking in Certain Premises (Scotland) Regulations 2006; and
- the guidance in 'Smoke free Scotland': smoking policies for NHSScotland, local authorities and care service providers, is adopted as best practice; and
- there is a specific policy in place regarding the use of smokers materials, and enforced in the assessment area (subject to the exclusions listed below);
- where smoking is permitted, 'Smoking' and 'No Smoking' areas are clearly indicated by appropriate signs.
- in adult residential care homes, residential psychiatric hospitals and units (in which designated smoking areas are established so long as certain criteria are met); the fire hazard is also acceptable if additionally;
- sufficient, suitably placed non-combustible ashtrays or bins are provided in the designated smoking area(s) for the safe disposal of smoking materials;
- smoking area(s) are inspected at regular intervals, and about half an hour after they are vacated at night, to ensure that discarded smoking materials are removed and that there is no residual smouldering or ignition of other materials;
- there is no evidence to suggest that staff are complacent or supervisory practices are inadequate.

Unacceptable

The fire hazard will not generally be acceptable if:

- a no smoking policy is in place, and evidence of smoking is identified; and/or
- there is visible or other evidence that the policy and/or best practice guidance is not being applied; and/or
- the supervision and control of permitted smoking arrangements is poor; and/or

- in adult residential care homes, residential psychiatric hospitals and units if the additional conditions are not implemented or safe working procedures are not properly identified; and/or
- there is no policy regarding the control of smoking; and/or
- staff show little awareness or recognition that smoking is a significant fire safety hazard.

Notes

- 1 Inappropriate or careless use of smokers' materials is a significant and persistent cause of fires causing harm in NHSScotland hospitals.
- 2 The use of smokers' materials whilst using oxygen therapy without appropriate supervision is regularly recorded. Such incidents almost always result in significant harm to the patient.
- 3 The use of smokers' materials for deliberate fire raising or even self harm is also a significant risk in the mental health sector.
- 4 A smoking hazard will not generally be mitigated only by improvements to the physical fire precautions. Physical improvements must be accompanied by improved supervisory procedures and working practices and this should be reflected in action plans.
- 5 The assessment should consider possible external fire risks e.g. a smoking area close to a building or large waste containers may present an increased fire risk. External openings such as an openable window or ventilation grille provide a potential passageway for fire to enter the building.
- 6 Where identified, hazards related to smoking should generally be considered as very high and must be reduced. This should be reflected in the assessment risk score where specific smoking hazards are identified.

Further guidance

Detailed guidance on promoting non-smoking in NHSScotland premises and on complying with the legal requirements is contained in:

- 'Smoke free Scotland': guidance on smoking policies for NHSScotland, local authorities and care service providers, available at: www.clearingthairsotland.com and www.ashscotland.org.uk;
- the Scottish Government, Safer Scotland; practical fire safety guidance for healthcare premises, Chapter 6, page 26;
- 'Smoke free mental health': guide to smoke free policies in mental health facilities; <http://www.healthscotland.com/documents/5041.aspx>;
- NHSScotland Firecode SHTM 85; Section 6 – Fire hazards; paragraphs 6.5 to 6.10, page 22.

GN 03: ignition sources – wilful fire-raising

Evaluate the hazard of fires, wilfully or deliberately started by patients or others in the assessment area.

Current statistical evidence indicates that wilful/deliberate fire-raising is a significant cause of fires in healthcare premises providing sleeping accommodation. Positive measures should be identified in the assessment area being considered, to limit so far as possible the potential for it to occur.

The determination as to whether or not a particular incident is deliberate or wilful will be made by a relevant authority such as the Police or Fire & Rescue service.

Acceptable

The indicators for an acceptable standard may include:

- no previous history of fires, including wilful/deliberate fire-raising;
- the fire policy clearly recognises wilful/deliberate fire-raising as a significant risk issue;
- evidence that staff have an awareness of the importance of wilful/deliberate fire-raising and have received training on how to mitigate the possibility;
- reasonable access control measures are taken, taking into account the use, means of escape and public accessibility to the assessment area. Access to small storage spaces such as cupboards, kitchens and other rooms should be limited to staff only, so far as it is practicable to do so;

Note: Meaningful access controls may not be viable for some areas such as a busy Out Patients or Accident and Emergency Department; however limitation of access to storage or other out of sight risk areas within such departments may still be viable. It will commonly be viable to prohibit unauthorised access to areas such as some offices, plant rooms and service areas, during and outside normal working hours. Care must be taken to ensure that escape routes for adjacent occupied areas are not obstructed when restricting access to unoccupied areas.

- where appropriate supervisory arrangements for smoking in permitted areas are in place, including specific measures for high risk mental health patients or those with a known history of fire-raising;
- clearly defined procedures are in place to mitigate the hazards associated with the administration of oxygen therapy e.g. access to smokers materials is controlled and appropriately supervised.

Unacceptable

- the assessment area has a history of fires generally, including wilfully/deliberately set, or suspicious fires;

- staff exhibit little or no awareness of the importance or significance of wilful/deliberate fire-raising i.e. it cannot be established that wilful/deliberate fire-raising has been included as an element of staff fire training;
- there is no access control for persons entering the assessment area (where it is clearly viable to implement a more secure regime);
- the fire policy contains no reference to the control of wilful/deliberate fire-raising or there is no specific separate policy covering the matter;
- where risk factors are identified such as open access to flammable materials, unsecured access to storage areas, there is no clear procedure or instructions for staff to mitigate the risks and supervision is poor.

Notes

It is not possible to compensate for an unacceptable standard. Management control measures, staff awareness and training must be improved.

Physical control measures such as access controls or additional smoke detectors may be beneficial, but should not be seen as sufficient to 'compensate' for poor management, lack of staff training and awareness of the hazard of wilful/deliberate fire-raising.

Mitigating factors for wilful/deliberate fire-raising may include things not normally recognised as fire safety measures e.g. a system of video surveillance covering the risk area, regular security patrols and/or the presence of security personnel. Such measures may have a significant impact on the potential for wilful/deliberate fire-raising by providing a visible deterrent to those who may be so inclined.

Further guidance

Further comprehensive guidance on the issues and measures to mitigate them is contained in:

- NHSScotland SFPN 6 – the prevention and control of deliberate fire-raising; and
- the Scottish Government, Safer Scotland; practical fire safety guidance for healthcare premises, Chapter 6, page 27.

GN 04: ignition sources – work activities

Evaluate the hazard due to work processes in the assessment area.

Acceptable

The hazard will normally be acceptable if:

- hazardous work processes are identified and safe systems of work are defined and are seen to be used properly;
- those working in hazardous work areas receive adequate training and are aware of the potential fire hazards;
- appropriate safety equipment or installations are provided to mitigate the potential for fire and harm e.g. protective clothing and Personal Protective Equipment (PPE) where appropriate, spillage trays to contain possible flammable liquid spillages, spillage kits (appropriate absorbents) to deal with any potential spillages, fume extract cabinets, non-combustible waste receptacles with close fitting lids, fire blankets and appropriate extinguishers etc;
- the quantity of highly flammable liquids or other hazardous materials exposed is consistent with the work being undertaken and workplace storage/containment arrangements are acceptable;
- the waste disposal arrangements and security from unauthorised access are acceptable;
- appropriate fire hazard signage is properly displayed;
- the management and measures for the control of contractors activities are adequate and appropriate, including a hot work permit system and other appropriate measures to control the work of contractors is in place;
- safe working practices, once established, are properly managed, adopted, supervised and periodically reviewed.

Unacceptable

The hazard will normally be unacceptable if:

- a hazardous work process is evident and those involved in the process are unaware of the hazards associated with it;
- hazard signage is inappropriate, or not displayed where necessary;
- there is no evidence to show that specific training and information is provided for those involved in a hazardous work process;
- there is no hot work permit system in place; or
- measures for the control of contractors activities are not applied and properly managed;

- poor working practices are evident e.g. accumulations of waste at worksites, inappropriate work equipment stored such as liquid petroleum gas or other gas cylinders kept in the workplace unnecessarily, gas cylinders left on a contractors site in close proximity to patient care areas, hot work being conducted without control measures such as a hot work permit, the use of appropriate fire safety equipment such fire blanket and fire extinguisher, high racked storage too close to light fittings etc.

Actions must consider:

- elimination of the potential for fire; or
- substituting the dangerous with the less dangerous; or
- isolation of the particular ignition risk from fuel sources; or
- reduction of the risk to an acceptable level; or
- the introduction of suitable control and mitigating measures e.g. automatic fire controls such as a sprinkler or other system, manual fire controls such as the provision of a suitable extinguisher or fire blanket.

Other mitigating factors, such as improvements to the means of escape, signage, lighting etc may be necessary however, these mitigations are unlikely to address the core issue of reducing the potential for fire to occur.

Failures may be identified in places where the appropriate procedures are already in place but are not properly implemented or work processes are not adequately supervised. Action plans should recognise this and identify failures of management that have led to inappropriate working practices.

Contractors works and the measures put in place to control or mitigate the possible impact of their activities are essential, especially where they are within or close to an existing patient care facility. Where strict control measures for hot works, staff briefing, waste management, the use of cylinder gases, storage of materials etc are not clearly evident, or are poorly managed, this should be identified as a very significant failure, and the seriousness should be reflected in the risk scoring applied by the assessor.

Notes

- 1 If the hazard is higher than acceptable, then it should be considered to be 'very high' and must be eliminated or reduced to an acceptable level.
- 2 The following work processes are a short representative list only. These and other hazards can present particular risks if adequate precautions are not taken:
 - x-ray departments in regard to film storage;
 - physiotherapy departments;
 - the control, supervision and management of contractors activities;

- prosthetics departments (factory processes);
- laboratories (highly flammables, hazardous materials and manual work processes and procedures).

3 Guidance on particular hazards within these areas and effective measures to reduce them is contained in SHTM 83 Fire safety in healthcare premises: general fire precautions, which also contain guidance on the hazards associated with building and maintenance work within patient care areas.

4 SFPN 10 provides specific guidance on fire safety in hospital laboratories.

5 Additional guidance for fire safety in buildings under construction and construction sites generally includes;

- HSG 168; Fire safety in construction (Health and Safety Executive);
- fire prevention on construction sites; 7th edition (the Fire Protection Association).

GN 05: ignition sources – equipment

Evaluate the hazard due to equipment in the assessment area.

Acceptable

The hazard will generally be acceptable if:

- there is an effective programme of planned preventative maintenance;
- there is an agreed procedure for reporting and recording faults;
- action is taken to repair faults or otherwise to ensure that the equipment is made safe after reporting i.e. removed from the workplace, appropriately labelled and made unusable, and such actions are properly recorded;
- each room or area has sufficient electrical sockets of the appropriate type for the equipment used in that room;
- appropriate warning and hazard signage is provided where hazardous equipment is located or used;
- extension leads, two-way adaptors etc are used only in accordance with the manufacturers instructions, following inspection and routine, recorded test by an electrician;
- the wiring of plugs by untrained staff is not permitted;
- personal electrical equipment belonging to patients or staff is tested and approved before use, with evidence to show that this has been done;
- all new electrical fittings and installations are checked by a qualified person prior to first use and comply with BS 7671; Requirements for electrical installations, and current Institute of Engineering and Technology (IET) regulations;
- portable heaters, where provided, should be installed in a safe fixed position, are properly guarded and used in accordance with the manufacturers' instructions. Liquid Petroleum Gas (LPG), naked flame or exposed element heaters are not recommended for use in NHSScotland premises;
- records are kept to include:
 - the date on which the testing and maintenance was carried out, resulting actions and the name of the person who carried it out;
 - the date on which any defects are reported and the action taken to remedy such defects;
 - the date on which the defect was remedied and the name of the person who remedied the defect.

Unacceptable

The hazard will generally be unacceptable where:

- there is no evidence of routine portable appliance testing i.e. a central record of all tests against an equipment register, and suitable labelling of tested equipment;
- there is evidence of abuse or misuse of equipment, general lack of care or understanding of the hazards presented by improperly used or maintained equipment, unsuitable storage arrangements, visible evidence of damaged wiring or equipment;
- there is no reporting system for the repair of electrical or other equipment faults.

Notes

If the hazard is higher than acceptable, then it is considered to be 'very high' and must be reduced. It is not possible to accept or mitigate a 'very high' level of this hazard. Appropriate elimination or control measures must therefore be specified in the action plan.

Further guidance may be referred to in;

- SHTM 83 Fire safety in healthcare premises, general fire precautions; and
- the Scottish Government, Safer Scotland; Practical fire safety guidance for healthcare premises.

GN 06: ignition sources – the maintenance of lightning protection systems.

The intention of this section is to determine whether or not the maintenance requirements for a lightning protection system are properly met. Assessors are not therefore expected to determine whether or not such systems should be provided for an existing building as this is a specialist area of engineering, within the wider remit of estates departments.

Assessors should evaluate the hazard due to lightning strike in the assessment area. Where no system exists a not applicable (N/A) entry should be made against the relevant question.

Acceptable

The hazard is acceptable if:

- the building is provided with a system of protection against lightning and it is inspected and maintained annually in accordance with BS EN 62305 by a suitably qualified person, and a record of inspections and actions is maintained; and
- no obvious faults are identified in those parts of the system that can safely be observed e.g. the conductor fixings and continuity so far as it can be seen.

Where such a system does not exist a not applicable (N/A) entry should be made in the assessment.

Unacceptable

- if the building is provided with a system of lightning protection and no evidence is available to indicate that appropriate annual inspections have been carried out by a person qualified to do so;
- if an obvious fault is identified e.g. an externally fixed earth conductor that is visibly broken, damaged or detached from its fixings. It should be recorded in the assessment and appropriate remedial actions entered on the action plan.

Notes

- 1 This section requires an assessment of the maintenance of systems that already exist in the building being assessed.
- 2 BS EN 62305 provides guidance on the design and maintenance of systems for the protection of structures against lightning and all new systems should comply with its requirements.

GN 07: combustible materials – surface finishes

Surface finishes may contribute significantly to the rapid spread of flames over wall and ceiling surfaces. The potential hazard presented by inappropriate surface material is especially relevant in escape routes such as stairways, hospital streets, corridors and other components of escape routes.

Acceptable

The hazard is acceptable if the reaction to fire of all wall and ceiling finishes meet the requirements of Non-domestic Technical Handbook 2.0 fire: 2.5 internal linings;

- rooms not more than 30m²: medium risk (high risk in room not more than 4m²);
- rooms more than 30m² low risk (ceilings may be low risk);
- protected and unprotected zones and fire fighting shafts (including any toilet or washroom within a protected zone) low risk.

See also Non-domestic Technical Handbook annex 2.E; 2.E.1; 'Reaction to fire classification'.

When assessing surface linings it is necessary to consider also temporary surfaces such as notice boards, wall hangings, posters, fabrics, prints and other artwork and decorations. Limited surface areas comprising such items which do not meet the required fire performance standard are generally acceptable provided they do not amount to more than 5% of the total wall area of the room.

See also NHSScotland Firecode; SHTM 85; paragraphs 6.41 to 6.50.

Unacceptable

Surfaces that have been subject to repeated painting over a number of years, with gloss or emulsion paints resulting in a significant thickness of paint film, may provide the means for the rapid spread of fire over its surface due to the surface fuel load, especially where the surface finish is flaking and adhesion is clearly poor. Where this is evident, it may be taken as an indicator of an unacceptable hazard likely to require further investigation. In the case that doubt exists, the assessment evaluation and action plan should reflect the degree of concern and specify the need for expert technical investigation;

Although hard flooring is not generally considered to be a significant fire hazard, the accumulation, over a number of years, of wax polish applied to a timber floor may pose a significant fire hazard.

Notes

- 1 The use of anti-graffiti and intumescent paints requires careful consideration, especially when they are applied over existing painted surfaces; and the method of application must strictly adhere to the manufacturer's instructions.

Technical guidance should always be obtained from the manufacturer before using specialist paint finishes.

- 2 Flooring is rarely a significant contributor to the fire hazard, but cannot be discounted. Where an assessor has concerns about the floor finish or materials they may refer for further guidance to SHTM 61 'Flooring', which provides guidance on the selection of floor finishes for healthcare premises.

GN 08: combustible materials – textiles and furniture

Evaluate the hazard posed by the furniture and furnishings in the assessment area.

Acceptable

The hazard will normally be acceptable if at least 75% of all items of textiles and furniture achieve the standard specified in SHTM 87 Textiles and furniture, and there is an agreed policy of planned replacement and maintenance to comply with SHTM 87:

- all NHS provided bedding and sleepwear meets the requirements of SHTM 87;
- upholstered furniture and soft play equipment is in good condition having no exposed linings or filling material;
- all textiles, furniture and furnishings are clearly and durably labelled or marked. Labels are safely, securely and permanently attached e.g. sewn in place. Refer to NHSScotland Firecode; SHTM 87; p27; paragraph 9.2.

Unacceptable

- less than 75% of all items of textiles and furniture comply with standards laid down in SHTM 87;
- if less than 50% of all items of textiles and furniture comply with the relevant standards the risk should be evaluated as 'very high'.

The risk score recorded by the assessor should reflect the degree of non compliance, and action plans should similarly identify the need for priority action to reflect the extent of the non compliance.

Notes

- 1 The assessment will generally be made in regard to the materials and clothing provided by the NHSScotland body. Attention is drawn to the NHSScotland Firecode SHTM 87 section 7. 'Clothing' (see also [Notes 2 and 3](#) below).
- 2 In some facilities patients may be allowed to wear their own nightwear and other clothing in which case it is not possible for staff to exercise full control over the fire performance of it. However, this should be identified and evaluated in the fire risk assessment, especially in those facilities where there are higher risk children or elderly patients.
- 3 Where personal clothing is used by patients, a reasonable minimum measure may be to ensure that there is an operational protocol to ensure that the patient, or their guardian, receives appropriate advice and guidance with a clear recommendation that clothing they provide and use conforms to the Nightwear (Safety) Regulations 1985 as amended in the interests of their own safety and that of other patients.

Where such advice is given to patients, parents, guardians, carers or the immediate family of a patient it may be recorded as a reasonable mitigating factor for the risk.

4. Labelling or other marking on furniture and fabrics are probably the only evidence that will be available to an assessor during the conduct of a fire risk assessment. NHSScotland SHTM 87; section 9, provides recommendations of acceptable standards regarding the provision of labels. In particular it is recommended that the labels provide;

- confirmation of compliance with the relevant technical specifications;
- labels should include any special precautions necessary in regard to cleaning and care of the material.

Failure to identify evidence of an acceptable standard of flammability of fabrics or upholstered furniture i.e. an appropriately informative and attached label, should be identified in the assessment as a significant hazard and scored appropriately, according to the particular circumstances.

GN 09: combustible materials – other materials

'Other materials' is a generic term covering all materials not specifically covered elsewhere in the assessment that may contribute to the overall fire risk due to their possible contribution to fire growth (fire loading), their ignitability or other relevant fire performance properties. Such materials may comprise carbonaceous materials generally such as paper or timber packaging, timber pallets and other products, paper based consumables, aerosol containers, medical gases, flammable liquids stored and used in assessment area etc. This list is clearly not exhaustive and other combustible materials may be present in patient access areas of healthcare premises.

Evaluate the hazard due to other combustible materials in the assessment area.

Acceptable

Combustible materials should be stored in accordance with the guidance in NHSScotland Firecode SHTM 83; Fire safety in healthcare premises; General fire precautions.

The amount of combustible materials exposed and easily accessible in the workplace should be managed and controlled so that the quantity exposed at any one time is consistent with the operational needs of the ward or assessment area e.g. sufficient for 24hrs normal operational needs. Consultation with the ward or department manager will generally be necessary to determine acceptable levels of storage and the storage practices e.g. security of the storage areas to limit unwanted access to the materials.

Care should be taken to discuss the ward or departmental operational needs before assessing the location and distribution of medical gas cylinders. It is likely that a sufficient immediately available reserve will be necessary to deal quickly with medical emergencies or to accompany patients in transit (including evacuation). Guidance will have to be taken from medical staff to determine acceptable levels of storage in wards or other treatment areas.

In such cases the place and method of storage should be given careful consideration e.g. in cylinder racks with means to prevent cylinders falling or being accidentally knocked over, segregation of empty and full cylinders, the use of cylinder tags to identify empty and full cylinders, adequate segregation from other combustible materials e.g. waste or laundry bags awaiting uplift.

Unacceptable

Evidence of poor housekeeping and overstocking of materials may be an indicator of poor workplace fire safety management. Overstocking should be identified as a significant hazard in the assessment, and the extent to which it contributes to the overall fire load evident in the assessment area should be reflected in the assessment risk score and the measures identified in the action plan to deal with it.

Notes

- 1 The alcohol based hand wash materials used to prevent healthcare acquired infections (HAI's) are not addressed specifically within NHSScotland Firecode SHTM 83 however these materials, particularly in bulk quantities, should not be stored in close proximity to potential ignition sources.
- 2 Assessors should consider the type of hand gel being used in the assessment area as some have very low, or even no alcohol content and therefore may present little or no significant risk, whilst other types may have a very high alcohol content, circa 70%, that would therefore require wider consideration as to storage arrangements, the content of signage regarding use and precautions, the siting of dispensers etc.
- 3 Assessors should consider also the disposal arrangements of alcohol based gels or other containers that may contain a highly flammable residue. It will not normally be appropriate for such containers to be disposed of with normal domestic waste (except where there is evidence to suggest that it is acceptable to do so). Empty containers may present a higher ignition risk than full containers since they have a higher volume containing flammable vapours that in most cases will be more easily ignited than a semi-liquid such as hand gel.
- 4 Further guidance on the specific hazards, use, disposal and storage arrangements associated with alcohol hand-rubs may be found in Safety Action Notice (Scotland) (SAN (SC)) 06/27: 'Alcohol based hand-rubs, Risk of fire'.

GN 10: combustible materials – dangerous substances and explosive atmospheres

The requirements in regard to dangerous substances are contained in Regulations 6; 7 and 11 of the Fire Safety (Scotland) Regulations 2006, the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) and supporting guidance. Assessors should be aware of the specific requirements.

'The obligations set out in the Fire Safety (Scotland) Regulations 2006 must be interpreted only insofar as they relate to general fire safety, and they do not impose any obligations in terms of process fire precautions.' Scottish Government Legislation overview paragraph 136.

'In undertaking a fire safety risk assessment.....some acknowledgement of process fire risks and process fire precautions will be required in order to assess the implications for general fire safety.' Scottish Government Legislation overview paragraph 138.

This suggests that the extent of the controls and mitigating measures are those necessary to ensure that the general fire precautions in the workplace are appropriate to ensure the safety of those present or who may be affected by the involvement of the materials in question.

The intention is not to assess and impose controls for the process involving the materials, but to ensure that the wider general fire precautions are sufficient (taking into account the presence of the materials and substances used in the process risk) i.e. the process used will be subject to controls identified under the assessment required by DSEAR.

In practice this means that the fire risk assessment should recognise the relevant materials and assess the wider impact they may have on the general fire precautions throughout the assessment area e.g. is the rate of fire spread likely to be increased? Is the fire load in the assessment increased? Is the type of fire detector installed appropriate for the type of fire that may occur? Does the presence of the hazardous materials impact on the use of the escape routes etc.? Are the materials stored appropriately i.e. segregated from other flammable materials and ignition sources?

Acceptable

The fire hazard is acceptable if there are no dangerous substances or explosive atmospheres present;

The fire hazard is more likely to be acceptable if the measures required by DSEAR, and the supporting guidance have been adopted. However, this does not mean that it is unnecessary to conduct a fire risk assessment under the Fire (Scotland) Act 2005 as amended and the Fire Safety (Scotland) Regulations 2006. A fire risk assessment must still be conducted to ensure that the wider, general fire precautions meet acceptable standards.

If the matters identified in Regulation 6. (a) to (j) of the Fire safety (Scotland) Regulations 2006, are taken into account when conducting an assessment and the control measures, both physical and management, are considered to mitigate the hazard adequately, then the hazard may be identified as acceptable, and therefore reflected in the risk score.

Unacceptable

The hazard is more likely to be unacceptable if a DSEAR assessment has not been conducted. However, it should be noted that compliance with the specific requirements of the Fire Safety (Scotland) Regulations 2006 is not conditional on a DSEAR assessment having been undertaken.

The fact that a DSEAR assessment has not been conducted does not automatically mean that the general fire precautions are unacceptable. However, lack of a DSEAR assessment should indicate the need for a degree of caution since it may be interpreted as a lack of essential safety management control.

Assessors should therefore conduct a fire risk assessment taking into account the particular issues identified in Regulation 6. (a) to (j) of the Fire Safety (Scotland) Regulations 2006, and the degree of hazard and actions detailed in the action plan should be reflected in the risk score they record.

Notes

These notes are specific to DSEAR compliance, but may provide some useful background information for fire risk assessors conducting an assessment under the terms of the Fire (Scotland) Act 2005 as amended. However, where a significant hazard is identified, the DSEAR guidance referred to in [Note 6](#) should be referred to.

- 1 To determine whether dangerous substances are present in the workplace, employers should carry out the following;

Step 1 - check whether any substance or preparation has been classified under the Chemicals (Hazard Information and Packaging for Supply) Regulations (CHIP) as: explosive, oxidising, extremely flammable, highly flammable or flammable.

Step 2 - assess the physical and chemical properties of the substance or preparation and the work processes involved to determine whether the work activity creates a potential for fire, explosion or similar energetic (energy releasing) event.

Step 3 - check to see if the work activity involves the creation or handling of potentially combustible or explosive dusts.

- 2 For Step 2, a risk assessment must be carried out using information about the physical and chemical properties of the substance or preparation and the characteristics of the work processes to determine whether there is a hazard and risk.

- 3 For Step 3, CHIP (Chemicals (Hazard Information and Packaging for Supply) Regulations) will not identify if any explosive dust is present in the workplace. Determining whether DSEAR applies requires knowledge of the physical and chemical characteristics of the substance and an assessment of the processes forming or handling the dust - particularly the size of dust particles being produced or handled.
- 4 To assess if an explosive atmosphere is present consideration must be given to the following:

'Atmospheric conditions' are commonly referred to as ambient temperature and pressure. For the purposes of standardisation, atmospheric conditions are defined as (minus) -20°C to (plus) +40°C and 0.8 to 1.1 bar. Any equipment manufacturer has to demonstrate that their equipment will operate safely throughout the ambient range of temperature and pressure. Where a process operates outside this range, the risk of fire and explosion may still exist, but a more detailed assessment of the process and equipment to be used is likely to be needed.

An explosive atmosphere must include air and one or more dangerous substances defined in regulation 2 of DSEAR. The dangerous substances can be in the form of a gas, vapour, mist or dust. Dangerous substances or mixtures of such substances, that are explosive with an oxidant other than air, for example pure oxygen or chlorine, are outside the scope of the definition of explosive atmosphere.

- 5 The 'hazards' dealt with under DSEAR are specific and are intended to cover only the following harmful physical effects caused directly or indirectly by fires and explosions:
- thermal radiation effects (burns);
 - over-pressure effects (blast injuries);
 - oxygen depletion effects (asphyxiation).

- 6 The dangerous or explosive atmosphere may be present at all times or transiently during maintenance periods etc.

Further guidance is detailed in Dangerous Substances and Explosive Atmospheres Regulations 2002 – Approved Code of Practice and Guidance ISBN 0 7176 2203 7.

GN 11: prevention – management

The management of fire safety should be assessed to determine if appropriate management protocols, including relevant accountabilities, are in place at executive, middle management and operational levels of the organisation, and whether these are properly set down in the fire safety policy arrangements. Evaluate the assessment area to establish if the management of fire safety achieves the objectives and required standards.

Assess the adequacy of the fire safety management provisions.

Acceptable

Chief Executives, Executive and Non Executive Directors, and other senior and line managers of Health Boards should ensure that:

- the Health Board fire safety policy is consistent with the current Scottish Government Fire Safety Policy for NHSScotland, currently CEL 11 (2011). Where local fire policies are in place for specific premises, they are consistent with the objectives of both the national and Health Board corporate fire policy;
- fire safety policies are routinely reviewed and recorded;
- there is sufficient adequately trained staff available at all times, for the safe evacuation of all persons in accordance with the emergency evacuation plan;
- a Nominated Officer (fire) is appointed, ref: CEL 11 (2011);
- a Fire Safety Advisor is appointed, ref: CEL 11 (2011);
- appropriate arrangements for response to alarms of fire are in place, ref: CEL 11 (2011);
- where a change to structure, layout or the use of premises is proposed, the effect on the fire safety arrangements is properly considered;
- the fire safety policy recognises the need to secure the safety of disabled persons with mobility or other physical or mental health impairment;
- arrangements are in place to ensure contractor activities are properly controlled including such matters as pre-start briefings and instructions, the control of materials storage and waste materials in the work site, the control of heat or flame producing equipment (hot work permits), the storage and use of cylinder gases, the fire detection and alarm provisions, the impact of their works on the means of escape and access to the site and other parts of the hospital or premises by the Fire and Rescue Service.

The arrangements should, in any case, be appropriate and specific to the particular activities being undertaken;

- the assessment area has a comprehensive emergency evacuation plan, openly accessible and available to all staff, setting out the procedure that must be adopted in the event of an alarm of fire;

- the fire risk assessment is readily accessible in the assessment area either as hard copy or electronically, and the contents made known to staff who work there;
- sufficient and appropriate practical fire evacuation training has been carried out;
- the fire safety provisions are subject to regular workplace inspections, and matters that need attention are reported and dealt with appropriately;
- all fire safety actions such as staff training, practical fire evacuation training, routine workplace inspections, fire risk assessments and reviews, testing and maintenance of fire safety equipment and installations etc are properly recorded and the records kept for a minimum of three years.

Unacceptable

- the required appointments to specific roles have not been made;
- there is insufficient adequately trained staff at all times to ensure the safe evacuation of patients from the assessment area;
- fire safety training is inadequate or the records of training are not sufficient or appropriate;
- there is no current fire safety policy or there is no evidence of policy reviews;
- a copy of the current fire risk assessment is not readily accessible;
- there is no copy of the emergency evacuation plan;
- practical fire evacuation training has not been undertaken and/or there is no adequate record of such training and/or exercises;
- routine tests, maintenance and inspections and not properly or adequately conducted and/or there is no record kept.

Notes

1. A local policy is one, other than the Board fire safety policy, covering a single building or specific site with more than one building. A local policy may be necessary where the Health Board corporate policy does not adequately cover the use, and/or activities carried on.
2. Practical fire evacuation training generally means the conduct of conventional fire drills where viable and appropriate. However, in some circumstances it may not be possible to safely conduct fire drills in the conventional manner e.g. involving patients. In these circumstances alternative practical training solutions may include walk and talk exercises, simulating a fire event as closely as possible i.e. walking the evacuation routes, identifying possible hazards, demonstrating and practicing the use of evacuation equipment, table top exercises in real time etc. Such methods should be as practical in nature as possible and simulate the actions that staff may have take in a real fire event. (see also GN12; Note 3.)

- 3 Reference to contractor activities means any body or persons undertaking work of any kind by virtue of a contractual arrangement, within the premises of any NHSScotland body. This might include those occupying and trading commercially in retail premises, voluntary organisations, facilities contractors, maintenance engineering contractors, building contractors engaged in structural works or self employed persons undertaking specialist work of any kind.
- 4 The assessor should determine whether or not the management arrangements are operationally implemented. The measures to address failures in the management arrangements may contain either a corporate (higher level) or local (line management) requirement. The level of action required should be identified in the action plan.
- 5 The responsibility of management to implement and maintain an effective fire safety policy is contained in the Scottish Government Fire Safety Policy for NHSScotland: currently, CEL 11 (2011).
- 6 Failure(s) of fire safety management, either operational, line management or at a strategic level, is likely to be reflected in a poor fire safety culture and fire safety performance of the organisation as a whole, suggesting that fire safety does not receive sufficient attention, at both management and operational levels, within the organisation. Assessors should consider this wider context when considering the risk score, and any necessary measures to address the failure in the action plan.
- 7 Management and operational arrangements for fire safety are components of the statutory obligations and will be subject to scrutiny during any compliance audit. Consequently, failure to have appropriate fire safety management and operational arrangements in place will be identified as a compliance failure potentially resulting in the issue of an enforcement notice.

GN 12: prevention – training

The provision of fire safety training and the conduct of practical fire evacuation training is fundamental to the safety of all patients, staff, those with a disability and others in the assessment area. The ability of staff to respond appropriately to a fire or an alarm of fire is dependent on their knowledge of the fire procedure, the principles of evacuation in hospital with in-patients and how patients and others will be moved to an adjacent safe compartment (refuge), or place of ultimate safety.

Assess the adequacy of the fire safety training provisions and conduct of practical fire evacuation training.

Acceptable

- the content of staff fire safety training is consistent with the specific duties and responsibilities of those attending;
- generic fire safety training for the induction of new staff will generally be acceptable where it is supplemented by local induction training in their actual place of work, at the commencement of employment;
- the frequency of fire safety training is determined and conducted in accordance with an analysis of the training needs. The analysis is recorded and reviewed from time to time. It is recommended that a record of the fire safety analysis and determination of training requirements is kept together with the fire risk assessment so that it will be readily available to an auditor, reviewer, assessor or other person who may require sight of it;
- other persons who work in NHSScotland premises, but are not directly employed by them, receive sufficient training to know how to respond to an alarm of fire, and raise the alarm if they discover a fire, and the impact their work activity has in the premises where they work;

Note: Such persons may include those employed by, or who undertake voluntary work for charities, contractors generally and those employed by Private Finance Initiative (PFI) providers. The NHSScotland occupier or owner who has overall control of the premises may provide appropriate training by mutual agreement and local arrangement, however, it is not the statutory responsibility of the NHSScotland body to provide appropriate training for the employees of another organisation. The duty holder responsible for the provision of fire safety training is the relevant employer of the employees carrying out the works.

In view of the possible impact of the activities of contractors on the fire safety provisions of in-patient care and other hospital facilities, it is essential that the provisions of The Fire Safety (Scotland) Regulations 2006; 21 – Co-operation and co-ordination; are complied with.

- practical fire evacuation training is conducted at a frequency identified in the analysis of training needs. (See [Notes 3 and 4](#) below);

- in ward and other patient care areas such Accident and Emergency, Outpatient or Physiotherapy Departments, practical fire evacuation drills should be sufficient to ensure that each member of staff participates in at least one practical fire evacuation session each year;
- all training provided should incorporate an appropriate means of verifying and evaluating the effectiveness of the training, and the results kept as part of the training records;
- comprehensive records identifying the training received by each member of staff are kept, are readily accessible and can be provided for the auditing authority on request. The records should cover a period of at least three years. (See [Notes 1 and 2](#) below). Records should identify at least, the date, time and place of the training, the name of the instructor, the individuals who received it, the length of the session and brief details of the training content.

Unacceptable

- fire safety training is unacceptable where the provisions fail to meet the foregoing requirements;
- practical fire evacuation training is not undertaken, or is inadequate in frequency or content. (see also [GN11. Note.2](#))
- generic training is provided that takes little or no account of the specific activities and circumstances of the particular workplace being assessed. Such training should generally be considered inadequate, except where it is supported by workplace specific inputs;
- the training provided is not sufficient to cover all staff, including shift workers, those with management or other specific responsibilities;
- the training is not relevant to their specific workplace, duties and level of responsibility e.g. training for general managers is likely to require an awareness of their statutory responsibilities as a duty holder, whilst training for ward managers is likely to require more emphasis on the operational management of an evacuation from the ward area for which they are responsible.

Notes

- 1 Records of fire safety training for staff should preferably be kept, or are readily accessible in the assessment area so that the relevant duty holder/s are able to monitor and identify when training for their staff is required.
- 2 A central system of recording may be in use and the assessor will need to determine whether or not accessibility and the details recorded are adequate.
- 3 The conduct of practical fire evacuation training i.e. fire exercises, drills, or other training involving so far as possible the simulation of a fire event; in some areas such as outpatient departments, operating theatres or intensive care units, general wards and in the mental health sector generally cannot safely involve

patients. Fire evacuation may be simulated in desktop exercises, by using manikins, adopting a 'walk and talk' walk-through of the escape routes and receiving areas, or any combination of these methods. (see also [GN11. Note.2](#))

The requirement to practical fire evacuation training must in any case be met, and the approach must so far as possible simulate the conditions of a real time fire event, to be dealt with by the staff. This may in some circumstances be met by the conduct of a traditional fire drill, and in other circumstances where this is not possible, by other means.

Such training should in any case provide a degree of challenge to those participating i.e. should include elements of decision making in real time, such as who to evacuate first, which receiving area to use (progressive horizontal evacuation (PHE) refuge), using equipment such as mattress belts or ski-pads, accounting for patients during and after evacuation, vertical escape etc. and any of the things they might have to do in a real event. The exercise should be debriefed so that lessons are learned.

- 4 Responsibility for ensuring that staff receives sufficient fire safety training in the assessment area is likely to lie with the persons having overall responsibility for the assessment area in question.
- 5 Further guidance on the conduct of fire safety training and drills is contained in NHSScotland Firecode SHTM 83 'General fire precautions'.

GN 13: prevention – fire notices and signs

Evaluate the assessment area to establish if the fire action notices and directional and other information signs meet the required standard.

Acceptable

- the provision is acceptable where sufficient and appropriate fire action notices, directional, escape and other signage is displayed where necessary and is sufficiently illuminated in the assessment area, complying with the Health and Safety (Safety Signs and Signals) Regulations 1996 and with BS 5499;
- emergency fire action notices detailing the procedure to adopt in the event of fire are displayed adjacent to fire alarm call points, on staff notice boards, staff common rooms and elsewhere as appropriate and necessary;
- equipment and installations are appropriately indicated by properly specified signage e.g. fire alarm call points, fire equipment instructions, doors to be kept closed or locked, the method of operating door fastenings such as push bar to open fittings etc.

Unacceptable

- the provisions are unacceptable where there are insufficient directional and other instructional signs including those to indicate the location of fire equipment;
- signage fails to comply with the Health and Safety (Safety Signs and Signals) Regulations 1996 and with BS 5499;
- signage generally is inconsistent in type or style, is badly sited or provides inappropriate information.

Notes

- 1 The purpose of fire action notices is to give clear concise instructions of the actions to be taken on discovering a fire or hearing the alarm.
- 2 Fire exit signs should clearly indicate the exit routes from the premises, especially where choices of direction are encountered and where the exit or direction to travel is not obvious, and should incorporate directional arrows as necessary. The location, visibility, mounting height, illumination, and viewing distance of directional signage should be carefully considered.
- 3 All fire safety signs and graphical symbols should comply with the Health and Safety (Safety Signs and Signals) Regulations 1996 and with BS 5499. Appropriate signs may include fire exit and direction signs, signs on doors such as 'Fire door - keep shut' and 'push bar to open' and also signs to indicate the location of fire-fighting equipment and fire alarm call points.

- 4 Where sufficient signage is provided, but it fails to comply with current standards, the assessor will have to determine the degree and impact of the non compliance and reflect this in the action plan.

Archived Sept 2023

GN 14: communications – alarm and detection systems

All NHSScotland healthcare premises should be provided with an appropriate fire detection and alarm system to detect fire automatically and enable an alarm of fire to be raised manually and automatically throughout the building and relayed automatically to the Fire and Rescue Service or alarm receiving centre (ARC).

Acceptable

- the provision is acceptable where a fire detection and alarm system is installed throughout the building, complying with BS5839 - 1:2002 + A2: 2008 'Fire detection and alarm systems for buildings: Code of practice for system design, installation and servicing', and the additional guidance contained in SHTM 82: 'Fire detection, alarm and control systems', and the criteria specified in:
 - the Non-domestic Technical Handbook, 2.11.5;
 - NHSScotland Firecode SHTM 85, Paragraphs 7.25 – 7.26.
- in hospitals, the detection and alarm system is an addressable system, with automatic smoke or heat detectors and manually operated break glass call points provided in accordance with BS5839 - 1:2002 + A2: 2008 and SHTM 82. The system as a whole should be category L1;
- in premises other than hospitals the category of the system should be based on an evaluation of the fire risk in the premises;
- the system is function tested from a different break glass call point each week on a rotational basis, and the system is tested and maintained by a qualified fire alarm systems engineer in accordance with the requirements of BS5839 - 1:2002 + A2: 2008.

Unacceptable

- there is no automatic fire detection or alarm system in the assessment area;
- the fire alarm and/or detection system provisions are insufficient or inappropriate;
- the fire alarm and detection system does not meet the requirements for a category L1 system conforming with BS5839 - 1:2002 + A2: 2008 and SHTM 82;
- the system is not appropriately tested each week, and/or maintained and tested by a competent fire alarm engineer in accordance with the requirements of BS5839 - 1:2002 + A2: 2008;
- records of testing and maintenance are not kept or the content is insufficient.

Notes

- 1 NHSScotland Firecode SHTM 82 'Fire detection, alarm and control systems' provides general principles and technical guidance on the design, specifications, installations, commissioning, testing, operating and maintenance of fire alarm systems in health premises and is additional to the guidance contained in BS5839 - 1:2002 + A2: 2008.
- 2 Assessors should be mindful that toilets are a significant fire risk, with a consistent track record of fires occurring in them. NHSScotland Firecode SHTM 82 paragraph 3.7 recommends that detectors should always be installed in toilets used by the general public.
- 3 NHSScotland Firecode SHTM 82 paragraph 3.6 suggests that detectors may be omitted from toilets intended for use only by staff; but paragraph 3.7 is clear that the omission of detectors should only be on the basis of an assessment of the fire risk. The omission of detectors is not a recommendation. Their omission can however be 'considered' in certain specified places. Assessors should therefore consider whether the existing provision in regard to smoke and heat detectors is sufficient where they identify toilets and any other areas that are not provided with them, and where necessary should refer to SHTM 82 paragraphs 3.6 to 3.8 for the appropriate further guidance.
- 4 Assessors should be satisfied that the measures for testing and maintenance of the system as a whole meets the requirements of BS5839 - 1:2002 + A2: 2008, and that records of the testing and maintenance for the system are kept for a minimum period of three years.
- 5 Assessors should be satisfied that the system is managed appropriately i.e. that unwanted fire signals are properly investigated and appropriate measures to prevent recurrence are taken, that a system is in place to respond to the alarm at all times, that arrangements for managing the system include appropriate (24hr) resetting arrangements and that faults and repairs are properly recorded and promptly dealt with.
- 6 Assessors should consider whether the existing arrangements are sufficient for the evacuation of those who have sensory or physical impairment, or whether specific fire alarm provisions or other procedural provisions are necessary e.g. personal vibrating alert devices, visual alarm signals are given in appropriate areas, additional staff support is immediately available etc. The measures actually taken should in any case be risk appropriate e.g. vibrating pagers may not be necessary where the premises are very small and a disabled visitor can easily be accompanied. However, in larger premises the provision of a suitable technology e.g. a vibrating pager or visual alarm signal may be necessary.

Where temporary waiting spaces in stairway enclosures are provided to accommodate a disabled person, assessors should consider the arrangements for their use i.e. is a communication provided? Is one required? Are the existing arrangements suitable and sufficient?

GN 15: means of escape: patient care - progressive horizontal evacuation (PHE)

Assess and evaluate the provisions for, and the viability of undertaking, PHE. (See also [GN 23: containment: compartmentation](#)).

Acceptable

- the provisions comply with the Non-domestic Technical Handbook 2.9.1., and annex 2.B.3;
- the PHE procedure is appropriate, detailed and comprehensive, including the location of the designated receiving area/s for patients who may be evacuated;
- there are sufficient staff immediately available, or an appropriate procedural arrangement to ensure that staff numbers are supplemented by others who are immediately notified to attend and assist;
- there are no other significant impediments to safe escape from the assessment area e.g. escape route narrowing, floor surfaces providing a slip or trip hazard, restricted door widths, unacceptable security fastenings on doors that are part of the escape route, inadequate escape lighting etc.
- upper floors and basements; all upper floors and basements are separate compartments;
- floors up to 7.5m in height with department/s to which patients have access; there is at least one fire compartment subdivided into two sub-compartments, each of which has a minimum of two exits as follows:
 - one to an adjoining compartment or sub-compartment; and
 - one to another adjoining compartment or sub-compartment, or to an escape stairway, or to a place of safety;
 - the compartment does not exceed 1500 m² and each of the sub-compartments does not exceed 750 m².
- floors over 7.5m in height with department/s to which patients have access:
 - there are at least 4 compartments each at least 500 m²; or
 - there is a hospital street and at least 3 other compartments.
- floors over 18m in height with department/s to which patients have access:
 - there are at least 4 compartments each at least 500 m²; or
 - there is a hospital street and at least 3 other compartments, each of which should be at least 500 m².

- exits:
 - the number of exits and their locations is at least that specified in the Non-domestic Technical Handbook annex 2.B.3, in addition to the general considerations of clause 2.9.1 that may apply;
 - any storey with more than 100 beds – min. 3 storey exits;
 - any storey with more than 200 beds – min. 4 storey exits;
 - any storey with more than 300 beds – min. 5 storey exits.

Unacceptable

- the compartment and sub compartment provisions fail to meet the 'acceptable' benchmarks detailed above;
- the provision of compartments and sub-compartments is insufficient to properly and safely support a PHE strategy for escape;
- the location and/or number of exits provided from the assessment area are insufficient or inappropriate for the numbers likely to use them;
- the procedural arrangements are insufficient or inappropriate;
- staffing levels for evacuation are insufficient and the arrangement for providing additional staff from other areas is inadequate e.g. the communication path in the event of an emergency is unclear, staff in receiving areas are unaware of the procedure, insufficient staff are available to re-deploy to assist with an evacuation etc;
- staff training and knowledge of the procedural arrangements is deficient.

Notes

- 1 If the precaution is unacceptable then it will be necessary to improve it. The risk may be mitigated if the assessment area is not more than one floor above ground, or eliminated where it is viable to increase the number of fire compartments and/or sub-compartments and the exits are sufficient to ensure the viability of PHE for the number of patients and others.
- 2 If the risk is to be mitigated by a limitation of floor height, the assessor will have to consider the viability of safe escape taking into account the mobility of patients, the extent of assistance required especially on stairways, the number of staff available and the arrangements for additional staff.
- 3 Further guidance on the relevant standards for progressive horizontal evacuation are to be found in the Non-domestic Technical Handbook 2 Annex B and NHSScotland Firecode; SHTM 85.
- 4 In any case, the procedural arrangements should be robust at all times of day and night, however, robust procedural arrangements cannot compensate for significantly deficient physical arrangements such as lack of compartments or sub compartments, numbers of exits or deficient staff numbers to facilitate safe evacuation.

GN 16: means of escape: non-patient care

The means of escape provided for persons other than in-patients is conventional, based on the principle of evacuation to a place of safety where people are no longer in danger from the effects of fire.

Assess the escape provisions for persons other than in-patients.

Acceptable

- the structural provisions for escape from fire i.e. the number of exits, the fire protection of stairways, travel distance limitations, the provision of fire compartments and fire doors, fastenings of fire exit doors, direction of opening and other related matters are satisfactory;
- the arrangements for the evacuation of persons with a disability are satisfactory, and procedural arrangements relating to the use of temporary waiting space in stairways are provided; (See also GN 14; Note 6)
- escape routes are free of obstruction, accumulations of waste materials, other storage, office equipment or machinery etc;
- the supporting provisions for escape i.e. fire alarm and detection system, exit signage, emergency way-finding and other fire safety signage, emergency escape lighting and the means for tackling fire are satisfactory.

Unacceptable

- the provisions fail to meet the relevant standards in regard to structural fire protection, means of escape, the fire protection of stairways, travel distance, the number of exits and the associated supporting standards including the provision of fire alarm systems, procedures, signage etc.

Notes

- 1 Detailed guidance on the provision of means of escape and associated standards is contained in:
 - the Non-domestic Technical Handbook 2;
 - NHSScotland Firecode SHTM 85 'Fire precautions in existing healthcare premises'; and other components of NHSScotland Firecode where appropriate;
 - Scottish Government sector specific compliance guidance to support with the Fire (Scotland) Act 2005 as amended; appropriate for the occupancy under consideration. This suite of guidance documents may be accessed at www.infoscotland.com/firelaw.
2. It is not generally viable for assessors to undertake a full structural examination to determine the acceptability of fire compartmentation above ceilings or in enclosed spaces or cavities. Assessors should, so far as reasonably practicable

and safe to do so, inspect the compartment integrity by sampling where possible, in any case only where access is safe.

NOTE: Assessors may undertake a survey of voids, enclosed spaces, or at height only when appropriate safety training has been provided, they are not working alone, they have suitable and appropriate personal protective equipment (PPE) appropriate for the task in hand and they have appropriate, properly maintained and tested access equipment. Entry to confined spaces, working at height and similar hazardous conditions should not be undertaken without assessment of the hazards to which the assessor may be exposed, and only when the appropriate equipment, training and support are provided.

Where there is knowledge or suspicion that a particular hazard may exist that cannot properly be examined or inspected, the condition should be flagged up in the assessment with a recommendation that a survey should be undertaken by persons competent to do so, to determine the extent, if any, of the hazard.

GN 17: means of escape: supporting provisions

The supporting provisions for means of escape cover a range of installations, equipment and other arrangements that ensure the means of escape can be safely and effectively used at all relevant times.

Assess the supporting provisions to determine if the means of escape can be safely and effectively used.

Acceptable

- all circulation spaces and exit routes are free from obstructions and/or significant combustible storage (fire load);
- the arrangement of doors, including the direction of opening where appropriate and the fastenings and operating method is appropriate i.e. they can be easily opened in one action without the use of a key, security code or other locking system, from the escape side of the door;
- where doors are secured because of the need to ensure the safety of patients or for other security reasons e.g. in a mental health facility or confused elderly unit, or for the protection of medical records etc., the arrangements are appropriately managed and the procedure for evacuation is known to all staff in the relevant ward or area (See [Note 1](#) below);
- fire resisting doors normally held open by electro magnetic, mechanical or any other device linked to the fire alarm, release and allow the doors to close automatically when the alarm is activated (see [Note 2](#) below);
- automatic sliding doors fail safe to the open position on operation of the fire alarm system and are provided with an appropriate manual break out facility (see [Note 3](#) below);
- electromagnetic or mechanical locks installed on doors for access security purposes, fail safe to 'unlocked' on power failure or other fault and when a manual or automatic alarm signal operates in any area for which the door may form part of the escape route.

Unacceptable

- obstructions, storage facilities or arrangements, flammable materials including bagged waste, machinery or office equipment are observed in escape routes;
- doors in escape routes are inappropriately fastened or secured in a way that would obstruct, inhibit or prevent persons escaping during the course of evacuation;
- fire resisting doors normally held open by electro magnets or other means linked to the fire alarm do not release or do not close fully against the rebates (where fitted) when the alarm is activated;
- doors serving protected stair enclosures are held open by automatic door release devices (SHTM 82 paragraph 3.41);

- there is evidence to suggest that the evacuation arrangements in secure mental health facilities are inadequately managed e.g. the knowledge of operational staff is not sufficient when questioned, or procedures are not readily available to staff;
- electro-magnetic or mechanical locks on doors which form part of the escape route from the assessment area, do not fail safe to 'unlocked' on power failure or other fault and/or when a manual or automatic alarm signal operates.

Notes

1 The evacuation procedure should be documented and agreed in consultation with the relevant statutory authority where a procedure must necessarily include the locking of exit doors e.g. in secure mental health facilities or elderly care units. Assessors should have sight of the documented procedure in the area concerned, and may at their own discretion, test the fire procedure knowledge of staff randomly to assess their level of awareness of the fire procedure.

2 Fire resisting doors should be visually checked to ensure they are not warped or damaged where the doors are normally held open by electro magnets or other acceptable means linked to the fire alarm. The fit of the door in the door frame and at the meeting stiles of double leaf door sets should also be checked. The gaps at the meeting stiles and around other edges should be in the range 3 to 4mm with a tolerance of +/- 0.5mm, and 6mm between the bottom edge of the door and the finished floor surface.

However, if smoke control is a requirement the maximum gap should not exceed 3mm. The gaps quoted do not take into account the fitting of flexible blade or brush type smoke seals or intumescent materials. These components can have a significant effect on fire door performance e.g. pressure forming intumescent strips along the meeting stiles of a double swing, double leaf door set can cause misalignment when the intumescent material is activated. Further information and guidance is provided in BS 4787 and also in BS 8214.

3 Guidance on the operation of automatic sliding doors is contained in SHTM 82; Fire alarm and detection systems; 'Door release and door control systems'; and BS 5839-3 'Fire alarm and detection systems; Specification for automatic release mechanisms for certain fire protection equipment', and BS EN 1155 'Electrically powered hold open devices for swing doors'. In any case such doors should fail-safe to the open position, as follows:

- in the event of power failure or fault;
- on the actuation of a manual call point or heat or smoke detector within the compartment or sub-compartment;
- on the activation of either an alert or evacuate signal in the assessment area; doors should close automatically, both within and on the boundary of alarm zones.

GN 18: means of escape: travel distance

The maximum distance persons have to travel to get to a protected exit route, a stairway enclosure, an adjacent fire compartment, other protected refuge or a final exit is set out in relevant guidance.

Evaluate the travel distance/s in the assessment area.

Acceptable

- the maximum distance of travel in a single direction of escape to an adjacent fire compartment or sub-compartment, escape stairway, a final exit or before there is a choice of directions of escape, does not exceed 15m (See [Notes 2 & 3](#) and [figure 1](#));
- the maximum distance of travel where there is a choice of directions does not exceed 32m (See [Notes 2 & 3](#) and [figure 2](#));
- travel distance should be measured from any point to an adjoining compartment or sub-compartment from which further escape is possible, an escape stairway, or directly to the threshold of a final exit leading to the outside (See [figure 2](#));
- for plant rooms, offices, laboratories, factories and other non healthcare occupancy types, the maximum travel distances conform with the Non-domestic Technical Handbook or compliance guidance appropriate for the type of occupancy being evaluated.

Unacceptable

- the travel distance for a single direction of travel exceeds 15m (see [note 3](#));
- the travel distance where there is more than one direction exceeds 32m (see [note 3](#));
- the travel distance/s in other occupancy types exceeds that specified in the relevant guidance.

Notes

- Travel distance should be measured from any point to the entry to an adjacent fire compartment, sub-compartment, protected stair enclosure or a final exit and should be measured along the actual route of travel (as opposed to a direct line ignoring moveable obstructions such as furniture etc).
- Whilst travel distance is described in absolute terms, care should be taken not to apply the travel distance limitations prescriptively. In existing premises some degree of latitude may be applied where the distance of travel is marginally exceeded and the excess is not identified as imposing significant additional risk, and it is clear that sufficient mitigating factors are in place, subject to the following limitations:

- where the travel distance in a single direction exceeds 20m it must be improved;
- where there is more than one direction of escape and the shortest of the two (or more) options exceeds 40m, it must be improved.

3 Travel distances in the range 15 to 20m in one direction or 32 and 40m where there is two directions, may be mitigated where some or all of the following factors are in place:

- the majority of patients are 'normal risk' requiring minimal assistance or supervision; and/or
- a high standard of fire alarm and automatic fire detection is installed;
- the number of staff is sufficient for the conduct of a safe evacuation, including procedural arrangements for additional staff to attend quickly in the event of an emergency; and/or
- the premises are protected by an automatic fire suppression system; and/or
- the premises are provided with a smoke control system; and/or
- in any case all other fire precautions are to a high standard and the assessor is satisfied that the fire safety management of the local area, including fire safety training and drills are consistent with best practice.

In any case the assessor will need to exercise a degree of judgement as to the sufficiency of the mitigating factors in the specific circumstances they are considering. This list is representative only and there may be other factors the assessor can take into account.

4 Single direction escape may include an inner room (a room only accessible through an access room) before there is a choice of escape routes; provided that the total distance of travel does not exceed 32m and the access room is not a fire hazard room (see also [figure 1](#)).

5 Where there are two (or more) directions of escape, part of the route may include escape in a single direction (which should not exceed 15m within a total distance of travel of 32m.).

6 A flat roof may be used as a component of the means of escape subject to the following limitations:

- it must not be used for the evacuation of patients or the general public;
- there is more than one escape route from the room or storey leading to the flat roof;
- its use would not be affected by smoke and flame issuing from an opening in the building envelope;
- the roof construction meets the requirements of Non-domestic Technical Handbook 2.9.37;

- the exit path is clearly defined by securely fixed handrails in good condition and has a non-slip surface;
- there is adequate normal lighting, supplemented by escape lighting conforming with the requirements of BS 5266 so that in the event of normal lighting failure the route remains adequately lit.

Maximum travel distance in a single direction of escape before there is a choice of escape routes should not be more than 15 metres

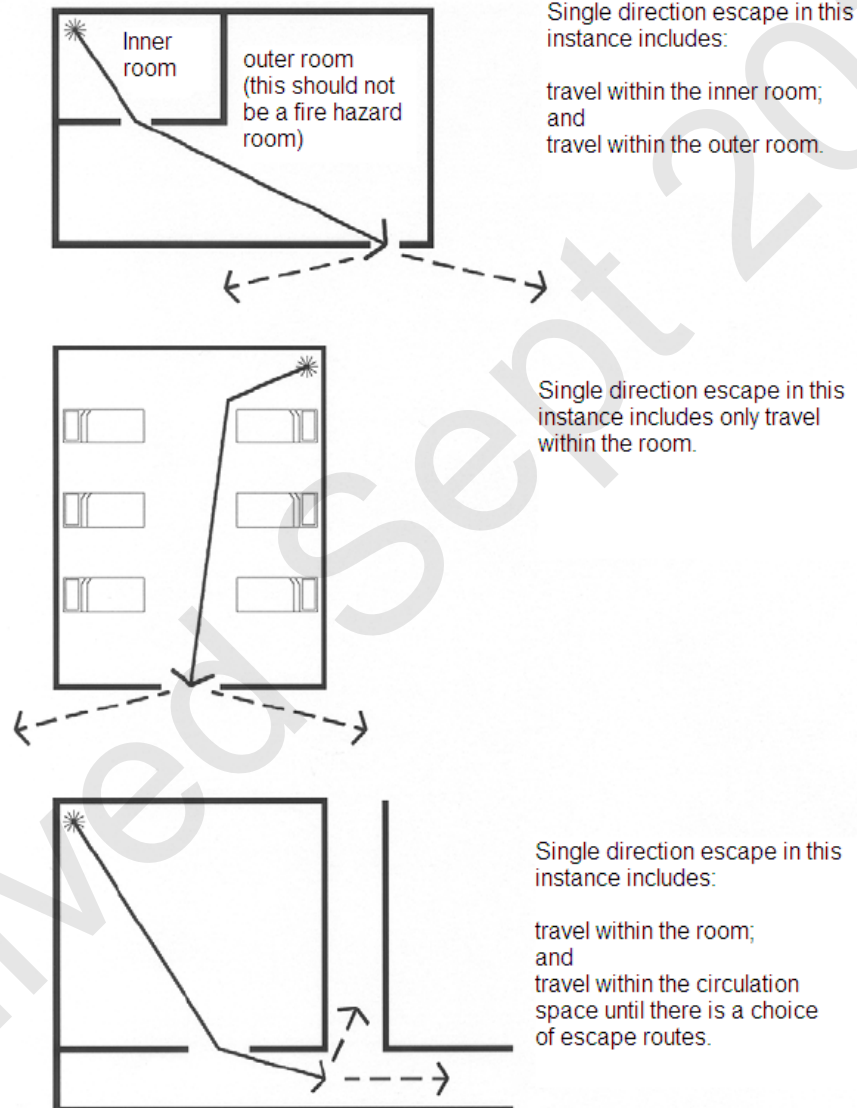


Figure 1: Single direction escape

Maximum horizontal travel distance to an adjoining compartment or sub-compartment, or to an escape stairway, or to the outside should not be more than 32

Note:
Travel distance
includes single
direction escape

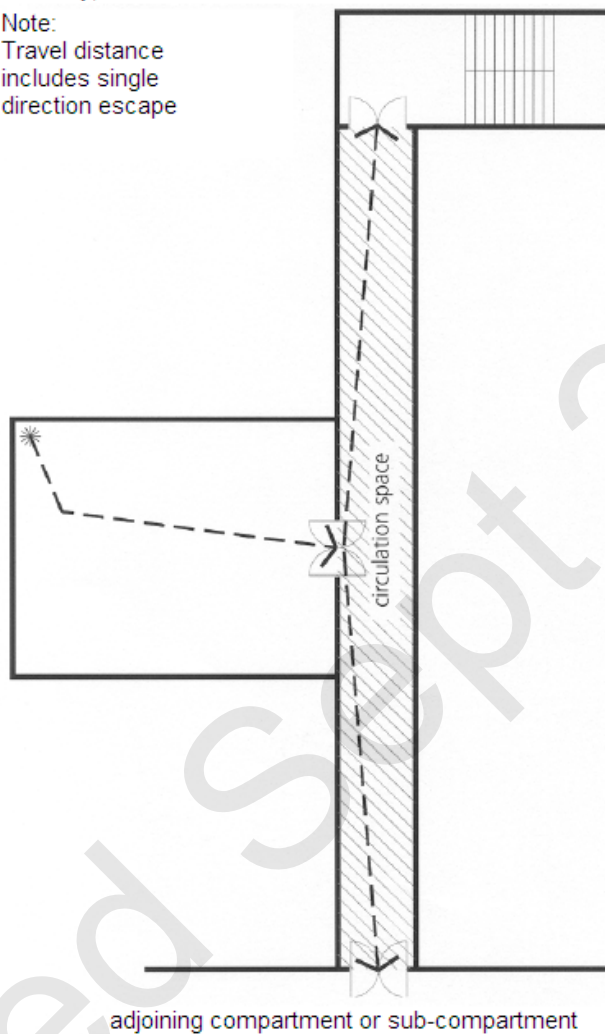


Figure 2: Travel distance

GN 19: means of escape: stairways

Assess the number of stairways, and their level of fire safety protection, including their ability to accommodate the number of persons likely to use them.

Acceptable

- the level of fire protection provided for the escape stairs serving the assessment area meets the requirements of the Non-domestic Technical Handbook paragraphs 2.9.23, to 2.9.27, and Annex 2.B.6; Fire and Rescue Service facilities;
- the escape stairs being assessed are enclosed by at least medium fire resistance duration; Non-domestic Technical Handbook, protected zones; 2.9.24;
- the number of escape stairs serving the assessment area meets the requirements of Non-domestic Technical Handbook Annex 2.B.3 'Escape' i.e.:

Number of patient beds on any upper storey	Number of Stairways
1 – 100	2
101 – 200	3
201 – 300	4
301 – 400	5

Table 1: Number of stairways

over 400 beds – another stairway is added for every additional 100 beds or part thereof;

- the stairway/s serving patient sleeping accommodation meets the requirements for a mattress evacuation stair; Non-domestic Technical Handbook Annex 2.B.3 'Escape – mattress evacuation stair';
- the floor surfaces are in generally good condition, and free of trip or slip hazards that may impede or increase the potential for harm to those escaping or being assisted to escape;
- stairway handrails, edge protection, tread nosings, balustrades etc are securely fixed, in generally good condition and safe to use during an evacuation.

Unacceptable

- the number of storey exits, including stairs, fails to meet the requirements of the Non-domestic Technical Handbook Annex 2.B.3;
- one or more of the escape stairs is external i.e. it is exposed to the effects of weather;
- the protection of stairways from fire and the products of fire is inadequate i.e. is not at least medium (1 hr) fire resistance duration;

- the floor surface is in generally poor condition i.e. there are trip or slip hazards making the stair unsuitable for mattress evacuation, or unsafe to use by those who may be slow or unsteady on their feet, or who may require assistance or supervision to negotiate the stairway safely.

Notes

- 1 If the precaution is unacceptable then it will usually be necessary to improve the provision, notwithstanding the advice in Note 2 following.
- 2 Where the general condition of the stairway enclosure and the level of fire safety performance is at least medium duration, but the landing or stairway width is marginally less than the 1300mm minimum requirement or there is another marginal non compliance, the assessor should consider the extent to which it will have an impact, if any, on the viability of safe escape for those likely to use the stairway. In this case the following factors, amongst others, should be taken into account.

- the number of floors served by the stairway and the numbers of persons likely to use the stairway;
- the viability of safe and successful mattress evacuation i.e. the total time it may take to evacuate patients, who may require mattress evacuation, from the compartment containing the fire;

In making this determination it should be considered that vertical evacuation may involve the movement of patients only one floor level in the 1st stage of evacuation, perhaps using more than one escape stairway, to a receiving area/s on the floor below the one containing the fire. However the movement of patients may be additionally complicated by the need to evacuate patients from floors above the one containing the fire, to another floor below the one containing the fire;

- the number of ambulant persons likely to use the stairway;
- the number of floors that may have to be negotiated to get to the refuge space (if more than one);
- the potential for obstruction or congestion in the particular stairway being considered especially if another stairway is unusable for any reason;
- the number of staff able to assist at any given time of day.

Where it is determined that the condition can be accepted, the assessor should record the mitigating factors they took into account in arriving at that determination.

- 3 Escape vertically to the ground floor, or a receiving area (refuge) on a lower floor will necessarily involve consideration of spaces outside the assessment area i.e. the route/s to the receiving area/s.
- 4 The location and design of a stairway should facilitate the evacuation of all patients it is likely to serve. In order to assess the suitability of stairways, the

emergency evacuation plan for the assessment area should describe clearly the preferred methods, routes of evacuation and location of receiving areas (refuges).

- 5 A stairway will be considered suitable if it has direct access, or by way of a protected route, to the outside at ground level. Such access should be suitable for the evacuation of patients and lead to a place of safety away from the building.
- 6 A stairway may serve more than one assessment area, but the aggregate width of the stairways provided shall be sufficient for the number of persons likely to be evacuated, taking into account the evacuation procedures adopted for the building.
- 7 The requirement in the Non domestic handbook to provide temporary waiting spaces for stairway enclosures is normally met in hospitals by providing escape to an adjacent compartment.

Existing hospital buildings are therefore unlikely to be provided with temporary waiting spaces within or adjacent to stairway enclosures. Assessors should therefore not apply the Non-domestic Technical Handbook benchmark standard (2.9.30.) requirement for an EVC (emergency voice communication system) retrospectively and prescriptively, but should assess and consider the management arrangements for the evacuation of patients and disabled persons holistically.

Where the building does not contain in-patients and the escape provisions are conventional, temporary waiting spaces within, or adjacent to, protected stairway enclosures should normally be provided. Assessors should consider, taking into account all the relevant factors e.g. the number of persons who may use the stairway, the number of floors the stairway serves, the existing procedure and arrangements for disabled persons, when considering whether or not an EVC (emergency voice communication system) is required.

Where they are provided in new builds (post 2010/11), the requirement for an EVC or an alternative system, should be met and form part of the fire risk assessment. Information on appropriate EVC provisions may be accessed in NHSScotland Firecode; SHTM 81; 4.11 to 4.14; and also in the Non-domestic Technical Handbook; 2-fire; 2.9.30 temporary waiting spaces.

GN 20: means of escape – escape lighting

Escape lighting is that part of an emergency lighting system provided to illuminate exit routes when there is failure of the normal lighting. Escape lighting in hospital is of importance because of the potential for extended evacuation times in some circumstances, the need to provide continuous care during patient movement and the continued occupation of large areas of the building for refuge during a fire event, as a direct consequence of the progressive horizontal evacuation strategy. It is necessary to provide a sufficient and sustained level of lighting, both in escape routes and in refuge spaces to enable these functions to continue safely.

Evaluate the escape lighting within the assessment area and the escape routes serving the assessment area.

Acceptable

- sufficient escape lighting is provided so that escape routes are illuminated to facilitate evacuation of the assessment area in the event of loss of the power supply in a local circuit or mains power supply; and
- sufficient emergency lighting is provided in refuge areas to enable its continued occupation for the duration of the incident or until further evacuation becomes necessary due to the effects of fire or its products;
- the lighting is provided and maintained in accordance with BS 5266 Parts 1, 7 and 8 (BS EN 1838); NHSScotland Firecode SHTM 85; 'Escape lighting' paragraphs 7.93 to 7.99 at the locations detailed in SHTM 2011: 'Emergency electrical services'.

Note: Where two such systems are provided e.g. self contained luminaires covering escape routes and relevant occupied spaces and lighting provided by an engine driven generator or central battery system; the assessor will need to determine the extent to which both systems are required. (See also [Note 4](#) following).

Unacceptable

- escape lighting is insufficient and not provided where specified in SHTM 2011 'Emergency electrical services', and additionally in NHSScotland Firecode; SHTM 85 'Escape lighting' paragraphs 7.93 to 7.99;
- the escape lighting and other emergency lighting is inadequately, or not maintained, tested and/or the records are not available or are insufficient.

Notes

- 1 If the precaution is 'unacceptable' then it will be necessary to improve the provision.

- 2 It is not possible to mitigate an inadequate or insufficient standard of escape lighting in exit routes including corridors and stairways and relevant open plan spaces, or emergency lighting in parts of the premises used for refuge.
- 3 The standards set out in NHSScotland Firecode; SHTM 85 'Escape lighting' and in SHTM 2011 'Emergency electrical services' should be read in conjunction with BS 5266 Parts 1, 7 and 8 (BS EN 1838).
- 4 The system/s being accepted to meet the compliance standard should be described in the fire risk assessment to avoid any confusion in subsequent reviews or audits of the assessment e.g. *'escape lighting is provided by self contained luminaires covering the escape routes leading to the receiving area in accordance with BS 5266, and emergency lighting is supplied by an emergency generator providing 30% of the normal lighting in the assessment and receiving area/s'*.
- 5 The extent and coverage of emergency lighting in hospitals often exceeds that recommended in relevant codes (BS 5266 or BS EN 1838) in order to facilitate continued occupation of other parts the building during an emergency (including fire) and to facilitate the continuation of patient care.
- 6 The assessor must consider whether or not the escape lighting (that part of the emergency lighting covering escape routes) provides the required minimum standard of lighting for escape purposes in the event of failure of the normal supply, and additionally consider the provisions to maintain emergency generators, or other secondary supply, so that continuous occupation of refuge areas remains viable. The requirement may therefore extend to either a BS 5266 or EN 1838 system, or both, covering escape routes and maintenance of a secondary supply system such as engine driven generator/s or central battery system, which may be additional to that exclusively required to facilitate the use of escape routes.

GN 21: means of escape: escape bed lifts

The provision of escape bed lifts is not required as a component of the escape provisions in hospitals. Where they are installed as a component of a means of escape strategy, they should comply in full with the relevant standards.

The assessor should determine whether the provision of escape lifts, the procedural arrangements for their use and the training of relevant staff is sufficient and appropriate.

Acceptable

- no escape bed lifts are provided;
- where escape bed lifts are provided as a component of the escape strategy there are sufficient lifts to meet the strategic escape objectives;
- the escape lifts provided comply with the guidance contained in NHSScotland Firecode SFPN 3 'Escape bed lifts'. (See [Note 1](#));
- the escape lifts are adequately remote from each other to ensure that, in the event of a fire, sufficient lifts will remain available to meet the strategic evacuation objectives. See NHSScotland Firecode SFPN 3 paragraph 4.3;
- the management arrangements, selection, numbers and training of relevant staff to operate the lift/s are adequate and sufficient, and relevant records are kept to provide details of the specific training, drills and exercises they receive. (See [Note 2](#));
- the lift lobby at final exit level provides direct access to the outside, or does so only by way of a protected zone of escape.

Unacceptable

- escape bed lifts are provided but do not comply with the provisions of NHSScotland Firecode SFPN 3 'Escape bed lifts'.
- the management arrangements, including staff training and drills relating to the use of the escape lifts, are inadequate or insufficient to ensure that a safe evacuation can be conducted at any time;
- the maintenance arrangements are inadequate or insufficient and/or the records detailing the maintenance are inadequate, or not available.

Notes

- 1 Comprehensive guidance on the provision and operational management of escape lifts is provided in Scotland Firecode; SFPN 3: Escape bed lifts.
- 2 Where escape bed lifts are a component of the escape strategy any failure of the lifts themselves or their operational use and management will have a direct impact on the viability of escape from the area affected. Assessors must therefore be mindful of the life safety implications of this provision when

conducting a fire risk assessment. Assessors should have equal regard to all the sections comprising SFPN 3.

- 3 Assessors should pay particular attention to the procedural and staff training arrangements relating to the use of escape bed lifts. The management arrangements in general, including particularly staff selection, numbers and training, requires a consistent and structured approach to both the procedure to be adopted and the training needs of those who will be involved in managing the lift/s during an evacuation.
- 4 Where escape bed lifts are a central component of the evacuation strategy and where one or more fire risk assessment failures are identified, the assessor must carefully consider the sufficiency of the contingency arrangements i.e. the alternative vertical escape provisions. These must be suitable and sufficient for the numbers of patients in the area affected by loss of the lift/s.
- 5 However, assessors should be aware that the lifts may also serve areas outside the immediate assessment area being considered e.g. the remainder of the floor in which the assessment area is located, and consequently a very important, much wider, risk factor is identified.
- 6 If the alternative escape arrangements are insufficient or unsuitable for patient escape, the highest priority may need to be assigned to the risk, and immediate action initiated to resolve the issue, since the escape capacity of the evacuation routes has been identified as insufficient for the patients not only in the assessment area, but in other areas of the building affected by loss of the lift/s.
- 7 The evaluation of escape bed lifts relates only to patient evacuation (and possibly other disabled persons depending on the local strategy adopted), since the ambulant population who can escape without assistance will escape vertically by way of protected stairways. Escape bed lifts are provided exclusively to facilitate patient escape.

GN 22: containment: structural fire protection

The elements of the structure of a hospital should have sufficient fire resistance duration to ensure that the premature collapse of the main structural components does not occur within the periods specified in building standards.

Premature (or disproportionate) structural collapse is important to the safety of patients because they are likely to be kept in a place of relative safety within the structure (a refuge compartment), unless a further stage of evacuation is essential because of the prevailing fire conditions.

The ongoing safety of those who continue to occupy the building, including fire-fighters tackling a fire, staff caring for patients, and patients themselves is therefore dependent on sustaining the structural stability of the building during a fire event. Consequently, the structure must be capable of sustaining its structural stability for a specified period when subject to fire.

Fire risk assessors cannot provide a definitive statement of compliance in regard to this provision (unless they have appropriate structural engineering qualifications, knowledge and experience). However, as competent fire safety practitioners, their knowledge of fire behaviour and the impact of fire on building structures should be sufficient to enable them to identify significant failings in the fire protection of major structural elements such as floor and roof structures, beams, columns and compartment walls. Such failings may provide an indication of the possibility of disproportionate structural collapse in a fire event, and the extent of fire risk assessor opinion should be to recommend further investigation by properly qualified structural engineers.

Acceptable

- the structural elements have the minimum level of fire resistance duration, as described in the Non-domestic Technical Handbook paragraph 2.3.1 as read in conjunction with paragraph 2.1.2, specified below:

Building height	Fire resistance duration
single storey buildings	short duration (30 minutes)
buildings with a topmost storey height of no greater than 18m	medium duration (60 minutes)
buildings with a topmost storey height greater than 18m	long duration (120 minutes)
basements two or more storeys deep	long duration (120 minutes)

Table 2: Structural fire duration

Unacceptable

- there is sufficient reason, based on the experience of the assessor and the visual evidence available, to doubt that the structural elements have the

minimum level of fire resistance duration (see [Note 5](#) below), as described in Non-domestic Technical Handbook paragraph 2.3.1 as read in conjunction with paragraph 2.1.2.

Notes

- 1 If the level of fire resistance duration is unacceptable it will be necessary to improve the provision, or mitigate the potential for disproportionate collapse by other means e.g. the provision of an automatic fire control system or a review of the use to which the assessment area is put.
- 2 For the purposes of this document structural elements are:

a column, beam, or other member forming part of a structural frame; a load-bearing wall or a floor. (See [figure 3](#))

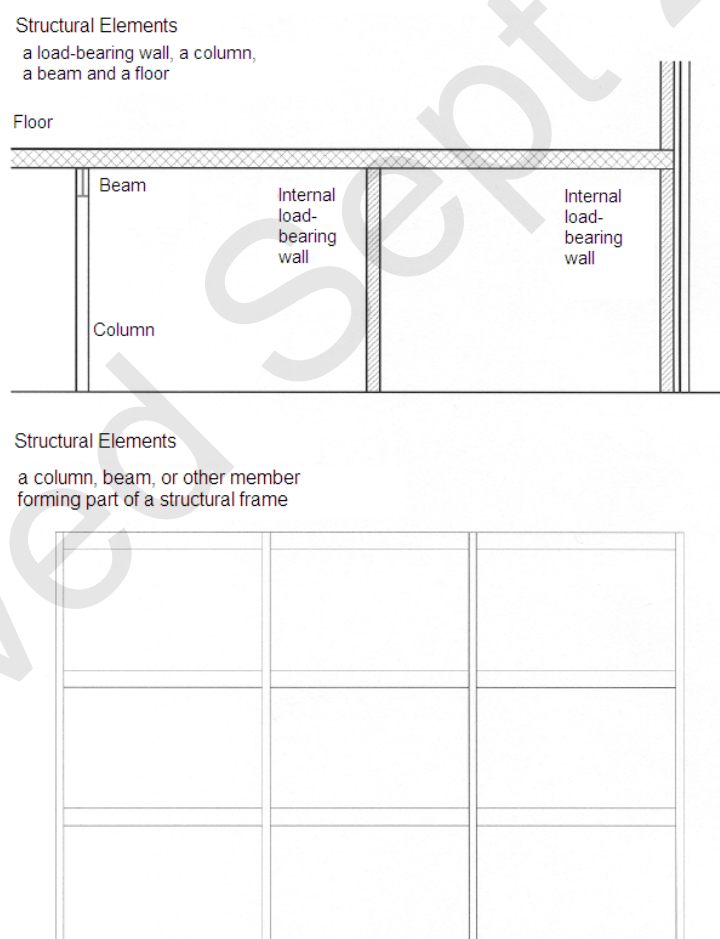


Figure 3: Structural elements

- 3 Assessors will not usually be qualified structural engineers capable of undertaking a detailed structural survey to determine in full the level of compliance with the requirements of this assessment element.
- 4 Assessment will also be limited to inspection where the structural elements can be visually examined safely. Inspections should therefore be non-invasive

except where safe access can be had without breaking open or entering enclosed spaces or cavities. Assessors should not enter unfloored roof spaces, use high level access equipment such as ladders or other equipment or make entry to enclosed crawl spaces unless properly equipped and trained to do so.

NOTE: Assessors may undertake a survey of voids, enclosed spaces, or at height only when appropriate safety training has been provided, they are not working alone, they have suitable and appropriate personal protective equipment (PPE) appropriate for the task in hand i.e. at least head (including eye protection), hand and foot protection and they have appropriate, properly maintained and tested access and communication equipment. Entry to confined spaces, working at height and similar hazardous conditions should not be undertaken without assessment of the hazards to which the assessor may be exposed.

Where there is knowledge or suspicion that a particular hazard may exist that cannot properly be examined or inspected, the condition should be flagged up in the assessment with a recommendation that a survey should be undertaken by persons competent to do so, to determine the extent, if any, of the hazard.

- 5 Assessors should look for structural features inconsistent with a reasonable fire duration performance, such as exposed unprotected structural (load bearing) steelwork, lack of or incomplete containment (compartmentation), timber floors with no, or obviously poor, fire protection to the underside, unprotected metal beams or columns, undivided vertical ducts through which fire may spread vertically and rapidly, or unusually high fire loads. A large central store in a basement or ground floor below occupied wards or with doubtful horizontal fire separation may be identified as 'indicators' giving rise to reasonable concern or suspicion as to the ability of the building or part of it, to remain stable for sufficient time in well developed fire conditions.
- 6 Where there is reason to suspect that the ability of the structure to resist disproportionate structural collapse in fire conditions may be doubtful, assessors should recommend a thorough structural survey by competent structural and/or fire engineers.

GN 23: containment: compartments

Assess the provisions and arrangement of compartments and sub-compartments (See also [GN 15: means of escape: patient care: progressive horizontal evacuation](#)).

Acceptable

- the compartment and sub-compartment provisions comply with the specified structural and regulatory benchmarks of the Non-domestic Technical Handbook 2.1, and Annex 2.B;
- no fire compartments exceed 1500m² in area and the compartment structure provides not less than medium fire resistance duration;
- floors more than 18m above ground have four compartments; or three compartments and a hospital street with long fire resistance duration horizontally and at least medium duration walls. (Refer to the Non-domestic Technical Handbook);
- every upper floor and every basement forms at least one, or more separate fire compartment/s;
- every compartment (in a hospital) is divided into at least two sub-compartments each not exceeding 750m² and having not less than short fire resistance duration;
- the enclosing structure of the compartment, including walls floors and ceilings and fire resisting doors and the fire protection of other openings such as hatches, are in good structural condition; and service penetrations so far as could be ascertained are properly and competently fire stopped.

Unacceptable

- compartment provisions do not comply with the 'acceptable' criteria and the provisions of the Non-domestic Technical Handbook 2.1, and Annex 2.B.
- service penetrations and the protection of other openings in the compartment boundary are deficient i.e. there are unprotected openings or penetrations, the protection provided is inappropriate or incomplete or improperly applied, the materials used are inappropriate and/or the workmanship is deficient;
- fire doors are in poor condition and/or not maintained in good condition. They should close fully against the rebate with smoke seals and intumescent strips in place and in good condition.

Notes

1

If the compartment provisions are unacceptable then it will be necessary to improve them.

- 2 The assessment of compartments and sub-compartments must so far as reasonably possible include openings in the compartment boundary through which fire or its products may potentially pass:
 - doors sets should provide the same level of fire safety performance than that of the compartment structure;
 - openings for cast iron or steel pipes not more than 160mm in diameter, or for pipes of other materials not more than 40mm in diameter, should be sealed with a propriety sealing system pipes that is certified to maintain the level of fire safety performance of the compartment structure;
 - pipes for pneumatic tubes that do not meet the above requirements should be provided with proprietary seals which have been shown by test to maintain the level of fire safety of the compartment structure (openings for pneumatic tubes are typically 110mm diameter, and these are acceptable if the pipes are constructed of cast iron or steel);
 - ventilation ducts should comply with the requirements of BS 9999: 33.4;
 - refuse and laundry chutes of non-combustible construction should be accessible only through fire-resisting doors.
- 3 Openings in compartment floors for stairways, lifts, escalators, and pipes and ducts not complying with the previous paragraph should be enclosed in a protected shaft that has the same level of fire safety performance as the compartment floor.
- 4 The protected shaft should form a complete barrier to fire between different compartments that the shaft passes through.
- 5 Access to a protected shaft from a circulation space should be through doors and door-sets that provide a minimum level of fire safety performance of medium duration. Refer to Non-domestic Technical Handbook 2 - fire; for further information.
- 6 Access to a protected shaft should be through a lobby. Refer to Non-domestic Technical Handbook paragraph 2.9.23, or from a hospital street where the storey height is not more than 18m. The two sets of doors should have a minimum level of fire safety performance of medium duration.
- 7 Means for ventilating protected shafts in the event of fire should be provided in accordance with the Non-domestic Technical Handbook, the table to 2.14.2 and 2.14.6 as follows:
 - at the top of the stairway, a ventilator at least 1m²; or
 - at each storey on an external wall, a ventilator at least 0.5m², conforming with 'Smoke shafts protecting fire-fighting shafts; their performance and design' (BRE 2002).

GN 24: containment: fire hazard rooms and departments

Certain rooms and departments in patient care areas of healthcare premises present a specific fire hazard. These are termed fire hazard rooms or fire hazard departments, and should be enclosed in fire resisting construction so that fire is contained for sufficient time to secure the safe evacuation of the adjacent patient care areas.

Assessors should therefore consider whether the enclosing structure of hazard rooms and departments are fire protected for the specified period.

Acceptable

- the hazard is acceptable if the enclosing structure of fire hazard rooms provides short fire resistance duration, including any openings such as doors, hatches, glazed elements, service penetrations etc;
- the hazard is acceptable if a compartment wall(s) of medium duration fire resistance is provided between different hospital departments and/or between a hospital department and a protected zone;
- the enclosing structure and protection of openings of hazard rooms and hazard departments is maintained in good operational condition.

Unacceptable

- fire hazard rooms and/or departments do not meet the standard specified in the Non-domestic Technical Handbook 2.B.1;
- the fire protection of the enclosing structure of fire hazard rooms and departments is deficient i.e. there are unprotected openings or penetrations, the protection provided is inappropriate, incomplete or improperly applied, the materials used are inappropriate and/or the workmanship is inadequate;
- fire doors are in poor condition and/or not maintained in good condition e.g. the self closing device is defective, smoke seals are worn or displaced or intumescent strips are missing. Doors should close fully against the rebate with smoke seals and intumescent strips in place and in good condition. In the case of double swing doors, the meeting stiles of each leaf should be properly aligned horizontally and vertically.

Notes

1

Those spaces defined as 'Fire hazard rooms and departments' are contained in the Non-domestic Technical Handbook Annex 2.B.1. [See Table 3.](#)

<u>FIRE HAZARD DEPARTMENTS</u> <u>LIST A</u>	<u>FIRE HAZARD DEPARTMENTS</u> <u>LIST B</u>	<u>FIRE HAZARD ROOMS</u>
The departments in List A should: never be directly below nor adjoin operating theatres, intensive treatment units (ITUs) or special care baby units (SCBUs). Have a fire suppression system where they are below, or adjoining, any other hospital department to which patients have access.	The departments in List B should: Have an automatic fire suppression system where they are directly below, or adjoining, operating theatres, ITUs or SCBUs.	The following rooms are considered to be hazardous and should be enclosed by short fire resistance duration. See the Non-domestic Technical Handbook: Annex 2.B.1.
Boiler houses	Central staff changing facilities	Chemical stores
Central stores	Central sterile supplies	Cleaners rooms
Commercial enterprises	Hospital sterilising and disinfecting units	Clothes stores
Flammable stores	Health records departments	Day rooms (floor area over 20m ²)
Laundries	Pathology	Smoking rooms
Main electrical switchgear	Manufacturing pharmacies	Disposal rooms
Main kitchens		Laboratories
Refuse collection and incineration		Lift motor rooms
Works departments		Linen stores
		Bedrooms used by:
		• elderly people • those suffering from mental illness • people with learning difficulties
		Kitchens (other than separate hospital departments)
		Laundry rooms
		Staff changing and locker rooms
		Store rooms
		X-ray and record stores
		All rooms within a main laundry in which delivering, sorting, processing, packing, and storing are carried out.

Table 3: Fire hazard rooms and departments

- 2 Assessors should consider the term 'kitchen' does not always reflect the actual equipment and facilities commonly provided and used. In many cases only minimal facilities such as a toaster and fridge, and perhaps a microwave oven are provided and it may be appropriate to consider the facility more properly as a servery or pantry. A kitchen (fire hazard room) will normally have full cooking facilities comprising a conventional cooker or an oven and inset worktop cooking rings; and assessors should take this into account when considering the status of the facilities provided.

The potential for fire to occur will be higher where there are full cooking facilities. Where the potential is felt to be significant, then the room should be designated a 'fire hazard' room. This will be a matter for the assessor to determine in the circumstances of the particular assessment.

The provision of full cooking facilities within ward kitchens is now uncommon although food heating and preparation facilities may still be found. This makes any determination more ambiguous and assessors should try to ensure that their determination is consistent across all assessment areas.

Further guidance may be referred to in NHSScotland Firecode SHTM 85 paragraphs 6.19 and 6.20.

GN 25: containment: sub division of floor, wall, ceiling and roof voids

Unoccupied spaces in the building comprising cavities, spaces under raised floors and ceiling or roof voids provide a ready means for the spread of fire and smoke. Such spaces should be subdivided where they exceed specific dimensions. Assessors should, so far as possible, consider whether or not such spaces are appropriately protected to prevent the potential for fire spread.

Acceptable

- non-combustible cavity barriers are provided to sub-divide any roof, ceiling or raised floor voids so that the distance between barriers does not exceed 20 metres and the barrier itself has a minimum level of fire safety performance of short duration. Refer to the Non-domestic Technical Handbook paragraphs 2.4.2, 2.4.3, 2.4.5 and Annex 2.B.3;
- cavity barriers are suitably fixed and secured in position and are imperforate and in good condition;
- where openings have been made for the passage of services they are properly fire protected, including where necessary the provision of fire dampers in ducting.

Unacceptable

- the provisions fail to meet the specified standards i.e. cavity barriers are not provided where necessary; existing cavity barriers are in poor condition and/or inadequately fixed in place; openings for services are not properly sealed etc.

Notes

- 1 If the standard is deficient it should be improved. It is not possible to mitigate a lower standard, with a higher standard of other precautions.
- 2 Provisions in this worksheet that meet or exceed the standard should not be used as a mitigating factor for hazards or inadequacies in other fire safety measures.
- 3 Openings should be limited to:
 - doors which have a short duration fire safety performance, as described in the Non-domestic Technical Handbook paragraph 2.4.8; read in conjunction with paragraph 2.4.1;
 - service penetrations provided in accordance with the Non-domestic Technical Handbook paragraph 2.4.8; read in conjunction with paragraph 2.1.14.

GN 26: containment: external envelope protection

Unprotected openings in the building envelope provide a potential route for the external spread of fire to other areas of the structure, to escape routes across a flat roof or to adjacent buildings in the immediate proximity. The assessor should consider the potential for fire spread on, to or from the external envelope of the building (See [Note 2](#)).

Acceptable

Acceptability is dependent on compliance in all three of the following components of fire protection for the external envelope of a building.

- a. **Junction of walls and low-level roofs:** The junction of a wall(s) and a low level roof(s) meets the requirements of Non-domestic Technical Handbook paragraph 2.B.1 (See [Figure 4](#)) or SHTM 85 paragraphs 7.156 and 7.157.
- b. **Junction of compartment walls and external walls:** The junction between external walls and compartment or sub-compartment walls meet the requirements of the Non-domestic Technical Handbook paragraph 2.1.15 and Annex 2.B.1 (See [Figure 5](#)) or SHTM 85 paragraph 7.158.
- c. **Unprotected areas:** The maximum unprotected area in an external wall should be determined from the accompanying graph (see [Figure 6](#)) and SHTM 85 paragraphs 7.159 to 7.166.

Unacceptable

The provisions for any of the components a); b); or c) fails to meet the relevant standards. (Failure of one component should be recorded as an overall fail).

Notes

- 1 Further guidance is provided in SHTM 85 'External envelope protection' paragraphs 7.156 to 7.166 covering the three components listed above (a; b; c.). Assessors should not use the benchmarks as hard and fast measures that must be complied with in all situations, but should take a holistic view since assessments are conducted in 'existing' buildings. Failure to meet a relevant benchmark may not be significant if there is no clear exposure hazard evident and the life safety risk is low.
- 2 Assessors should consider these components of the structure so far as practicable, using visual evidence during physical inspections and/or building information (plans or other information) so far as it is available, to determine whether or not the provisions are acceptable. It is acknowledged that there are likely to be limitations as to the extent of structural investigation possible, and where appropriate this may be recorded in the assessment.
- 3 If the precaution does not meet the SHTM 85 standard any of the criteria a) or b) or c) then it will either be necessary to improve the provision or to mitigate the provisions e.g. a high standard of structural fire compartment or sub-

compartment provision, installation of an automatic fire control system (sprinklers) or additional fire protection of glazed elements.

- 4 The importance of external envelope protection for existing buildings depends on the proximity of adjacent buildings, or compartments within the same building. In an isolated building surrounded by parkland, for example, the external envelope protection may not be a significant risk factor. However, where the building is surrounded by similar buildings on a compact urban site, external envelope protection may require particular attention. Structural envelope protection will also have considerable significance where there is an exit route across a flat roof.
- 5 Other methods to determine space separation are described in the Building Research Establishment (BRE) Report 'External fire spread: Building separation and boundary distances' and in Non-domestic Technical Handbook paragraph 2.6 generally, and in particular the principles set out in paragraph 2.6.0.

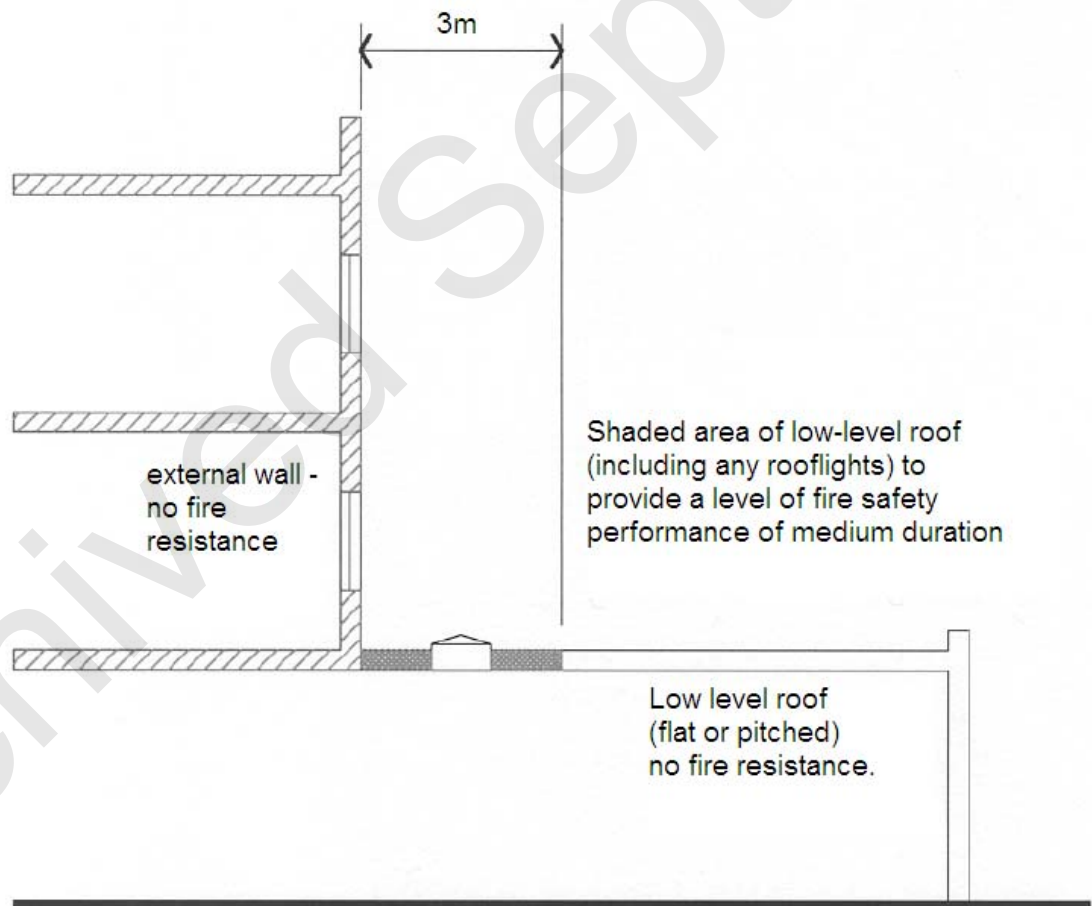


Figure 4: Fire resistance at junction of external walls and low level roofs

Hatched area indicates a one metre wide storey height strip of external wall, which has a level of fire safety performance at least equal to that of the compartment or sub-compartment wall.

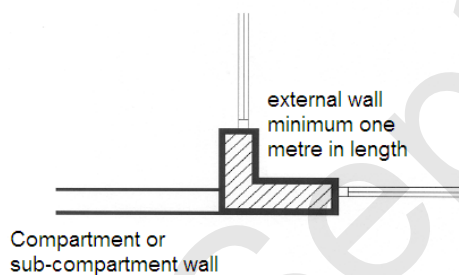
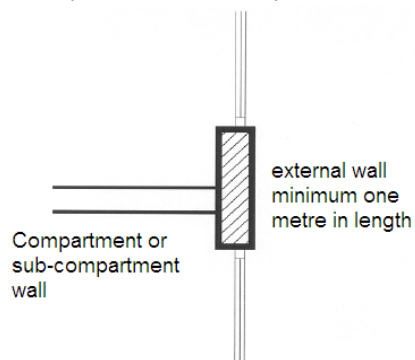


Figure 5: Junction of compartment walls and external walls

Method to determine the amount of unprotected area in an external wall

Distance from building/site boundary (m)

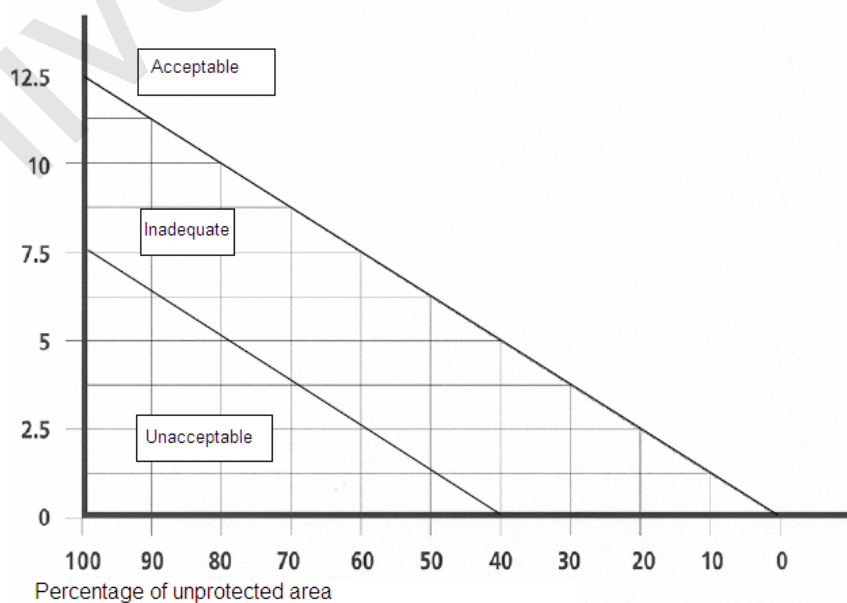


Figure 6: Unprotected area

GN 27: extinguishment: manual fire fighting equipment

Assess the adequacy of manual fire fighting provisions.

Acceptable

- sufficient portable fire extinguishers of the correct type, and fire blankets where appropriate are provided in the assessment area. The equipment complies with BS EN 3 and BS 7863 and is routinely inspected and maintained in accordance with BS 5306: Part 3, and records of what was done are available, covering at least three years;
- the equipment is visible and strategically sited with locations no more than circa 30 metres apart, generally adjacent to exits, at the entry point to stairways, on routes of escape, adjacent to specific fire risks where appropriate, with the carrying handle about 1 metre from the floor and mounted on wall brackets or suitable floor stands.

Unacceptable

- insufficient and/or inappropriate equipment has been provided in the assessment area;
- the location and fixing, labelling, signage or routine maintenance including records covering at least three previous years, are inadequate or deficient.

Notes

- 1 If the provision is unacceptable it will be necessary to improve it. It is not possible to mitigate the hazard if the provisions are unacceptable.
- 2 It is not acceptable to mitigate failures or inadequacies in other components of fire safety, with a high standard of, or additional, fire extinguisher provisions.
- 3 Generally there should be 2 x 9 litre 13A rated water or equivalent extinguishers, for every 400m² or part thereof. Extinguishers using CO₂ or other appropriate extinguishing medium should be provided to cover specific hazards, including electrical equipment, as necessary.
- 4 Where fire blankets are provided they should be of a quality appropriate for the hazard they are provided for use on e.g. a lightweight domestic quality blanket may be appropriate for a small ward kitchen, scullery or pantry; however, in a hospital main kitchen it will generally be appropriate to have at least one or more heavy duty blanket/s appropriate for commercial cooking facilities.
- 5 Further guidance is provided in SHTM 83 'Fire safety in healthcare premises: general fire precautions'.

GN 28: extinguishment: access and facilities for the Fire and Rescue Service.

Access to the perimeter of buildings to enable the Fire and Rescue Service to tackle fires without delay, is dependent on appropriate clear road access to the building. This may be hindered by uncontrolled parking, lack of turning space, insufficient width of the roadway etc. Similarly, their ability to enter the building and tackle a fire with a reasonable margin of safety is commonly dependent on the facilities provided for their assistance e.g. rising fire mains, fire hydrants, access points to the building, fire fighting stairways, fire-fighters lifts etc.

The assessor should evaluate the adequacy and maintenance of the access and other facilities provided for the Fire and Rescue Service.

Acceptable

- roadway access to the site containing the building is provided for fire-fighting appliances, taking into account that they may need sufficient access facilities for a number of fire appliances, in accordance with the Non-domestic Technical Handbook paragraph 2.12, 'Fire and Rescue Service access';
- vehicle access roadways should provide sufficient width, axle load capacity, operating space for high reach appliances and vehicle turning facilities as detailed in the Non-domestic Technical Handbook paragraph 2.12;
- access for Fire and Rescue Service fire-fighting personnel to the building is provided at suitable locations around the building;
- at least one fire fighting stairway entered at ground level from a suitable access for Fire and Rescue Service appliances is provided, meeting the requirements of the Non-domestic Technical Handbook paragraph 2.14.3, suitable for use by fire-fighters;
- any facilities provided for use by fire-fighters are adequately and appropriately maintained and appropriate records are kept, including remedial actions where necessary;
- fire hydrants, where provided, are clearly indicated by standard plates or posts and are subject to periodic flushing and test to ensure they are in good working order. Records of maintenance and test should be kept for at least three years;
- all car parking is appropriately controlled.

Unacceptable

- access to the building containing the assessment area, and/or facilities, does not meet an acceptable standard.

Notes

- 1 Combined arial rescue/pumping appliances (commonly termed CARP appliances) are in use by the Fire & Rescue service in various areas of Scotland. These appliances have an overall weight of 26 tonnes, and a driven axle weight of 12.5 tonnes. The length of these vehicles is 11.39m and the turning circle is 15.46m.

It is unlikely that access to many hospital facilities will have been designed to accommodate vehicles of this weight and size.

Where it is known that such vehicles are likely to be part of a Fire & Rescue service (F&RS) emergency response to the particular facility containing the assessment area, assessors should evaluate the access, and if necessary initiate discussions with the F&RS in the first instance to see if alternative mobilisation or reasonable access arrangements can be jointly agreed.

The issue should only be included in the action plan where a solution cannot be arrived at through consultation and engagement with the Fire & Rescue service. Assessors should recommend improvements to the accessibility provisions only as a last resort, since alternative attendance arrangements may be possible e.g. a different access route or point of arrival, a change to the Fire and Rescue service mobilisation for the premises or other solution acceptable to the respective parties.

- 2 If the precaution is 'unacceptable' then it will be generally be necessary to improve the provision. (Notwithstanding the comments in note 1 above)

Note: Measures to improve any access or other facilities should be subject to consultation with the Fire and Rescue Service before including them in the action plan, as the facilities in question are provided for their operational use in an emergency.

It is therefore essential to ensure the measures are appropriate and safe for their use before undertaking works that may otherwise prove to be inadequate, inappropriate or even unsafe e.g. roads are capable of bearing the axle weight of fire fighting vehicles likely to attend an incident, the radius of bends is sufficient to accommodate the turning circle of fire appliances etc.

- 3 The proximity, extent and management of parking that may affect the use of access roads used by fire-fighting appliances should be considered by assessors.
- 4 Ground hydrants (where provided) for the attachment of fire service equipment should be appropriately indicated by a standard fire hydrant plate or ground post, recognisable and informative to Fire and Rescue Service personnel.
- 5 Further guidance is provided in NHSScotland Firecode SHTM 85-8. 'Access and facilities for the Fire and Rescue Service'.

GN 29: extinguishment: automatic fire control systems

Automatic fire control systems may be provided to protect a specific installation or facility, or may be part of a comprehensive fire engineering strategy for the building. Systems may be installed throughout the building or only in a specified area of the building.

Fire engineering proposals commonly incorporate an automatic fire control system. Where a fire suppression system is installed either for life safety or for the protection of a particular facility, it should be appropriately maintained and tested.

Acceptable

- no fire suppression system is installed in the premises, except:
 - where a system is required as a component of the collective protective measures of a fire engineering strategy for the building;
 - where a system or partial system to cover a specific risk is required by virtue of a requirement of the Non-domestic Technical Handbook annex 2.B paragraph 2.B.1 'Fire hazard departments'.
- where installed, the fire suppression system is properly tested and maintained only by those competent and qualified to do so, in accordance with the current Loss Prevention Council (LPC) Rules for sprinkler installations, and comprehensive records kept for a minimum of three years of any work undertaken.

Unacceptable

- a fire suppression system is installed in part of the building or the building as a whole, but is inadequately maintained and/or routinely tested;
- inadequate or incomplete records are kept of the maintenance and/or routine tests, including remedial actions or other work carried out on the system.

Notes

- 1 Where the suppression system is part of a fire engineering strategy, the fire procedures should detail the contingency arrangements to be adopted during periods of fire suppression down time e.g. for repairs, tests and routine maintenance, or failures of any kind.
- 2 Sprinkler systems should comply with and be maintained in accordance with the current edition of the Loss Prevention Council (LPC) Rules for sprinkler installations, and/or BS 5306 part 2; and/or BS EN 12845.
- 3 The presence of a fire suppression system should not be used to justify a lower standard of fire precautions unless the proposal has been properly validated and recorded in a fire engineering assessment, and any supporting evidence properly documented.

GN 30: fire strategy: fire engineering

In healthcare buildings where a fire engineering strategy has been adopted, it is important that those responsible for managing fire safety understand the ongoing management, maintenance and testing obligations set out in the strategy.

Assess the ongoing management of procedures, staff training and maintenance of the fire engineering provisions and system components.

Acceptable

- no fire safety engineering strategy has been applied to the building or part of the building;
- the fire engineering strategy complies with a relevant industry standard and best practice guidance i.e.
 - NHSScotland Firecode SHTM 81 Part 2 'Guidance on the fire engineering of healthcare premises';
 - BS 7974 (2001) 'Code on the application of fire safety engineering principles to the design of buildings'; and
 - the Building Research Establishment (BRE) 'Fire safety engineering – a reference guide' (2003); or appropriate current versions of relevant guidance and codes of practice.
- the maintenance arrangements for the components of the system including where appropriate interfaces linking one component with another to ensure their sequential or concurrent operation, are conducted as required by the relevant BS, EN or manufacturers standards and the results and any remedial actions are comprehensively recorded;
- where alterations have been made to the building, evidence is available that the fire engineering strategy has been re-examined and validated by a qualified fire engineer to ensure the system as a whole continues to provide an appropriate level of protection for persons in the building.

Unacceptable

- there is no recorded evidence that the foregoing provisions are met, either in part or in full;
- records of system validation, maintenance and tests, or review of the fire strategy that was adopted, or subsequent amendments to it, cannot be provided.

Notes

1. Assessors need not be fully qualified fire engineers but should have sufficient knowledge and understanding of fire engineering principles and objectives, and sufficient experience to determine whether the maintenance, testing and management arrangements are appropriate and sufficient. Where an assessor

has reason/s to believe that the provisions are not being properly met they should specify in the assessment that the system as a whole should be examined by a properly qualified fire engineer to determine whether or not it is in an acceptable operational condition.

2. Failure of, or lack of test and maintenance, of a singular component may have a significant impact on the operational performance of the system as a whole.

Such failures, in a single component of the system, should therefore attract a high priority for remedial action because of the impact it is likely to have throughout the protected building or area of the building to which the fire safety engineering strategy applies.

- 3 Fire engineering installations and the strategy that underpins their design, installation and operational performance collectively comprise a complex fire safety solution for the protected area it covers. Such systems are not 'fit and forget' systems. Consequently, it is essential that they are thoroughly tested from time to time, and re-examined as a whole system by a qualified fire engineer who has access to the strategy on which the design of the system was based.

- 4 Whilst no set period is identified in guidance for a fire engineering review process, it is considered that a bi-annual re-inspection may be reasonable in most routine circumstances. However, when changes have occurred which would have a possible impact on the fire safety performance of the system, assessors should look for evidence that a thorough and comprehensive re-examination and review of the system has taken place. Relevant changes may comprise structural alterations within the protected area, spatial changes that incur an increased fire load, a significant increase in the population of the protected area, layout alterations that may impact on the escape routes or other components of the means of escape.

Whilst a review process for the engineering strategy and system as a whole may be conducted bi-annually or at a frequency to be determined locally, individual components of the system will require routine test and maintenance in accordance with the relevant standards for the particular component e.g. the fire alarm system will require a weekly function check and full annual inspection and test by a fire alarm engineer etc. Appropriate records must therefore be kept of all routine tests and maintenance.

Appendix 1: Glossary of terms

For the purposes of this document the following definition of terms should be used. The standards specified for 'hospitals' in the Non-domestic Technical Handbook, for compliance with Building (Scotland) Regulations 2004 – applies to all hospitals where there is patient access.

ALARP: (as low as reasonably practicable.) means that risks should continue to be reduced until a point is reached where the cost and effort to reduce the risk further would be grossly disproportionate to the accrued benefits.

Circulation space: the communication routes within a department or management unit giving access to other parts of healthcare premises, and to all necessary fire escape exits.

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

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

Fire precautions: measures that reduce the likelihood of ignition occurring and/or mitigate the consequences should ignition occur. Precautions are considered under five headings, each of which is defined below:

- a. **Prevention:** precautions to control potential ignition and fuel sources, to ensure that fires do not start. Prevention also includes general fire precautions;
- b. **Communications/Detection and alarm:** systems that inform the occupants and Fire Service when a fire starts;
- c. **Means of escape:** means to enable the occupants of the building to escape to a place of safety away from the effects of the fire;
- d. **Containment:** physical arrangements that contain the fire to the smallest possible area, control the threat to life safety and the extent of property damage;
- e. **Extinguishment:** systems that ensure the fire can be controlled and/or extinguished quickly with minimum disturbance and damage to the function of the healthcare premises.

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.

Ignition sources: heat sources or flames that may cause ignition.

Place of safety: means either:

- an unenclosed space in the open air at ground level; or
- an enclosed space in the open air at ground level leading to an unenclosed space, via an access not narrower than the total width of the exits leading from the building to that enclosed space.

Progressive horizontal evacuation (PHE): an escape strategy for the evacuation of patients away from a fire into a fire free compartment or sub-compartment on the same level, from which further escape is possible.

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

Non-domestic Technical Handbook: refers to the Technical Handbooks for non-domestic buildings providing guidance on the means to comply with the Building (Scotland) Regulations 2004.

SHTM/SFPN: Scottish Health Technical Memoranda and Scottish Fire Practice Notes that collectively comprise NHSScotland Firecode Edition 4.

Appendix 2: Competency

Fire Safety Advisor

Exemplar specification

These notes provide important additional supporting information and should therefore be read before referring to the Table 4 accompanying this appendix.

NOTE 1: Exclusivity

The criteria in the accompanying table is not intended to be prescriptive and does not exclude consideration of others who can demonstrate sufficient knowledge, skills and experience, or present other qualifications that clearly confirm the competency of the applicant.

The person must be able to demonstrate core knowledge, professional learning and actual experience, to establish competency in fire safety matters. Where this is ambiguous or doubtful, verification that the core requirements are properly met should be sought e.g. examples of work, proof of accreditation, confirmation of qualifications, verification of Continuous Professional Development (CPD) etc.

NOTE 2: Alternative qualifications

The essential and desirable matters described in the following table provide typical criteria that are appropriate for the position of fire safety advisor. The listed criteria are common elements of fire safety learning and experience but are not exclusive. There may be others e.g. qualifications gained in other countries, centres of learning or from other sources that may be considered.

NOTE 3: Specific experience

Experience means general fire safety experience. It is expected that a competent fire safety practitioner who otherwise meets the criteria required will be able to assimilate the additional knowledge to deal with healthcare fire safety matters quickly and seamlessly, and where mentoring can be provided for a short time, assimilation will be considerably accelerated. Lack of specific experience in the healthcare field should not be an automatic or significant impediment to appointment.

NOTE 4: Accreditation standard

The standard applied by accrediting agencies should conform to the 'Competency criteria for fire risk assessors' published by the Fire Risk Assessment Competency Council (FRACC). This is a voluntary standard and accrediting agencies may apply other criteria. The FRACC criteria nevertheless establishes a widely supported national standard for accreditation that professional bodies offering accreditation to applicants should apply when

considering applications for accreditation; and therefore provides employers with a degree of comfort that accredited fire risk assessors and practitioners meet a consistent and acceptable level of competency.

Well established professional agencies providing accreditation schemes and registers of fire risk assessor practitioners include:

- the Institution of Fire Engineers (IFE);
- the Institute of Fire Prevention Officers (IFPO);
- the Institute of Fire Safety Managers (IFSM);
- Warrington Certification Ltd in association with the Royal Institution of Chartered Surveyors (RICS) administers a United Kingdom Accreditation Scheme (UKAS) approved scheme for individual fire risk assessors and companies offering such services.

It is not suggested or implied that only those agencies listed here are acceptable accrediting agencies. In any case, where there is doubt or ambiguity as to the standard applied or accepted by an accrediting body, it may be necessary to inquire further into the standards applied by them, since it is not possible to list all agencies that may provide accreditation to the Competency Council standard.

CRITERIA	ESSENTIAL	DESIRABLE
Qualifications and experience	Fire safety science or fire engineering based education to HNC/HND level and supporting experience in the application of fire safety in a workplace setting. or; completion of the Fire & Rescue Service, fire safety modules at the Fire Service College and subsequent enforcement officer experience. or; Fire engineering degree and practical experience of the workplace application of fire safety. or; other fire safety professional qualification e.g. Confederation of Fire Protection Associations Europe Diploma (CFPA Dip.); and in any case; Evidence of continuing CPD. Experience of preparing and delivering training courses. Experience in the conduct of fire risk assessments.	Corporate membership of a professional organisation e.g. the Institution of Fire Engineers / (MIFireE) the Institution of Occupational Safety and Health (IOSH) Experience of healthcare specific fire safety. Fire risk assessor competency accreditation with a recognised accrediting body. or working towards accreditation with such an body.
Specific knowledge	Thorough knowledge of: 1. The principles of fire safety management and best practice principles. 2. Fire risk assessment principles and best practice. 3. Fire legislation and related codes of practice. 4. Fire safety training. Development and delivery. 5. Fire safety best practice and standards.	1. Detailed knowledge of NHS Scotland Firecode. 2. Understanding of fire engineering principles. 3. Knowledge and practical experience of fire risk management.
Skills	Effective interpersonal and communication skills. Ability to devise and deliver training courses for all levels of staff and management. Basic IT. and office administration skills	Ability to work to timescales and budgets.
Disposition and Attitude	Initiative and willingness to take responsibility. Self motivated. Ability to work in a changing environment. Ability to work as part of a team. Willingness to undertake appropriate continuous professional development to sustain competency.(CPD).	Provide evidence of continuous professional development (CPD).

Table 4: Fire Safety Advisor competency

Appendix 3: Inspection proforma

The following inspection pro forma may be used to record brief comments and findings during an assessment area inspection.

Section no.	About the building	Notes	
Info only	Name of assessor		
Info only	Date of this assessment/ review		
Info only	Site		
Info only	Building/block no. or name		
00.01	Brief description of the construction.		
28	Is access for fire appliances adequate?	Roadways; proximity to the building.	
28	Are external facilities for the F&RS adequate and maintained?	fire hydrants/ parking controls/ dry riser access and availability.	
Section no.	About the assessment area	Notes	
00	Briefly describe the escape route/s.	the number of them/width/ length/changes of level/location of PHE refuge/s etc	
00	Who is the duty holder/s for the assessment area?	ward manager/ sister/supervisor/ department manager etc	
Info only	Ward no/name/area or department identifier		
Info only	What is the assessment area used as?		
Info only	Assessment floor area?		

Section no.	Worksheets	Additional info	Nos.	Notes
01	How many staff are employed?	Day shift		
		Backshift		
		Night shift		
		Other shift		
01	Are any young persons employed or at work?	Those who have not reached their 18th birthday.		
01	How are patients accommodated?	Open plan ward		
		Bed bays		
		Single rooms		
		OPD/consulting/treatment rooms etc		
01	Patient dependency?	Normal		
		High		
		Very high		
01	Other persons	Contractors		
		Visitors		
		Others		
01	Is the number of staff sufficient for evacuation?	At all times, taking into account additional staff from other areas to support evacuation.		
02	Ignition sources smoking hazards	policy/environment/physical evidence		
03	Ignition sources fire raising	fire raising history/access controls/policy/is wilful fire raising a component of training		
04	Ignition sources work activities	contractors/hot work permits/safe systems of work		
05	Ignition sources equipment	Portable appliance tests (PAT) /medical gases/ electrical equipment		
06	Ignition sources lightning	testing regime/obvious faults		

Section no.	Worksheets	Additional info	Notes
07	combustible materials surface finishes	conformity/floor finishes/ notice boards and wall hangings	
08	combustible materials textiles and furnishings	do 75% textiles conform/ condition/soft play materials/ nightwear provided by the NHS/is the labelling acceptable?	
09	combustible materials other materials	waste containers/ accumulations/alcohol hand dispensers/ storage generally	
10	combustible materials DSEAR	quantity/storage/ exposure/usage practices/disposal & waste	
11	prevention : management policy and procedures	policy/action plans/ peeps/alarm response arrangements/ contractors/	
12	prevention: training training/drills	Frequency/content/ records/practical evac. training conduct	
13	prevention: fire notices and signs	location/legibility etc	
14	Communications: alarm and detection systems	System type/Alarm receiving centre (ARC)/ testing and maintenance/unwanted fire signals (uwfs)/ sensory impairment.	
15	means of escape: patient care; progressive horizontal evacuation (PHE)	No. of exits for PHE/ receiving areas/ occupant loads/compartments/changes of level/evac. equipment.	
16	Means of escape: non-patient care	Arrangements/ procedures/provisions/ temp. waiting spaces	
17	Means of escape: supporting provisions	Obstructions/door condition/direction of travel/condition of escape routes/door fastenings/automatic door operation/ management and maintenance of doors.	
18	Means of escape: travel distance	Does it exceed 15m single direction and 32m where there is a choice of directions?	

Section no.	Worksheets	Additional info	Notes
19	Means of escape: stairways	Sufficient numbers/fire separation/fire resistance construction /door condition/ separation of basement at ground floor/maintenance.	
20	Means of escape: escape lighting	Existing provisions; adequacy; maintenance and testing.	
21	Means of escape: escape bed lifts	(Where installed) Design/maintenance/ testing	
22	Containment: structural fire protection	Potential for disproportionate collapse/unusual fire spread/rapid fire development/exposed steelwork/unprotected timber structure/ unprotected cavities.	
23	Containment: compartmentation	Sufficient numbers/fire performance of compartment structures/service penetrations/ducts and shafts.	
24	Containment: fire hazard rooms and departments	Are hazard rooms short duration/ conformity with tech H'book Annex 2B re. suppression systems where required.	
25	Containment: sub div of cavities and voids.	Are cavity barriers provided where required?/are they in good condition?/are they imperforate where services pass through?	
26	Containment: external envelope protection	External wall surfaces/ distance of side from boundary/junction of compartment walls and external wall fr for 1m/ roofs meeting lower roof medium duration for 3m/	
27	Extinguishment: manual equipment	Existing provisions/correct types/ maintenance and testing/records/hose reels test.	

[illegible]

Appendix 4: References

Legislation

Fire (Scotland) Act 2005 as amended

Fire Safety (Scotland) Regulations

The Building (Scotland) Regulations (2004)

Non-domestic Technical Handbook Scottish Building Standards Directorate;
<http://www.sbsa.gov.uk/>

Legislation overview Scottish Government.

Dangerous Substances and Explosive Atmospheres Regulations (2002).

Health and Safety (Safety Signs and Signals) Regulations (1996)

NHSScotland Firecode publications

SHTM 81 Part 2; NHSScotland Firecode 'Guidance on the fire engineering of healthcare premises' NSS Health Facilities Scotland. (2009)

SHTM 82 NHSScotland Firecode 'Fire alarm and detection systems' NSS Health Facilities Scotland; (2012)

SHTM 83 NHSScotland Firecode 'Fire safety in healthcare premises; General fire precautions' NSS Health Facilities Scotland (2004)

SHTM 85 NHSScotland Firecode 'Fire precautions in existing hospitals' NSS Health Facilities Scotland (2007)

SHTM 87 NHSScotland Firecode 'Textiles and furniture' NSS Health Facilities Scotland (2009)

SFPN 3 NHSScotland Firecode 'Escape bed lifts' NSS Health Facilities Scotland (2010)

British and European standards

BS 7974 2001 'Code of practice on the application of fire safety engineering principles to the design of buildings' British Standards Institution (1990) <http://www.bsi-global.com/>

BS 7671 'Requirements for electrical installations' <http://www.bsi-global.com/>

BS 62305 'Fixed fire fighting systems; Automatic sprinkler systems'
<http://www.bsi-global.com/>

BS 5499 2000; 'Safety signs including fire safety signs'; British Standards Institution <http://www.bsi-global.com/>

BS 5839-1; 2002 + A2: (2008) 'Fire detection, alarm and control systems'
British Standards Institution <http://www.bsi-global.com/>

BS 5839-3 (1988) 'Fire detection and alarm systems for buildings; specification for automatic release mechanisms for certain protection equipment'; British Standards Institution <http://www.bsi-global.com/>

BS EN 1155 (1997) 'Building hardware; Electrically powered hold open devices for swing doors'; British Standards Institution <http://www.bsi-global.com/>

BS 5266 (BS EN 1838) 'Lighting applications; emergency lighting' British Standards Institution <http://www.bsi-global.com/>

BS EN 3 (2004) 'Portable fire extinguishers' British Standards Institution; <http://www.bsi-global.com/>

BS 7863 (1996) 'Recommendations for colour coding to indicate the extinguishing media contained in portable fire extinguishers' British Standards Institution; <http://www.bsi-global.com/>

BS 5306 Part 2 (1990) 'Fire extinguishing installations and equipment on premises, specification for sprinkler systems' British Standards Institution; <http://www.bsi-global.com/>

BS 5306 Part 3 (2003) 'Code of practice for the inspection and maintenance of portable fire extinguishers' British Standards Institution; <http://www.bsi-global.com/>

BS EN 12845 (2004) + A2 (2009) 'Fixed fire-fighting systems, automatic sprinkler systems' British Standards Institution; <http://www.bsi-global.com/>

Other publications

LPC Rules for sprinkler installations; Loss Prevention Council.

Smoke shafts protecting fire fighting shafts; their performance and design
Building Research Establishment (2002)

External fire spread; building separation and boundary distances; report;
Building Research Establishment

SHTM 2011 'Emergency electrical services' NSS Health Facilities Scotland

Fire safety policy for NHSScotland CEL 11 (2011). Scottish Government

Smoke free Scotland www.clearingtheairscotland.com and www.ashscotland.org.uk;

Practical fire safety guidance for healthcare premises Scottish Government, Safer Scotland Chapter 6, page 26;

Smoke free mental health

<http://www.healthscotland.com/documents/5041.aspx>

Fire safety guidance- are you aware of your responsibilities Scottish Government <http://www.firelawscotland.org>

Competency criteria for fire risk assessors version 1 Fire risk assessment competency council; (2011)

HSG 168; 'Fire safety in construction' Health and Safety Executive.

Fire prevention on construction sites; 7th edition; Fire Protection Association.

Approved Code of practice - Dangerous Substances and Explosive Atmospheres Regulations (2002) ISBN 0 7176 2203 7