ELEMENT 3 - HEALTH AND SAFETY MANAGEMENT SYSTEM – DO

LEARNING OUTCOMES

3.1   Outline the organisational health and safety roles and responsibilities for employers, directors, managers and supervisors.

3.2   Explain the concept of a health and safety culture and its significance in the management of health and safety in an organisation.

3.3   Outline the human factors which influence behaviour at work in a way that can affect health and safety.

3.4   Explain how health and safety behaviour at work can be improved.

3.5   Explain the principles and practice of risk assessment.

3.6   Explain the general principles of prevention.

3.7   Identify the key sources of health and safety information.

3.8   Explain what factors should be considered when developing and implementing a safe system of work for general activities.

3.9   Explain the role and function of a permit-to-work system.

3.10   Outline the need for emergency procedures and the arrangements for contacting emergency services.

3.11   Outline the requirements for, and effective provision of, first aid in the workplace.

3.1 ORGANISING FOR SAFETY AT A SENIOR LEVEL

The HSE guidance note HSG65 supports the requirement for a H&S policy with guidance on how safety can be organised and arrangements effectively maintained. This is very much about ensuring safety is managed and systems are actually followed, monitored and reviewed.

Part two of the HSG65 safety management system model includes "DO", this focuses on "ORGANISING" for safety, as having a health and safety policy alone will not ensure that safety standards are maintained on site or within the organisation. Policies are implemented by people and this requires their continued motivation and involvement. Clear roles and responsibilities need to be established, communicated and monitored.

Larger companies may appoint a member of the top team to lead health and safety initiatives although this is not yet a legal requirement. However the Management of Health and Safety at Work Regs 1999 require every employer to appoint one or more competent people to provide assistance in meeting the organisation's health and safety obligations.

Top management can demonstrate their commitment by:
- Ensuring availability of resources
- Ensuring the H&S management system is established and implemented

- Ensuring responsibilities are defined
- Appointing a named director with the lead responsibility for health and safety issues
- Reviewing the safety management system at least annually

Summary of issues identified by the Institute of Directors to ensure that they meet their H&S and business obligations:

- Organisation of senior mgt
- Process of delegation established
- Leadership exercised
- Monitoring performance
- Senior mgr job descriptions include H&S
- Authority is established
- Who is senior mgr?
- Substantial control of part of the organisation
- Resources are allocated
- Training for senior teams – senior managers may need training to ensure they are aware of their responsibilities.

The IOD guidance can be downloaded from the HSE web site and is a useful guidance document for identifying the key issues senior managers should be dealing with.

Successful H&S Management Implementation
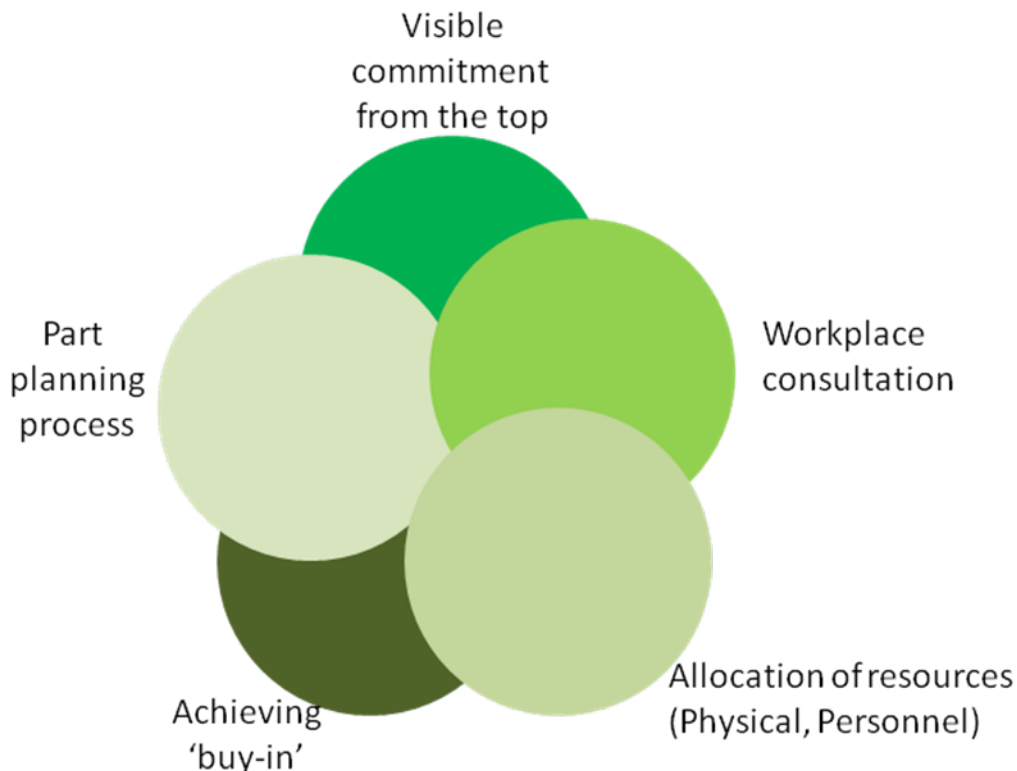
A senior manager's role is to:-

- Ask questions
- Check risk assessments are completed or reviewed
- Ensure they know the key risks
- Check the H&S policy – for their responsibilities and check any direct reports know their responsibilities
- Check standards are being monitored
- Ensure H&S issues are taken into account at the planning stage
- Set objectives
- Lead by example
- Take part in safety tours and accident investigations.

Indicators of a management commitment to health and safety could include:-

- Having an accredited H&S management system
- Entering external H&S awards
- Ensuring a source of competent H&S advice is available
- Participation by senior managers in accident investigations
- Participation by seniors managers in dealing with complaints
- Signing the H&S policy statement
- Participation in monitoring and inspections
- Involvement in H&S committee
- Chairing the H&S committee
- Observance of health rules
- H&S on the board agenda and discussed at manager meetings
- Asking for feedback from managers who report to them on H&S issues
- Setting and reviewing H&S targets
- Talking to staff on walk arounds
- Involvement in H&S training sessions/introducing H&S sessions
- Participation in induction training

3.2 HEALTH AND SAFETY CULTURES

"Shared characteristics, shared attitudes, values, beliefs and practices concerning the importance of health and safety" IOSH, 1994

Implementing a safety management system (SMS) is designed to obtain the commitment of senior managers and all employees, to establish ownership of health and safety within all levels of the organisation and show the advantages of taking health and safety seriously.

Implementing a SMS
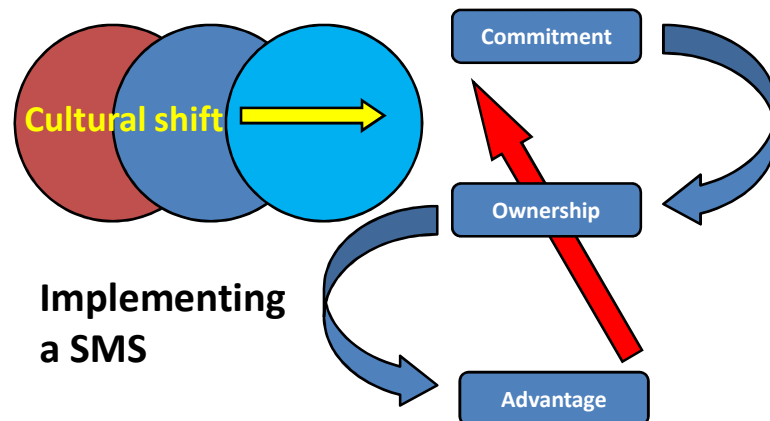
Every individual is unique; we have a different set of experiences as well as different physical and mental characteristics. Individuals also inherit a range of instincts which may mean they behave in certain ways in certain situations. These need to be understood to assist in managing people safely in the workplace.

Accidents do not just happen because of the error of one member of staff, in most cases many other people and the organisation itself may have contributed to the situation. The King's Cross fire was most likely to have been caused by a discarded cigarette which got under the escalator; however the organisation contributed by not ensuring that underneath the escalators was cleaned on a regular basis. The culture in the station was that fires were inevitable and often not taken seriously because they could be easily dealt with. In this case many people, including staff did not take the situation seriously enough.

Organisations can be structured in a variety of ways; the structure may depend on its objectives and origins. As organisations grow, the number of people employed usually increases. Equally other non employees may become integral to the organisation such as contractors, suppliers and clients. Small organisations may be run informally with the control resting with the managing director who is more likely to be the person who set the company up. To enable organisations to grow, more formal systems and lines of authority may be required. The organisation needs to be divided up so that all the key tasks are undertaken and that these support the overall aim of the organisation. This may include having line managers, job descriptions and set lines of authority.

Creating a culture where safety is taken seriously and accidents, including near misses, are reported is no easy feat. Every employee and visitor to the site must accept their part in creating a safe place of work. Equally it is important that the commitment of the organisation is led from above by the senior management team. A programme enforcing the wearing of ear defenders will fail if front line staff see a manager entering the area unprotected. The aim of implementing a safety management system is to create a health and safety culture, where everyone is aware of their responsibilities and contributing to a safe and healthy workplace.

Indicators of the effectiveness of a health and safety management system

- Accidents
- Absenteeism
- Sickness rates

- Staff turnover
- Level of compliance with health and safety rules
- Complaints
- The effective accident investigations
- The number of unsafe acts
- The number of unsafe conditions
- Accident frequency rates
- Near misses
- Lost-time accidents
- Reportable accidents
- Sickness absences related to occupational illness
- Enforcement action

3.3 HUMAN FACTORS IN SAFETY

These are factors such as: Motivation, Personality, Perception, Attitudes, Interaction with others and Mental & Physical Capabilities. They can be influenced by the individual's age, social background, their experiences and level of education.

Motivation – the force or drive which makes people react in a certain way. If staff are motivated by piece-work they may be tempted to break the rules and cut corners to earn a higher bonus.

Personality – we all have a range of personality traits which make us individual, some people are more socially bold, others may be timid and shy. A person that is very bold and out spoken may not think twice about breaking a rule.

Perception – this is how we view the world, individual perception is influenced by our personality, experiences and even the organisation where we work. "the complex mental function giving meaning and significance to sensations received by the brain" or " The process by which people interpret information via their senses". Risk assessment relies on the evaluation of risks, they need to be completed in a way where risks are objectively reviewed rather than relying on subjective judgements.

Are these lines straight or curved?

Straight or curved?
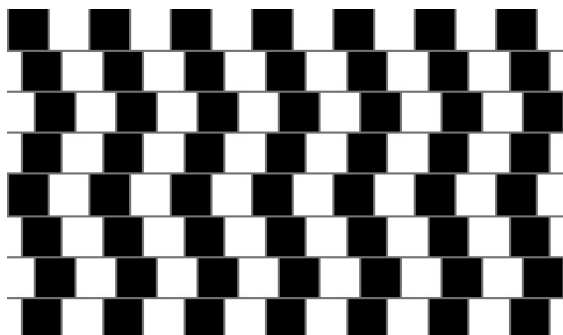
Attitude – this is a preconceived notion of how a situation will develop (positively or negatively). Some people naturally have a positive attitude to safety; others may think safety is not for them, "I have worked here 15 years and never had an accident".

Interaction with Others – All of us need to communicate with other team members or clients in order to work safely. Mis-understandings can lead to mistakes and accidents. "I thought you said add 1kg not 1 gm".

Mental Capacity – the person's intelligence can affect how well they react in a certain situation and also the type of training they may need. Younger people may need a different type of training and more supervision to ensure they are using it in the workplace.

Physical capacity – We are not all built in the same way and different people have different size hands, heads and arms and as such one size does not always fit all.

All these factors may contribute to accidents, for it has been accepted that a majority of workplace accidents are in some way attributable to the actions of people. These human factors can lead to human error which again can cause accidents.

People do not make errors simply because they are careless, often they do not understand what they should or should not do in a certain situation.

3.4 HUMAN FAILURE AND THE PREVENTION OF HUMAN ERROR AND VIOLATIONS

Human failure can be broken down into two main categories namely:-

Errors – these are actions or decisions which were not intended, which involved a deviation from an accepted standard, and which lead to an undesirable outcome.

Violations – these are deliberate deviations from a rule or procedure.

What can be done to reduce the risk of accidents due to human factors and human error?

There are three main ways a company should approach this issue.

1. Organisational Factors
2. Job Factors
3. Personal Factors
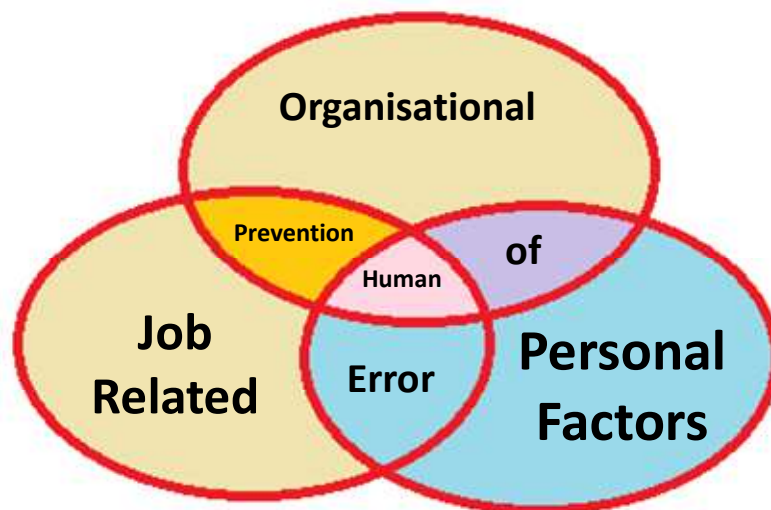
Each area on its own will not solve the problem, but a strategy addressing these three key areas could dramatically reduce accidents attributable to human error.

1. The Organisation

The organisation needs to create a climate which promotes health & safety and emphasises safety as an important organisational goal.

*   Senior managers must make a statement on safety and set an example
*   Ensure legal requirements are identified and steps are taken to meet the requirements relevant to the organisation
*   Senior managers must be part of the culture and exercise good clear leadership
*   Resources need to be allocated for H&S issues
*   Work patterns need to be effective and not lead to fatigue.

- Safety policies and procedures should be formulated and followed
- Communication channels need to be clear and unambiguous
- Supervisors and managers must be given the power and training to manage safety
- No blame culture
- Do employees know about the company's commitment to safety?
- Is there a procedure for reporting accidents?
- Are ill-health records kept and monitored?
- Are managers trained and aware of their safety responsibilities?

2.   The Job

Tasks should always be designed in accordance with ergonomic principles.

- Providing the correct tools
- Ensure work loads are manageable
- Equipment with clear controls and displays
- Machinery and equipment controls which are easily read and identifiable
- Well designed and communicated operating procedures
- Control of the working environment - lighting, heating etc.
- Effective communication systems
- Realistic targets and objectives
- Are procedures for communication between departments in place?
- Are workplace conditions monitored?
- Are workloads and staffing levels assessed?
- Are there emergency procedures?
- Are controls clearly marked?

3.   Personal Factors

Each person has different personal habits, intelligence levels, attitudes and perceptions, which may lead to unsafe acts. In some cases it may be impossible to deal with each one of these in a job's design. Factors such as personality are fixed but others, like attitudes, may be altered or improved. People therefore need to be matched to the job.

Areas which should be considered are:

- Job descriptions that note qualifications and skills required
- Training that will enable an employee to carry out the job (induction, refresher, on the job)
- Monitoring of personal performance on safety and safety-related objectives
- Health surveillance - fitness For work
- Is there a written training policy? Is it communicated?
- Is induction training carried out?
- How is training arranged when new pieces of equipment are introduced?
- Is pre-employment screening carried out?

How can health and safety behaviour be improved?

- Secure management commitment
- Promote good leadership
- Ensure all employees are competent
- Ensure competent H&S advice is available
- Clear communication
- Consult with staff
- Establish health and safety committees or meetings
- Provide general and specific training

▪ Take disciplinary action against those who do not follow the rules

3.5 COMMUNICATION

"To impart a message or information in order to bring about a change"

What barriers to effective communication exist?

- Too much information given
- Unclear message
- Noisy environment
- Lack of commitment on the part of the communicator
- Lack of interest from the listener
- Use of complicated language, abbreviations or dialects
- Inconsistency

The wrong medium may be used e.g. email when a personal talk would have been more effective.

To ensure the safety message is received and understood, a variety of different mediums or media may be needed to reinforce key messages on a regular basis.
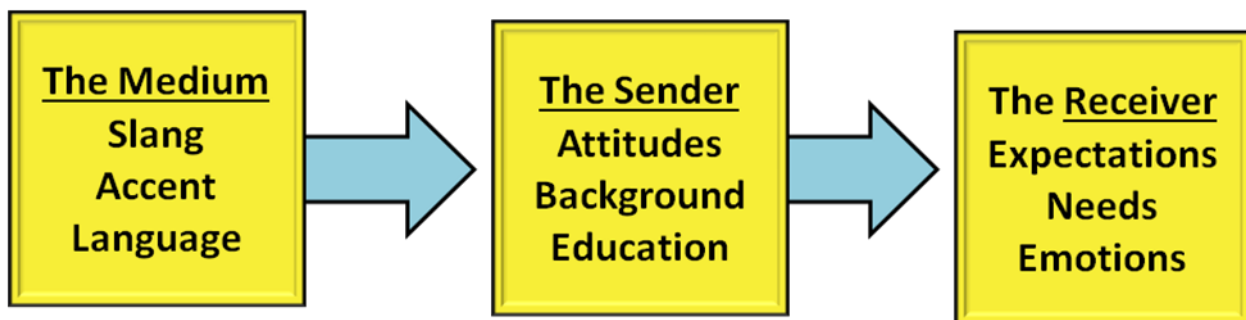
How can the safety message be communicated?

Every site must display the health and safety law poster or provide the information to mobile staff if they do not have a permanent place of work as required by the Health and Safety Information for Employees Regulations 1989 as amended. The HSE has published a new, simplified version of the Health and Safety Law Poster (2009).

It tells workers what they and their employers need to do in simple terms, using numbered lists of basic points. The employer, must either display the HSE-approved poster or to provide each worker with the equivalent 'leaflet'. The law has been changed - for the new poster you don't have to add contact details of your enforcing authority and HSE's Employment Medical Advisory Service. Details of any employee safety representatives or other health and safety contacts can be added but this is not compulsory any longer. The new posters have a unique hologram for additional security (to stop unofficial copies and prints).

Other methods which can be used to communicate the health and safety message include:-

- Safety signs
- H&S policy, including the statement, organisation and arrangements
- Leading by example
- Safety newsletter
- Safety objectives for all
- Safety talks, training and induction
- Carrying out inspections
- Regular refresher sessions
- Email, CD
- Training packages and videos
- Minutes of H&S committee meetings
- Inspections, audits and surveys
- Posters
- Information notices
- Safe systems of work and permits to work

3.6 CO-OPERATION AND CONSULTATION

It has long been recognised that good safety performance depends on everyone co-operating, that is: "Safety is everybody's business".

This co-operation must extend to all aspects of safety but the following are particularly important, hazard identification and decisions on appropriate workplace precautions. This will include such things as following safe working procedures and wearing required PPE.

Unfortunately there are two versions of co-operation. **"Do things the way I say"**
is what co-operation means for some people. **"Let's agree what each of us will do, and then we will both do what we said we would"** is more effective.

It is a legal requirement for employers to consult their employees on health and safety matters. That is, it is a legal requirement that there is true co-operation. The "Do things the way I say" type of co-operation is not adequate.

Where you have been consulted, and health and safety arrangements have been agreed, you should stick to your side of the agreement

As a manager, you will have additional activities with respect to co-operation in that you will have to create the sort of environment in which co-operation is possible. There are three important aspects to creating and maintaining this type of environment.

Consult and agree - for example, when risks are identified, consult with the people who are exposed to these risks about the action required to reduce the risk.

Why Consult?

- To gain employee involvement
- To promote H&S for all and improve H&S standards
- To develop workable solutions
- It's a Legal requirement

3.6.1. SAFETY REPRESENTATIVES AND SAFETY COMMITTEE (SRSC) REGULATIONS 1977

The SRSC regulations give rights to trade union appointed safety representatives. Their aim is to develop a joint approach to H&S in organisations. They have been joined more recently by legislation which covers premises and employees where unions are not recognised.

These regulations enable trade unions to appoint representatives and to inform the employer who these people are. The employer does not have the right to appoint or dismiss these people (as safety reps). The number of reps will need to be decided by the union and employer, and will depend on the size and number of sites and number of employees. The employer must set up a safety committee if asked to do so by two or more safety reps, this should meet at least every three months. The committee should cover company wide issues like new policies and procedures, training courses, accident trends etc.

Union safety reps have no additional legal duties other than those of every employee under HASAWA but they have functions which they can carry out. If safety reps are not able to fulfil their functions they have the right of redress to an Employment Tribunal but they would be expected to take the matter up internally first.

Functions of Safety Representatives

- to investigate RIDDOR accidents and incidents to carry out workplace inspections
- to investigate employee complaints
- to make representations to the employer & be consulted with on H&S issues
- to attend H&S committees
- to receive information from the H&S enforcement officer
- to look at H&S documentation (except personnel or occupational health records)
- to take time off with pay to carry out functions and attend training.

Inspections may be carried out when notice has been given in writing, every three months, after a RIDDOR reportable accident or if there is a new HSE approved code of practice or legal requirement affecting the workplace.

THE H&S (CONSULTATION WITH EMPLOYEES) REGULATIONS 1996

The H&S (Consultation with Employees) Regulations 1996 support the above regulations by extending rights in non-unionised environments. Here employees can appoint their own safety representatives (Representatives of Employee Safety: ROES). The employer must consult with these people on H&S issues which affect the workplace, H&S legal documentation, the planning of H&S training and the implications of new technology in the workplace. They must also inform the ROES of H&S issues and who the competent people are in the organisation.

The employer must provide training for the ROES to enable them to fulfil their functions, they must also be allocated time off with pay to undertake the main aspects of their role.

Factors affecting the numbers of safety representatives or ROES:-

- Size of the workplace
- Number of employees/members
- Range of hazards and risks faced or range of job tasks
- Number of different sites
- Shift patterns worked

3.7 CONTROL

The law requires that employers exercise control over all aspects of health and safety in their organisation, and this control is usually the responsibility of managers and supervisors.

If you fail to comply with a safety rule, for example by not wearing the required PPE or interfering with a machine guard, and your supervisor allows you to "get away" with this, then you are both breaking the law. You are breaking the law because you are not co-operating on a safety matter, and your supervisor is breaking the law by not exercising control.

Control is an important management issue in that, without effective management control, no organisation can continue to operate effectively. It can be the case that control of safety matters is less effective than control in other management areas. For example, few managers would countenance poor time keeping by one of their staff, but some managers do allow their staff to "get away with" not wearing the required PPE.

3.8 COMPETENCE

Employers have a common law duty to provide competent employees which is supported by the requirement in Section 2 of HASAWA to provide training, information, instruction and supervision. Additionally the Management of Health and Safety at Work Regulations 1999 establishes a requirement for training and for every organisation to appoint one or more competent persons to provide assistance to the organisation in meeting its health and safety obligations. These people not only need to be appointed but they need to be provided with adequate resources to enable them to complete their duties.

The main problem with safety competence is that we do not always realise that we need special knowledge or skills. You cannot tell that a chemical is a carcinogen simply by looking at it, and in any case, you may not know what a carcinogen is. Even if you know it is a carcinogen, you may not have the knowledge and skills needed to work with it safely.

Ingredients of competency:

- Skills
- Knowledge
- Experience
- Qualifications
- Training
- Personal qualities
- Knowing the limits of your competence

Consider the various ways in which you might check a person is competent. This could be by:

- Checking references
- Interviews
- Tests & assessments
- Exams
- Asking for a demonstration
- Qualifications (course certificates)
- Observing
- Interviewing

As a manager, how do you know your employees are competent?

- Do you trust the people below you to know more than you?
- Are you aware of all the hazardous tasks that your team carry out?
- Do they have the competence to do them safely?
- How do you assess competence to carry out hazardous tasks safely?
- Have they retained the competence to carry out infrequent tasks?
- How do people know if they're not competent?
- Training requirements

3.9 SAFETY TRAINING

Legislation, technology and the organisation, as well as the needs of the individual, will all influence the decision to undertake any training. A programme of training may be provided by the employer due to a variety of reasons:-

Legislation – e.g. to meet the requirements of COSHH, training may be needed in the correct use of substances used.

Competition – changes in the market place may lead to new training requirements to keep employees up to date.

Change in culture – The company may be moving from a reactive safety culture to a proactive one with an emphasis on risk assessment.

Economic - There is a tendency to reduce staffing levels to control costs; is safety training also cut to save money? Is there a recognised need for safety training?

Social or political - The general public have become aware of disasters such as Bhopal & Chernobyl and this has raised awareness on certain matters. Such pressure can influence an organisation to consider the whole issue of safety training.

Professional - Professional institutions may specify that certain requirements are met and a certain standard of training required.

Organisational - An organisation's behaviour will be explained by its pay policy, terms of work and the working conditions. Management priorities are seen as: controlling costs, output, effectiveness, staff motivation and then finally, health and safety.

Employers have a moral obligation as well as a legal one to protect their employees. These aspects are only normally raised after a serious accident takes place. The priorities of safety training are staff motivation, job satisfaction and accident prevention.

Everyone is likely to benefit from some type of safety training, however the type of person and type of training is very important.

"information, instruction, training and supervision are necessary to ensure ... the health and safety of his employees" HASAWA S2.1 and 2.1.

This may include:-

- managers
- employees
- specialist functions e.g. Health & Safety advisers

When might training be required?

- New employees – induction required. This will need to be both general and specific to the particular job.
- Employee promotion to new responsibilites
- To fufil key roles e.g. first aider
- After accidents or as a result of accident trends or risk assessment
- Introduction of a new process
- New legislation
- Refresher required
- Enforcement action / advice of inspector
- To meet standards of the SMS or internal policies

Trainees all differ in experience, ability and personality, so training should be aimed at the needs of the individual. Learning needs to be measured before and after the training.

3.10 RISK ASSESSMENT - HAZARD AWARENESS

"A HAZARD IS ANYTHING WHICH HAS THE POTENTIAL FOR HARM"

The first step to preventing accidents is to identify the hazards in the workplace. These can be divided into four main categories: Chemical, Physical, Ergonomic & Biological. These can be identified by completing workplace inspections, by talking to employees, observing employees at work, and reviewing incident and accident data. Additionally, certain legislation specifies when risk assessments must be completed e.g. work with lead or asbestos. Where tasks are complicated a task analysis may need to be completed to look at the activity stage by stage, enabling the full range of hazards to be identified and then controlled. Manufacturer's data on substances and equipment will highlight some of the hazards involved but they may not cover all issues as they do not take into account where the substance or work equipment is to be used.

I)   PHYSICAL HAZARDS

Physical hazards are derived from energy sources, and in general are the hazards most commonly considered.

Noise - Is the result of compression and rarefaction of air. Noise levels above 80 dB(A) over an 8hr period (Lepd) are known to damage the human ear. The damage is accumulative and is known as Noise Induced Hearing Loss. The effects are not a gentle lowering of volume of all noise, but merely the loss of specific frequencies or tones. This means communication can be severely disrupted.

Vibration –This is an energy source similar to noise. When vibration is continuous, the effect is to repeatedly hit nerve endings and close tiny blood vessels reducing the flow of blood causing whiteness in colour and a deadening feeling. Long term effects include Vibration White Finger and Raynauds Disease. Power tools can cause hand/arm vibration injuries, vehicles such as tractors can cause whole body vibration.

Thermal - The human body works at its best when subjected to medium average temperatures, a significant change in thermal temperature can have catastrophic results.

Pressure - Where the pressure at the place of work is higher than atmospheric pressure, the possibility of excess nitrogen in the blood creating bubbles in the bloodstream (the bends) is very high, as in North Sea diving.

Lighting - The workplace must be adequately lit - too much or too little can result in eye strain and headaches. Therefore, when inspecting a place of work, consider the design aspects of light from a long term exposure.

Radiation – There are two forms of radiation, ionising and non-ionising, both are potentially harmful if adequate controls are not taken. Radioactivity is the property of spontaneous disintegration possessed by certain unstable types of Atomic Nuclei (from elements of isotopes). The disintegration is accompanied by the emission of radioactive particles or rays. (Alpha, Beta, Gamma, X-rays.) Some forms of rays are more hazardous than others. Effects from radiation range from sickness, diarrhoea, abdominal cramps, radiation burns and genetic mutation.

Fire - The by-products of combustion are often more hazardous than the heat from the fire itself. Many items produced today when burnt produce toxic smoke and gases that can irritate the eyes, throat and respiratory tract, which may hinder escape. All places of work should have free access and egress, sufficient and suitable fire fighting appliances and a defined evacuation procedure.

Mechanical - From rotating or reciprocating machine components, these are assigned in the British Standard and European Standard on machinery hazards and safety. They include cuts, stabbing, shearing, cutting, abrasions, drawing in, entanglement, impact and ejection and are all defined as mechanical hazards.

II)   ERGONOMIC HAZARDS

This is the science of fitting man to machine or machine to man for optimum effectiveness, efficiency and comfort. There are three main considerations:

Anatomical - The physical fit of the working area to the worker e.g. correct height, distance, angle and shape. Many cases of backache and fatigue can be often traced to badly designed workstation or postures used to perform a task.

Physiological - For tasks to be carried out effectively the workstation must be designed in layout to help the worker in reducing fatigue, e.g. the use of mechanical lifting and sliding gear, mechanised power or remote control.

Psychological - Patterns of work are learned. Once learned, a complete change in the layout of the controls or sequence of use becomes potentially dangerous e.g. placing the start button where the stop button was.

Work Related Upper Limb Disorders or Repetitive Strain Injuries – *These* are **not** hazards but injuries associated with ergonomic hazards. They are not just associated with computer work. They can be caused by work of a repetitive nature which may involve the use of large amounts of physical pressure and movement. A lack of breaks and no job rotation makes the risks of these conditions greater. Poorly designed workstations, which involve poor posture, over stretching and twisting can also be contributory factors.

Example hazards include:

Manual handling
Over reaching

Repetitive movements
Incorrectly adjusted chair etc.

III) CHEMICAL HAZARDS

Dust - Solid particles of material, organic or inorganic, generated by physical processes. The critical size of less than 10 microns unit density sphere (this is known as inhalable dust) e.g. metal dust and silica. Inorganic dust and organic dust have different effects on the lungs.

Respirable Dust - This is atmospheric dust of under 7 microns in size which is able to enter the lungs during respiration and is able to reach the air exchange region.

Fume - Solid particles formed by condensation from the gaseous state, usually from molten metals. The pure metal can react with the atmosphere to form other compounds e.g. lead fumes in a hot rolling mill can form lead oxide.

Gases - Normally elements or compounds of low molecular weight in the form of amorphous fluid e.g. sulphur dioxide

Vapours - These are gaseous forms of materials which normally exist in the liquid or solid state at normal room temperature, these are formed by molecules rising from the surfaces of the substance e.g. petrol and methylated spirit.

Mists - Small liquid droplets suspended in the atmosphere.

Liquids - Matter in a fluid state, intermediate between a solid and a gas which maintains a fixed volume under fixed conditions.

Solid - Matter occupying a fixed volume, having fixed dimensions of length, breadth and height. Solids can be hazardous e.g. radioactive elements.

Fibres - Particles characteristic of certain substances such as asbestos. They possess the aerodynamic properties to penetrate deep into the lungs.

CHEMICAL SYMBOLS

Corrosive   **Flammable**   **Explosive**   **Harmful/Irritant**

Oxidizing   **Toxic**   **Radiation**   **Harmful to the Env't**

Note: These symbols will be changing with the introduction of new EU standards between 2009 and 2015 but will still be in use until supplies are used up.

IV) BIOLOGICAL HAZARDS

Bacteria - Living organisms that multiply very quickly. Some are beneficial to man e.g. the bacteria that produce nitrogen in the soil. Some are pathogenic such as those found on farm animals and wounds. Basic hygiene principles can be used to great effect.

Viruses - Are the smallest known infectious organisms, the mode of entry to the body is usually by mouth. The disease that results could be systemic, as with mumps or localised as in respiratory viral infection. Prevention of viral diseases is accomplished by the avoidance of contact with all infected individuals or by vaccination.

Moulds - Moulds and fungi often affect the lungs from inhalation. A hypersensitive reaction at the alveolar level often results, producing coughs, wheezing and lack of breath, leading to a chronic respiratory disease over a period of time.

Hazard spotting - When completing a workplace inspection it is important to look for a variety of hazards not just those you expect to find. Consider the following:-

- Fire
- Electricity
- Welfare issues (rest areas and first aid)
- Environmental issues
- Health hazards such as chemical, biological agents, use of computers, noise and vibration
- Transport

- Equipment and guarding
- Unsafe actions
- Signage (or lack of)
- Housekeeping
- Workplace issues such as lighting, floor surfaces, stairs and walkways.
- Storage
- Manual handling

3.11 RISK ASSESSMENT - GENERAL RISK ASSESSMENT

General Risk Assessment
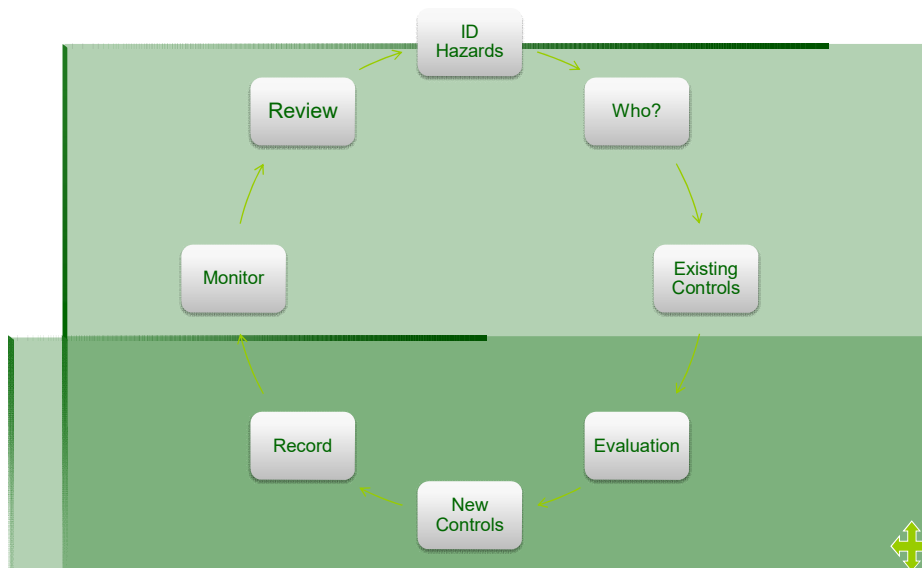
Various legislation now uses "*Risk Assessment"* as their key focus. The aim is prevention rather than cure, or waiting for the accidents to happen. Companies are required to examine their workplaces and processes to identify where the hazards lie. Once this has been done, risk control measures must be taken to reduce the risk of injury.

What is a hazard and risk?

HAZARD "A condition that has the potential to cause harm" e.g. trailing cable

RISK "The likelihood of harm from the hazard being realised and the severity of the possible injury" e.g. the risk of tripping over the cable and breaking an arm.

RISK ASSESSMENT "identifying preventative and protective measures by evaluating the risks arising from the hazard taking into account the existing controls, and deciding whether or not the risks are acceptable"

The overall objective of any risk assessment should be to prevent accidents and occupational ill health.

3.11.1 Why complete a risk assessment?

- There are a number of legal requirements to complete risk assessments. These start with the Management of Health and Safety at Work 1999 Regulation 3.
- To ensure action is taken to prevent accidents, injury and occupational ill health
- To enable the identification of hazardous activities
- To prioritise improvements to reduce risks
- To identify involvement opportunities for employees and their safety representatives
- To enable the employer to meet their general common law duty of care to all employees
- To check existing measures are adequate
- To ensure that records of control measures and significant risks are established

The Management of Health and Safety at Work Regulations require that a suitable and sufficient risk assessment be carried out to:

- identify significant risks
- prioritise measures which need to be taken and remain valid for a reasonable length of time

3.11.2 "Suitable and sufficient risk assessment"

A suitable and sufficient assessment should:-

- Consider all aspects of work – routine and non routine
- Identify significant risks from work
- Foreseeable risks only
- Detail proportionate to risk
- From results of sampling/health surveillance
- Appropriate to work
- Cover a broad range of hazards/risks
- Be evaluated either using numbers or words
- Identify the risks to Employees and others
- Identify short and long term controls
- Allow for co-operation between other employers (shared premises)
- Be valid for a reasonable period of time/reviewed
- Be recorded if there are five employees or more
- Be completed by competent people

3.11.3 Who should complete risk assessments?

Risk assessments must be completed by competent people, this could be just one person or a group of people who together have sufficient competence. With knowledge of hazards, risk assessment process, relevant skills and a knowledge of the jobs involved. For high risk areas assessors may need specific qualifications. A truly competent person will know the limit of their own abilities and know when to call for further specialist help.

Competency can be achieved by the use of several people with different skills and knowledge working together.

A competent person is one who knows about risk assessment and the work being undertaken. Competence is a mixture of:

- Skills
- Qualifications
- Knowledge
- Experience
- Training
- Personal qualities
- Knowing the limitations of one's own abilities

3.12 COMPLETING A SUITABLE AND SUFFICIENT RISK ASSESSMENT

1. **IDENTIFY THE HAZARDS**
2. **IDENTIFY THOSE AT RISK**
3. **IDENTIFY ANY EXISTING CONTROLS**
4. **ASSESS THE RISK (With no controls, existing controls and after new controls are recommended)**
5. **IMPLEMENT CONTROL MEASURES**
6. **RECORD ASSESSMENT**
7. **MONITOR / REVIEW**

THE RISK ASSESSMENT PROCESS

Stage: 1 Identifying Hazards

When seeking out and identifying hazards adequate information is necessary and reference should be made to relevant sources such as:

- Legislation and Approved Codes of Practice
- Health and Safety Executive Guidance
- Product information – manufacturer's guidance
- Personal knowledge of managers, colleagues and safety reps
- Accident records
- Expert advice

In the simplest cases, hazards can be spotted by observation and questioning. They may be identified by individual activities, people or work areas, depending on the nature of the area being assessed. Some tasks may be undertaken by several people in the same department; in this case an assessment covering the task or activities would be more appropriate than one covering each individual, even though individual aspects about the people will need to be taken into account e.g. one person may be five feet tall the other six feet two inches. Therefore further risks may be applicable to one employee rather than the other. Consider the hazards and the adverse effects they may cause.

Consideration should also be given when identifying hazards to ensuring both safety hazards (which lead to accidents) and health hazards (when people are exposed to the hazard on a regular basis e.g. noise) are highlighted.

Stage 2: Identify Those at Risk

In most cases, the person at risk will be the person actually involved in the work. It is however important to remember third parties including members of the public or visitors, who could also be affected by the hazard. Are there any particular employees or groups of employees who need to be specifically considered? This may include young people, pregnant workers or individuals with certain disabilities.

Identify the harm that these people may be exposed to.

Stage 3: Are There Any Existing Controls?

Are there any existing controls which are already helping to reduce the risk of injury?

e.g: Have employees been trained?
        Is PPE worn?
        Are warning signs displayed?

Remember to include only those existing controls which are working effectively, if you know that face masks are available but they are not worn or are not suitable then this is not an existing control measure.

Stage 4: Evaluating the Risk

Evaluating the risk involves judging the likelihood from the hazard and the severity of the harm that may be involved. For example, the trailing cable is the hazard, the risk to be assessed is the likelihood of a slip or trip, along with possible severity of the injury which may occur.

Some risks will be insignificant either because the likelihood is very low or because the severity of injury is very low or both.

If we have difficulty in deciding the risk level (high, medium, low) it may be helpful to consider some form of quantifiable risk assessment.

In its simplest mathematical form:

Risk = Hazard Severity X Likelihood of Occurrence

QUANTITATIVE - Giving factors within the assessment, e.g. numbers which can be used to calculate the overall risk factor and then used to rank with other hazards in priority order. Also ensures a certain level of consistency. A variety of numerical grids and systems are available to assist in this process. Two sample grid systems are included in the following pages for information.

QUALITATIVE - A judgment must be made on the information available, e.g. is the risk high, medium or low. Words may be used to assist the assessor e.g:

Low – unlikely to occur, if it does will result in a trivial injury
High – Very likely to occur and will lead to major injury or death

QUANTITATIVE RISK ASSESSMENT

RISK = LIKELIHOOD x SEVERITY

SEVERITY

Probable Likelihood

E.g.: How likely is the hazard to cause
Injury?

Guidance

1 - Unlikely
2 - Possible

3 - Occasional
4 - Frequent

5 - Regular
6 - Common

LIKELIHOOD

	1	2	3	4	5	6
1	1	2	3	4	5	6
2	2	4	6	8	10	12
3	3	6	9	12	15	18
4	4	8	12	16	20	24
5	5	10	15	20	25	30
6	6	12	18	24	30	36

Severity: What is the most likely outcome? **Not** what is the worst, not what is the least, but what is the most likely?

Note: Everyday incidents could end in multiple deaths if you look at the worst possible scenario.

1   No injury, loss or damage
2   Trivial injury
3   First aid injury
4   Major injury - or time off
5   Death of one person/disabled
6   Multiple deaths

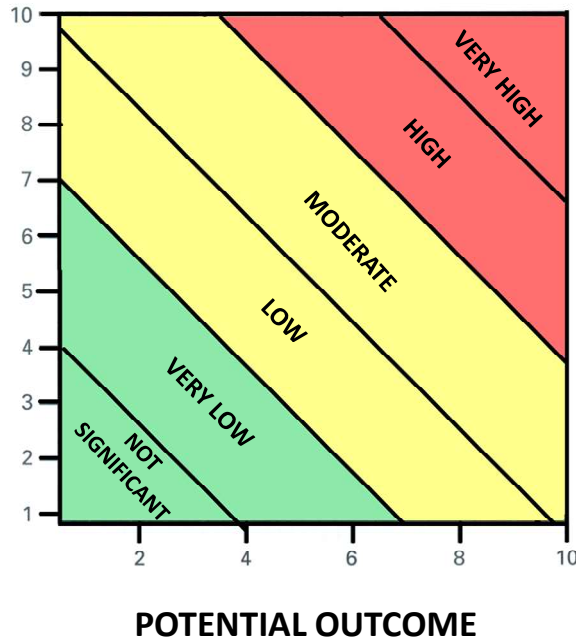| Action Level	
🟩	= LOW
🟨	= MEDIUM
🟥	= HIGH

NOTE: This is only a guide to assist in deciding our priorities.   If we discover a low risk we should be asking can we make it even lower?

QUANTITATIVE RISK ASSESSMENT

ALTERNATIVE VERSION

Probability

POTENTIAL OUTCOME

A certainty – likely to happen at any time = 10
Highly probable – may occur 2-3 times a year = 8
Likely – would expect to happen once a year = 6
Improbable = would not expect to happen in 2-3 years
Unlikely – would not expect to happen in 5 years

Outcomes

Multiple fatality/major disaster = 10
Death/major fire = 8
Serious injury = 6
Lost time injury/illness = 4
Minor injury = 2

This is clearly no exact science.

Stage 5: Additional Control Measures Needed

The measures which will be required to minimise or remove risk need to be considered by applying a hierarchy of risk control measures. This is the important part of every risk assessment as it is here where we are required to take action to reduce the risk of injury.

Principles of Prevention (Regulation 4 of Management of H&S at Work Regulations 1999)

1. Eliminate or avoid the risk if this is possible
2. If the hazard cannot be avoided – evaluate
3. Combat risk at source – isolate machine, or fit a fixed guard or install safety devices etc.
4. Adapt work to individual – adjustable height of workstation or provide left handed tools etc.
5. Adapting the process using new technology e.g. is it possible to mechanise to reduce the human interaction?
6. Replace the dangerous with the non dangerous (substitute) or use new less hazardous methods.
7. Develop a coherent prevention policy – policy, organisation of work, job rotation, safe systems of work, supervision, good housekeeping, warning signs, maintenance of equipment and good personal hygiene.
8. Give priority to collective measures over PPE
9. Instruction / training of employees, plus the provision of information to others.

This is by no means an exhaustive list as certain specific controls will be needed to suit certain work areas where a more **general hierarchy** may be used:-
- Elimination
- Substitution
- Utilising engineering controls
- Administration controls (including training and SSOW) and signage
- Personal Protective Equipment (PPE)
- Discipline

Stage 6: Record the Assessment

It is a legal requirement under the Management Regulations for all employers with over five employees to record their assessments. The record will normally be in writing but it may be held on computer. Theses assessments should form part of the organisation's safety policy.

A suitable and sufficient risk assessment should have the following information recorded:

- The significant risks; that is the hazards which pose serious risk to workers or others if not adequately controlled.

- The existing controls in place; this section can refer to other documents e.g. COSHH assessments

- The people who are at risk including employees and others

- The additional controls required

In addition most assessments will show who is responsible for remedial action and the timescale for the improvements to be completed. The priority will normally be set as high,

medium or low along with a specific timescale for action along with responsibilities for ensuring that action is actually taken. The same principles as setting safety objectives can be used as risk assessment action plans should be SMART.

Determining priorities for action once the risk assessment has been completed?

- Risk level – highest should be given priority
- The number of people at risk – those risks which affect high numbers of people should be prioritised
- Risks which effect vulnerable people e.g. those with disabilities or young people
- Risks where the control measures can be easily completed at no cost.
- Risk which affect those outside the organisation should be taken seriously
- The risks which have resulted in serious accidents in the past, civil claims or enforcement action may need to be given priority.

Stage 7: Monitor and Review

The risk assessments will need to be monitored regularly to ensure the remedial action identified has been taken. Assessments should also be examined as part of any audit or internal review programme. This may be done locally by the risk assessor or as part of departmental or companywide reviews.

Monitoring checks that action has been completed and is usually completed by the local manager e.g. has the fire sign been replaced or the staff given their MH training, whereas a review is a re-view of the completed assessment to check it is still valid. Reviews must be completed when there are significant changes or when the risk assessment becomes out of date.

A review may occur when:
- A process is changed
- A new piece of machinery is installed
- The company moves into a new workplace
- After accident trends identify problems
- Enforcement action has been taken against the company
- The organisational structure has changed
- New group of employees joins e.g. young people, legislation is amended, request by client, insurance company or third party.

Links with other Assessments

The general assessments should link into any more specific risk assessments which are also required e.g. manual handling, fire, noise, display screen equipment or control of substances hazardous to health etc.

3.13 FIVE STEPS TO RISK ASSESSMENT (INDG 163)

This document is freely downloadable from the HSE web site and provides useful advice on completing risk assessments.

How to assess the risks in your workplace

Follow the five steps

Step 1
Identify the hazards

Step 2
Decide who might be harmed and how

Step 3
Evaluate the risks and decide on precautions

Step 4
Record your findings and implement them

Step 5
Review your assessment and update if necessary

These are the five steps, this is less than the individual steps outlined in the previous section due to the fact that "Step 3" combines considering the existing controls in place, evaluation and deciding on new control measures.

3.14 SPECIAL CASE RISK ASSESSMENTS

There are a small number of situations where individuals may be at specific risk. Here a more detailed assessment may be needed on an individual basis. This may include young people under the age of 18 and pregnant and nursing mothers (as required by the Management of Health and Safety at Work Regulations 1999), lone workers and those with specific disabilities. (See useful forms for an example young worker assessment form).

Although these risk assessments focus on one person or at risk group, the risk assessment itself follows the same principles and stages as a general risk assessment, however the hazards and risks covered need to be those which are a specific problem to the at risk group. These assessments will cover issues such as:

- Hazard identification
- Review existing controls
- Evaluation of the risk
- Additional controls required
- Record
- Monitoring
- Reviewing

A. EXPECTANT AND NURSING MOTHER RISK ASSESSMENTS

The Management of Health and Safety at Work Regulations 1999 require employers to carry out "suitable and sufficient" risk assessments which take into consideration new and expectant mothers. As the risk may increase when a woman is a new or expectant mother, then existing risk assessments must be reviewed and subject to additional consideration. The risks need to be managed, and where this is not possible, alternative work offered or as a last resort the individual may need to be suspended on full pay until their maternity pay commences.

Regulation 16-18 Risk Assessment for pregnant and nursing mothers. A Medical Practitioner may certificate a pregnant worker to say they are unfit for work. The employer is only duty bound to carry out the above risk assessment if they have been informed of the pregnancy. The process is the same as a general risk assessment but needs to highlight and focus on those hazards which may present a higher risk of injury to a pregnant or nursing mother.

The HSE publication "*New and expectant mothers at work – A guide for employers*" HSG122 identifies specific topics which will require consideration during the assessment. Pregnancy is not an illness or a disease; pregnant woman are as capable of work as any other employee if full consideration is given to their condition throughout the term of their pregnancy. It is therefore important that a risk assessment be carried out as soon as possible after the employer has been notified about their pregnancy. This assessment will be undertaken in conjunction with the employee concerned. The assessment will need to be reviewed as the pregnancy continues.

The main focus of the assessment is to ensure that the employee is not put at risk. This means ensuring that accidents and injury, to both the mother and unborn child, are prevented as far as possible.

Generally, modern health and safety management techniques, which most employers already have in place to control risks to the workforce, should be sufficient.

Existing controls which do not offer adequate protection to new and expectant mothers must be adapted accordingly. Section 7 of the Health & Safety At Work Act places a personal duty on every employee to look after the safety of themselves but there is still an increased responsibility on the employer.

The specific requirement to assess the risks to new and expectant mothers is brought about by the Management of Health & Safety At Work (Amendment) Regulations 1999.

The Components of the Risk Assessment

A risk assessment requires employers to identify the hazards, evaluate the risks, (taking into account the likelihood and severity of the outcome) and determine the necessary control measures associated with:

- the work activities undertaken
- materials and articles used
- work equipment used
- the workplace, workstation and working environment

This risk assessment is carried out by the employee concerned and their line manager, occupational health advisor or health and safety advisor.

Physiological Aspects

The conditions most readily associated with pregnancy include morning sickness, which may be relevant where early morning shifts are undertaken or where there is exposure to nauseating smells. Backache is another common problem, the risk of injury during pregnancy may also be increased due to the weakening affect on ligaments caused by hormonal changes.

The increasing physical size of a pregnant woman may affect her ability to wear personal protective equipment. The amount of space needed may need to be reviewed and their degree of dexterity and co-ordination may be reduced.

Many pregnant woman have to make frequent trips to the toilet and it is important that they can leave their work area and that toilet facilities are easily accessible. Recognising and addressing these affects is an important step to ensuring new and expectant mothers are protected from work related health risks throughout their pregnancy.

Physical Agents

Physical agents which may be present excessive movement, manual handling activities, extremes of temperature and physical fatigue. The effect will vary between individuals and in most cases, ordinary precautions will be sufficient.

Biological Agents

The risk to new or expectant mothers from biological agents is not generally considered to be any different from other employees. However those which are particularly relevant are those which could cause damage to the foetus, these include: hepatitis B, human immune deficiency virus (HIV), tuberculosis, rubella, chicken pox & meningitis.

Chemical agents

Many chemicals can cause adverse effects although the degree of risk will be determined by the degree of exposure and other conditions in the workplace. The following chemical agents will need to be considered during the assessment:

- Mercury

- Substances absorbed through the skin
- Chemical labelled with – 'possible risk of cancer', 'may cause cancer', 'may cause harm to unborn child', 'possible risk to unborn child' etc.

The important point to remember is that some chemicals accumulate in the body and as such, the adverse effects may not show immediately. Typical controls include preventing exposure, effective engineering controls, personal hygiene and personal protective equipment.

The risks to workers should be controlled regardless of their sex or age. There may be times when the risks to new and expectant mothers are significantly different. The identified risks to pregnant women will vary and therefore, during the stages of pregnancy, the assessment may need to be reviewed and changed accordingly.

B. YOUNG PEOPLE

Regulation 19 of the Management of Health and Safety at Work Regulations require a specific Risk Assessment for young people under the age of 18. When young people under the age of 18 are in the workplace a risk assessment must be carried out to ensure they are adequately protected. In some cases normal control measures may be adequate but where the risks are high, additional controls such as permanent supervision may be required. Young people are prohibited from working with asbestos, lead, ionising radiation and certain chemicals unless they are under direct supervision. Children are classified as those under school leaving age.

This requirement is supported by the Health & Safety (Young Persons) Regulations cover not only <u>employees</u> under the age of 18 but also those of school age who may do <u>work experience</u>.

Risk assessments for work involving young persons will be undertaken with the following considerations relating to their:

- physical and psychological capacity to carry out the work effectively
- potential exposure to toxic or harmful substances or agents (including radiation)

  - Inexperience in the recognition of potentially hazardous situations, or lack of training
  - Potential exposure to extremes of heat or cold, noise or vibration.
  - Risk of DSE use

The assessment will look at the risks to the young person including:

- the layout of the workplace
- the nature and duration of exposure
- the range of work undertaken
- the range of equipment used
- the extent of health & safety training provided

Ideally the assessment should be carried out before the young person starts work*.

The outcome of the risk assessment will determine what action needs to be taken. In most cases, the measures already in place to protect everyone will be sufficient. If a significant risk remains, the employer must do what is reasonably practicable to control harmful exposure or prevent young people from doing this type of work.

YOUNG WORKER HEALTH AND SAFETY CHECKLIST

Has someone been appointed to be in overall charge of young workers, including those on work experience placements?   Y / N

Where students are on a work experience placement, has effective liaison been established with the placement organisers, including arrangements for regular monitoring and reporting of accidents/incidents/ill-health? Y / N

Have 'suitable and sufficient' risk assessments been carried out   Y / N

Have any additional control measures required for young people been clearly identified? Y / N

Have risk assessments taken account of any special health and safety needs which young workers may have as a result, for example, of any physical and learning disabilities, or health issues such as allergies, asthma and respiratory problems, heart disease, diabetes, colour blindness or use of prescription medicines? Y / N

Have work activities which young people should be prohibited from undertaking been clearly identified?   Y / N   N/A

Have necessary steps been taken to isolate or make safe dangerous tools, plant, equipment or substances?   Y / N   N/A

Have any necessary arrangements for personal safety and freedom from sexual harassment and bullying been considered?   Y / N

Have parents or guardians been informed of risks and control measures if necessary? (under 16s)   Y / N   N/A

Have arrangements been made for appropriate supervision and induction training?   Y / N

Have work tasks for young people been properly defined and explained? Do young people understand what is required of them in order to protect their own safety and health and that of others?   Y / N

Have young workers been provided with appropriate information about hazards, risks and precautions? Y / N

Have the Working Time Directives been referred to and explained? Are regular breaks/ working hours agreed?   Y / N (There are limits on working hours and rest breaks which must be followed).

Examples of Risks and Avoidance Strategies for Young People

Hazard	What is the risk?	Avoidance
Physical capacity and work, the pace of which is determined by a piece of machinery	Musculo-skeletal disorders can occur with forceful movements and lack of breaks	The risk assessment should take into account physique, age and experience. Workplace training and supervision will be required.
Psychological capacity	Although there are differences in the capabilities of young people, their mental and social skills are	Effective supervision must be given alongside adequate training and support which may need to be greater

	no different from those of adults. However, there could be areas where a young person would have problems dealing with emotional situations such as violent behaviour.	than that given to an adult.
High Pressure	Young people have bones which are not fully developed and may suffer great long term harm from 'the bends'. Also, immature behaviour could increase the risk of an accident.	People under the age of 18 should not work with compressed air.
Biological Agents	Young workers are not intrinsically more susceptible to infection from biological agents.	Precautions against the risk of infection and acquiring allergies apply to all employees. In addition, further controls such as good hygiene and immunisations may be required.
Chemical Agents - e.g. very toxic, toxic, harmful, corrosive and irritant substances	Young people are not physiologically at greater risk than anyone else but the risk will be determined by where they will be working. We must bear in mind they may not understand or follow the instructions given.	These substances all fall within the scope of *COSHH.* Particular attention must be give to the training, information and supervision a young person needs to be able to use the substance safely.
	Substances which cause cancer, allergic reactions and those which can impair people's ability to have children do not affect children any more than adults.	Standard *COSHH* controls apply
Lead	The employment of young people to work in certain lead processes is forbidden, other process are permitted but the controls laid down by the *Control Of Lead At Work Regulations* apply.	Standard controls but with additional training and supervision where required.
Asbestos	Asbestos if inhaled presents a serious risk to health, young people because of their immaturity may not follow instructions and therefore this does need to be considered	The general controls laid down in the *Control Of Asbestos Regulations* apply, i.e. training, prevent exposure, monitor exposure,
Ionising Radiation	The risk of developing cancer does increase slightly with younger ages. The dose limits for young trainees are set at 30% of the adult rates.	Work should be arranged to keep exposure to ionising radiation as low as reasonably practicable, Young People cannot be designated as "classified persons".
Work with liquefied or dissolved	Accidental spills can cause fires & explosions, flammable liquids	An explanation of the basics of flammability and what to do if the

gasses & Gas Cylinders	should only be used for their intended purpose.	liquid is spilt is required. The dangers of using certain substances e.g. petrol may also need to be highlighted if appropriate. Safe handling procedures need to be outlined along with safe storage of cylinders.
Work Involving High Voltages	This could cause electric shock, electrocution and burns. Young people are not at greater risk.	Young people must not undertake any work with electricity unless they have the necessary technical skill, and experience to prevent danger or are under appropriate levels of supervision.
Noise	No additional risk to younger workers	Compliance with the *Control of Noise At Work Regulations* looks at protecting all employees where the noise levels reach over 80 decibels.

Specific Restrictions for young people

- Work with ionising radiation
- Work with lead or asbestos
- Processes involving compressed air
- Entry into confined spaces

Question

Outline the factors which may make young people at greater risk than their more mature colleagues?

Outline the measures the employer should take to minimise the risks to young employees.

C. THOSE WITH DISABILITIES

There are two main aspects which need to be addressed. Employers may wish to carry out a workplace inspection and risk assessment to check that their building meets the requirements of the Equality Act 2010 which has replaced the Disability Discrimination Act. Both require reasonable adjustments to physical features and working arrangements. Additionally though a specific assessment may need to be undertaken taking into account the individual requirements of the disabled individual, as those with hearing impairments may need a different range of controls to those with a mobility problem.

Where is the disabled employee located within the premises consider:-

- Do they move around our premises?
- If so, which areas do they work in?
- Do they work in different buildings?
- If so, are they aware of fire evacuation routes from each area or building?
- Do they need aids to help them, such as Braille, large print, a visual fire alarm?
- Are the exit signs clear enough?
- Do they work alone?
- Can they raise the alarm effectively if they discover a fire?
- Do they need assistance to get out in an emergency?
- If so, is there a buddy to assist them?
- Have buddy's been given training (if necessary) e.g. in use of evac chairs?
- Will there be cover if the buddy is on holiday leave etc.?

Access issues

Is there a car park on the premises?

- If so, are there enough spaces to allow one to be allocated as a disabled parking space?
- If not, could an employee space be made available by prior arrangement?
- Is the pathway/ pavement in good condition, i.e. free of potholes?

Are entrances:

- Easily identifiable?
- Wide enough, e.g. for wheelchairs?
- At street level?
- Are the door handles at an accessible height for wheelchair users?
- Are any doormats flush with the floor and not presenting a trip hazard?
- Is there a permanent or temporary ramp?

Moving around the building
Are all corridors and walkways:

- Kept clear and free of obstructions?
- Wide enough to accommodate a wheelchair?
- Non-slip?
- Kept free of spillages?
- Do all staircases in busy employee areas have handrails fitted?
- Do all stairs in the public areas have handrails fitted?
- Are all signs clear, with good contrast (i.e. black on white etc.)?
- Do the most important signs have pictorial symbols as well as words?
- Do the signs have frames or borders to help the visually impaired see them more clearly?
- Is glare avoided by keeping highly reflective surfaces away from signs?
- Are floors and walls easily distinguishable (i.e. painted in contrasting colours or tones?
- Are light switches within easy reach for disabled wheelchair users?

D. LONE WORKING

Working alone can introduce or enhance hazards, e.g. lack of assistance if needed, first aid cover, emergency situations, violent attack etc. There are inevitably tasks where employees work by themselves and some lone working may occur in the evening and at weekends.

Lone work is work which is specifically intended to be carried out unaccompanied or without immediate access to another person for assistance. It is not the same as the chance occurrence of finding oneself on one's own; for example, in every workplace there is somebody who arrives first and somebody who leaves last, or an individual may need to go to an unoccupied storeroom. An individual who has either visual or audible communication with another person would not be considered as working alone.

Lone working can occur:

- during normal working hours at a remote location either within the normal workplace or off site,
- when working outside normal working hours.
- when working in a fixed establishment with no other persons on site, or when others may be elsewhere on site
- working in a remote location including indoors
- working in client's premises
- travelling in the course of work

There could be an increased risk to the health and safety of its employees and contractors when working alone. Appropriate risk assessments shall be undertaken to identify risks to the lone worker and measures shall be introduced to minimise those risks wherever reasonably practicable.

Employees must be provided with information, instruction and training as appropriate in order to minimise risk when working remotely from colleagues or other persons and / or outside normal working hours. Particular consideration shall be given to:

(a)   assessing if the work is a "one person" job
(b)   the remoteness or isolation of the workplace
(c)   any problems of communication
(d)   the possibility of violence or criminal activity by intruders
(e)   the nature of possible injury
(f)   emergency egress (e.g. are fire exits open out of hours?)

Working alone is specifically prohibited by law in a small number of well defined dangerous situations such as working with live electrical conductors and entry into confined spaces.

The responsibility for employee health and safety cannot be delegated to the individual and it is the duty of employers and their managers to ensure that when lone working is considered justified, adequate arrangements are made for that individual's well being.

When assessing the risk of lone working, careful consideration must be given to the factors listed below. This is not a comprehensive list and every new situation must be fully assessed to ensure all relevant factors are identified.

a) Legal requirement for accompanied working? No lone working for work on live electrical systems or entry into confined spaces.
b) Possible method of supervision/ monitoring
c) Type of work - known hazards
d) Working environment – indoors or outdoors, rural or built up area
e) Experience/competence of the individual

f) Health of individual i.e. diabetic
g) Can the task be completed by person working alone?
h) Recording of presence, entry and exit from building
i) Means of communication in emergency
j) Supervision and monitoring arrangements
k) Evacuation/means of escape in emergency
l) First Aid arrangements
m) Transport issues
n) Risk of violence or verbal abuse
o) Define limits of task to be undertaken (if appropriate produce safe procedure of work)

3.15 INFORMATION SOURCES

There are vast amounts of health and safety information available in many different forms: written, CD, video and personal assistance.

The section is divided into two parts: information which may be available internally from your organisation and external information from outside agencies and bodies. Information sources may relate to people you can contact or information in written or computer based forms.

Internal

- H&S policy
- Procedures and protocols
- Accident records and trends
- Workplace inspections and internal reviews
- SSOW/Procedures
- Safety signs
- Newsletters
- Notice boards
- H&S officer / adviser
- H&S rep
- Occupational Health department or nurse
- Fire warden
- Other in-house specialists e.g. engineering manager, HR etc.
- Email and company intranet
- Training packages - video, computer and CD
- Internal training courses and training records
- Statutory Inspection reports
- Maintenance records
- Minutes of H&S committee

External

Health and Safety Law Poster

This tells workers what they and their employers need to do in simple terms, using numbered lists of basic points. The employer, must either display the HSE-approved poster or provide each worker with the equivalent 'leaflet'. The law changed in 2009 - for the new poster you don't have to add contact details of your enforcing authority and HSE's Employment Medical Advisory Service. Details of any employee safety representatives or other health and safety contacts can be added but this is not compulsory any longer. The posters have a unique hologram for additional security (to stop unofficial copies and prints).

- Legislation (Acts of Parliament, Regulations and orders)
- Approved codes of practice (HSE ACOPS)
- Guidance notes (HSE)
- EU
- Local authorities
- Trade unions and TUC
- Professional bodies - IOSH, NEBOSH, ROSPA, IIRSM
- International Labour Organisation
- World Health Organisation
- Manufacturers - chemical data sheets and work equipment manuals
- The enforcement authorities : HSE, Environmental Health Officer, Fire Authority
- H&S Consultants
- Training courses leading to accredited qualifications
- Industry standards or British standards / EU standards
- H&S Journals – Safety & Health Practitioner etc.
- CBI/CITB/EMAS
- Department of Work & Pensions: days lost, sickness etc.
- Local H&S and Occupational Health groups
- National audit office

3.16. SAFE SYSTEMS OF WORK

"A planned procedure to prevent harm."

"A method of working, designed to reduce the risk from identified hazards"

"A formal procedure which results from a systematic examination of the task, identification of hazards and risks, with safe methods stated to control or eliminate those risks".

"The integration of personnel, equipment, materials and the environment to ensure an acceptable level of health and safety"

"A step by step procedure to carry out a task taking into account all the hazards and controls required"

A safe system of work should comprise of:

- co-ordination of the activity
- layout and arrangements (including precautions)
- equipment to be used or involved
- the method of work
- instruction, training and supervision requirements

The safe system of work (SSOW) may be written or verbal; if it is a complicated procedure or process it must be written down. The need for safe systems may be identified as the result of a risk assessment.

Safe systems may need to include technical, procedural and behavioural controls.

Technical controls – these utilise hardware such as guards and devices
Procedural – written procedures and policies
Behavioural controls – training, information and instruction
Legal Requirements

Common Law Precedent

Safe systems of work must be provided; if they are not and an employee is injured they could sue the employer under civil law.

The requirements to have safe systems of work must be enforced by employers, this includes those used by contractors.

HASAWA Section 2 Duty of the Employer to the Employee
2.1 It shall be the duty of every employer to ensure as far as is reasonably practicable, the HEALTH, SAFETY and WELFARE at work of all their employees. They must provide:-

2.2
- safe plant and equipment including safe systems of work

Developing a safety system

Operational safety systems have to be overridden to allow special maintenance or repair work to be done. Reliance on common sense is not sufficient. Safe systems of work vary in depth and complexity. Where the work is complex, a written system is required. In high risk cases detailed emergency shut down and evacuation procedures and possibly a permit to work system may be required.

A SSOW provides a plan for the safest way to combine people and plant so that work can take place in a specific area in safety and should be developed by competent people as a result of any general risk assessment. Individuals must be taught the SSOW which may include written procedures as well as custom and practice. Permits to work are documents which support safe systems of work and help to show specific precautions that have to be actually taken.

Developing a SSOW

| Assess Task | Hazards | Safe Method | Communication | Monitor |

What sources of information might be used during the development of a SSOW?

Assess the Task

What hazards are present?

Who does what? - Foreseeable human errors, short cuts, how to cope with emergencies, training needs and the delegation of safety responsibilities must be considered.

Where is the task carried out? Problems with the weather, lighting and adjacent processes must be considered.

How will the task be done? A permit to work system may be required if the risks are high, what failures in the work method may occur?

Involvement – Where possible, employees who are going to actually implement and follow the SSOW should be involved in their development and implementation. This could involve formal consultation at the company health and safety committee or liaison with individual departments or sections.

Identifying the Hazards

When the assessment is made the hazards should be recognised and if possible eliminated or reduced before the use of a SSOW.

A number of information sources should be sourced which may include:-

- Manufacturer's instructions or manuals
- Guidance notes
- Risk Assessments
- Industry standards/British Standards

- Accident reports
- Fault reports
- Reliability data etc.

Define Safe Method

This can be provided orally but a written procedure is best. Before work can commence, consider the preparation and authorisation that may be required. Clear job sequences must be established, they may need to include the means of access and escape.

Implementation

The SSOW must be clearly understood by all those involved, employees must be aware of the commitment to safety. Supervisors should be fully aware of the legal responsibility they have and be aware of the potential risks involved. All those involved should be able to appreciate unexpected problems, they must know when to stop work and reconsider not only the problem but the system of work itself.

The SSOW may include the use of technical controls such as guards, safety devices and LEV along with behavioural controls such as pre-use checklists to ensure that the guards are still in place before the machine is put in use.

Monitoring the System

Periodic checks should be completed to ensure the system is workable; is it being carried out and working effectively? Any change in circumstances must be noted and taken into account when reviewing the SSOW.

Systems will only be as effective as the people who control and operate them. These people need to be fully informed and trained in the principles and details of any safe systems which affect them.

Communication of any SSOW is vital. Consider who may need to be given information and /or training on safe systems. This may include:-

- Site Managers
- Supervisors
- Employees
- Visiting contractors

3.17 PERMITS TO WORK

Permits to work are a means of authorising work and controlling it, they are not just safe systems; they set out a regime of checks to ensure that a task is completed safely, they normally operate in conjunction with a SSOW. The use of a permit does not make the job safe but it does provide formal control for high risk activities.

"A formal system is to operate a planned procedure which is designed to protect personnel working in hazardous environments. Usually for non-routine work which requires special training and precautions."

There are many occasions when a written system of work is insufficient to guard against the residual dangers which may exist. In this case a more formal system requiring specific signatures has to be adopted.

Where the hazards likely to be faced are severe, permit-to-work systems should be drawn up to provide a formal written safety control system. Permit to-work systems should not however be used for the control of lesser risks.

A permit to work will:

- set out the work to be done, the location and precautions to be taken;
- predetermine a safe method of work;
- provide a clear record that all foreseeable risks have been considered;
- define the precautions to be taken and their sequence.

Typical applications

The type of activities which should be covered by a permit to work procedure mainly involve maintenance activities including:

- Hot work
- Work on electrical systems
- Work on high voltage equipment/working with live electrcity
- Repairing unguarded machinery/machinery maintenance
- Entry into confined spaces
- Work being undertaken in flammable or explosive atmospheres
- Work at height
- Working with radioactive material

See example PTW in the "Useful forms" section.

PTW process overview

- Hazard evaluation – identifying the site-specific hazards of the task
- Precaution planning – selecting controls appropriate to the particular circumstances
- Specifying personnel – who has overall responsibility for the task?
- Issue of the permit
- Cancellation of the permit

Permit-to-work procedure

1. Inform everyone involved that work is to be carried out.
2. Withdraw area / equipment from service.

3.   Post caution notices, barriers, screens etc.
4.   Isolate and padlock all services e.g.: electricity, piped supplies (gas, liquid, compressed air), fire extinguishing systems etc.
5.   Identify all hazardous materials present.
6.   Specify the procedures and precautions for removing these hazardous materials.
7.   Specify appropriate protective clothing and equipment for use during the activity e.g.: helmets, eye protection, belts and lifelines, breathing apparatus etc.
8.   Supply any ventilation/air supply which may be necessary.
9.   Specify and supply emergency equipment together with personnel trained in its use.
10.   Provide the proper tools and equipment necessary for the job e.g. flameproof lamps, spark proof tools etc.

General permits

The general issues which would be included in any permit to work include:-

- Date, time and duration of the permit
- Description of tasks to be completed/ID of plant to be worked on
- The requirement to carry out gas sampling and monitoring of oxygen levels
- Record of isolations made
- Ventilation requirements
- PPE / RPE required
- Supervision
- Emergency plans and how to rescue casualties
- Communication systems
- Authorisation to enter, issuing and acceptance signatures
- Completion of work and the cancellation of permit
- Extension of the permit and shift handover

3.18 CONFINED SPACES

The Confined Spaces Regulations 1997 define confined spaces as "*Any place in which by virtue of its enclosed nature there arises a specified risk*". This could include sewers, drains, some boiler rooms, inside machinery and the inside of storage vessels and tanks.

Specified Risk

- risk from fire or explosion
- loss of consciousness through lack of oxygen or increase in body temperature
- drowning
- free flowing solid

Main Hazards which could lead to a "Specified Risk"

- Flammable substances
- Oxygen enrichment
- Toxic gas, fume or vapour
- Oxygen deficiency
- Ingress of liquids
- Free flowing solids e.g. grain, sugar, flour
- Excessive heat
- Lack of Space
- Hazards due to previous contents

The regulations apply to all premises covered by HASAWA except mines and diving operations.

Requirements

- Prevent access to confined spaces
- Prevent need for entry
- "Suitable and sufficient risk assessment"
- Safe working in confined spaces including emergency arrangements & training

TYPICAL CONTENTS OF A PTW FOR CONFINED SPACE ENTRY

- Date, time and duration of the permit
- Identification of confined space to be entered
- Description of tasks to be completed
- The requirement to carry out gas sampling and monitoring of oxygen levels
- Record of isolations made (liquid, mechanical and electrical)
- Ventilation requirements
- PPE / RPE required
- Supervision and having a top man
- Emergency plans and how to rescue causalities
- Communication systems
- Authorisation to enter, issuing and acceptance signatures
- Completion of work and the Cancellation of permit
- Extension of the permit and shift handover

SAFE WORKING IN CONFINED SPACES:

- Supervision
- "Top Man"
- Competent employees only
- Communication arrangements in place
- Testing / monitoring of atmosphere
- Gas purging for noxious fumes
- Ventilation during operation
- Removal of residues
- Isolation from gases, liquids and flowing materials
- Isolation: electrical & mechanical
- Suitable equipment: intrinsically safe
- Emergency arrangements: calling for help, first aid facilities etc.
- PPE e.g. gloves, overalls, safety shoes & harnesses
- RPE: respirators or breathing apparatus
- Safe access & egress: via ladders, harnesses etc.
- Fire prevention measures
- Adequate lighting: non sparking)
- Limit working time

3.19 THE NEED FOR EMERGENCY PLANNING
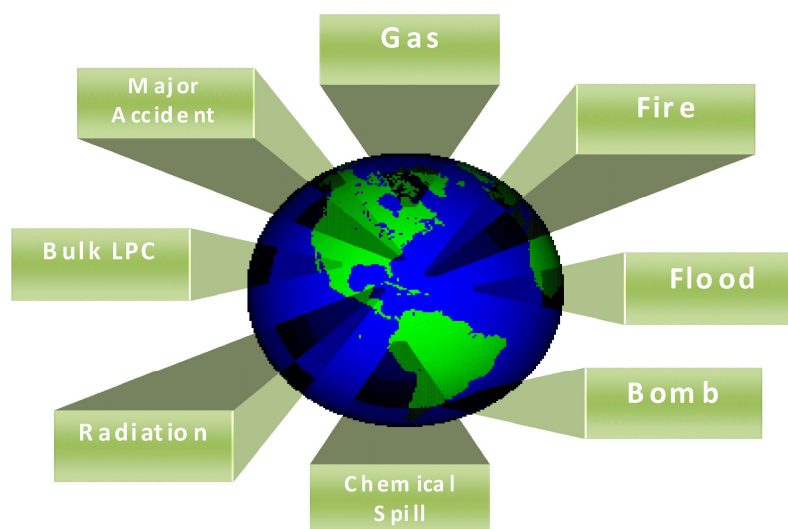
What is an emergency? It is a serious, unexpected and often dangerous situation requiring immediate action. People's quick response can be a life saver and prevent serious environmental damage.

Even with the best of environmental and safety management systems, emergencies may arise, to protect both itself, its employees, neighbours and reputation, an organisation needs to consider what safety and environmental emergencies may arise and ensure they have plans in place. Having a plan alone is not sufficient, it must be tested and reviewed to ensure the day they are required they are actually followed. Workplaces with large scale operations involving hazardous substances will be covered by the Control of Major Accidents and Hazards (COMAH) regulations which are explored a little later, but every organisation needs to have some emergency plans.

Safety and environmental damage may result from spillages, release of gases or flammable vapours, damage to plant and machinery, transportation, deliveries and sabotage.

Companies who do not manage the risks could not only be sued by those injured or who have their property damaged but also the HSE or EA may prosecute if injuries, damage or pollution occurs which could have been preventable.

Once developed, emergency plans need to be tested and monitored to ensure they will actually be effective when needed. Arrangements must be in place for contacting emergency and rescue services.

3.20 GENERAL EMERGENCY ARRANGEMENTS

Emergency plans – need to be developed, updated and communicated. Drills and practices need to be established to ensure those with specific responsibilities are clear about what to do when the plan is activated. Additionally arrangements must be in place to ensure the safety of visitors and the emergency services. Practices should check that the system and

emergency equipment is in place and will work when required. By completing drills, employees should be clear about the action they need to take enabling a panic-free environment.

Training – employees need to know what to do if an emergency arises and where any specialist equipment is kept and available – this needs to be checked on a regular basis to ensure it is still available and in working condition.

Spillage - Spillage and fire fighting run-off water from a site may have the potential to cause damage to water courses. It is recommended that appropriate spill kits or absorbent materials are held on site and it is essential that staff know what to do in an emergency. An up-to-date drainage plan should be maintained, hazards identified and a contingency plan, giving advice on what action to take and who should be informed, drawn up. These plans should be clearly displayed and regular exercises undertaken.

There are a variety of different spillage kits available including; **General Spill Kits** can be used in the absorption of oils, water based fluids and mild chemicals. The organisation needs to review what type of spillage they are likely to have and ensure the spillage kits are suitable, additionally they need to consider where the waste from the used spillage kit will be disposed of as it could be hazardous waste. Absorbent rolls, booms, supplies of sand and earth may be needed.

Security - Vandalism and theft are frequent causes of pollution emergencies. Lockable valves should be fitted on all storage tanks, fences should be secure and doors and gates kept locked. Where possible, materials should be stored under cover and potential pollutants should be transferred into safe storage without delay.

Drainage identification - they need to be identified and may need to be clearly signed, labelled or coloured. Up-to-date accurate site plans are required to show where the drains run and where they are discharged to.

Management procedures - for liaising with the local authority, emergency services and handling press or local enquiries may be needed.

The EA, Fire Authority, Local Council and HSE may all be involved for large scale sites to prevent and mitigate the effects of major emergencies.

Example Question

Outline the factors to be taken into account when developing emergency plans?

- Site location
- Any specific legal requirements
- Training needs for staff

- Key roles and responsibilities
- Communication – internally and externally
- Any specialist equipment needed on site
- Emergency PPE and other equipment
- Carrying out drills and practices
- What hazardous materials are stored and used on site?
- Neighbours

An outline answer would require a sentence or two of explanation to be made about each of the issues covered.

3.21 HEALTH AND SAFETY (FIRST AID) REGULATIONS 1981

The Regulations are supported by a set of guidance last updated in 2013.

The Objectives of First Aid:

1. To give immediate assistance to preserve life
2. To prevent further injuries
3. To get any casualty to medical aid if required or provide basic first aid treatment for minor injuries

REGULATION 3 - DUTY OF EMPLOYERS TO SUPPLY ADEQUATE AND APPROPRIATE PROVISION FOR FIRST AID

Adequate and appropriate will depend on:
- Nature of work and hazards present
- Nature of workforce
- Accident history
- Size of the organization
- Needs of lone workers and those who travel for work
- Work patterns
- Distribution of the workforce on site
- Remoteness of site from medical facilities
- Annual leave cover for first aiders/Shift patterns
- First aid provision for non-employees or members of the public (not mandatory)
- Shared site provision – co-operation for multi-employer sites

An assessment of first aid need will need to be completed to determine not only how many first aiders but also what other facilities or equipment are needed. If the assessment shows a full first aider is not required an appointed person must be appointed. The needs assessment does not need to be written down as long as the employer can demonstrate they have completed it.

The regulations do not require first aid arrangements for non-employees however the organisation may feel this is something they wish to provide to meet their moral obligations.

Once arrangements are in place they should be reviewed especially after any operational changes which may impact on the numbers of first aiders needed.

Records of first aid treatment must be maintained either for the site or by each first aider. This should include details of:

- The date and time of the incident (remember not all first aid will be for people who have had an accident)
- Name and job pf person injured
- Details of illness or injury
- What happened immediately after the treatment was given
- Name and signature of first aider or other person dealing with the incident

First aiders need to be aware of the requirements of RIDDOR (Covered in Unit A) to ensure they highlight any issues to the employer which may need to be reported formally and without delay.

A range of first aid cover may be in place, this may include full first aiders trained in first aid at work, those who have attended the new emergency first aid at work one day course (these are now both known as first aiders) or an appointed person. Additionally where there are specific risks the employer may need to train people in additional arrangements

Layers of first aid assistance:

- Appointed person AP = appointed person
- Emergency first at work EFAW – Emergency first aid at work trained first aider
- First aid at work FAW – First aider
- Additional training

Category	No of employees	No of First aiders
Low risk – offices & shops	Less than 25 25 – 50 50-100	1 AP 1 EFAW One FAW for every 100
High – Construction & Chemical manufacture	Less than 5 5 -50 More than 50	1 AP 1 EFAW or FAW depending on type of injuries At least 1 FAW for every 50 employees

First Aider: must hold a current HSE approved certificate and renew their skills every three years.

Emergency First aider: Must hold a current emergency first aid at work certificate.
There is a guidance note written by the HSE on how to select a suitable training provider for the above two courses.

Appointed Person: should not render first aid but is responsible for calling professional assistance, or may render emergency first aid, if trained to do so.

Equipment issues:-

The assessment of need will identify the materials, equipment and facilities needed to support first aid arrangements. As a minimum they will include at least one first aid box per workplace which is always assessable.

- Accessible first aid boxes
- First aid boxes must identifiable as such
- Containing relevant materials and supplies
- Guidance note on contents in box
- Boxes ideally near hand washing facilities
- First aid items protected from dust and dirt
- First aid boxes checked to ensure fully stocked and items in date
- Other equipment may be stored in or by the first aid box e.g. blankets, disposable aprons, shears or hypoallergenic tape
- If water is not available eye wash should be provided in sealed containers (check expiry dates)
- First aid at work does not include giving any medication
- If an employer has a defibrillator then employees need to be trained in using it

If a first aid room is provided it must be easily accessible by both employees and members of the emergency services. It should be exclusively for first aid, with a couch, chair, sink with hot and cold water, drinking water, soap, store for first aid materials and foot operated refuse containers. It should also have a telephone or other communication equipment. The first aid record or treatment book may also be kept in the first aid room if there is one.

Contents of the First Aid Box

What would you expect or like to be in a first aid box?

Yes	No
Bandages	Potions and lotions
Triangular bandages	Detol & disinfectant
Plasters	Covered cotton wool
Plasters – blue catering	Drugs
Record book	Eye wash nearby where there is no tap water
Emergency aid leaflet	
Scissors	
Saline	
Aprons	

REGULATION 4 - DUTY TO PROVIDE INFORMATION TO EMPLOYEES

The following information should be made available to employees and other people coming on site:

- the location of first aid equipment
- the facilities available
- who the first aiders are

This information should be given on induction. Notices of first aid details must be displayed in English and other languages to new starters if required.

Records of all first aid given must also be kept. This may be done via a first aid book kept by the first aid box or individual first aiders may keep their own note books. It is important that the extent of injuries is recorded just in case there are any adverse effects in the future.

REGULATION 5 - DUTY OF SELF EMPLOYED TO SUPPLY ADEQUATE AND APPROPRIATE FIRST AID EQUIPMENT

This may need to be co-ordinated on a shared site so that one contractor provides the first aid facilities for all.

3.22 SAFETY SIGNS AND SIGNALS

There are four main categories of safety sign.

THE HEALTH AND SAFETY (SAFETY SIGNS AND SIGNALS) REGULATIONS 1996

Coverage:

- Signs: Prohibition, Mandatory, Warning, Safe Condition, Fire Appliance, Pipe Markings and Warning Hashes.

- Verbal signs & signals "STOP" "GO"

- Acoustic signals – This includes warning bleepers on fork lift trucks or HGVs.

- Body signals – Hand signals may be used to direct traffic or cranes.

Main Requirement

Where a risk cannot be solved by another means, a safety sign must be provided.

All signs and signals must be clear, unambiguous and easy to understand.

The key focus should be on the use of pictograms and not just words for signage.