

nebosh

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# NEBOSH

# Certificate in Fire Safety

## Learning Partner guide



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# Qualification overview

# Qualification overview

## Qualification key features

<b>Unit prefixes and title/s:</b>	<b>Unit FSC1: Fire safety</b> <b>Unit FSC2: Fire risk assessment</b>	
<b>Assessment:</b>	<b>Assessment Type</b>	<b>Assessment Time</b>
Unit FSC1:	Open book assessment (OBE)	5 hours
Unit FSC2:	Practical	3 hours
<b>Modes of study:</b>	Taught (face-to-face), open and distance learning Part-time Block release eLearning	
<b>Notional learning hours</b>	Taught hours: 28 Private study: 20 Assessment: 8 Total hours: 56	
<b>Qualification level and number of credits:</b>	Notional SCQF Level 6 with 6 credits (equivalent to RQF Level 3)	
<b>Entry requirements:</b>	None	
<b>Recommended minimum standards of English:</b>	Learner: International English Language Testing System 6.0 or higher Tutors: International English Language Testing System 7.0 or higher	
<b>Languages available:</b>	English	
<b>Assessment dates</b>	On demand for FSC2 only and FSC1 - four set OBE assessment dates per year	
<b>Pass standards:</b>	Unit FSC1: 45 marks Unit FSC2: Pass standard contained in guidance A 'Pass' must be achieved in both units to achieve the Certificate in Fire Safety	
<b>Qualification grades:</b>	The qualification grade is based on the result from Unit FSC1 Distinction: 75 marks or higher Credit: 65 - 74 marks Pass: 45 - 64 marks	

# Qualification summary

# Qualification summary

## Introduction

The qualification looks at fire safety and can be applied in many sectors. On completion of the qualification, your learners will be able to:

- justify fire safety improvements using moral and financial arguments;
- advise how fires and explosions can occur and the appropriate controls to minimise fire and explosion risks;
- advise their employer on the requirements for the fire protection of premises and workers including the appropriate training obligations;
- carry a fire risk assessment in their own workplace – prioritising risks, inspecting the workplace, recognising a range of common fire hazards, evaluating risks (taking account of current controls), recommending further control measures, planning actions.

The Fire Safety Certificate (FSC) replaces the National Certificate in Fire Safety and Risk Management (NFC), that was launched in 2006 and the International Certificate in Fire Safety and Risk Management (IFC), that was launched in 2012. Both the NFC and IFC are recognised around the world:

## NEBOSH ‘puts you at the top of the pile’

With 30 years’ experience within Humberside Fire and Rescue Service, it could be argued that Rick Phillips had little to prove in terms of competence and capability in his role as Senior Fire Officer at Humberside Airport.



It’s a role Rick took on after retiring from the Fire Service back in 2015 and which he has relished ever since. However, he certainly hasn’t been prepared to rest on his laurels. He is responsible for health, safety and environmental matters at the airport, which has taken Rick into areas beyond his norm.

“There’s a lot to consider health, safety and environmental-wise and that’s how it is with everything here. Take the de-icing of an aircraft for example. It really is quite wide-ranging. Although I wasn’t in the health and safety section in the brigade, we all worked very closely when doing operational training around risk assessments for example, so I knew a lot already when I came here. I’d also completed my NEBOSH National General Certificate in Occupational Health and Safety back in 2003, which I found really helpful in the latter part of my career.”

However, Rick decided he needed more qualifications in his new role at the airport. “I actually started with the NEBOSH National Certificate in Fire Safety and Risk Management, which it’s fair to say I didn’t really struggle with. I then took the NEBOSH Certificate in Environmental Management and went on to the NEBOSH National Diploma in Occupational Health and Safety, which has been incredibly useful all round.”

# Qualification summary

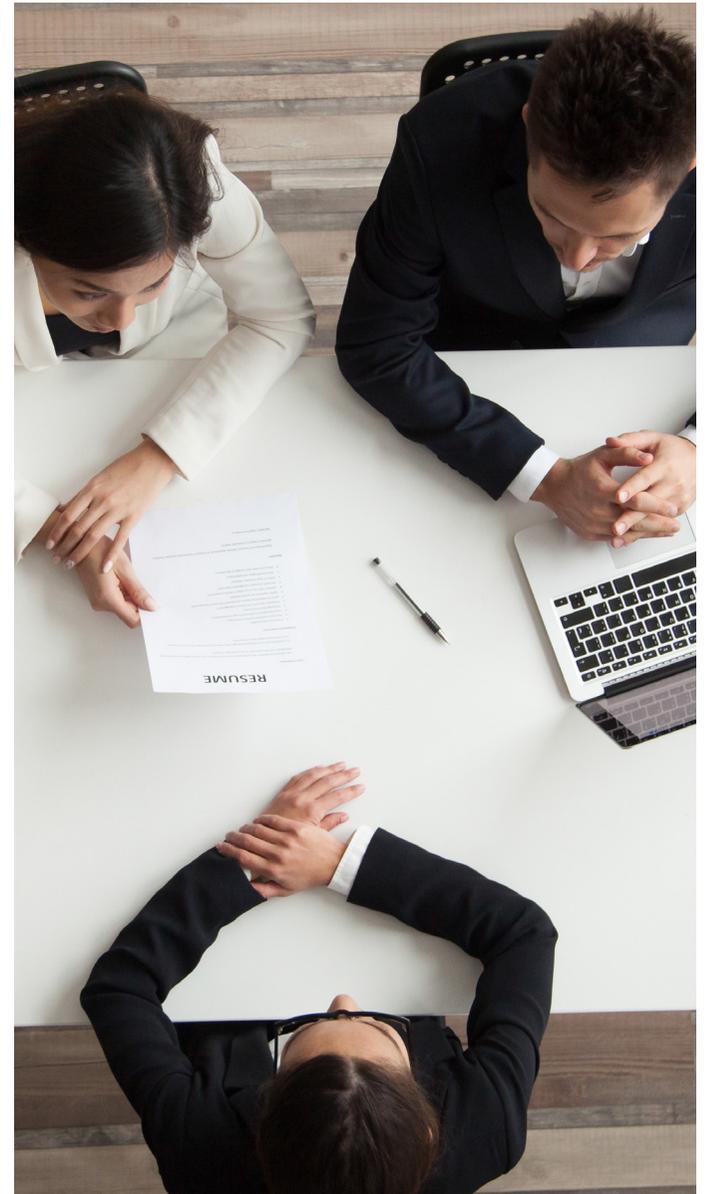
## Syllabus development and review

The syllabus has been developed by NEBOSH following extensive consultation with key stakeholders, notably Learning Partners, employers, standards setting organisations, past and present learners and subject experts. NEBOSH would like to take this opportunity to thank all those who participated in the development of the revised FSC.

## Notional learning hours

A programme of study needs to be based around a minimum of **28 taught hours** and approximately **20 self-study hours**.

A full-time block release course would take approximately 4½ days and a part-time day release course would be spread over approximately 5 weeks. For learners studying by open or distance learning, the tuition hours should be added to the recommended private study hours to give the minimum number of hours that this mode of study will require.



# Qualification summary

## Teaching of syllabus content

Although the syllabus sets out the elements in a specific order, you can teach the elements in any order you feel is appropriate. You will need to reflect this in the timetables which are submitted for approval as part of the accreditation/re-accreditation process.

All elements (1 - 6) are assessed by an open book examination. The practical assessment will be a fire risk assessment. It draws on the common workplace fire hazards in elements 2 - 6, as well as the process of fire risk assessment covered in element 6. Both assessments will be marked by NEBOSH.

## Minimum standard of English required for learners

The standard of English required by learners studying for the FSC must be such that they can both understand and articulate the concepts contained in the syllabus. It is important to stress that the onus is on you to determine your learners' standards of proficiency in English.

## NEBOSH helped me find the dream job I'd never heard of

Victoria Casey is a Risk Consultant for one of the UK's largest insurers, Aviva. Her job is to carry out surveys of business properties to provide her colleagues in underwriting with a better understanding of the risks they are providing cover for. During the survey Victoria encourages customers to reduce their risks and exposures by adopting best practice risk management procedures.



"This is my absolute dream job and I couldn't be happier," she told us. "I feel like I uncover something new every day and the learning never actually stops, which is something I really do love. It's a job I would never have got without my NEBOSH qualifications, and personally I believe it's a job that couldn't be done without them. Not only did my NEBOSH General Certificate and Fire Certificate fill in so many blanks as far as my knowledge was concerned, the qualifications gave me so much confidence and helped me, and still do help me almost every day, to demonstrate my competence. Now I'm really looking forward to taking things to the next level."

# Qualification summary

## Qualification type

NEBOSH qualifications are categorised as 'Other' qualifications by SQA Accreditation in Scotland. These are categorised as Vocationally-Related Qualifications (VRQs) in England, Wales and Northern Ireland.

VRQs provide the knowledge and practical skills required for particular job roles through a structured study-based training programme, which combines the assessment of knowledge and understanding in written examinations with practical application of learning in the workplace.

VRQs are a popular type of qualification because they are nationally recognised, flexible and offer routes for progression to employment or further study.

## Achieving the qualification

The FSC has two unit assessments (see 'Qualification overview' for details on the assessments and the pass standards); your learners must achieve a Pass in each unit in order to be awarded the qualification.

Your learners will have five years to complete their qualification. The five-years starts from the date that they pass their first successful unit (we call this the 'declaration date'). Any unit that is five or more years old will not count towards the qualification; your learners will need to retake this/these unit(s) if they still want to complete the qualification.

## Qualification grading and issue of qualification parchment

The qualification grade is based only on the result from the open book examination (Unit FSC1). Your learners need to achieve a 'Pass' in **both** units (FSC1 and FSC2) before the parchment can be issued. The grading boundaries are as follows:

75+	Distinction
65-74	Credit
45-64	Pass
0-44	Refer

When your learners have completed both units, they are normally considered to have completed the whole qualification. We will send out the qualification parchment within 40 working days of their final successful unit. We will only issue individual unit certificates on written request.

Once we issue the result of the second successful unit, your learners will have 20 working days to either:

- tell us in writing that they want to re-sit a successful unit to improve their grade (see 'Re-sitting unit(s)' for further information); or

# Qualification summary

- submit an Enquiry About Result (EAR) request; please see the EAR policy for further information: [www.nebosh.org.uk/policies-and-procedures/enquiries-about-results-ears](http://www.nebosh.org.uk/policies-and-procedures/enquiries-about-results-ears).

## Re-sitting unit(s)

Your learners can re-sit a unit for the following reasons:

- they have unit(s) with a 'Pass' that are five or more years old and the learner still wants to achieve the qualification;
- they were 'Referred'; or
- they want to re-sit Unit FSC1 so that a higher grade can be achieved (Unit FSC2 is 'Pass' or 'Refer' and does not count towards the qualification grade).

A re-sit unit must be taken within the qualifying five-year period (see 'Achieving the qualification').

## Re-sitting FSC1 to improve the grade

If your learner wants to try to improve their grade in Unit FSC1, they will need to tell us in writing within 20 working days of the declaration date of their second successful unit. Otherwise, a qualification parchment will automatically be issued showing the original declaration date. You and your learners should also be aware of the following:

- if the result of the re-sit unit is lower than the original mark, the learner will keep the original mark awarded for the unit;

- re-sit marks are not capped;
- there is no limit to the number of re-sits within the five year period;
- a refund will not be given if your learner chooses to register to re-sit a unit before the result for that unit is known (especially where the result is higher than your learner had expected)

## Conflict of interest

Your employees (eg Head of Learning Partner, tutors, administrators, examinations officers, invigilators, etc) must declare in writing to NEBOSH any employee and/or family, spouse or other close personal relationship with any person undertaking a NEBOSH examination or assessment. Further information can be found in the 'Instructions for conducting examinations' document.

## Available resources

In addition to this guide, the following resources are downloadable from the NEBOSH website:

- FSC2 Guidance for Learning Partners and Learners;
- Assessment pack for Units FSC2;
- Leaflet;
- Case studies.

# Syllabus

## Syllabus summary

Element		Recommended tuition hours	Suggested self-study hours	Assessment
<b>1</b>	Managing fire safety	2	20	<b>Unit FSC1: Fire safety</b> Open book examination  <b>Unit FSC2: Fire risk assessment</b> Practical assessment
<b>2</b>	Principles of fire and explosion	5		
<b>3</b>	Fuel, oxygen and ignition sources and control measures	4		
<b>4</b>	Fire protection of buildings	7		
<b>5</b>	Safety of people in the event of fire	4		
<b>6</b>	Fire safety risk assessment	6		

\* The timings detailed in the columns above indicate suggested hours for each of the elements.

## Learning outcomes and assessment criteria

Learning outcome The learner will be able to:	Related content (elements)	Assessment criteria
Justify fire safety improvements using moral and financial arguments	<b>1.1–1.2</b>	<p>Discuss the moral and financial advantages of good fire safety management in the workplace</p> <p>Summarise how fire safety is regulated and the roles of national government and international bodies.</p>
Advise how fires and explosions can occur and the appropriate controls to minimise fire and explosion risks	<b>2.1–2.3</b> <b>3.1–3.2</b>	<p>Describe the principles of combustion in relation to fire safety</p> <p>Give an overview of the principles and conditions for the ignition of solids, liquids and gases and the controls that can be put in place</p> <p>Outline the principles of explosion and explosive combustion and the controls that can be put in place</p>
Advise their employer on the requirements for the fire protection of premises and workers including the appropriate training obligations	<b>4.1–4.6</b> <b>5.1–5.4</b>	<p>Outline the principles for fire protection, detection, and prevention</p> <p>Summarise the requirements for the maintenance of escape routes and fire extinguishing equipment, including access for the fire service</p> <p>Be aware of the different types of fire extinguishing methods and the need for training on their use</p> <p>Understand the behaviours of people during fires and why emergency plans are required</p> <p>Understand why fire safety training requirements are needed for all workers</p>

# Syllabus

Learning outcome The learner will be able to:	Related content (elements)	Assessment criteria
Do a fire risk assessment in their own workplace – prioritising risks, inspecting the workplace, recognising a range of common fire hazards, evaluating risks (taking account of current controls), recommending further control measures, planning actions	<b>6.1–6.3</b>	Explain the principles of the fire risk assessment process and be able to carry out a fire risk assessment of a workplace.

## Syllabus content

### Element 1: Managing fire safety

#### 1.1 Moral and financial reasons for managing fire safety

- Moral expectations of good standards of fire safety
- The financial cost of incidents (insured and uninsured costs), including penalties that could be imposed in the event of a false alarm.

#### 1.2 The role of national governments and international bodies in developing frameworks for the regulation of fire safety

- Employers' responsibilities
- Workers' responsibilities
- The role of enforcement agencies and other external agencies including consequences for non-compliance.

### Element 2: Principles of fire and explosion

#### 2.1 The principles of combustion, fire growth and fire spread

- The fire triangle
- Combustion:
  - > chemical reactivity
  - > the conditions for the maintenance of combustion
  - > examples of combustion products in relation to combustion conditions (complete and incomplete reaction)
  - > exothermic reaction releasing heat energy
  - > oxidising agents/materials
- Methods of heat transfer; conduction, convection, radiation, and direct burning and how they contribute to fire and smoke spread through buildings and to neighbouring properties
- The stages of fire:
  - > induction

Element 2: Principles of fire and explosion	
<b>2.1</b>	<ul style="list-style-type: none"><li>&gt; ignition</li><li>&gt; fire growth</li><li>&gt; steady state</li><li>&gt; decay</li><li>• Factors that influence fire growth rates and smoke movement</li><li>• Building design (such as cavities, ducts, shafts)<ul style="list-style-type: none"><li>&gt; insulated core panels</li><li>&gt; construction materials</li><li>&gt; internal linings</li><li>&gt; ventilation levels</li><li>&gt; contents of the premises</li></ul></li><li>• The conditions required for, mechanisms of, and impacts of flashover and backdraft.</li></ul>
<b>2.2</b>	<b>The ignition of solids, liquids and gases</b> <ul style="list-style-type: none"><li>• Meaning and relevance of flash point, fire point and ignition point (kindling point); auto ignition temperature; vapour density; vapour pressure; flammable liquid categories: upper flammable limit; lower flammable limit</li><li>• The conditions required to cause the ignition of combustible solids, flammable liquids and gaseous materials.</li></ul>
<b>2.3</b>	<b>Explosion and explosive combustion</b> <ul style="list-style-type: none"><li>• Common materials involved in explosions (flammable vapours, gases, dusts)</li><li>• The conditions required for, mechanisms of, and impacts of the following types of explosion:<ul style="list-style-type: none"><li>&gt; Unconfined Vapour Cloud Explosion</li><li>&gt; Confined Vapour Cloud Explosion</li><li>&gt; Boiling Liquid Expanding Vapour Explosion (BLEVE)</li><li>&gt; dust (primary and secondary explosions).</li></ul></li></ul>

## Element 3: Fuel, oxygen and ignition sources and control measures

### 3.1 Sources of fuel, oxygen and ignition sources

- Common sources of ignition of accidental fires including:
  - > electrical appliances and installations
  - > lightning
  - > cooking
  - > heating and lighting
  - > smoking
  - > overheating of machinery
  - > spontaneous ignition of oil and solvent soaked materials
  - > hot work
- Sources of fuel including:
  - > paper and cardboard
  - > furniture
  - > fixtures and fittings
  - > electrical insulation
  - > structural materials
  - > wall and ceiling linings
  - > piped gas supply
  - > cylinders of flammable gas
  - > flammable chemicals, liquids and solvents
- Sources of oxygen including:
  - > oxygen levels in the air
  - > natural ventilation

## Element 3: Fuel, oxygen and ignition sources and control measures

- |            |  |
|------------|--|
| <b>3.1</b> | <ul style="list-style-type: none"><li>&gt; forced ventilation or air-conditioning systems</li><li>&gt; oxidising materials</li><li>• Factors influencing the severity and likelihood of an arson attack</li><li>• Fire and explosion risks from the use, storage, and transport of flammable materials within the workplace</li><li>• The concept of fire load.</li></ul>  |
| <b>3.2</b> | <p><b>Appropriate control measures to minimise fire and explosion risks</b></p> <ul style="list-style-type: none"><li>• Control of sources of ignition<ul style="list-style-type: none"><li>&gt; suitable explosion protected electrical equipment for use in flammable and explosive atmospheres (Ex rated – reference to IEC 60079 series); zoning of explosive atmospheres; maintenance of plant, equipment, and electrical supplies; intrinsically safe equipment</li><li>&gt; designated smoking areas; use of fireproof cigarette bins</li><li>&gt; shielding to block radiant heat and sparks</li><li>&gt; maintain separation of ignition sources and fuel sources</li></ul></li><li>• Control of sources of fuel:<ul style="list-style-type: none"><li>&gt; safe storage, transport and use of small quantities of substances within the flammable liquid categories</li></ul></li><li>• Control of sources of oxygen<ul style="list-style-type: none"><li>&gt; closing doors and windows</li><li>&gt; shutting off ventilation/air conditioning systems/ducting</li><li>&gt; safe use and storage of oxidising materials</li></ul></li><li>• Safe systems of work; safe-operating procedures; planned preventive maintenance programmes; management of contractors (in relation to fire safety); permits-to-work for ‘hot work’; provision of information and training to workers and others; maintaining fire protection systems during maintenance; construction work on an existing building</li><li>• Actions to minimise risks from arson</li></ul> |

## Element 3: Fuel, oxygen and ignition sources and control measures

- 3.2**
- The principles of preventing explosions:
    - > good housekeeping
    - > good ventilation
    - > safe storage including bunding
    - > safe handling and transportation of substances which are capable of exploding
    - > cooling
    - > inerting, including the advantages and disadvantages of reduced oxygen atmospheres
  - The methods for mitigating the consequences of explosions:
    - > suppression
    - > venting (pressure relief valves, bursting discs, explosion venting panels)
    - > containment.

## Element 4: Fire protection of buildings

- 4.1** **The means of fire protection and prevention**
- Requirements for fire resistance for structural elements of buildings:
    - > resistance to collapse
    - > fire and smoke penetration and transfer of excessive heat
    - > resistance of fire doors and glazing
  - Means of preventing internal fire and smoke spread:
    - > compartmentation
    - > protection of openings in compartment walls and floors and fire stopping
    - > cavity barriers
    - > penetration seals

## Element 4: Fire protection of buildings

- |            |  |
|------------|--|
| <b>4.1</b> | <ul style="list-style-type: none"><li>&gt; fire resisting ductwork</li><li>&gt; fire-resisting dampers</li><li>&gt; internal growth: wall lining materials (including over-painting), fixtures, fittings and contents</li><li>&gt; fire-resisting walls, floors and ceilings forming escape routes and the need to maintain fire resistance</li><li>&gt; alarm systems linked to forced ventilation systems (automatic shutdown of ventilation system on activation of the fire alarm)</li><li>• Means of preventing external fire spread:<ul style="list-style-type: none"><li>&gt; construction of external walls and roofs (materials used and construction methods)</li><li>&gt; distance between buildings</li><li>&gt; the role of the external walls in protecting escape routes at the boundaries.</li></ul></li></ul>   |
| <b>4.2</b> | <b>Means of escape</b> <ul style="list-style-type: none"><li>• The need for emergency routes and exits to be kept clear at all times</li><li>• Principles, features and general requirements of emergency routes and exits:<ul style="list-style-type: none"><li>&gt; alternative emergency routes</li><li>&gt; understanding that all persons within the premises should be able to reach a place of ultimate safety before life-threatening conditions arise, either unaided or with the assistance of staff but without the aid of external agencies</li><li>&gt; number and size of emergency routes and exits for the number of occupants</li><li>&gt; requirements for the escape stairs, passageways, and doors (e.g. Approved Document B of The Buildings Regulations 2010 – British guidance)</li><li>&gt; use of door releases and other escape devices (including the need for these to fail safe)</li><li>&gt; protection of emergency routes and exits</li><li>&gt; emergency escape lighting (EEL) – common forms, modes of operation and signage; siting of emergency lighting to highlight any hazards on the escape route; limitations of emergency generators</li><li>&gt; final exit to a place of safety</li></ul></li></ul> |

## Element 4: Fire protection of buildings

- 4.2**
- The need for means of escape for people at greater risk i.e. vulnerable people:
    - > use of evacuation lifts and refuges
    - > visual (including graphic), aural and tactile wayfinding and exit sign systems
    - > personal emergency evacuation plan (PEEP)
  - The need to maintain sufficient emergency routes and exits in occupied buildings undergoing refurbishment.
- 4.3 The methods and systems available to give early warning of fire**
- Types of automatic fire detection, their limitations and links with other systems and equipment e.g. fire doors and fire extinguishing systems
    - > types of fire alarm and detection systems and their objectives (see ISO 7240-14:2013)
    - > what they detect/the basis of their operation
    - > when you would use each type
    - > the requirements for alarm zoning and zone plans
    - > emergency Voice Communication (EVC) Systems
    - > use of alarm receiving centres
  - What should be considered in the selection of fire detection and fire alarm systems
    - > life risk
    - > process risk
    - > behavioural issues
    - > social behaviour and minimising false alarms
    - > different types of alerts for people at greater interest i.e. audio-visual hearing loops
    - > requirements for buildings undergoing refurbishments
  - The need for maintenance and testing of fire detection and alarm systems.

Element 4: Fire protection of buildings	
<b>4.4</b>	<b>Classification of fires, extinguishing media and portable fire-fighting equipment</b> <ul style="list-style-type: none"><li>• Classification of fires and relevance when choosing fire-fighting media</li><li>• Extinguishing media: water, foam, dry powder, carbon dioxide, wet chemical; advantages and limitations</li><li>• Portable fire-fighting equipment:<ul style="list-style-type: none"><li>&gt; siting</li><li>&gt; maintenance</li><li>&gt; testing</li><li>&gt; training requirements.</li></ul></li></ul>
<b>4.5</b>	<b>The method of operation and maintenance of fixed installation systems</b> <ul style="list-style-type: none"><li>• The method of operation and maintenance of fixed installations:<ul style="list-style-type: none"><li>&gt; sprinklers</li><li>&gt; drencher systems</li><li>&gt; gas flooding</li><li>&gt; hose reels</li><li>&gt; wet risers</li><li>&gt; dry risers.</li></ul></li></ul>
<b>4.6</b>	<b>Requirements for ensuring access for the fire service is provided and maintained</b> <ul style="list-style-type: none"><li>• Requirements for vehicle and building access, fire mains/water source and smoke/heat venting of basements</li><li>• Fire-fighting shafts and stairwells</li><li>• Liaison with fire department on arrival; contents of building; provision of building/fire zone plans.</li></ul>

## Element 5: Safety of people in the event of fire

### 5.1 Fire emergency plan

- Purpose:
  - > ensure people in premises know what to do in the event of fire (including drills, alarm evacuation and roll call)
  - > ensure appropriate action is taken in the event of fire to enable the premises to be evacuated safely
- Content of a fire emergency plan to include issues such as:
  - > how people will be warned
  - > action people should take on discovering a fire
  - > action people should take in the event of a fire
  - > arrangements for calling the fire department
  - > isolations
  - > fire alarm activation
  - > evacuation procedure
  - > assembly points
  - > measures to check occupants have evacuated a building, roll call procedure
  - > fire-fighting arrangements
  - > procedures for meeting the fire department on arrival (including access arrangements and reporting information to the fire department)
  - > provision of information on the incident to the media and neighbours; use of prepared or ad-hoc information/communications
- Multi-occupied premises (need to consult/liaise with all occupiers)
- Why business continuity planning is required
- Mitigation measures to minimise the environmental impacts of a fire from sources of pollution such as toxic and corrosive smoke, run-off of contaminated firefighting water.

## Element 5: Safety of people in the event of fire

### 5.2 Fire evacuation

- Types of evacuation procedures (staged, phased, horizontal, etc.) and interaction with staged alarm systems
- Actions required when evacuating members of the public.

### 5.3 Behaviours of people in the event of a fire

- Principles of sensory perception:
  - > early recognition by the senses
  - > recognition of fire threat
  - > perception versus reality
  - > response to different forms of audible and visual warnings including negative aspects of warnings, recognition of alarms and reaction problems of people with sensory impairment
- The effect of time pressure and stress on the decision-making process during fire emergencies:
  - > difficulties of spatial orientation and wayfinding in large and complex locations
  - > patterns of exit choice in fire emergencies
- Likely behaviour of individuals responsible for others during a fire (such as parents and elder siblings, nurses, teachers, etc.)
- How heat and smoke could affect human behaviour during an evacuation
- Crowd movement (individuals and in groups):
  - > how crowd flow can cause danger and prohibit safe escape
  - > modification of crowd flow by physical design and messages
- Measures to overcome behavioural problems:
  - > clear roles and responsibilities
  - > clear alarms
  - > well-practiced drills
  - > clear escape routes

## Element 5: Safety of people in the event of fire

<b>5.3</b>	<ul style="list-style-type: none"><li>&gt; measures to assist people at higher risk</li><li>&gt; contingency to deal with sleeping people within the evacuation strategy.</li></ul>
<b>5.4</b>	<p><b>Appropriate training requirements</b></p> <ul style="list-style-type: none"><li>• Requirement to provide fire safety training information for workers, temporary agency workers and volunteers</li><li>• The need to provide training in the use of firefighting equipment</li><li>• The selection of fire marshals/wardens and specific training for workers with management/supervisory roles and their role in the event of an emergency.</li></ul>

## Element 6: Fire safety risk assessment

<b>6.1</b>	<p><b>Objectives of fire safety risk assessments</b></p> <ul style="list-style-type: none"><li>• Meaning of hazard and risk in relation to fire</li><li>• The need to carry out a fire risk assessment</li><li>• Objectives of fire risk assessments<ul style="list-style-type: none"><li>&gt; outcomes of incidents in terms of human harm</li><li>&gt; legal and economic effects on the organisation and impact on overall risk magnitude; meaning of competency and the necessity for competent people to be involved in the assessment of fire safety management within a workplace (dependant on the complexity of a workplace/process).</li></ul></li></ul>
<b>6.2</b>	<p><b>Principles and practice of fire safety risk assessments</b></p> <ul style="list-style-type: none"><li>• A general approach to fire risk assessments:<ul style="list-style-type: none"><li>&gt; identification of laws, regulations, guidance and other sources of information to be considered (for example for the UK, the Regulatory Reform (Fire Safety) Order 2005, Fire (Scotland) Act, The Fire Safety Regulations(Northern Ireland) 2010 and the Fire safety (Employees' Capabilities) (Wales) Regulations 2012, country specific legislation will need to be considered)</li></ul></li></ul>

## Element 6: Fire safety risk assessment

### 6.2

- > identification of fire hazards (e.g. by referring to inspections, job/task analysis, other existing risk assessments and other sources of internal and external information):
  - sources of ignition
  - sources of fuel
  - sources of oxygen including oxidising agents
- > identification of people at risk and how they can be harmed (consider loss of visibility, elevated temperature, toxic gases and oxygen depletion)
- > evaluate, remove, reduce and protect from risk
  - application of the principles of prevention:
    - » avoid risk
    - » evaluate risk that cannot be avoided (consider adequacy of existing fire measures, the likelihood that a fire may occur and the consequences from the fire)
    - » combat risk at source
    - » adapt to technical progress
    - » replace the dangerous by the non-dangerous (put in place fire safety measures to reduce the risks to persons from fire e.g. means of detecting fires, means of escape, means of fighting fires, arrangements for action to be taken in event of fire)
    - » develop a coherent overall prevention policy that covers technology, organisation of work and the influence of factors relating to the working environment
    - » collective fire safety protective measures priority over individual protective measures
    - » instruction to workers
- > record, plan, inform, train and review
  - record
    - » the hazards and people identified as being at risk
    - » actions taken to control identified hazards

## Element 6: Fire safety risk assessment

- plan
  - » develop an emergency plan for the organisation:
- inform and train
  - » provide information on fire risk to workers, others visiting the site and coordinate the plan with the others that may share the building
  - » train workers on fire evacuation procedures
  - » training for those with specific roles e.g. fire marshals
- review
  - » a significant change in the number of persons present or persons with disabilities
  - » any alterations to the building
  - » changes to work procedures
  - » introduction of new equipment
  - » significant changes to furniture and fittings
  - » storage of existing or additional dangerous substances
  - » becoming aware of shortcomings in fire safety measures or improvements, legislative changes
  - » elapse of time.

### **6.3 Matters to be considered in a risk assessment of substances capable of forming a flammable or explosive atmosphere**

- The hazardous properties of the substance
- Information on safety provided by the supplier (safety data sheet)
- The circumstances of the work (special/technical/organisational measures, the substance and possible interactions, amount of substance, risk presented by combination of substances)
- Arrangements for safe handling
- The likelihood that an explosive atmosphere will occur
- The likelihood that ignition sources will be present and become active and effective

## Element 6: Fire safety risk assessment

- 6.3**
- The scale of the anticipated effects
  - Any places which are, or can be connected via openings, to places in which explosive atmospheres may occur
  - Any additional information which may be needed to complete the assessment.