

Element 5: Safety of people in the event of fire

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 5.1 Explain the purpose and requirements of a fire emergency plan
- 5.2 Describe the development and maintenance of a fire evacuation procedure
- 5.3 Outline the perception and behaviour of people in the event of a fire
- 5.4 Outline appropriate training requirements.

Element 5 SAFETY OF PEOPLE IN THE EVENT OF A FIRE

5.1 Fire emergency plans

Every workplace and employer must develop a fire emergency plan, its purpose is to

- ensure people on premises know what to do in the event of fire
- ensure appropriate action is taken in the event of fire to enable the premises to be evacuated safely

A comprehensive plan needs to be in place to ensure that all eventualities or situations which could occur on site have been identified and the course of action needed is detailed. It is important that any plan is checked to ensure it works and steps are taken to ensure it is kept up to date. There might need to be plans in place for dealing with the fire and also the steps needed to enable the business to carry on work in some way to minimise its impact on the business, its employees and the environment. The exact nature of the plan and its content will be influenced by the findings of the fire or explosion risk assessment.

5.1.1. Fire emergency plan content

Roles and responsibilities - including the action people should take on discovering a fire

How people will be warned - this may include the provision of an audible alarm but may also include the use of tannoys, emergency voice communications (EVC), warning lights or sign boards. Depending on the extent of the alarm the alarm may indicate prepare to evacuate rather than evacuate. (See element 4)

Action people should take in the event of a fire – this includes how to sound the alarm, how to tackle a fire if appropriate and what to do if the alarm is activated. Any attempt to fight the fire must always be secondary to saving lives. Circumstances will clearly dictate whether firefighting should be attempted. Any attempt to fight the fire must be based upon the type and degree of training received in the use of firefighting equipment which is available on the premises and the extent of the fire.

Arrangements for calling the Fire and Rescue Service – this may be manually dialling “999”, dialling an internal number or an automatic system which goes through to an alarm monitoring centre.

Isolations, there could be a range of services which need to be switched off or blocked, this could be machinery, power supplies or the flow of a flammable gas or liquid.

Investigating fire alarm activations, in some cases the alarm may only trigger in one zone rather than the whole building. If an alarm sounds there may need to be some checks made to ensure it is not a false alarm. (See element 1)

Evacuation procedure, each site or building which have its own unique evacuation procedure. This may include the steps which need to be taken to ensure the means of escape is available and clear at all times.

Assembly Points - Where employees and others assembly if the alarm is sounded personnel should assemble at a pre-determined assembly point.

1. Pre-determined assembly points should be arranged and a roll call of staff to be taken. The person who is in charge of the assemble point should report to the person who has been nominated the fire service liaison person indicating all persons accounted for or whose missing and where they were last seen.
2. Another consideration when selecting the location for an assemble site is to fully understand the fire emergence evacuation plan. Calculate the number of staff that would need to assemble and if it was a multi-occupied building you would need to co-operate with the other occupants.
3. It is also very important to be familiar with the surrounding topography.
4. The assembly point should be far enough away from the building not to put staff in danger of radiated heat and falling debris. Give ample room so that employees they do not interfere with fire fighting operations and do not jeopardise the actions of the fire service.
5. Be close enough to ensure that the nominate person who is in charge of the assemble point; can communicate with the nominated fire liaison person who should be located near the main entrance. This could be simple talking to him direct, or the use of runners or electronic communications (pack sets, mobile phone)
6. The area chosen should be larger enough to accommodate all the staff, if this cannot be found you may have to consider additional sites. Open areas are ideal like pedestrian areas also car parks could be considered but be aware of the dangers.
7. It should not be in an enclosed area and the staff should be able to disperse without the need to pass close to the premises on fire.
8. Inclement weather needs to be considered and some form of shelter or other weather protection may be necessary as the staff are most likely to have evacuated without collecting their out of doors clothing.
9. Use appropriate signs where this is feasible as it leaves no doubts in the minds of staff



Fire Drills – frequency and co-ordination.

Roll call - Fire roll call systems are an essential requirement and aid for Fire Marshalls and the Emergency Fire Services, helping them to safely account for employees and staff during a fire evacuation.

Fire-fighting arrangements including portable and fixed equipment, this may include the equipment and the arrangements for ensuring it will work when needed. Inspections and maintenance will need to be completed.

Liaison with emergency services - The plan should arrange all the necessary contacts with external emergency services and make them familiar with your fire action plan.

Procedures for meeting the Fire and Rescue Service on arrival, this will include how they obtain access to the site, who directs them to the relevant areas, access to water hydrants or risers. A nominated person will need to act as liaison point so that relevant information is provided in a timely manner.

There should be senior person nominated to meet the fire and rescue service when they arrived to provide them with any information they require. S/he should have an intimate knowledge of the premises and be in contact with the person conducting the roll call at the assemble point.

Vulnerable people and those with disabilities - Specific plans will need to be made for those vulnerable, which is covered later in this element.

Training for employees including the information to be provided on induction for new employees, information employees should be aware of includes:-

- Discovering a fire – Personnel should be made aware of the method of raising the alarm in a premises, this should include the position of manual fire alarm call points and their method of operation.
- Hearing the fire alarm – Personnel should be made aware of the evacuation procedures in their premises. They should be shown escape routes and final exits, they should also be made aware of fire doors and their purpose in protecting escape routes.
- Assembly points – Personnel should be shown their 'Fire Assembly Point' and made aware of the need to ensure everybody have been accounted for.
- Calling the Fire and Rescue Service – Personnel should be made aware of the method of calling the fire service and the location of telephones.
- A basic knowledge of the theory of fire – The fire triangle
- Use of fire extinguishers – Personnel should be trained in the safe use of fire extinguishers. It is not acceptable to say "employees are not expected to use an extinguisher and therefore they don't need to know".

Plan of the site showing the fire features e.g. fire evacuation routes, isolation points and hazardous substances located on site.



Multi-occupied premises

If a premises is used by a number of employers it is important for the fire arrangements to be co-ordinated and communicated to all to ensure that everyone is fully aware of the action to be taken and steps to be taken to ensure any fire evacuation plans or procedures are followed. There may be a need to consult with these stakeholders to ensure any issues unique to one organisation or employer are taken into account.

In the event of an alarm, a procedure should be established whereby contact is made with the other buildings on site either by telephone or by a designated person. Once contact has been made, it will be usual procedure to evacuate all buildings (by operating the fire alarm or tannoy message).

Compatibility of the emergency plan with the everyday use of the premises. The plan needs to be appropriate to the site, its hazards and risks and the types and numbers of people on site. If a fire occurs the plan needs to consider aspects such as how employees normally sign in and out, arrangements for visitors and contractors working on site.

5.2 THE DEVELOPMENT AND MAINTENANCE OF A FIRE EVACUATION PROCEDURE

5.2.1 Evacuation procedure

A well drafted and communicated evacuation procedure will ensure employees and others know what action to take should the alarm be raised. It could assist in mitigating the effects of a fire and save lives and building.

Explain why it is important to develop workplace procedures to enable the safe evacuation of employees during a fire

- The need to comply with statutory requirements such as the Management of Health and Safety at Work Regulations 1999/ Regulatory Fire Reform Order
- To be prepared for foreseeable emergencies and provide information on the action to be taken, not only by employees but also by neighbours and others who might be affected by such emergencies
- To ensure the safety and protection of the employees and others in the workplace
- To allocate specific responsibilities to employees in the event of an evacuation being necessary.

5.2.2. Introducing Evacuation Types

In most premises, the evacuation in case of fire will simply be by means of everyone reacting to the warning signal given when a fire is discovered, then making their way, by the means of escape, to a place of safety away from the premises. This is known as a **simultaneous evacuation or**

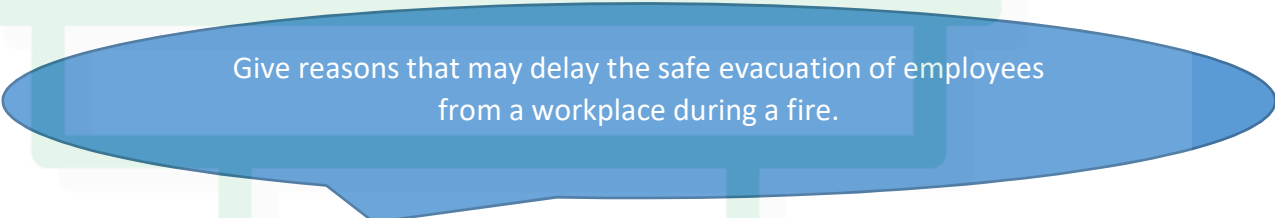


single stage and will normally be initiated by the sounding of the general alarm over the fire warning system.

In some larger complex premises, the emergency arrangements are designed to allow people who are not at immediate risk from a fire to delay starting their evacuation. This is known as a **phased evacuation**. It may be appropriate to start the evacuation by initially evacuating only the area closest to the fire and warning other people to stand by. This is normally done by immediately evacuating the floor where the fire is located and the floor above. The other floors are then evacuated one by one to avoid congestion on the escape routes. The rest of the people are then evacuated if it is necessary to do so. The fire warning system should be capable of giving two distinctly different signals (warning and evacuation) or give appropriate voice messages

Horizontal Phased Evacuation may be used in hospitals and care homes where the floors may be divided into a number of fire resisting compartments and the occupants are moved from the compartment involved in fire to the adjacent compartment and if necessary moved again. Depending onto the fire situation it may eventually be necessary to consider vertical evacuation. Because of the extra time this type of evacuation takes, other fire precautions maybe be required to ensure people can be protected if unable to evacuate.

In some cases it may not be appropriate for a general alarm to start immediate evacuation. (Cinemas and Theatres) This could be because of the number of members of the public present and the need for the staff to put pre-arranged plans for the safe evacuation of the premises into action. In such circumstances a staff alarm can be given (by fire records, discreet sounders or a coded phrase on a public address system etc.). Following the staff alarm, a more general alarm signal can be given and a simultaneous or phased evacuation started. The general alarm may be activated automatically if manual initiation has not taken place within a pre-determined time.



Give reasons that may delay the safe evacuation of employees from a workplace during a fire.



FIRE EVACUATION PLAN DO'S AND DON'TS



5.2.3 Types of evacuation procedures

British Standard 9999: 2008 *Code of Practice for Fire Safety in the Design, Management and Use of Buildings*, gives definitions for both. It defines total evacuation as the evacuation of occupants to a place of total safety “by either simultaneous or phased procedures”.

In the majority of premises a warning of fire should initiate the immediate and total evacuation of the building, which is a “simultaneous single-staged evacuation”. Alternatively, a two-stage process may be adopted where there is a period of investigation before the fire warning is given.

Phased procedures differ slightly from this and are typically adopted in high-rise premises where the floors are separated by fire-resistant construction. People potentially most at risk from a fire will be immediately evacuated, while others in the building are given an alert signal and will only evacuate if it becomes necessary.

Progressive evacuation is defined as the evacuation of occupants “initially to a place of relative safety within the building where they can remain or, if necessary, complete the evacuation to ultimate safety as part of a managed system”.

This type of evacuation typically involves evacuating people into an adjoining fire compartment on the same level, from which they can then be evacuated to a place of ultimate safety, as and when required. This type of system may be adopted where there are significant numbers of individuals requiring assistance, such as in a care home.

There can be many factors to take into consideration when determining the most suitable strategy to adopt, which the fire risk assessment should be addressing. Factors will include the fire risk profile of the premises (i.e. occupancy characteristics), building use and design characteristics, fire precautions and engineered evacuation solutions (e.g. installation of fire evacuation lift) and current fire risk management arrangements.

Progressive horizontal evacuation

This concept is generally used in hospitals and other large buildings where it is difficult to evacuate people out of the building. Progressive horizontal evacuation is the principle and process of moving patients and staff from the area of fire origin, which is compromised from

a fire safety point of view, through a fire-resistant barrier, to a safe area on the same level. In the short-term, this will protect the occupancy from the effects of fire.

The area of safety is known as a refuge and will offer protection for a minimum of 30 minutes. In many cases of fire, this time is sufficient for the Fire Service to attend and the fire to be extinguished.

In cases where the 30 minutes may not suffice, onwards assisted evacuation by staff will be undertaken in order to move patients to a further adjoining area away from the fire or to a lower floor of the building. If each refuge move offers a further 30 minutes of protection, this provides adequate time for non-ambulant and partially-ambulant patients to be evacuated vertically to a place of safety, if necessary.

The time available for evacuation can be maximised with the use of active fire protection systems. Automatic-fire detection systems, smoke and fire detectors and/or fire suppression systems such as sprinklers may be incorporated into the building's fire protection provision in order to provide prompt notification if a fire is detected and to slow the growth of the fire.

Areas which are accessible by patients should be designed to allow for progressive horizontal evacuation, unless those areas are for use only by patients who would be included in the independent category.

All movement in a progressive horizontal evacuation should be away from the fire and down towards ground level and the final exit from the premises. Patient-access areas must not, therefore, be located where evacuation would require travel up a stairway to a final exit.

Actions required when evacuating members of the public

A majority of workplaces may have visitors or contractors on site who will need to be taken into account in the fire risk assessment and any evacuation procedure produced. In some workplaces with secure access will have limited impact on the public should there be a fire but others may have relatively small numbers of employees but large numbers of members of the public. This would be particularly important in places such as shopping centres, cinemas and hospitals. There needs to be a greater emphasis on fire wardens and trained staff taking responsibility to ensure that members of the public are evacuated effectively. As in some cases they may not react to any alarms or become aggressive when asked to leave an area. Depending on the access and size of the area there may be limits imposed on how many people can be accommodated in a specific area to ensure they can all evacuate safely.

It is even more important for the employer to ensure fire signage, alarm points and a clear unobstructed means of escape where members of the public are present. Staff need to be trained assist during any evacuation and this may include the use of any emergency evacuation equipment. The public may be unaware of the location of fire exits and even signage does not guarantee they will head towards the nearest fire exits as research shows that people will more likely head towards the exit that they entered the building by rather than the nearest one.

Maintenance and monitoring of fire evacuation procedures

It is important that any plans and procedures are regularly reviewed and audited to ensure they are up to date and are working effectively.

5.2.4 Fire Drills

Fire drills are intended to ensure, by means of training and rehearsal, that:

- people who may be in danger act in a calm and orderly manner
- those with responsibilities carry out their tasks to ensure the safety of all concerned
- escape routes are used in accordance with a predetermined and practised plan
- evacuation of the building is achieved in a speedy and orderly manner
- people will react rationally when confronted with a fire or other emergency at school or elsewhere.

Wherever people work, whether it be in an office, retail outlet, school or factory, fire drills are a vital part of workplace fire safety. They are just as important as fire alarms, fire extinguishers and fire safety signs. Fire drills part of fire protection and aim to protect everyone who works or who is located within commercial buildings from the devastating consequences of fire.

However, a fire drill can often be viewed as an inconvenience; not only do they disrupt the day and distract from valuable working time, they can also be perceived as a nuisance to staff and are often greeted with sighs and noncommittal shuffles towards the exit.

A fire drill is a simulated emergency procedure which aims to emulate the processes which would be undertaken in the event of a fire or other similar emergency. It involves creating a situation which replicates what would happen if a real fire were to occur, usually with the inclusion of fire alarms, and requires employees, and anyone else who may be within the property at the time, to evacuate.

It is intended to make an evacuation in the event of a fire as simple, efficient and effective as possible, it involves running employees through the evacuation procedures, ensuring they are familiar with the plan and are able to get out quickly and safely. It is also intended to make sure relevant fire marshalls or wardens knows exactly what they are doing and can act accordingly.

Fire drills are also an important evaluation of evacuation procedures. An ideal opportunity to test how effective any emergency plans are, they allow the company to quickly identify any flaws or weaknesses which may be present and then make any changes as a result. For example, if some employees gather their belongings before leaving, the company can ensure everyone is aware that action is against all fire safety recommendations and that, in a real life situation, they may be putting their lives in danger. Similarly, if you find one of the exits is blocked, or too narrow for your employees to quickly escape, it allows these issues to be rectified.

In essence, a fire drill is a relatively simple procedure. However, there are various things that need to be done before, during, and after the drill takes place to make sure it is as effective and as useful as it possibly can be. Before carrying out the drill it is often useful to:

- Inform all employees of that a fire drill is going to happen but not exactly when. Some companies to tell employees all the details which may mean they are actually leaving before the alarm is sounded which does not represent a true evacuation response.
- Let employees know their participation is required and everyone on site is required to evacuate
- In large premises, or multi-location premises, nominate observers or fire marshalls to assess the fire drill, paying attention to the appropriateness of actions, the behaviour of employees and any problems which may arise during the drill.

- Check arrangements for ensuring that visitors are correctly evacuated and remind hosts of their responsibilities.

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Throughout the drill, the 'responsible person' and any nominated observers or fire safety wardens should

- Keep an eye out for any inappropriate behaviour, such as stopping to collect coats, bags and other personal belongings.
- Closely observe any difficulties experienced by people with disabilities, such as an inability to get out of an exit or get down stairs easily.
- Make sure employees are using the nearest fire escape route, rather than just the exit they are most familiar with.
- Pay attention to any difficulties experienced as a result of the chosen escape routes, such as doors being difficult to open or exits being blocked.
- Listen closely to the roll call taken once the evacuation has been completed, making sure everyone is present and accounted for and checking for any issues which may arise.

After the drill, it is vital the person in charge:

- Thoroughly and comprehensively logs all details of the fire drill, including how the evacuation procedure went and any inappropriate actions or problems which were noted as a result.
- Any significant findings of the drill should be recorded within the Fire Risk Assessment and reviewed regularly as part of your workplace fire safety.
- Remedial action deemed necessary, such as the installation of additional fire safety signs or fire alarms, should be undertaken by a professional, reputable fire safety company.

5.2.5 REQUIREMENTS FOR DEALING WITH VULNERABLE PEOPLE

Organisations must take steps to ensure they have effective arrangements to ensure the H&S of vulnerable people who may be working in the building and others including members of the public or visitors. This issue is covered in a number of the elements within the FC1, for ease of study all the relevant issues are contained within this handout.

The management arrangements will consider how many people use the building, are there any young people or those who would have difficulty evacuating without assistance? Any fire risk assessment must consider those at specific risk as it is important that arrangements are in place for the vulnerable needs to be considered in the development of any fire or emergency plans.

A PEEP is a **P**ersonal **E**mergency **E**vacuation **P**lan. It is a bespoke 'escape plan' for individuals who may not be able to reach an ultimate place of safety unaided or within a satisfactory period of time in the event of any emergency.

PEEPs may be required for staff with:

- Hearing Impairment - the ability to hear or react to the emergency warning systems or instructions (i.e. the activation of the fire alarm or instructions given as part of the emergency procedures).
- Visual Impairment - the ability to identify escape routes, directional information or instructions, objects or hazards that may reduce the evacuation time of these persons
- Physical or Mobility Impairment - the ability to physically leave the premises or negotiate structural elements including stairs, steps, doors and fire doors

- Cognitive impairments – mental health issues may mean someone is at greater risk if they would not appreciate the nature of any fire risks

In addition a temporary PEEP may be required for:

- Short term injuries (i.e. broken leg)
- Temporary medical conditions
- Those in the later stages of pregnancy

The underlying question in deciding whether a PEEP is necessary is "can you evacuate the building unaided, in a prompt manner, during an emergency situation?" If the answer is "no", then it is likely that a PEEP is needed.

A. Requirements for means of escape for vulnerable people

The following issues need to be considered when planning an evacuation procedure for disabled people:

- Identify the number of disabled staff and others and where they will be in the building or on site
- Implement Personal Emergency Evacuation Plans
- Consult with relevant staff
- The evacuation plan should not rely upon the intervention of the Fire and Rescue Services to make it work
- Consider the characteristics of the building
- Assess the evacuation equipment disabled people will need
- Train staff to deal with emergency evacuations
- Determine what needs to happen when the alarm goes off
- Identify what needs to be done when it is not possible to evacuate disabled people

Lifts are normally prohibited from use during an emergency evacuation. However there are types of lifts known as evacuation or firefighting lifts, which may be used for the evacuation of disabled or vulnerable people. These lifts must only be operated under the direction and control of a member of staff using an agreed evacuation procedure. The company will provide information on the type of lifts installed in each building and whether or not they fall into the category of an evacuation or firefighting lift. If it is safe to do so wheelchairs, guide dogs and other 'equipment' must be evacuated as well as the disabled person. Effective management arrangements need to be put in place for those who need help to escape.

Consider the following points:

- A refuge is a place of reasonable safety in which disabled people can wait either for an evacuation lift or for assistance up or down stairs. Disabled people should not be left alone in a refuge area whilst waiting for assistance evacuate the building. Depending on the design and fire resistance of other elements, a refuge could be a lobby, corridor, part of a public area or stairway, or an open space such as a balcony or similar place which is sufficiently protected (or remote) from any fire risk and provided with its own means of escape and a means of communication.

- Where refuges are provided, they should be enclosed in a fire-resisting structure which creates a protected escape route which leads directly to a place of total safety and should only be used in conjunction with effective management rescue arrangements. Any fire safety strategy should not rely solely on the fire and rescue service rescuing people waiting in these refuges.

- If firefighting lifts (provided in high buildings as firefighting access) are to be used for evacuation, this should be co-ordinated with the fire and rescue service as part of the pre-planned evacuation procedures.

- Normal lifts may be considered suitable for fire evacuation purposes, subject to an adequate fire risk assessment and development of a suitable fire safety strategy by a competent person.

- Since evacuation lifts can fail, a disabled person, having reached a refuge, should also be able to gain access to a stairway (should conditions in the refuge become untenable). An evacuation lift with its associated refuge should therefore be located adjacent to a protected stairway.

- Sufficient escape routes should always be available for use by disabled people. This does not mean that every exit will need to be adapted. Staff should be aware of routes suitable for disabled people so that they can direct and help people accordingly.

B. Aural and tactile way finding

Signs should enable people to continue their journey when confronted with the need to make a decision. Successful signs will lead users through sites or buildings without the need to retrace their steps, particularly where routes intersect or diverge. Signs are essential at these points to ensure that an individual can be reassured they are going the right way.

Signs are only one of several tools available for navigating around a site or building. Those wishing to be informed about direction, they will also pay attention to:

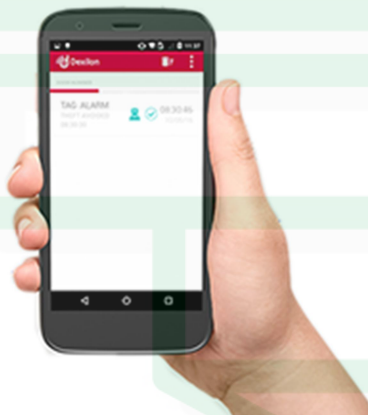
- The sound quality determined by floor finishes such as muffled sounds in carpeted areas and echoing sounds on hardwood floors.
- Changes in floor construction, for example: solid wood to suspended sounds on hardwood floors.
- Tactile surface underfoot
- Colour contrast at the junction of walls and floors, walls and doors, floors and furniture and other critical surfaces such as signs

Fire signage can be fitted which braille has imbedded into it to allow those to feel the sign. These signs will be placed at lower levels than traditional visual signs to allow building users to feel the signs. They normally have visual signs as well as the braille.



Figure: Example Braille Fire Signs

For those with hearing impairments who may be unable to hear the alarm a visual alarm device can be installed, so that when the alarm sounds a visual light warning also lights up. The light must be bright enough for the individual to spot and realise that the alarm is being triggered. Lights may be wall or ceiling mounted. It is important that the visual alarm also has a backup power supply to ensure it works when the main alarm is activated. In some cases if a person works in a number of different areas then having a visual indicator in the entire building may not be possible in this case portable devices may be needed to supplement this. The equivalent of a pager or alert on a mobile



phone can be used to vibrate shine a light to indicate the alarm status to the individual concerned.

Research into voice alarms has shown that some people and, in particular, members of the public, do not always react quickly to a conventional fire alarm. Voice alarms are therefore becoming increasingly popular and can also incorporate a public address facility. The message or messages sent must be carefully considered. It is therefore essential to ensure that voice-alarm systems are designed and installed by a person with specialist knowledge of these systems. See Element 5 for the main section on personal emergency evacuation plans.

C. Procedures to evacuate vulnerable people and people with disabilities and/or mobility problems

If a fire occurs in the workplace the chances of survival will depend on how quickly and safely people are able to get out. People with serious mobility difficulties should be encouraged to be in areas where they can be easily evacuated from. Close to a final exit door as practical, or a relatively safe area.

People with disabilities should be aware of the special devices that are available such as smoke alarms with a vibrating pad or flashing light for those with a hearing impairment; plugs which are designed to be easily removed or smoke alarms with a strobe lights.

D. Means of Escape for Disabled People in Public Places

In public places the Regulatory Reform (Fire Safety) Order 2005 requires the Responsible Person when conducting a fire risk assessment and considering the means of escape from fire they should incorporate the recommendations of,

- The British Standards Institute BS 8300:2009. Design of buildings and their approaches to meet the needs of disabled people.
- The Means of Escape for Disabled People guidance note can be downloaded at the Department of Communities and Local Government web site.

These are not a statutory documents but authoritative guidance on the design and management of buildings to enable the safe evacuation of people with disabilities. Includes guidance for people with hearing and sight loss. Includes application to existing buildings.

The following guidance should be read in conjunction with the British Standard BS 8300:2009 Design of buildings and their approaches to meet the needs of disabled people.

The evacuation plan should only be devised by persons familiar with the location and the people involved.

- Disabled people, like everyone else, should always have, available, safe means of escape in the event of fire.
- The nominated person in charge, must with the assistance of the Responsible Person, make the best practicable arrangements for ascertaining what areas is used by disabled people, and must, in consultation with them, make adequate arrangements for their evacuation in the event of fire. These arrangements must be tested.
- A Personal Fire Evacuation Plan or Personal Emergency Evacuation Plan should be drawn up for every disabled person or group of disabled people in the building. Regular building users who are disabled should receive a copy of a Personal Fire Evacuation Plan. If the building is one with a large number of visitors then simple relevant fire evacuation instructions should, so far as possible, be handed to disabled visitors, by reception staff.
- So far as reasonably practicable, fire compartmentation in buildings used by disabled people, and any other arrangements, must comply with BS 8300:2009 Design of buildings and their approaches to meet the needs of disabled people.
- Lifts must not be used in the event of fire unless they meet the special requirements of PD 7974-6:2004: The application of fire safety engineering principles to fire safety design of buildings. This covers human factors, life saving strategies, occupant evacuation and human behaviour.
- A sufficient number of people should be trained in advance in giving assistance to disabled people so that the necessary number would be present in the event of an emergency.
- Where necessary, arrangements must be made for the presence of the disabled person to be known to those who would give assistance. This could be done with an in-out tally at the entrance or by informing someone, providing the desk or office involved is permanently manned during the day. In some cases, for example ensuring that deaf or blind people are helped out, a floor warden system may be more appropriate.

- Disabled people should not use any part of a building where it would be difficult for them, even with help, to escape in the event of fire. Use of basements by wheelchair users, where there is no basement level exit, is likely to be an example of this.

Activities which might take place in such areas should be moved to different areas, so far as reasonably practicable, to avoid excluding disabled people.

- In the case of work above ground floor level by people who use a wheelchair or have difficulty with stairs, arrangements should be based on horizontal movement away



from fire through fire-resisting doors to an area of refuge. BS 9999 indicates the layout requirements for this. Procedures could be based on the following principles:

- When the fire bell rings the disabled person asks assistance from anyone nearby to help in evacuation. The disabled person and helpers wait, without causing obstruction, in a place near the stairs until other occupants have gone down and the disabled person is then carried or helped downstairs. It may be necessary to provide one or more evac-chairs for this.
- If insufficient helpers are on hand the disabled person moves to the main stairwell, or another one if this had been considered by prior agreement with the emergency party to be more convenient, unless there are signs of smoke of fire in which case the stairwell furthest away from the fire is used, and waits in the stairwell for assistance.
- The emergency party gathers and if the disabled person is known to be in the building they go the pre-arranged

E. PERSONAL EMERGENCY EVACUATION PLAN

1. PERSONAL DETAILS:

Name:	
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2. LOCATION:

Building	
Floor	
Room Number	
Times when the PEEP is applicable?	

3. AWARENESS OF PROCEDURES:

I have received the emergency evacuation procedures:

In Braille		On Tape	
In B.S.L.		In Print	
In Large Print		Verbally	

4. ALARM SYSTEM:

I am informed of an emergency evacuation by:

Existing alarm system		Visual alarm system	
Vibrating Pager		Other (please specify below)	

5. DESIGNATED ASSISTANCE:

Where applicable, the following people have been designated to give assistance when I need to get out of the building in an emergency.

Name:	Location:
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My designated assistants have been trained in the emergency procedures drafted to assure my safety: Yes No

6. EGRESS PROCEDURE (To be provided by the Assessor)

Details of the specific emergency procedures from first alarm up to the building user reaching a "place of safety". The details provided should include a step by step account of how the employer will ensure that the building user will reach a place of safety from first alarm actuation to final exit.

A diagram should be provided, where necessary, highlighting the position of specific escape routes, refuges and any equipment provided to ensure the safety of the person under assessment.

“REASONABLE ADJUSTMENTS” TO FACILITATE EMERGENCY EVACUATION OF DISABLED PERSONS FROM PREMISES:

Details of Reasonable Adjustment(s) Required:

Exact Location where adjustment(s) required:	
Type of Adjustment(s) Required:	
Reason(s) Adjustment Required?	

PERSONAL EMERGENCY EVACUATION PLAN CHECKLIST

Section 1 – General Information

Name of Assessor:	
Name of Person Plan Prepared For:	
Assessed Person’s site Location	
Date of Assessment:	
Nature of Impairment(s):	
Area(s) Covered By The Assessment:	
What times / days are covered by this assessment?	

The following sections (where relevant) of the PEEP should be completed by the assessor and the assessed person. Completed questionnaires should then be attached to this header sheet along with a copy of any remedial actions deemed necessary.

Section 2 – Hearing Impaired Persons:

2.1 Can you hear the fire alarm in normal circumstances?	YES	NO
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2.2 Do you require the building emergency procedures to be provided to you in an alternative format to the standard written instructions?	YES	NO

Section 3 – Visually Impaired Persons

3.1 Do you make use of any aids or “assistive” technologies (cane, guide dog etc.) to normally help you access a building? If yes, please provide details.		
3.2 How long would you estimate that it would take to evacuate the building under assessment, unaided (other than with the help of any items identified in 2.1 above), in the event of an emergency?		
3.3 How many escape routes are available to you in the event of an emergency?		
3.4 Have any hazardous “projections” or other structural components been identified on your escape routes?	YES	NO

The following questions need only be answered by those visually impaired persons possessing some degree of visual capacity:

3.5 Are all escape routes clearly sign posted to meet YOUR requirements?	YES	NO
3.6 Where applicable, are all escape corridors so designed as to prevent visual confusion in YOUR circumstances?	YES	NO
3.7 Where applicable, are all escape staircases fitted with adequate colour contrasting nosings?	YES	NO
3.8 Have you been provided with comprehensible written or verbal instructions detailing the emergency procedures for the building requiring access?	YES	NO

The following questions need to be answered by all visually impaired persons that will be using / provided with full time “helpers”.

3.9 Who will be providing this assistance?	
3.10 Who will cover this “help” role when your normal helper is absent e.g. due to sickness, leave etc.	

All persons being assessed should answer the following:

3.11 Are you aware of any other measures that could be introduced in the building under assessment that could further aid your evacuation in case of emergency (6)? If you are unable to identify any other measures please state NO.

Section 4 – Mobility Impaired Persons

This assessment includes persons who, because of other impairments, have a reduced ability to evacuate a building or area unassisted.

4A General Questions – All mobility impaired persons

4.1 Do you use a wheelchair or any other device to aid your		
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mobility?	YES	NO
4.2 Is your wheelchair required in all circumstances (YES), or can it be dispensed with for short periods (NO)?	YES	NO
4.3 What type of wheelchair do you have?	Manual	Electric
4.4 What is the approximate width of your wheelchair?		
4.5 If you use another type of mobility aid, what is it?		

4B Activities on the Ground Floor

4.6 At the intended time of use, how many fire exits are available for use?		
4.7 If only 1 emergency exit is available, how far, approximately, is the exit from the users starting point?		
4.8 How long, approximately, would it take you to evacuate, unaided, from the building?	1.	2.
	3.	4.
4.9 Are the escape routes free from any structural features that will present either a hazard or a barrier to you using any of the available fire exits?	YES	NO
The following questions need to be answered by all “ground floor based” mobility impaired persons that will be using / provided with full time “helpers”.		
4.10 Who will be providing this assistance?		
4.11 Who will cover this “help” role when your normal helper is absent e.g. due to sickness, leave etc.		
4.12 Do you have any other suggestions that you believe could be implemented to ease your evacuation from the building? If you are unable to identify any other measures please state NO.		

4C Activities based above the ground floor

4.13 ASSESSOR: Have all possibilities for siting the activity or service provision on the ground floor (of this, or any other building) been exhausted?	YES	NO
4.14 At the intended time of use, how many fire exits are available for use?		
4.15 Do any of the escape routes involve escape into an adjoining building?	YES	NO
4.16 Are horizontal escape routes clearly sign posted to indicate that persons are moving out of a fire alert zone?	YES	NO
4.17 Have refuges been provided on, or adjacent to, each fire escape route (where applicable)?	YES	NO
4.18 Where refuges have been provided, are these appropriate for use at the intended time of occupancy?	YES	NO
4.19 Where refuges are provided, does the provided fire escape signed clearly lead you to those refuges?	YES	NO
4.20 Do refuges have communication points that are accessible for you to use?	YES	NO
4.21 Are you able to use a proprietary “evacuation” chair?	YES	NO

4.22 Is there an evacuation chair provided at, or adjacent to, the refuge?	YES	NO
4.23 Are the escape routes free from any structural features that will present either a hazard or a barrier to you using any of the available fire exits?	YES	NO
4.24 How long, approximately, would it take you, unaided, to reach a place of safety in an emergency? (Please record a time for each of your available exits up to a maximum of 4.)	1.	2.
	3.	4.
The following questions need to be answered by all “non-ground floor based” mobility impaired persons that will be using / provided with full time “helpers”.		
4.25 Who will be providing this assistance?		
4.26 Who will cover this “help” role when your normal helper is absent e.g. due to sickness, leave etc.		
4.27 Do you have any other suggestions that you believe could be implemented to ease your evacuation from the building? If you are unable to identify any other measures please state NO.		

5.3 PERCEPTION AND BEHAVIOUR OF PEOPLE IN THE EVENT OF A FIRE

Principles of sensory perception

Every individual is unique, we have a different set of experiences as well as difficult physical and mental characteristics. Individuals also inherit a range of instincts which may mean they behave in certain ways in certain situations, these need to be understood to assist in managing people safely in the workplace. Perception is how humans see the world around them, they are constantly taking in information through their senses. Perception comes from:

- What they see (smoke or a flame)
- What they feel (heat or hot surfaces)
- What they hear (the sound of burning or an alarm)
- What they taste (smoke and fumes can be tasted)

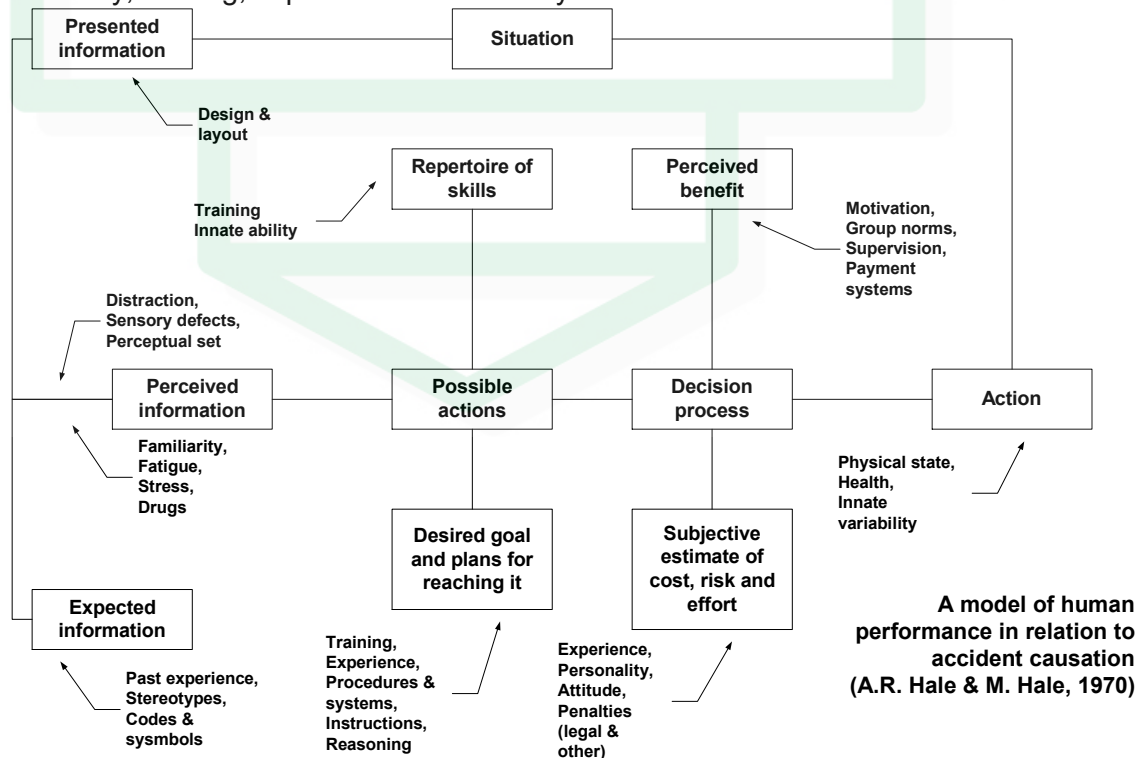
There are a variety of inputs which the senses use to transmit messages to the brain. By far the largest proportion of inputs come through what we see.

Sight	75%
Hearing	13%
Touch	6%
Taste	3%
Smell	3%

“the way information is interpreted by our senses”

“the way we see life:

The perception of each individual can be effected by a range of factors including motivation, personality, training, experience and memory.



Errors in Perception may be caused by physical stressors consider effects of:

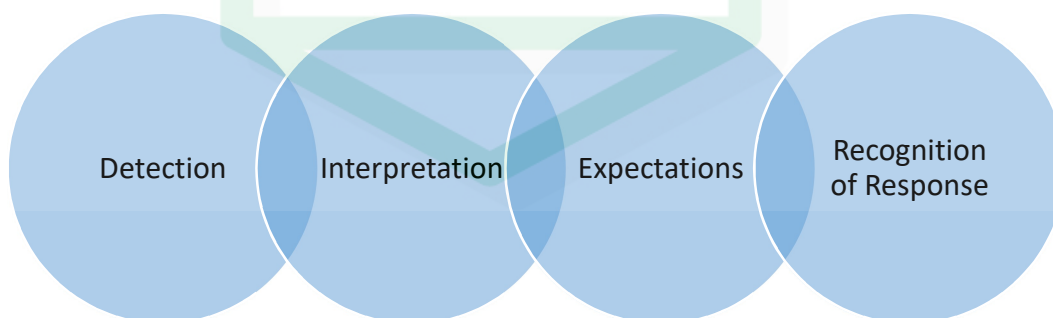
- fatigue
- overwork
- overtime
- stress from work and home
- Shift work is a major factor
- Our bodies operate best when we have a regular routine

Employees may see evidence of a fire but if they are not trained in the hazards and risks of fire they may not recognise the true extent of the risk. When the brain interprets the information perceived it may not treat it as important if the individual does not have any previous experiences or knowledge to call upon. If employees are trained on what to do this means that when they see something they are more likely to perceive the true extent of the problem, once perceived and interpreted then this should lead to a course of action for instance when a fire is seen the individual immediately sounds the alarm.



Perception versus reality

The mind and brain can be fooled, perception and reality are not always the same. If a person does not perceive the danger they may not respond in the way they should, it is not unheard of for employees to see fire or smoke but then not to sound the alarm, either because they do not want to get into trouble if it is not a real fire or equally they feel it is not their responsibility.

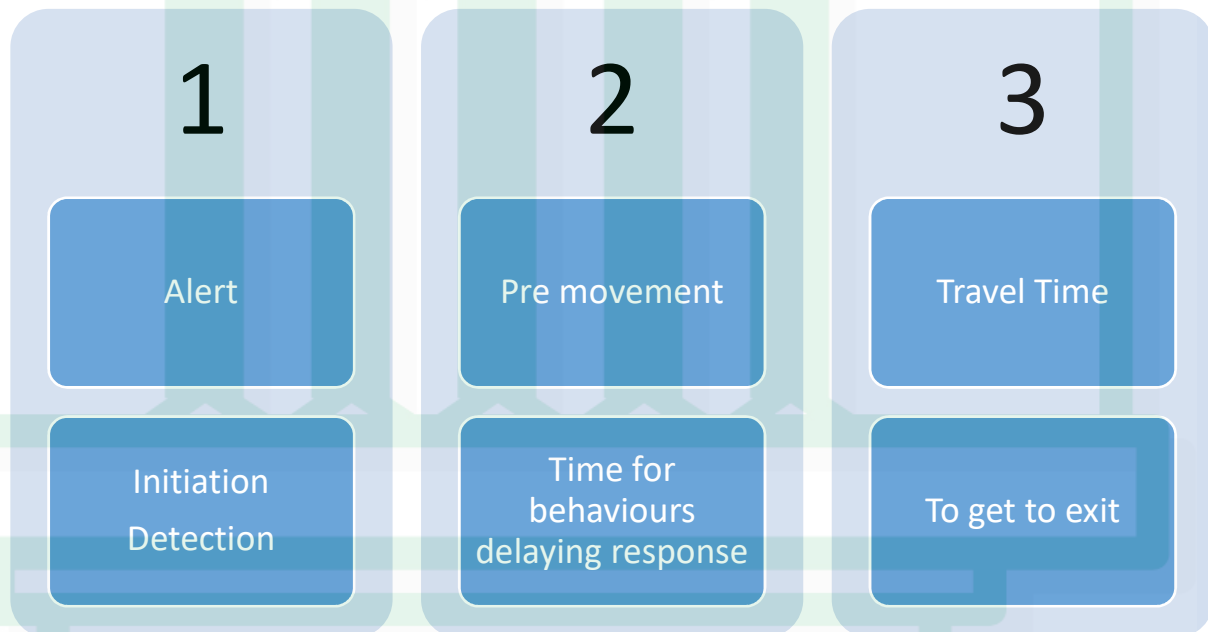


Response to Alarms

Response to different forms of audible and visual warnings including negative aspects of warnings. The first stage is the time it takes for the person to perceive an audible alarm such

as a fire alarm, then there is potential delay before they interpreted the information, acknowledging that it is an alarm they need to respond to. Their expectations can affect how they behave. If they are on their break and have just sat down with their hot breakfast they may delay and even decide not to evacuate at all. An employee who has been well trained and participates in drills has the expectation that they need to evacuate as soon as possible. The final stage is when they actually respond to the alarm and carry out the particular response required. From start to finish this can be up to 30 seconds or longer. Fire training and drills can reduce the length of time for the individual to take action if they hear the alarm.

Three phases of evacuation



In some workplaces there can also be delays as people may be asleep (in a hotel room or hospital), situations where people are doing something they do not want to leave (work task or their lunch) or situations where they are in the act of changing such as changing in or out of PPE. In places where there are large groups of members of the public it is important that staff are trained to take control to ensure they react and act as soon as the alarm is activated. People may in this case need to be led as crowd behaviour shows that we are in some cases like sheep we do need to be led in the first instance.

Where lights are used to support audible alarms again staff need to be trained to ensure they act as soon as the light sounds, equally where the lights are located as they may not be seen easily and as such the alarm not raised.

Time Pressures

The effect of time pressure and stress on the decision making process during fire emergencies: This can cause problems with:

- difficulties of spatial orientation and way-finding in large and complex locations, this is the way that people can orientate themselves when they are in buildings which they are familiar with.

- people choosing to return to the exit they came in by rather than the exit nearest to them, even if there is smoke in that direction.
- if there are two choices of fire exits they may not always choose the nearest, even if there is smoke in that direction.
- individuals may panic and not react rationally
- people may act aggressively pushing others out of the way

Likely behaviour of individuals responsible for others during a fire

Parents are more likely to wait and ensure their children are safe before they head towards the exit. Teachers are expected to ensure all the children in their care are gathered and exit (such as parents and elder siblings, nurses, teachers, etc.).

Behaviours on fire and evacuation

Not everyone will act rationally if a fire occurs or the alarm is sounded. People may:-

- Head to the nearest fire exit
- Head to the exit they are familiar with
- Go and investigate the fire
- Remain in the building as they perceive there is no or little risk



Image: Bradford City Football Fire

Crowd movement (individuals and in groups)

Crowds can be dangerous, but this is more down to physical pressures of large numbers of people who may not be aware of or able to act against dangers to them. When there are injuries or deaths in crowds it is more likely to be due to poor management than any 'panic' or irrational behaviour by crowd members e.g. Hillsborough and possibly also the recent Baghdad stampede.

This was an extract from the report into a theatre fire in 1903.

"most of the dead were trampled or smothered, though many jumped or fell to the floor of the foyer. In places on the stairways, particularly where a turn caused a jam, bodies were piled 7 or 8 feet deep. Fireman and Police confronted a sickening task in disentangling them.[] The heel prints on the dead faces mutely testified to the cruel fact that human animals stricken by terror are as mad and ruthless as stampeding cattle"

Crowds are very much an entity in their own right, if someone leads others may follow. However if one individual takes a short cut others may follow. If there are large numbers of people existing they may be bottle necks or delays which lead to rising stress and panic levels. This can lead to a spread of panic, pushing and aggressive behaviour. In the

Bradford Fire depicted here there were delays as many did not perceive the danger of how quickly the fire would spread. Under reaction may be more of a problem than over reacting

'When people die in fires, it's not because of panic, it's more likely to be the lack of panic'
Neil Townsend, Divisional Officer, London Fire Rescue Service

If someone is in control crowds will tend to follow. Able bodied people can usually move at 1 – 1.5 metres per second, going down stairs this drops to 0.8 metres per second but when there is a crowd this speed can be reduced dramatically. Which might lead to aggression, panic or even people pushing by those slower than them. This can lead to accidents especially on stairwells.

Lighting levels, the width of the means of escape, floor surfaces and the degree of perceived urgency can influence how quickly a crowd moves and can evacuate.

Despite research there is little evidence for mass panic in emergencies, the 'panic' model should not be the only one used in planning emergency responses. Any selfish behaviour is confined to individuals and rarely spreads. Risks associated with crowds are usually due to physical constraints and lack of info rather than their inherent 'selfishness'

Factors effecting flow rates and evacuation times

- Direction of travel and the number of changes of direction
- Mis – orientation / spatial awareness
- Signs of the fire can be seen may speed people up but they may push and shove to get away from the perceived danger
- Perception of urgency
- Lighting levels
- Floor surfaces if uneven or obstructed they could delay or cause trips, falls and crushing
- Characteristics of the crowd e.g. age range, number of people.

Measures to overcome behavioural problems

The employer and building occupier can take a range of measures to assist in the swift evacuation of a building, this includes:-

- clear roles and responsibilities including fire marshals and wardens
- clear alarms
- well practiced drills
- clear escape routes inside and outside to the assembly point or place of safety.
- measures to assist vulnerable people and people with disabilities and/or mobility problems
- contingency plans to deal with sleeping people within the evacuation strategy.

5.4 APPROPRIATE TRAINING REQUIREMENTS

Fire safety training and information will be required for employees, however it will also be needed for temporary workers, agency staff and volunteers if there are any of these on a site. Basic information should also be available to visitors, this may be provided as part of the signing process.

The emergency evacuation plan should be the subject of frequent training so all employees are familiar with its contents and there should be regular evacuation drills. The employer is required to carry out this fire training and it is recommended that record of the training are kept. This will assist during audits or enforcement visits.

The fire emergency evacuation plan must be included in the instruction and training to be given to employees. Effective fire routine is dependent on regular instruction, training, practice, etc. Regular drills should be carried out using varying escape routes assuming the normal evacuation route is not available.

The Regulatory Reform (Fire Safety) Order 2005

Article 21 (1);

The responsible person must ensure that his employees are provided with adequate safety training-

- a. at the time when they are first employed: and*
- b. on their being exposed to new or increased risks...*

The Fire Safety Order requires that fire training is given to employees on induction, when exposed to a new risk within the workplace, this should be repeated periodically. It is recommended that this be recorded to demonstrate legal compliance.

5.4.1 Fire Risk Assessor & Competent Person

The competent person or fire risk assessor need not possess any specific academic qualifications (see element 1) but should:

- understand the relevant fire safety legislation and the associated guidance documents
- have appropriate education, training, knowledge and experience in the principles of fire safety;
- have an understanding of fire development and the behaviour of people in fire; understand the fire hazards, fire risks and relevant factors associated with occupants at special risk within buildings of the type in question; and
- have appropriate training and/or experience in carrying out fire risk assessments.

There is no defined skillset or training designated for the “competent person”, however, they must show a competency in all areas equal to (or greater than) the complexity of problems to be tackled. The competent person must display an ability to identify a problem when seen and suitably assess its relative importance in relation to the safety systems in place.

The guidance associated with the Management of Health and Safety at Work Regulations 1999 makes it clear that the level of knowledge and experience involved must be tied to the

complexity of the problems to be tackled.” Whatever the level of ability, the competent person must be able to identify a problem when he sees it and must be suitably able to assess the relative importance of that defect in relation to the safety systems in place to satisfy the requirements of law and the premises.

This person should be sufficiently familiar with relevant codes and standards (through experiential or formal learning, underpinning knowledge and an ability, when called upon to answer relevant questions) to be able to deal with the matter at hand

5.4.2 Example Fire Safety Training Programme

All employees will receive adequate fire safety training and all fire safety training sessions will be delivered by a competent person. This will normally be supported by fire drills to check employees know how to react in an emergency situation.

Fire Safety Training Sessions

New Employees:	Induction Programme
Current Employees:	One training session per year
Managers:	One training session per year specific to their duties and including fire safety risk assessment, responding to fire hazards, fault reporting procedures, liaising with the fire service, record keeping, induction of new staff, fire safety policies and procedures.

Fire Safety Training Topics To Be Covered

- The significant findings from the fire risk assessment and fire safety policies;
- What to do on discovering a fire;
- How to raising the alarm, including the locations of fire alarm call points (break glass points);
- The action to take upon hearing the fire alarm;
- The evacuation procedure for alerting guests, residents and visitors including, where appropriate, directing them to exits and assembly points at a place of total safety;
- The arrangements for calling the fire and rescue service;
- The location and , where appropriate, the correct use of portable fire extinguishers and fire-fighting equipment;
- Knowledge of escape routes including stairways and especially those not in regular use;
- How to open all emergency exit doors;
- The appreciation of the importance of fire doors, keeping them closed and not wedged open to prevent the spread of smoke and heat, keeping escape routes unobstructed;
- Where appropriate, isolating electrical power and gas supplies and stopping machines and processes;
- The reasons for not using lifts (except those specifically constructed as evacuation lifts);
- The safe use of and risks from storing and working with highly flammable and explosive substances;
- General fire precautions, fire awareness and good housekeeping practices;
- The no smoking policy (where applicable);
- Special provisions for assisting disabled people and any training needed;

- Identifying fire hazards and fire incidents reporting procedures; and
- Equipment fault reporting procedures.

Fire Safety Training Records

All fire safety training will be recorded to include the date of instruction; the duration, name of the person giving the instruction, names of persons receiving the instruction; and the nature of the instruction and / or, drill.

5.4.3 Role of fire marshals/wardens in an emergency

The Responsible Person where necessary to safeguard the safety of employees should nominate employees to implement certain fire safety measures which will include the fire evacuation. The general term used for these people are fire wardens or fire marshals.

A senior fire warden/marshall should be made responsible for ensuring that notices are correctly sited the fire emergency evacuation plan is properly distributed and understood by all. Example responsibilities include:-

- To ensure Fire Fighting Equipment and alarm systems are regularly inspected and serviced.
- To ensure Fire Fighting Equipment, signage and emergency evacuation procedures are in place and maintained.
- To regularly inspect escape routes and fire doors.
- To ensure good housekeeping is taking place with no obstructions to escape routes.
- On hearing the alarm, supervise evacuation of all persons from your area. Check all rooms and ensure all fire doors are closed to ensure full evacuation.
- Ensure that all disabled persons are assisted for the purposes of emergency evacuation.

The need for fire wardens depends on the size and complexity of the premises. You may require one on each floor or department with a chief fire warden coordinating their actions to make sure all persons are accounted for in the event of a fire. They also require specific training above the needs of the normal employee, this training could be in house or by an external fire training organisation. They should be competent in the use of fire extinguishers and be capable of extinguishing small fires. They should have some knowledge of fire prevention and be able to identify possible fire hazards to prevent fire from occurring. Finally they should have an in depth knowledge of the FEPP and their role in implementing it.

A senior official in each building [Chief Fire Warden] should be given the responsibility of maintaining a high standard of fire precautions and the overall responsibility for the action in the event of fire. He/she should have a nominated deputy.

Evacuation fire wardens should be appointed for each room/department/floor as applicable and each warden should have a nominated deputy.

Fire Wardens/Marshals should be responsible for

- Fire routine and evacuation drill procedure
- Ensuring personnel know location of fire alarm points.
- Ensuring regular use of primary and secondary escape routes.

- The close down procedure
- Procedure for nominated staff to assist employees and members of the public to nearest exits.

5.4.4 Fire Safety Management

Fire safety is one part of good health and safety management, for this to be successful it is important that any fire policies and plans are actively supported at a senior level on the organisation.

Example Responsibilities of Managing Director or Chief Executive

The MD is responsible for the overall implementation of the company health and safety policy, including fire safety. They must:-

- Provide the necessary administration and arrangements to facilitate the implementation of a positive and progressive health, safety and fire function throughout the Company's activities.
- Ensure that the company complies with all necessary fire safety legislation.
- Nominate a Responsible person to administer the Fire function and provide guidance on the standards required.
- Nominate a senior manager within the businesses, who will be responsible for all Fire matters.
- Delegate responsibilities for Fire matters to suitably trained and informed individuals.
- Provide facilities for the training of all employees, in fire issues.
- Ensure that all major projects depict a financial consideration for Fire Safety.
- Introduce regular executive meetings to discuss Health, Safety and Fire issues.
- Ensure there is an appropriate and active Fire policy which is implemented throughout the organisation.
- Ensure that adequate resources to meet Health, Safety & Fire requirements are provided.
- Monitor the effectiveness of Health, Safety and Fire Policy and the responsibility delegated to executive managers, and periodically review objectives set out as part of the policy structures.

Other Managers

Employees with management or supervisory roles will have specific roles in relation to fire safety, this may include checking the fire safety plan is up to date and communicated, how the fire alarm control panel works and how to cancel false alarms. Those on site need to also be aware of any special evacuation arrangements for persons with disabilities, whether they be employees or visitors.