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SILVER 1227

First Edition
2020

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Environment | Health | Safety

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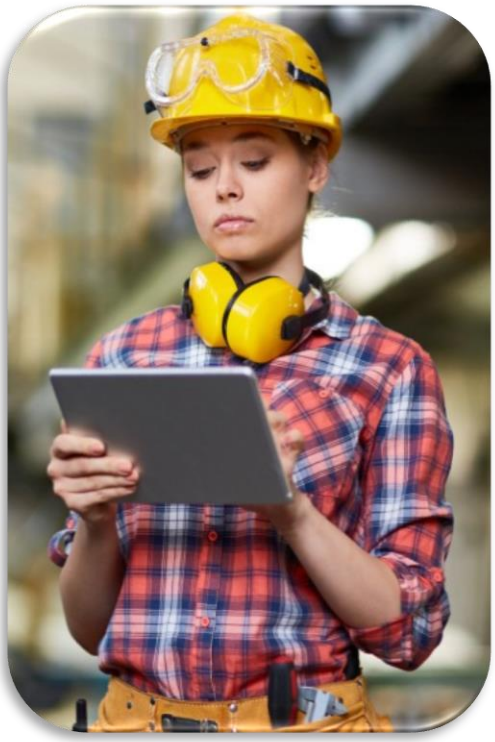
International General Certificate in Occupational Health and Safety

Unit IG1 - Management of Health and Safety

Element 1

Why We Should Manage Workplace Health and Safety



Learning Objectives

1. Discuss the moral, financial, and legal reasons for managing health and safety in the workplace.

2. Explain how health and safety is regulated and the consequences of non-compliance.

3. Summarise the main health and safety duties of different groups of people at work.

4. Explain how contractors should be selected, monitored, and managed.

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Contents

Morals and Money

Regulating Health and Safety

Who Does What in Organisations

1.1 Morals and Money

Introduction to Key Terms

Some of the important definitions that helps you to understand the important key words:

Health

Absence of disease or illness or the protection of the bodies and minds of people from illness resulting from the materials, processes or procedures used in the workplace". For example, exposure to hazardous chemical can result in physical ill health (asthma), verbal abuse or work-related stress can result in psychological ill-health.

Accident at workplace

Safety

The protection of people from physical injury". For example, working at height on an unprotected edge is unsafe, because there is a potential to fall from height resulting in serious injury or death. Hence provision of safe working platform prevent physical injury is considered as safety.

Welfare

The provision of facilities to maintain the health and well-being of individuals at the workplace. Welfare facilities include washing and sanitation arrangements, the provision of drinking water, heating, lighting, accommodation for clothing, seating (when required by the work activity), eating and rest rooms. First aid arrangements are also considered as welfare facilities.

Occupational ill-health

is concerned with those illnesses or physical and mental disorders that are either caused or triggered by workplace activities. Such conditions may be induced by the particular work activity of the individual or by activities of others in the workplace. The time interval between exposure and the onset of the illness may be short (e.g. asthma attacks) or long (e.g. deafness or cancer).

The Moral Reasons for Managing Health and Safety

Everyday people die as a result occupational accident or ill-health, more than 2.78 million people die every year.

Over 374 million non-fatal work-related injuries each year, resulting over 4 days absence from work.

Globally there are 340 million occupational accidents and 160 million victims due to work-related ill health every year.

Economic burden of poor occupational safety and health is estimated at 3.94% global GDP annually.

Most of the death caused due to hazardous substances

The statistics reveals the number of people affected due to occupational accidents, the injured people may suffer pain, disability, and financial losses as part of their employment. The effects of

an injury can have profound long-term consequences on an individual's personal and social life. There may also be a significant impact on the injured person's family, this is morally unaccepted.

Organisations usually take all possible ways to protect their workers from injury. They attempt to 'do the right things' so that the workers return to home happily without any injury or ill-health. Society expects that the employer to demonstrate correct attitude towards health and safety.

Employers have a moral duty to ensure the health, safety, and well-being of their employees. They must also ensure the health, safety, and welfare of non-employees such as contractors and visitors.

The Financial Reason for Managing Health and Safety

Accidents and ill-health involve costs, the indirect costs involved are often considerably more expensive than direct costs. The direct and indirect costs associated with accidents can endanger a company's competitiveness. Financial losses due to lost production, damage to equipment and plant, increased insurance premiums and the possibility of fines and adverse publicity are all issues to consider.

While it is possible to insure against some of the expenses associated with injury, ill-health and damage to property, the hidden uninsurable costs could well exceed the insurable costs.

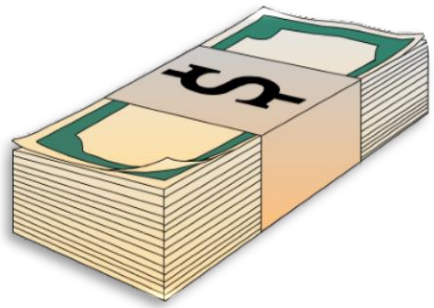
- Those relating directly to the incident.
- Those relating indirectly to the incident.

Direct Costs

These are the measurable costs which are directly associated with the accidents and involves payment of money.

For e.g.

- Compensation pay outs.
- Victim Sick pay.
- Fines from criminal court.
- Machinery repair costs



Accident involves loss of money

Indirect Costs

These are the costs which are arise as a consequence of the event, indirect costs are often difficult to quantify, they are more substantial than direct costs.

For e.g.

- Loss of worker morale (will have impact in productivity and culture.
- Supervisor time spent on investigation and preparing reports.
- Recruiting and training new employees.
- Loss of business reputation and goodwill.

Insured and Uninsured Costs

Employers consistently take out insurance to cover themselves against potential losses caused by such events as fire and theft. In many countries, there is a legal requirement that employers also required to have insurance against certain types of liability. However, many of the costs involved in respect of accidents at work are not covered by insurance.

Uninsured costs include all indirect costs as well as those relating to loss of production as a result of many types of incident. In addition, the insurance to cover loss in respect of certain events may be void where it may be shown that the employer has not taken adequate precautions to prevent the incident. It has been estimated that uninsured losses are greater than the insured losses.

	INSURED		
	Employers' liability	Business interruption	I
D	Public liability	Product liability	N
I	Damage to buildings		D
R	Damage to vehicles		I
E	Sick pay	Investigation costs	R
C	Repairs	Loss of goodwill	E
T	Product lost/damaged	Loss of corporate image	C
		Hiring and training of replacement staff	T
	UNINSURED		

Accidental Costs in an organisation

Legal Reasons for Managing Workplace Health and Safety

To meet the social expectations many countries, have their own legal standards, Moral obligation has turned into health and safety legislations, it is expressed in both civil law and criminal law.

The law set some boundaries towards health and safety within which the companies must operate failing to do can attract legal actions. Depending on the country, the possible consequences of failing to comply with health and safety legislation include enforcement notices, fines, compensation claims and imprisonment.

Many countries have introduced their own legal duties regarding the protection of workers from harm and where this is not the case adoption of other countries' health and safety laws as best practice is common.

Health and Safety is Legal requirement in all the countries

The International Framework

There is no harmonised health and safety law, Many countries have developed their own law to deal with health and safety issues.

International Labour Organisation (ILO)

The International Labour Organisation (ILO) is built on the constitutional principle that universal and lasting peace can only be established if it is based upon social justice. The ILO is responsible for the eight-hour working day, maternity protection, child-labour laws, and a range of policies which promote workplace safety and peaceful industrial relations.

The ILO is the international institutional framework which makes it possible to address such issues (and to find solutions) allowing working conditions to improve everywhere. No country or industry could have afforded to introduce any of these in the absence of similar and simultaneous action by its competitors.

How the ILO Works

The ILO has a tripartite structure unique in the United Nations, in which employers' and workers' representatives (the 'social partners' of the economy) have an equal voice with those of governments in shaping its policies and programmes.

The ILO also encourages this tripartism within its member States by promoting a 'social dialogue' between trade unions and employers in formulating, and where appropriate, implementing national policy on social, economic, and many other issues. Minimum international labour standards and the broad policies of the ILO are set by the International Labour Conference, which meets annually. Every two years, the Conference adopts the ILO's biennial work programme and budget, which is financed by member States.

The Functions of the ILO

The ILO has four principal strategic objectives:

1. To promote and realise standards, and fundamental principles and rights at work:
2. To create greater opportunities for women and men to secure decent employment:
3. To enhance the coverage and effectiveness of social protection for all:
4. To strengthen triparty and social dialogue.

These objectives are realised in a number of ways:

- Formulation of international policies and programmes to promote basic human rights, improve working and living conditions, and enhance employment opportunities.
- Creation of international labour standards – backed by a unique system to supervise their application – to serve as guidelines for national authorities in putting these policies into action.
- An extensive programme of international technical co-operation formulated and implemented in an active partnership with constituents, to help countries in making these policies effective in practice.
- Training, education, research, and publishing activities to help advance all these efforts.

International Labour Standards - Conventions and Recommendations

International labour standards are legal instruments drawn up by the ILO's constituents and setting out basic principles and rights at work. They are either 'conventions,' which are legally binding international treaties that may be ratified by member states, or 'recommendations,' which serve as non-binding guidelines.

In many cases, a convention lays down the basic principles to be implemented by ratifying countries, while a related recommendation supplements the convention by providing more detailed guidelines on how it could be applied. Recommendations can also be self-governing, i.e. not linked to any convention.

Conventions and recommendations are drawn up by representatives of governments, employers and workers and are adopted at the ILO's annual International Labour Conference. Once a standard is adopted, member states are required under the ILO Constitution to submit them to their competent authority (normally the parliament) for consideration. In the case of conventions, this means consideration for ratification.

If it is ratified, a convention generally comes into force for that country one year after the date of ratification. Ratifying countries commit themselves to applying the convention in national law and practice and reporting on its application at regular intervals.

The ILO provides technical assistance if necessary. In addition, representation and complaint procedures can be initiated against countries for violations of a convention they have ratified.

Employers' Responsibilities

According to ILO OSH Convention C155, employers have various responsibilities. The responsibilities shall be 'so far as is reasonably practicable'

"So far as is reasonably practicable" means that the degree of risk must be balanced against the time, cost, effort, and degree of difficulty necessary to combat it. If these were so disproportionate that it would be quite unreasonable to carry them out, then it would not be reasonably practicable.

Convention C155 is backed up by ILO R164, 1981, which gives detailed information of employer responsibilities defined in Article of 16 of C155.

Regardless of any legal background for protecting employees from harm, the general duty placed on the employer is to -

"…. ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his

employees".

The general duty includes

- the provision and maintenance of plant and systems of work that are safe and without risks to health.
- arrangements for ensuring the safety and absence of risks to health from the use, handling, storage and transport of articles and substances.
- the provision of information, instruction, training, and supervision sufficient to ensure the health and safety at work of his employees.
- Workplace is maintained in a safe condition without risk to health, including the means of access and egress and
- provision and maintenance of the working environment for his employees which is safe and without risk to health and adequate as regards the provision of and arrangements for their welfare facilities.

In addition, the employer is responsible is for developing a health and safety policy, this policy must demonstrate the statement of intent, the organisation (roles and responsibilities), general and specific arrangements to implement the policy.

The employer is also held responsible for carrying out risk assessments to meet the specific responsibilities set out in arrangements.

Employee or Workers Responsibilities and Rights

ILO convention C155, 1981, sets out the responsibilities of the workers to safeguard themselves and others from harm. Employees must cooperate with their employer to meet their health and safety obligations place upon the employer.

ILO R164 sets that the employee should

- Take reasonable care for their own safety and that of other people who might be affected by business undertakings.
- Comply with procedures and instructions provided to take care of themselves and others.
- Use of safety devices and Personal Protective equipment correctly and not to misuse it.
- Report any situation to the supervisor or employer which they believe, could present imminent danger which they cannot themselves correct.
- Report any accident or occupational ill health which arises as part of the employment.

ILO Convention C155 insists that workers must be provided with certain rights to involve them in workplace health and safety, article 19 to 21 of Convention C155 provides the following rights to the workers.

- Workers must be given with suitable training regarding occupational health and safety.
- Workers must be provided with adequate information on actions taken by the employer to establish occupational health and safety.
- Employers must make arrangements to the workers and their representatives so that can co-operate and consult with employer on matters relating to occupational health and safety.
- The employee must be given with the right to leave the workplace where is there is significant risk may present to his life or health and shall not return to the place until the workplace becomes safe.

The Role of Enforcement Agencies

There is no existence of harmonized standards for health and safety globally, so the enforcement system may vary from country to country. There are various agencies that can enforce law, investigate, provide advice on matters related to health and safety and so on.

Enforcement Agencies – in each country there may be an enforcement agency responsible for effectively enforcing health and safety law. Such an agency is effectively "the health and safety police", in some country the agency may be or may engage the assistance of local police.

Fire Authorities - Most of the countries have an independent fire authority to enforce fire safety legislations or advices employers regarding fire safety requirements.

Insurance Companies - major role played to enforce health and safety in an organisation, they carry out inspections and audits on regular intervals. Insurance companies can influence in increasing standards in an organisation as they can increase the insurance premiums or deny insurance coverage completely, unless required standards are fulfilled.

Consequences of Non-Compliance

Breach of health and safety law lead to legal actions

The consequences of non-compliance will be based on the powers of the enforcement agencies. The following consequence may be applicable if an employer breaches a health and safety legislation.

- **Issuing enforcement notices:** which insists the employer to improve health and safety in the workplace, especially where high risk activities being carried out, the improvement notice may warrant to stop continuing with high risk activities until improvements are made. Failure to comply with enforcement action can lead to criminal offence may result in taking action to prosecute.
- **Fixed penalty fine:** given by the enforcement agency without the need to prosecute in the criminal court.
- **Prosecute the employer in the criminal court:** this might result in fines, imprisonment, continued prohibition of unsafe actions until risks are improved**.**
- **Withdrawal of License:** enforcement agency can withdraw license which is required to carry out specific activity.

Other National and International standards

International Standards

International Organisations for standardisation are a non-governmental organisation, they develop management standards.

Standards that ISO has developed includes:

- ISO 9001 – Quality Management Standard (QMS)
- ISO 14001 – Environmental Management System (EMS)
- ISO 12100 – Safety of Machinery

These standards are not legal documents but still they are adopted by many countries globally, these standards demonstrate good management practices. The ultimate objective of an organisation is to achieve management quality and environment.

There is also an international standard for occupational health and safety management:

- ISO 45001:2018
- HSEG65

National Standards

Occupational Safety and Health Administration (OSHA) U.S.

OSHA's aim is to ensure the health and safety of people in the American workplace by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

OSHA and its state partners have over 2000 inspectors, as well as complaint discrimination investigators, engineers, physicians, educators, standards writers, and other technical and support personnel spread throughout the country. OSHA establishes protective standards, enforces them, and reaches out to employers and employees through technical assistance and consultation programs.

Nearly everyone who works in the U.S. comes under OSHA's jurisdiction (except miners, transportation workers, many public employees, and the self-employed). Other users and recipients of OSHA services include occupational safety and health professionals, the academic community, lawyers, journalists, and personnel of other government entities.

OSHA aims to ensure worker safety and health in the United States by working with employers and employees to create improved working environments. Since it launched in 1971, OSHA has helped to cut workplace fatalities by more than 60 per cent and occupational injury and illness rates by 40 per cent.

The Health and Safety Executive

The UK's Health and Safety Executive (HSE) is responsible for the regulation of almost all the risks to health and safety as a result of workplace activities. Their mission is to protect people by ensuring the control of risk in the workplace. This is done through the enforcement of the Health and Safety Work Act and other relevant statutory provisions.

The HSE covers health and safety in a variety of workplace sectors including nuclear plants, mines, factories, farms, hospitals, schools, offshore gas and oil installations, the safety of the gas grid and the movement of dangerous goods and substances, railway safety, and many other aspects of the protection both of workers and the public. Local authorities are responsible to HSE for enforcement in offices, shops and other parts of the services sector.

The duties of the HSE include protecting people in the UK against risks to health or safety from workplace activities by conducting a sponsoring research, promoting training, providing an information service and by putting forward proposals for new or revised legislation and guidance. They also have a specific duty to maintain the Employment Medical Advisory Service which provides advice on matters relating to occupational health.

Sources of Information

The sources of information are available within the organisation or from external to the organisation. Information on national and international standards can be obtained from relevant bodies, who propagate in the form of guidance documents, which provides valuable information on the legal standards.

Internal sources of information

- HSE Policy
- Risk Assessment
- Accident / Ill-health records
- Safety Committee meeting minutes
- First aid treatment records
- Absenteeism records
- Safe system of work / Method statement.
- Inspection / audit reports.

External Sources of Information

- Government Bodies i.e. UK - HSE, USA –OSHA , Australia - Work safe BC
- International Bodies i.e. ILO, WHO
- Professional Bodies i.e. UK - RoSPA, IIRSM
- HSE Publications.
- Manufacturer's Data
- Insurance Companies
- Trade Associations
- These international bodies even have their own websites which provides valuable sources of updated information:

For example,

- The International Labour Organisation, ILO, (United Nations) – http://www.ilo.org.
- Occupational Safety and Health Administration, OSHA, (USA) – http://www.osha.gov.
- Health and Safety Executive, HSE, (UK) http://www.hse.gov.uk.

1.3 Who Does What in Organisations

Introduction

In all the management systems, organising is an essential part of the successful management of health and safety. The significance of this element is to define clear roles and responsibilities for various parties such as Employers, Employees, Self-employed, Controller of premises, Designers and manufacturers, Joint occupier Premises.

As discussed earlier, employers' responsibilities are clearly defined in ILO Convention C155, 1981 and Recommendations R164, however the responsibility for health and safety lies with different people. The details vary between regions so what follows is a general discussion of typical expectations the law may have for the various people concerned. As you will be aware, the main duties for ensuring the protection of people at work rest with employers.

The Employer

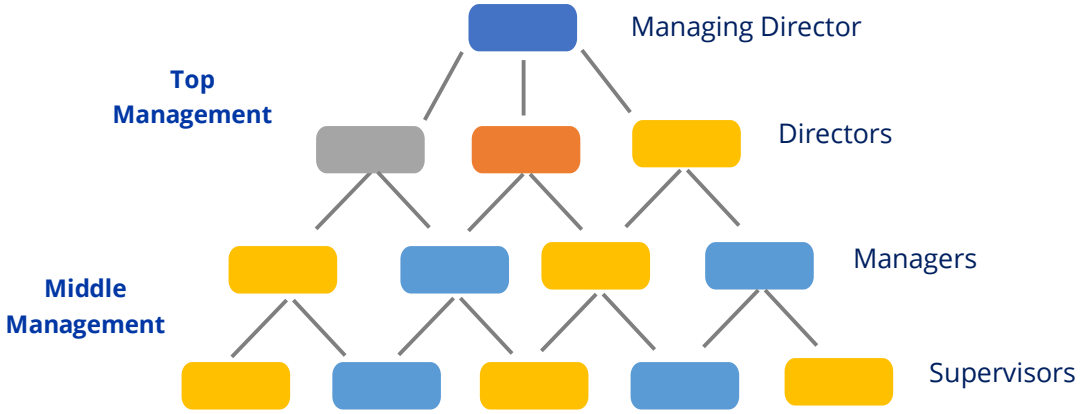
The primary responsibility of the employer is to manage the business/ organisation in safe and healthy way. Employer has to take reasonable care towards his employees and others who might be affected by their business undertakings. The similar responsibility applies to all the employers irrespective of the size of the organisation.

Employers responsibilities are given in ILO Convention C155, 1981 and Recommendations R164, and ensures that the employer has overall responsibility towards the health and safety of the workers and others and to protect from risk, harm and ill health.

Employers' responsibilities towards employees includes

- Developing policy, setting responsibilities and arrangements to implement the policy.
- Provision of safe workplace, machinery, equipment and substances.
- Providing necessary information, instructions, training considering the workplace requirements and individual capabilities.
- Provision of adequate supervision of work, work practices and the use of correct application of health and safety measures.
- Provision of welfare facilities including drinking water, toilet facilities, changing rooms, eye wash stations, first aid provision etc.,
- Provision of suitable and adequate personal protective equipment without out any cost the employees.
- Consultation with their workforce or other representatives on all matters related health and safety.
- Taking precautions to eliminate mental and physical fatigue.

Directors and Senior Managers



Directors and Senior managers are deputed by employers, to ensure employers' health and safety responsibilities are met, in practice it includes that appropriate health and safety policy is in place and effective in achieving organisation requirements. The directors and senior managers are accountable to their employers for achieving these responsibilities.

Directors and senior managers are to make sure that:

- An appropriate health and safety policy are developed and established.
- Carrying out risk assessments and ensures that suitable control measures are in place.
- Show their commitment by involving themselves in leadership activities like site visits, consultation with the workforce.
- Allocation of suitable resources to establish and maintain health and safety management system. Resources as such – competent workers /fellow workers, and budgeting to meet the objectives of the health and safety policy.
- In addition, the senior managers will be provided specific responsibilities in the organisation towards health and safety. For instance, taking care of high-risk activities, or entire division or region.
- The senior managers may appoint competent person for assisting with health and safety measures and to meet organisations health and safety obligations.
- The senior managers involve themselves in reviewing health and safety performance of an organisation to ensure the objectives are being met and remains valid.

Reviewing Health and Safety Performance

Directors and Senior managers must periodically review organisation's health and safety performance. It can be done annually.

The review should focus on the entire organisation's health and safety approach, including the functioning of health and safety management system. This is best conducted with the top

management's team involvement as it proves the top management commitment and leadership towards health and safety.

Top management commitment in review process is significant to motivate employees at all levels including management. The top management will decide on the desired resources which is necessary for continual success of organisational health and safety performance.

Middle Managers and Supervisors

Middle Managers

Middle managers at all levels have significant responsibility in an organisation and are expected to ensure health and safety is effectively established in day to day operation under their area of control.

Operational Responsibilities of the middle managers include:

- Provision and maintenance of workplace, equipment, and tools without any risk to health.
- Risk assessments are carried out and reviewed at regular intervals.
- Effective consultation and co-operation with workers, supervisors, and top management.
- Identifying training needs and providing trainings to the workers and contractors.
- Involve themselves in accident investigations and work-related ill health.

The middle managers must be competent enough with up to date knowledge to meet their day to day responsibilities.

Supervisors

Supervisor does close supervision of the work activities; they are responsible for the areas under their control. The responsibilities include:

- Conduct risk assessment and put effective risk controls in place so far as is reasonably practicable.
- Develop safe system of work and involve workers when developing procedures and ensure that the members of his team are trained.
- Consultation with the workers and employee representatives.
- The supervisor must set as an example by showing his commitment and control on safe behaviour and following procedures.
- Carry out first level of investigation followed by near misses, accident/incident or ill health reported and report to the senior managers.
- Carrying our workplace inspection on the areas under their control and to take actions against unsafe conditions, unsafe practice which are observed at the time of inspection.
- Report to their managers on matters regarding health and safety, where they do not have authority to take actions.

The Shared Responsibilities of Joint Occupiers of Premises

Employer share same workplace must co-operate each other

Employers who share the same workplace have responsibility to co-operate with other employers to ensure health and safety their own employees and that of other employers. The hazards and risks created by one employer may affect the health and safety of the other employer's employee. The employer must share information with other employer about the risk that may arise and affect the other employer's workers.

Employers must co-ordinate their activities each other to ensure good health and safety standards are being met effectively, to achieve this, effective communication and exchange of information between both the employers, development of policies and emergency procedures for shared risks, for example, when establishing fire evacuation arrangements on a site with multiple occupancy, the whole of the site should be considered. Each occupant should co-operate with a co-ordinated response.

A common system to manage joint issues at the workplace such as Provision of information about the risks that their business creates, it can be achieved by establishing an association with regular meetings. Exchange of information takes place in the committee meeting which helps to develop common policies and procedures and implemented throughout the premises; Common policies includes – prohibiting smoking in the premises, procedures includes common fire procedures, bomb threat procedures, emergency spill response, vetting visitors at the entrance, vehicle parking and traffic management etc.; It may be appropriate to conduct common fire drills, joint inspections of the premises and procedures for disposing wastes; It may be appropriate to carryout joint site risk assessment and sharing risk assessment between employers so that everyone are aware of potential impact of the use of tools, equipment and substances so as to coordinate their activities.

Management of Contractors

The principal duties are expressed in the above sections and show that a client has duties towards a contractor and their workers as well as visitors to their workplace. In addition, when a client commissions a contractor to conduct work relating to the client's undertaking, the client retains responsibility to see that it is conducted in a safe and healthy manner. Clearly, this benefits the contractor's workers, sub-contractors' workers, the public and the client's workers.

A contractor that agrees to a contract for service must provide appropriate health and safety standards when conducting the work – this will benefit all those that might be affected. It is the responsibility of both parties to ensure effective planning and build health and safety into the contract and work methods. To this end, it is essential that they co-operate with each other and ensure co-ordination of contracted work activities.

Contracted work carries risks in that workers may be unfamiliar with the workplace and work may be organised such that activities conflict with each other putting contractors or workers at risk. It is therefore essential that all contracted work be effectively planned and co-ordinated. This will include conducting appropriate risk assessments of work activities, foreseeing how the activities and parties involved in the work interact with each other. The risk assessments would lead to the development of plans and statements of how the work is to be conducted and co-ordinated.

Definitions

Client

A person or a firm who engages service of a contractor or other professional person or company.

Contractor

A person or a firm that undertakes a contract to perform certain work independently on behalf and not under the direct control of the client.

Shared Duties

Many of the health and safety problems arising from contract work result from:

- Poor selection of contractors.
- poor planning and agreement over the method of carrying out the work.
- Poor communication and sharing of information regarding the risks created by each party & the precaution that should be taken.
- Lack of monitoring from both the parties

Client Responsibilities (Employer to Contractor)

The Client, as an employer, has responsibilities regarding

- Address the risk to the safety of its employees.
- Address the risk to the contractor's employees arising from premises / plant / equipment / activity.
- Address risk to the public / others arising from the work.

Contractors Responsibilities (Contractor & Sub-Contractor as Employer)

In general, the contractors and Sub-contractors, as employers, have responsibilities regarding:

- Address the risk to their own employees arising from the work.
- Address the risk to the client employees arising from the work.
- Address the risk to the client arising from the work.

Every organisation use contractors to carry out various types of work activities. It can be simple work – floor cleaning, or complicated work – excavation, welding in a confined space.
The effective management of contractors by the client can be broken down into the following

key areas:

- Selection of Contractor
- Planning the job
- Co-ordination of the work.
- Monitoring the contractors work
- Review the contractor's performance and effectiveness of existing control.

Selecting a Contractor

The contractors must be selected carefully based on their competence in health and safety. The following evidences can be taken into consideration to check the competence of the contractor are:

- The health and safety policy of the contractor.
- Experience in similar type of job and industry.
- Accident / ill health records.
- The quality of the previous risk assessments, safe working methods.
- Details of the previous and current clients.
- Membership of professional body or certified body, for example, Civil Engineering Contractors Association (CECA), in UK; Builders Association of India(BAI), in India.
- Enforcement history, any enforcement actions taken against the contractor.
- The competence and training records of the staff, e.g. their qualifications, experience and training.
- Machinery and equipment maintenance and testing records.
- Arrangements in place for monitoring, reporting accident/ ill health.

Planning the Job

Its indeed important to exchange information between the client and the contractor. The client has to provide adequate information to the contactor about the hazards and risks that are existing in the workplace, similarly the contractor has to disclose the client about the hazards and risks that may arise during the time of work. The exchange of information shall be planned so that everyone remains safe at the site.

The contractor is responsible for

- Carrying out a risk assessment for the contracted work and together with employer to consider any risks from each other work activity that could affect health and safety of workers or others
- Developing safe working methods to control the risks.
- Carrying out Job Safety Analysis.
- Maintaining the documents for safe working methods (Method Statement).

Co-ordination of the Work

The co-ordination must exist between the client and the contractor. So that the work activity of both the parties does not conflict each other. There may be several contractors carrying out different tasks at one time , the activity of one person must not create a hazard for another in

the same work area., for example if the contractor is carrying out a machinery maintenance it would be wise to prohibit other workers or operators do any task with the machinery.

Monitoring and Managing the work

Monitoring is critical in ensuring that contract terms and conditions are being met in terms of technical quality as well as health and safety.

The frequency of monitoring is dependent upon the hazards and risks associated with the job. High risk activity may require frequent monitoring now and then, long duration low risk work may be subject to weekly or less frequent checks.

Client and Contractor must co-ordinate each other at workplace

The proposed frequency should be decided based on what is agreed between the client and contractor initially.

- Regular Checks – ask yourself 'are the control measures are effective?
- Investigating after things went wrong, e.g. Near misses, accidents, ill health reported. Ask yourself what went wrong and how it can be prevent from happening again?

Review the Contractor's Performance, and the Effectiveness of Control

The contractor's job is complete when the work has been completed according to the plan and the terms of the contract agreement.

A joint client / contractor review can be effective in reviewing contractor's performance.

Any issues arising should be recorded. The information may determine the future use of the contractor or the need for changes to contractor management arrangements.

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Element 2

How Health and Safety Management System Work and What They Look Like

Learning Objectives

1. Give an Overview of the elements of health and safety management systems and the benefits of having a formal/certified system.

2. Discuss the main ingredients of health and safety management systems that make it effective – Policy, responsibilities, arrangements.

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Contents

Occupational Health and Safety Management System

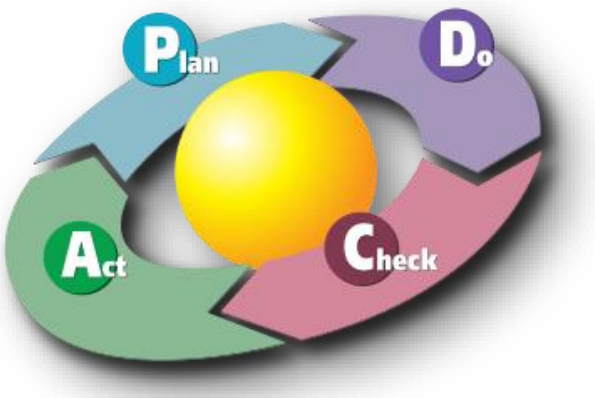
Making the Management System Work – The Health and Safety Policy

2.1 Occupational Health and Safety Management System

Introduction

Each organisation should have a clear policy for health and safety so that everyone in the organisation is aware of the organisation's health and safety aims and objectives. A good health and safety policy will increase the performance of the organisation by reducing accidents and financial losses.

Key Elements of Health & Safety Management System

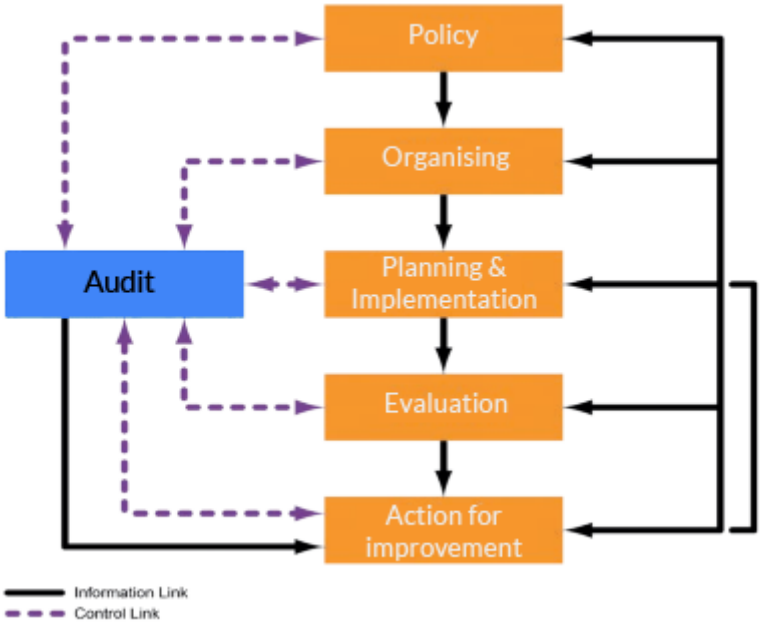


Health and Safety management system is an integral part of business operations to manage health and safety effectively in an organisation.

Introduction of occupational safety management system, such as ISO 45001, HSG 65 etc., will benefit organisations in reducing risks and increases productivity.

The general approach used in various management system is often referred to PDCA cycle, since PDCA is can be applied to all processes, the safety management systems have a common principle which are stated in ILO - OSH 2001.

ILO OSH 2001:
The ILO Occupational Safety & Health Management System



Policy (Plan)

A clear statement must be made in order to achieve high standards of health and safety, there must be a commitment at all level of the management, especially from the top management.

Organising (Plan)

Clearly defining the roles and responsibilities of everyone in an organisation for health and safety. There should be a visible leadership from senior management to support safety management system and to empower ground level people to work safely. The Key elements of organising are

- Competence
- Commitment and control
- Co-operation
- Communication

Planning and Implementation (Do)

Appropriate arrangements must be in place for carrying out risk assessments, hazard identification, the risk must be eliminated by selecting suitable equipment, substances or changing the process or improving the design, wherever it is impossible to implement by the above said controls, then the organisation can provide a safe system of work and personal protective equipment.

Evaluation (Check)

Successful organisations adopt procedures to monitor, measure and review health and safety performance regularly. Monitoring can be done by gathering information by using the indicators active/proactive or reactive methods. For example, proactively reviewing audit and inspection reports or reactively by reviewing ill health records.

Audit (Check)

Auditing can provide information whether the organisation's health and safety objectives are being met or not. Appropriate arrangement must be made for critical examination of management systems to check all the systems are working effectively.

Actions for Improvement (Act)

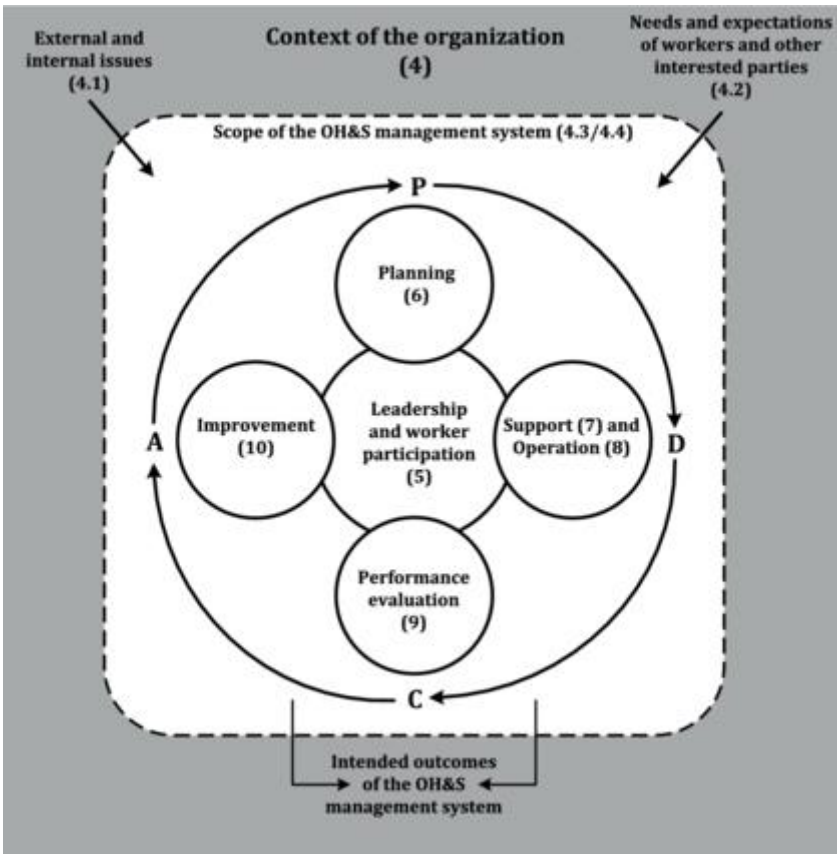
Any shortfalls identified during the review process must be improved as soon as possible by making required adjustments to the policy, organisation, and arrangements for implementation.

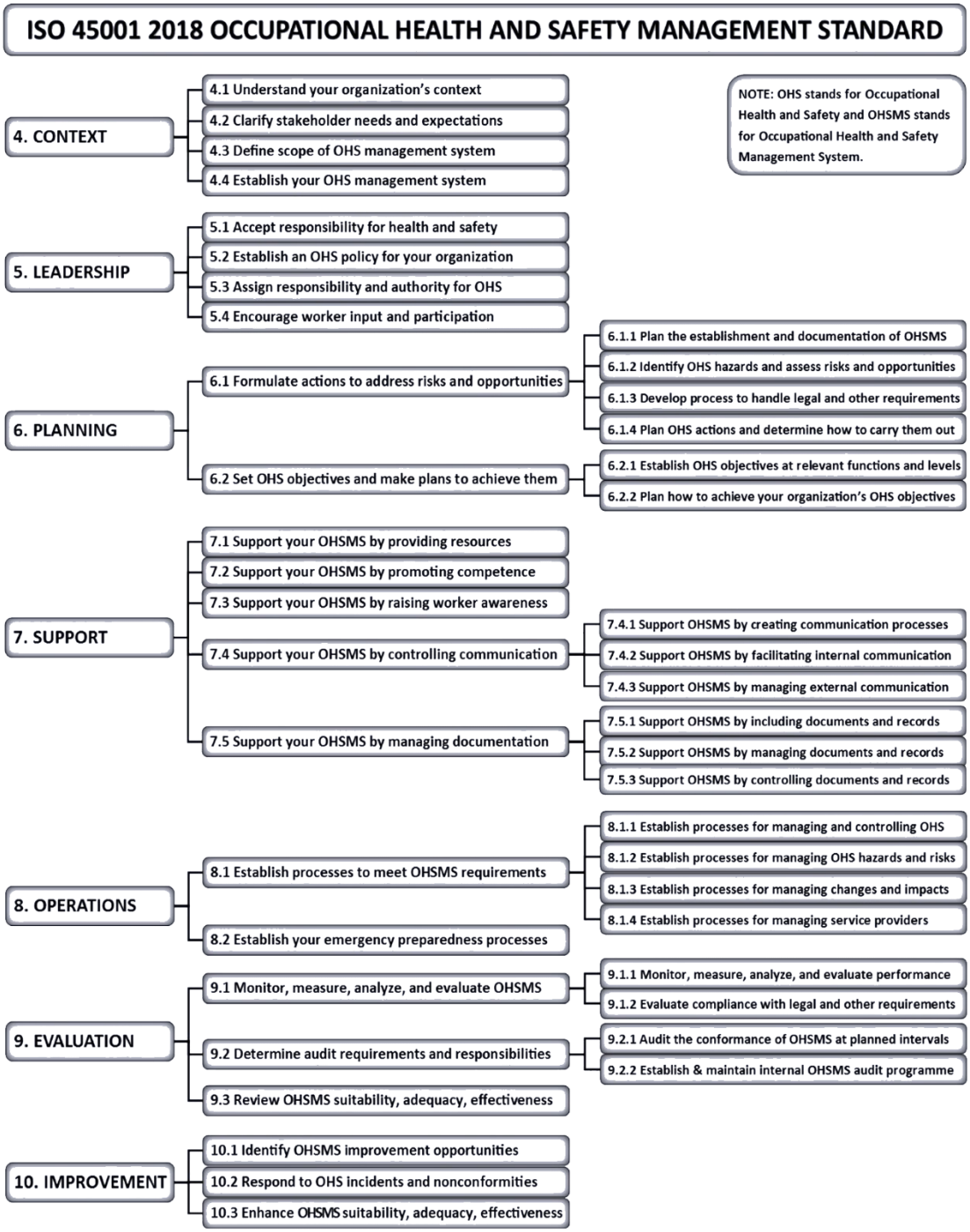
Continual Improvement

The process of enhancing the OH&S management system, to achieve improvements in overall OH&S performances, in line with the OH&S policy.

ISO 45001:2018 The Occupational Health and Safety Management System Standard

ISO 45001:2018 sets the framework for establishing, implementing, and maintaining an occupational health and safety (OH&S) management system, managing OH&S risks and opportunities. Ultimately, its aim is to promote and protect the physical and mental health of workers, a responsibility held by any organization. It is nonprescriptive in nature, being applicable to any organization, regardless of size.





The Benefits of Achieving Certification

ISO 45001 enables organizations to put in place an occupational health and safety (OH&S) management system. This will help them manage their OH&S risks and improve their OH&S performance by developing and implementing effective policies and objectives.

Key potential benefits from use of the standard include:

- Reduction of workplace incidents
- Reduced absenteeism and staff turnover, leading to increased productivity
- Reduced cost of insurance premiums
- Creation of a health and safety culture, whereby employees are encouraged to take an active role in their own OH&S
- Reinforced leadership commitment to proactively improve OH&S performance
- Ability to meet legal and regulatory requirements
- Enhanced reputation
- Improved staff morale

Integrating ISO 45001 Management systems helps to win business contracts externally.

The organisation may use any model either ILO OSH 2001 or ISO 45001, it is necessary to spin around the cycle more than once, especially

- initial business set up
- developing new process, service, or product; or
- followed by any change implemented.

Introduction to Health and Safety Policies

Health and safety policy gives direction to an organisation by setting priorities, the policy shall have effect in organisation's framework so that each individual associated with the organisation is aware of health and safety aims and objectives, the detailed arrangements and the standards that are established to protect business, employees and others who might affected by business undertakings.

The policy should influence decision made by the organisation, hence decision from the top management should influence on allocation of resources and setting standards for health and safety; the middle management must ensure that the decisions made by them meets the aims of the policy and does not deviate from the sets aims and objectives.

When it comes to health and safety it always differs from each organisation and there is no standard format. The aims, the hazards and risk the control measures applied may differ from each organisation, hence the policy must be customized to fit individual organisation.

For example: the risk involved in a construction company may vary from the risk involved in a supermarket. The aims and objectives are different for each organisation.

The policy empowers the organisation to disseminate the commitment and its approach to health and safety.

Standards and Guidance

The ILO Occupational Safety and Health Convention, C155, sets principles for the national policy of members, with the aim of preventing accidents and injury to health arising out of, linked with, or occurring in the course of work, by minimizing, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

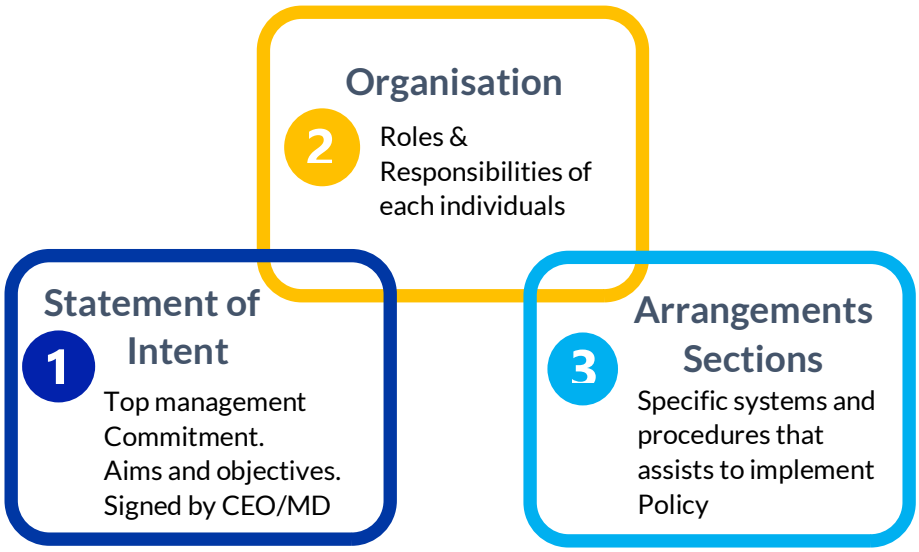
The convention requires each member to:

- formulate, implement, and periodically review a coherent national policy on occupational safety, occupational health, and the working environment
- take account of national conditions and practice; and
- develop the policy in consultation with the most representative organisations of employers and workers.

Each member's national occupational safety and health (OSH) policy should take account of:

- the design, testing, choice, substitution, installation, arrangement, use and maintenance of the material elements of work (workplaces, working environment, tools, machinery and equipment, chemical, physical, and biological substances and agents, work processes)
- relationships between the material elements of work and the persons who carry out or supervise the work, and adaptation of machinery, equipment, working time, organisation of work and work processes to the physical and mental capacities of the workers.
- training, including necessary further training, qualifications and motivations of persons involved, in one capacity or another, in the achievement of adequate levels of safety and health.

The Three Parts of a Health and Safety Policy



General Statement of Intent

Statement of intent or called as health and safety policy should include the aims and objectives of the organisation. The aims remain unchanged during the review of policy, but the objectives may change each year during review process as they are specific steps to, but the objectives may change each year during review process as they are specific steps that is implemented to achieve overall aims.

The objectives must be clear to the managers, supervisors and workers at all levels have a significant role in executing the policy and therefore every individual must comply with the policy, any non-conformity may lead to serious action.

In order to achieve the objectives, the organisations adopt "SMART" objective approach.

The organisation should set quantifiable targets in the statement of intent. Mangers are responsible for meeting the objectives and monitor towards its progress, this must be clearly recorded and reported. Objectives must be reviewed every year to ensure that they are relevant to the organisation and drive through continual improvement.

Quantifiable performance targets that can be set over a period, the quantifiable performance targets that may be set in the health and safety policy of statement of intent could relate to:

- Minimizing the sickness absence rates.
- Reduction in number of accidents/incidents.
- Reduction in enforcement actions.
- Completing the training related to health and safety to all the supervisors and managers in next 6 months.
- Completion of workplace inspections.
- Completion of workplace risk assessments covering all the activities in next 8 months.
- Improve the system for recording near misses and accidents.
- Conducting regular health surveillance to the workers once in every 3 months.
- Improving the safety culture within the organisation by involving workers through consultation in decision making process.

When setting and measuring performance against objectives and targets, organisation shall compare their objectives with similar organisation, or the industry as a whole that are remarkable in maintaining health and safety. The process of comparing the performance with similar organisation is called as **"Benchmarking".** Organisation's benchmark the near misses, accident/incident performance targets against other organisation, they also benchmark other performance targets, for example, the system of reporting accidents, the competence of the workers, the level of risk assessments carried out etc.

Organisation Section

The organisation's aspect of health and safety management is to delegate responsibilities to each individuals within the organisation to achieve the health and safety aims, it is necessary that the roles and responsibilities must be clearly defined and everyone should be aware of the same, so that everyone will have active role in the organisation in achieving health and safety aims.

Organisation sections deals with roles and responsibilities of each individuals within the organisation and those who have specific responsibilities towards health and safety, through a reporting line of structure within the organisation. HSE Advisor - advises top management followed by accident Fire Marshal - to act immediately followed by fire at the workplace First Aider - to provide first aid to the victim and promote recovery.

The organisation section of the policy statement should demonstrate, in both written and diagram form, how all this takes place.

Roles and Responsibilities

Roles and responsibilities are visibly reflected on the hierarchy of the organisation.

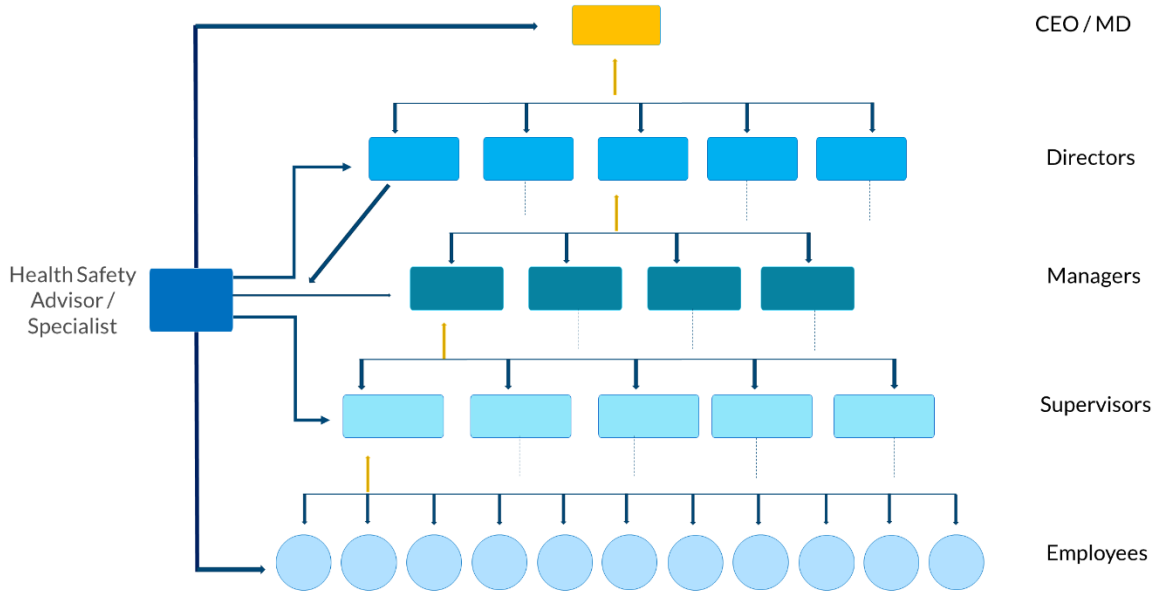
CEO or MD Ultimately responsible and accountable for overall organisation's performance.

Management at all Levels responsible to ensure suitable controls are in place, that the policy objectives are implemented throughout the organisation, this is possible through allocating responsibilities down the hierarchy including senior managers, managers, supervisors etc.,

All Employees are responsible to take care of themselves and others when they are at work.

Competent person the competent workers must be specialized to carry out specific health and safety duties, e.g. fire marshals, first aider.

Health and Safety Specialist / Practitioners provide guidance and support to the management to achieve overall performance.



Health and Safety Organisation Chart

Every individual must be aware of their roles and responsibilities increases their level of motivation, it proves the commitment and leadership from the top management which helps to improve safety culture within the organisation, defining roles and responsibilities will help to identify individual competencies and training needs especially those who have specific roles for example, firefighting emergency responder. A successful organisation should have active involvement of middle management.

Arrangement Section

Arrangements sections deals with specific systems and procedures which will assist to implement the health and safety policy. This section should clearly define how health and safety will be achieved in the organisation through the implementation, maintenance, monitoring and review of preventative and protective measures.

Arrangement section encompasses the rules and procedures, it also gives detailed information on the practical arrangements for planning, organising, controlling, Monitoring (both active and reactive) and reviewing performance as and when required.

General Arrangements

- Planning includes policy development setting targets, arrangements for communicating the policy within the organisation.
- Allocating resources for health and safety in terms of budget.
- Hazard identification, carrying out risk assessment
- Developing procedures for reporting near misses, accidents, investigations and taking corrective actions.
- Developing safe system of work and permit to control hazards in high risk activities.
- Worker consultation and communication.
- Provision of training including procedures for carrying out specific jobs (hot works, confined space, firefighting and first aiders).
- Welfare facilities and housekeeping arrangements to clean the workplace.
- Monitoring and inspection – arrangements to inspect equipment and tools and the working methods.
- Emergency procedures.
- Provisions for compliance monitoring, carrying out third party audits to ensure the systems are in line with the standards.
- Provision of personal protective equipment.
- Conducting health surveillance and maintaining records.
- Arrangements for measuring the performance – monitoring the accident / incident, ill health; inspections, safety survey, audits, committee meetings and periodic reviews.

Specific Arrangements

- Drug and Alcohol site rules and control measures.
- Bullying and Violence at work – prohibition policy, reporting systems.
- Arrangements for monitoring Lone working and emergency procedures for lone working.
- Stress, Noise, vibration and radiation at work, exposure control and setting exposure limits.
- Manual handling arrangements and control by using mechanical devices.
- Control of contractors through selection procedures.
- Control of visitors by checking their credentials before accessing into the work area.
- Fire arrangements including procedures for responding to an alarm.

Reviewing Health and Safety Policy

Health safety policy should be a functioning document, it needs to be reviewed regularly. There are several reasons that may insist you to review the health and safety policy.

Situations that may insist you to review the policy

- Followed by accident/incident or ill health reported.
- When a new technology is introduced.
- Followed by any change in the organizational structure. For example, change in the CEO or Director.
- When a new process or procedure is introduced or any change in the existing procedures. For example, lifting process by manual handling is changed by lifting loads using a mechanical load handling device, forklift.
- Any significant change in the work premises
- Any new legislation is introduced or any change in the existing legislation.
- Followed by consultation with the workforce.
- Followed by audit findings or risk assessments which recommends that policy is no longer valid.
- Enforcement action reveals weaknesses or specially requires a review
- As passage of time, policy must be reviewed every year to ensure that it remains valid.
- communication and co-operation at the levels of the working group and the undertaking and at all other appropriate levels up to and including the national level; and
- the protection of workers and their representatives from disciplinary measures as a result of actions properly taken by them in conformity with the policy.

The Significant Reasons for Policy to Become Ineffective are as Follows:

- There is minimal leadership by directors and senior managers who fail to 'drive' the policy.
- There are no annual objectives set to implement the policy.
- Health & safety is not given priority with other business objectives.
- Resources are not provided to implement actions required.
- The aims and intentions are not clearly understood by all employees.
- The policy emphasis much on employee responsibilities and is not management led.
- There is no measurement of whether objectives set are being achieved.
- Management is unaware of the role in health and safety; and management receives no training to enable then to implement actions required.

References

- http://www.hse.gov.uk/pubns/indg417.pdf
- http://www.hse.gov.uk/pubns/indg232.pdf
- http://www.hse.gov.uk/pubns/hsg245.pdf
- http://www.hse.gov.uk/opsunit/perfmeas.pdf
- http://www.hse.gov.uk/pubns/indg232.pdf
- BS ISO 45001 – International Standard – First Edition

Element 3

Managing Risk – Understanding People and Process

Learning Objectives

1. Describe the concept of health and safety culture and how it influences performance.

2. Summarise how health and safety culture at work can be improved.

3. Summarise the human factors which positively or negatively influence behaviour at work in way that can affect health and safety.

4. Explain the principles of the risk assessment process

5. Discuss typical workplace changes that have significant health and safety impacts and ways to minimise those impacts

6. Describe what to consider when developing and implementing a safe system of work for general activities.

7. Explain the role, function, and operation of a permit-to-work system.

8. Discuss typical emergency procedures (including training and testing) and how to decide what level of first aid is needed in the workplace.

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Contents

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Emergency Procedures and First-Aid

3.1 The Concept and Significance of Health and Safety Culture

Health and safety culture

"A system of shared values and beliefs about the importance of health and safety in the workplace".

The following definition by the UK's Health and Safety Commission (HSC) Advisory Committee on the Safety of Nuclear Installations:

"The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an Organisation's health and safety management.

Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures".

Relationship between Culture and Performance in Health and Safety

The health and safety culture of an organisation comprises "the characteristic shared attitudes, values, beliefs and practices of people at work concerning not only the magnitude of risks that they encounter but also the necessity, practicality, and effectiveness of preventive measures".

Whilst these are not easy to pin down, it is relatively easy to identify the relationship between these features and safety performance. When an experienced safety practitioner carries out a safety audit or inspection of a company, he/she can often gauge the standard of safety performance on a superficial walk-round and the first impressions gained.

Positive Safety Culture

An organisation with a positive health and safety culture, will consist of competent people with strongly held safety values which they put into practice. This will go through the whole organisation's hierarchy from top to bottom. It starts with an organisation's statement of policy and this policy will be reflected at all levels in both the attitudes of management and employees, and the working practices and safety measures applied. This clearly determines to control hazards and risks, to make the workplace a safe place.

Negative Safety Culture

Where there is a negative health and safety culture, management and staff are likely to adopt only the minimum safety arrangements necessary to comply with the law, and even to ignore the requirements completely. Many organisations do only approach health and safety without spirit. Their performance may be characterised as not being concerned with hazards and risks, and there is an acceptance of danger in the workplace – altogether an unhealthy approach.

Indicators of an Organisation's Health and Safety Culture

It is one of the significant aspects of the management to promote positive health and safety culture. There are number of indicators used to assess an organisation's health and safety culture. Health and safety outcomes related indicators include:

- Level of compliance with rules and procedures
- The number of complaints about working conditions
- The number of Work-related accident/ incidents happening.
- Absenteeism and sickness rates.
- Staff turnover.

If the above outcomes are increasing over a period, for example, if there is an increase in absenteeism and sickness rates, it shows the existence of negative safety culture in the organisation. Even though there is less number of absenteeism and sickness outcomes, the data may not be reliable due to poor or no reporting system.

Level of Compliance with Rules and Procedures

The extent to which these rules and procedures are followed is always a good indicator of the attitudes towards health and safety in practice. This can be achieved by agreed policies and the way the policies are implemented are the key factor.

A high level of compliance indicates that there is a strong health and safety culture, however low level of compliance indicates serious problems and insists investigation that why health and safety policy is not being followed – by both management and employees.

Monitoring compliance levels can be achieved by looking at some of the reactive indicators.

Complaints about Working Conditions

The level and more number of problems reported to senior management by supervisors, safety representatives and health and safety practitioners may be indicative either the level of compliance with the rules and measures, or of the extent to which those rules and procedures are considered appropriate. However, a high level of complaints would be indicative of a poor health and safety culture.

Accidents

The level of accidents in an organisation clearly shows the state of health and safety performance within that organisation. Accident data must have collected as per the legal requirement, required as the basis of risk assessment. All such statistical analysis can provide information on trends and patterns of accidents and comparisons with similar organisations.

Accident reports need to be clear about the causes of accidents, not simply their outcomes in terms of injuries caused. In this case, then, near misses are just as important. If they show a regular pattern of similar causes, then that may indicate a cultural problem in that the causes are not being addressed.

Accidents and their causes represent a learning opportunity for the organisation – to prevent recurrence.

Absenteeism

Worker may frequently may find problem to come to work or not willing to come increase higher level of absenteeism, this may be due to ill health conditions caused from the workplace, these are recognised and addressed as an poor safety culture.

Ill-health may take some time to become evident and it is not always obvious that it is caused by activities at the workplace. In addition, conditions which are made worse by the work situation, rather than caused by it, are not easy to spot.

Sickness Rates

Monitoring absences and sickness rates is one way to gather information about potential health and safety problems in this area. The information required is likely to be collected by the organisation for its management of resources, identified causes of ill-health may provide indicators for health and safety issues.

Staff Turnover

A low level of staff turnover is observed in the organisations where there is a positive safety culture, the workers feel that the workplace is safe for them work, where is a support and morale from the employer, good level of communication systems and training is available maintained.

A high staff turnover is a general indicator of problems in the workplace. There may be many reasons for this – poor pay, poor morale, lack of direction, lack of training, lack of opportunities for advancement, etc.

Exit interviews are likely used by organisations to identify the reasons for the employees to Leave the organisation, as result, these may provide indicators for health and safety in the organisation. For example, reasons such as excessive workloads or lack of training may

indicate conditions which give rise to high levels of stress or a lack of appreciation and skills in respect of safety procedures.

Influence of Peers on Health and Safety Culture

The term 'peer' refers to the people who work with an individual in the workplace, usually designates with the equal level of that individual, they may be a member of the same group, for example, members of a management team, or accident investigation team.

Peer pressure will often promote good health and safety within a work team. If the team members believe that working safely is the only way to do the job, each member of the team will watch over the activities of the other and the group will ensure any new member follows their example to ensure a safe output. However, peer pressure may have a negative influence in that managers and workers may receive direct or indirect pressure not to put effort into establishing or working to good health and safety standards. This may be particularly the case where they have motives that they feel would be restricted by taking a positive approach, for example, resource may be drawn away from areas that the manager wishes to develop in favour of health and safety or the worker may feel that it will limit their ability to achieve productivity rewards.

Management Commitment and Leadership

The most important thing to remember about management commitment and leadership is to 'lead by example'. As soon as management undermines the safety standards in order to achieve increased productivity, or ignores an unsafe act, then they lose employee respect and trust and the whole safety culture of the organisation is threatened. For example, it is very difficult to chastise an employee for safety misconduct if management were condoning or turning a blind eye to safety non-conformances the day before.

Itis important to ensure that the behaviour is positive in order to produce positive results and a positive culture.

The top management can demonstrate their commitment by

- Set as an example
- Involvement and consultation with staff members in health and safety matters including.
    - Risk Assessments
    - Workplace inspections
    - Accident Investigations
    - Committee meetings.
- Sending newsletters, minutes of meetings, notices with references to safety.
- Actively taking part in safety tours, audits and meetings.

Competent Workers

Competence can be described as “the combination of training, skills, experience and knowledge that a person has and their ability to perform the task safely.

The employer must ensure that the staff carrying out the task must be competent enough to carry out the task safely, competent workers will be able to perform their task safely. This is observed by other staff members, will have influence on positive safety culture.

Competence of an employee can screened by having checks on their qualification, previous employment experience and or references, interviewing employee and membership from any professional bodies (IOSH, IIRSM etc.,).

Managers and supervisors must also have suitable competence in their field of work to demonstrate correct behaviour towards health and safety, so that the correct health and safety behaviour is learnt by their team members as main competencies to fulfil the job.
The managers and supervisors must be able to identify the mistake done by their workers when carrying out the task, certainly this can be achieved if they are competent enough to with sufficient knowledge about the discriminate between correct and poor behaviour of the worker when performing a job.

Communication

Communication may be defined as: "imparting, conveying or exchanging information, ideas or opinions by the use of speech, writing or graphics".

Types of Communication

Verbal Communication

In fact, it is the easiest, quickest and most efficient method of communicating ideas, orders and instructions to others. It is easy to reach someone and talk with them face-to-face.

Verbal discussion is the method most in use, because it is natural, universal, flexible and effective as a means of transmitting information between individuals.
Conversation should be logical, pointing at all times towards a planned objective, and terminate with complete understanding between both parties of the topic under discussion..

Merits and Demerits of Verbal Communication

Merits	Demerits
• Comprehensive • Immediate • Direct • Exchange of opinions and views • Give instant feedback • Additional information from face expression, body language and voice modulation,	• No written records • Time consuming (travelling, arranging meeting) • Language barriers • Technical jargons may be mistaken • Ambiguity • Sensory defects – hearing damage of the receiver. • Pace of the information provided • Difficult to remember all the information.

Written Communication

A report has been defined as "A written record of activities based on authoritative sources, written by a qualified person and directed towards a predetermined group".

Examples of written communication includes memos, email, notice boards, text messaging, news letters, standard operating procedures, warning letters etc.
Merits and Demerits of Written Communication

Merits	Demerits
• Written and personal record • Can be referred back • Quick and convenient methods to communicate policy, instructions etc. • Can cover wide audience cost effectively.	• Vital information may be omitted from the communication. • There is no immediate response from the receiver of the message. • No questions asked. • The communication may take certain knowledge on

	the part of the receiver for granted. • The sender cannot see the receiver's reaction. • The process of communication takes time and may delay decisions. • Discussion is difficult and protracted. • Written communication may be too formal. • The message may be difficult to understand. • The language used may mean something different to the reader.

Graphic Communication

Even pictures and signs are graphical communication which is effective in conveying the message to the receiver. E.g No Entry, No smoking.

Merits and Demerits of Graphic Communication

Merits	Demerits
• Graphics may induce people see frequently, hence it eye-catching. • Visual stimulus. • Easy to interpret the message • No language skills needed. • Easy to cover wide audience. • Demonstrates procedures easily.	• Complex message cannot be conveyed. • It is very expensive to print or develop graphic videos • Difficult to interpret without words or explanation. • Signs or symbols may be unfamiliar. • No feedback • No questions asked • Sensory defects. E.g. impaired vision.

Broadcasting

Though we use a variety of methods to broadcast health and safety information, these methods are used to ensure that the required information is communicated correctly and understood by all the workers.

Noticeboards

Centrally located to engage the attention of the workers. Notice boards must have clear updated information which is relevant to the organisation. Cluttered, outdated, inappropriate notices obscure the information likely to be conveyed. Having notice boards in place doesn't mean that the workers will pay attention to read the notices.

Typical information that may be posted on the notice boards are:

HSE policy
Employer liability insurance certificate
Emergency contact numbers – emergency services

First-aiders and their contact details
Minutes of safety committee meeting
Location of emergency escape routes, fire extinguishers.

Posters

Standard infographics or pictures are widely used to communicate key health and safety issues helps to induce the attention of the workers.

Film or video

It is a good opportunity for the senior managers to reach mass audiences, enables consistent messages based on the real time.

Toolbox talks

Short briefings carried out by the supervisor prior to shift starts, this is done to create awareness to the workers on the matters related to safety issues which happened in the earlier time or in the previous shifts, the proposed precautions to overcome such issues again are discussed.

Digital Media

Dissemination of information using social media which can be viewed using mobile phones, tablets, iPad, computers or other devices. It may be in the form of written, visual, graphic, audio or video.

Intranet

Network available to the staff only in the office behind a firewall. This will allow to access to key business tools including SAP, official emails, policies, and procedures etc.

Cooperation and Consultation with workforce

To establish a positive safety culture worker cooperation and consultation is important concern for the top management. Consultation can be achieved by direct consultation with the worker discuss with them on the issues related health and safety, resolving their issues, this can be achieved in a small organisation, or on the other hand through safety representative by establishing a safety committee with top management officials as representatives to discuss on the issues related to health and safety.

Have a dedicated health and safety committee. They are effective if your organisation has several representatives for different groups, larger numbers of employees, both union-appointed representatives and employee-elected representatives, or representatives responsible for more than one site.

Health and Safety Regulations 1996 (Consultation with Employees) has a legal obligation to permit representative time off with pay during working hours as is necessary to perform functions; time off for trainings, (time agreed between both employer and employee).

To improve ownership towards improving the positive safety culture involve workers in decision making process, which develops ownership and employee morale.

Informing is a one-way process, which creates a negative culture, consultation with worker, considering their views is a two-way process which creates a positive culture.

ILO convention C155, Article 20 and R164, Article 12 insists the safety standards relating to consultation with the worker, hence it is the duty of the employer to consult with worker on matters related to health and safety, when decision making, developing procedures, conducting risk assessments, following any technical changes, changes in the work procedures etc.

Training

Systematic development of attitude, knowledge and skill patterns required by an individual to perform adequately a given task or job.

Training is perhaps one of the key weapons in health and safety management, as it can be used to motivate and change the behaviour of the people involved in workplace activities. Its success depends on identifying training needs and providing and evaluating training aimed at satisfying those needs.

Training motivates staff to work safely, since those who understand the risks of their jobs better are likely to be more motivated to avoid them. Training is an on-going, continuous process, since new problems, procedures, materials and knowledge mean jobs are constantly changing and therefore producing the need for employee instruction.

Training Opportunities

The main instances where training is required may be classified as follows:

- Training given to all new employees when they take up their posts – induction training.
- Training which becomes necessary because of changes carried out in the business, such as:
  - New working methods being introduced.

  - Technological changes.
  - The introduction of new equipment.
- Training needed when new legislation comes into force.
- The identification of training needs due to problems such as:
  - An increase in accidents.
  - Failure to maintain equipment.
  - Labour shortages which lead to the upgrading or retraining of existing staff.

All training should be constantly reviewed in order to ensure that it remains up-to-date, relevant, and adequate for its purpose.

Who Needs to be Trained?

Safety training is of vital importance both to the company and employees, particularly newcomers.

Newcomers

A newcomer could be run down by a forklift truck on the first day, or a fire could break out soon after his arrival, so safety, accident prevention and fire prevention should begin on the first morning with the immediate dangers of the working environment and procedures to be followed in case of fire or accident. Later sessions should progress to the joint responsibilities of management and employees for safe working practices and give more detailed attention to the causes and prevention of, say, fire.

The newcomers are provided with induction training to get familiarized with workplace standards and procedures. The typical topics covered in the induction training are

Induction Training

- Health and Safety Policy of the organisation.
- Hazard profile of the organisation
- Risk Assessments in the workplace
- Risks to which employees exposed to
- Relevant Risk control measures
- Emergency Procedures
- Specific Site Rules, moving around the workplace
- Restricted Area
- Welfare Facilities
- First Aid provision
- Accident Reporting procedures
- Safe system of work and permit systems

Young People

Special attention should be given to the safety training needs of young people. In the UK this is recognised by legislation, which requires that the vulnerability of young persons is taken into account in the risk assessment process and that this is reflected in the resulting safe systems of work and associated training.

Job or Process Change

Whenever there is a change to the job or tasks which employees are expected to perform, the employer must arrange appropriate training for them. This applies when individuals change jobs or when there is a change in the nature of the job – through the adoption of new procedures or processes, or the introduction of new technology to it.

This is clearly necessary in respect of acquiring the new knowledge and skills necessary for effective performance, but also relates to the implications of the change for health and safety at the workplace. In some ways, experienced workers may be in more need of this than new recruits in that they may feel that, being experienced, they are aware of all the hazards and risks and know what to do, when in fact that may not be the case.

A good example of this is in respect of first- aiders, who need to keep their knowledge and skills up-to-date and should go on regular refresher training courses.

New Legislation

When carrying out a training needs analysis, it is important to ensure that the company is complying with any specific legislative requirements. Employers must also ensure that each user at work in his undertaking is provided with adequate health and safety training whenever the organisation of any workstation in that undertaking upon which he may be required to work is substantially modified.

Training Need Analysis

Careful analysis of the needs on which training should be based is the foundation of effective training. If training provisions are not based on an analysis of needs, or the analysis is inaccurate, then the chances of training being effective are substantially reduced.

Factors to consider when planning training need analysis

- The business functions of an organisation including hazards or risks level.
- The nature of hazards and risks involved in their business activities.
- Accident history of the organisation, which indicates the areas where there is lack and the need for training.
- The details of the employees who have provided with training before, when and what topic were covered.
- Is there any legal requirement to carry out specific training (e.g. first aid training)?

Plan how these needs are to be met, by what means and when, and prioritise training. This may

mean statutory training first. Training will require a budget.

Implement the plan over the agreed timescale using the appropriate competent persons.

Evaluate how well the identified needs have been met and test the competence of the trainees. Has this added to the business profile and produced staff who are less likely to have accidents?

Training Records

Training records must be maintained up to date, must witness the progress against the training plan. Training records give detailed information on the topics being covered with the level of competence gained by the learner; date of training being conducted. All such records shall be provided to the regulating authority that suitable training was provided to the workers to improve their competence, or it may be used to prove during any accident investigation to confirm that training was provided to the worker.

Evaluating Training Effectiveness

The evaluation stage in the training cycle is concerned with a review of the training, for the purpose of assessing whether the training objectives are met. A trainer needs to find out whether the trainees have achieved the objectives or not, for this feedback is obtained post training and reviewed, therefore.

Employees may be monitored after return to work to check for any significant change in their behaviour and practice towards health and safety. Also, it may include success indicators such as:

- Whether employees are performing the tasks safely without risk to health
- Do they work as how they have been trained to carry out the task.
- Significant improvement in the organisation's health and safety performance.
- Increased awareness in accident/ near misses reporting systems.

Trainee assessment allows a trainer to:

- Judge the success of the course and so recognize any modifications or adjustments which are needed.
- Measure the progress of individual trainees in relation to themselves or their peers.

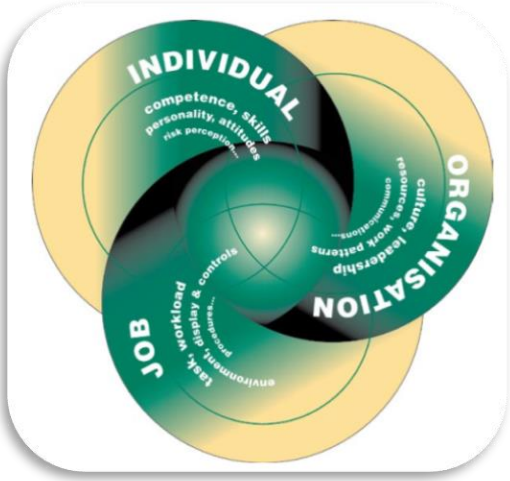
It also provides feedback on how effective training is and allows the trainer to make changes in teaching methods and in the methods of assessment in the light of experience.

3.3 Human Factors Influence Safety Related Behaviour

Human factors influence behaviour at work

The term "Human Factors" covers a wide range of issues such as the perceptual, mental and physical capabilities of people and the interactions of individuals with their job and working environments. It also considers the influence of equipment and system design on human performance and the organisational characteristics that influence safety related behaviour at work.

The managers and workers decision and actions can prevent or cause harm. The individuals are blamed directly who are involved in causing harm. This neglects the root causes that contributed to the accident and ill health. These are usually deep-rooted in organisation's design, management and decision making and are extremely influenced by the human factors.



Human Factors - Source HSE, UK

HSG48 identifies the three important human factors that have a significant effect on the behaviour of individuals at work, these are the

- Organisation factor – culture, leadership, resources, work patterns, communications.
- Job factor – task, workload, environment, display & controls, procedures.
- Individual factor – competence, skills, personality, attitude, risk perception.

Organisational Factor

Organisational factor which influences worker's behavior:

- **Safety culture of the organisation –** the way the individual or the group adapt safety culture in an organisation.
- **Policies and procedures –** the availability and the quality of the health and safety policy in an organisation might inspire or distress safety related behaviour. For example, clear policy for bullying and harassment is strictly prohibited in the workplace, bullying activity is intolerable and punishable.
- **Leadership and commitment from the top management –** the commitment and leadership from the top management may also have positive or negative effect on the health and safety behaviour of others within the organisation. The workers are greatly influenced by the senior management and consider them as their role models. The senior management should show their commitment and leadership in a positive way and support decisions to manage health and safety.

- **Supervision –** adequate numbers and the competence of the supervisor to deal with safety related behaviour (special attention to poor behaviour), for example, in an construction company where excavation work is carried out, the availability of competent supervisor to monitor the work to prevent human error.

- **Peer group Pressure –** the influence of peers may have effect on both positive and negative safety culture.

- **Resources –** provision of resources to implement health and safety requirement at the workplace, resources in terms of men, material, machines with adequate guards and protection, appropriate Personal protective equipment.

- **Worker involvement –** consulting with workers on matters related to health and safety and involving them in risk assessment or decision-making process.

- **Communication –** how the communication process happens in the organisation, the use of various communication methods to convey the messages effectively to the workforce and how the management checks the level of understanding of those messages.

- **Resources –** The availability of resources like, men, material and equipment. It is also important to provide sufficient time for health and safety training.

- **Training –** identifying the training needs and meeting the needs to create competent workers and fellow workers.

- **Work Patterns –** work timing, shifts will have effect on worker's poor performance, as it can lead to tired and fatigue. It also increases the risk in high risk activities.

Job Factors

The job factors that may have influence on safety related behaviour at work includes:

"Ergonomic is the study of interaction between the human, the work they do, the equipment used, the environment in which the work being performed**".**

Task - the task should be designed especially in consideration with ergonomic principles to take into account of both human strengths and limitations. When performing a manual handling of metal boxes from the ground and arranging it on shelves could be a repetitive task, requires the individual to bend or stoop, the task must be suitable for the individual's capabilities else it can be potential to cause human errors.

Poor design of the equipment can also be potential to cause errors, for example, when operating the machinery if the operator is unable to read to display controls due to ergonomic consideration, it can lead to use of wrong controls. Equipment shall match the individual in terms of design and ergonomic.

Designing tasks, equipment and workstations to suit the user can reduce human error, accidents and ill health. Failure to observe ergonomic principles can have serious consequences for individuals and for the whole organisation. Effective use of ergonomics will make work safer, healthier and more productive

Workload - increased workloads, uncertain demands and deadlines to match individuals directly or such demands are influenced externally from the organisation.

Environment - environmental conditions at workplace including noise, lighting, ventilations, temperature, humidity, dust and space around the machinery how it can have impact on the performance of workers and how well they can be controlled. E.g Worker may have to stain his eyes a lot when operating a machinery in an area where there is a low lux level. Hence, it increases the chance of stress as well as may lead to accident. Workers tend to find their own way working which may unsafe to reduce the fatigue when operating the machinery, they also may endanger themselves by accessing to the dangerous parts of the machinery due to poor visibility or low lighting.

Display and Controls - poorly designed display and controls can increases the likelihood of human errors. E.g. the location of emergency stop button which is difficult to access or out of operators view during an emergency may worsen the situation**.**

Procedures - the availability of operating procedures, including its operability and quality in terms of reducing the risk. Non-availability of written procedures or the procedures which are superseded, complex procedures, or certain procedures which cannot be adopted by the workers due impracticality. To be effective in operability of such procedures must be precise and concise with suitable multiple-language options.

Individual Factors

People bring to their job with their individual skills, experience, knowledge, personal attitudes, habits and personality. Individual characteristics influence behaviour in complex and significant ways. Their effects on task performance may be negative and may not always be mitigated by job design. Some characteristics, such as personality, are fixed and cannot be changed.
Others, such as skills and attitudes, may be changed or enhanced. For instance, if a worker has a poor attitude of carrying out welding task by positioning the acetylene cylinders in a horizontally, then obviously, the worker needs to change their attitude, which can be achieved through various ways.

Individual Factors

Attitude

An attitude is a person's point of view, his (or her) way of looking at something. It is also a person's readiness to react to a situation, and usually a readiness to react in a predetermined way. A person's attitude is positive when it reflects optimism and enthusiasm and he or she looks for good things in others. Such a person would be ready to change and make improvements in the organisation.

A person with a bad attitude will be negative, ready to complain, and find misfortunes and problems.

Every individual has a different attitude towards work, and they perceive it in both positive and negative way. Individual attitudes towards work developed over a period by observing the work methods of other individuals and adapt the same which remains with us.

Workers attitude is significant in the context of workplace behaviour, as their attitude drives them to work safely or not to give priority to safety when carrying out a task.

A positive attitude of a worker towards using a hard hat when entering the construction site to prevent injury from falling objects, then the worker's attitude to enter the construction site without hard hat is unlikely at any point of time. But if a negative attitude worker may think that he is entering the construction site for a short period of time; hence, the use of hard hat is unnecessary, then the worker's attitude to enter the construction site without hard hat is very likely.

Since because the attitudes are developed over a period time it is difficult to change easily. However, it can be done using various methods:

- There is no doubt that management example is strongest of all motivators to bring change in the attitude among the workers.
- Joint consultation in planning the work
- Monitoring and Enforcement
- A high-quality training to the workforce.

Competence

Competence can be described as "**the combination of training, skills, experience and knowledge that a person has and their ability to perform the task safely"**

As an employer, you must ensure that your employees are competent enough when they are carrying out a task for e.g. carrying out a risk assessment. This will help you decide what level of information, instruction, training and supervision you need to provide.

Competence in Health and safety should be seen as an important component of workplace

activities, a person with a qualification doesn't meet the criteria to become a competent person or just a worker with several years of experience cannot be considered as competent. Competence is the combination of knowledge, training and experience.

Level of competence needs to be proportionate to their job and work environment.

Motivation

Motivation is defined as "the driving force behind the way a person acts in order to achieve a goal". Or in other words Motivation is that which makes an individual act as he or she does. It is the tendency of an individual to take action to achieve a particular goal.

Incentives and financial rewards are seen as significant motivators, especially on the productions or manufacturing sides.

The importance of motivating the workers is to carry out the task safely without any errors. Workers are induced towards rewards and behave unsafely when performing their task, hence they perceive that taking risk is worth for the reward. The unsafe behaviour of the worker is incentivized. They get incentive for their unsafe behaviour.

For example, Worker may think that he wants to save time and energy, so he may by pass the safety systems as to make more productions and to make more incentives even the risk is high. If there is no reward scheme, then the worker may think it not worth taking high risk to perform the task and do not bypass safety.

Rewards schemes are intended to improve worker behaviour, hence rewards schemes must be carefully selected to ensure that it is utilized for correct behaviour. For example, employers give rewards to the employees who has zero accident record every month or every quarter.

So people think to work safety to achieve rewards, as a result of this the workers may reluctant to report incidents as it may affect their performance record, which lead to under reporting of incidents and unsafe behaviour, so that they can show go record of their performance to achieve rewards.

Perception of Risk

Perception is defined as 'the way that a person interprets information detected by human sensory receptors in which a person believes or understand a situation

Human Natural Senses are

- Sight.
- Hearing.
- Taste.
- Smell.
- Touch.

Personal safety involves reacting to the signals sent by our human sensory receptors to the brain. For example, we actually see with our brains rather than with our eyes. Our eyes send small electrical signals to the brain, where the visual image is constructed and interpreted.

Perception of hazards and risk in the workplace is significant as other factors which may contribute to accident. Accidents happen in the workplace due to poor perception and interpretation of risk. e.g. the use of (Personal Protective Equipment), not wearing the helmet or nor locking the helmet chin strap when riding the bike, or removing the face shields when operating the pedestal drilling machine to view the job closely, or over reaching and carrying a window cleaning activity on a high raise building.

Workers needs to understand the importance of perception of risk as this may lead to misjudgments, increases the risk to health and safety of the worker.

Another example is a worker is poor hearing capability, cannot hear the emergency alarm raised in the workplace and put him in danger of evacuation. Loud noise or even high level of lux also create poor perception of risk. For e.g. Stroboscopic effect created on the rotating parts of machinery due to poor or high level of lux, it makes the machine to appear rotating in a slow speed.

Routine tasks will reduce the attention level of the worker and leads to accidents. The individual perception is affected by factors including

- Physical illness
- stress
- alcohol
- fatigue
- familiarity
- training

There are number ways to improve the perception of the people towards hazards.

- Providing hazard and risk information during the induction training,
- Carrying out familiarization tours within the workplace to create more awareness.
- Conducting toolbox talks, sending emails, highlighting hazards with posters.
- Involving and discussing workers in decision making process.
- Increasing the number of trainings and refresher trainings to create awareness of the potential risks and its severity.

- Provision of adequate lighting facility.
- Floor markings, sign boards about fire exits, assembly points to alert workers in the event of emergency, vehicle crossing signs etc. to create awareness of the potential hazards in the workplace.
- Reducing the level of noise from the workplace that could cause distraction or failure to hear fire alarms during emergency.

Improving Health and Safety Behaviour

The organisation should develop a safety culture which supports proactive safety measures. In such a culture, limitations will be admitted, and advice sought. Near misses will also be reported in order to help reduce the base of the accident triangle through corrective measures.

Within a culture of fear, employees 'close up' and mistakes and limitations are hidden, often with tragic consequences. Management, however, has a responsibility to avoid the birth and development of such adverse situations and encourage people to be quite open and at ease. Factors that May Promote a Positive Health and Safety Culture

Introduction

Every year thousands of people in the UK are forced to take time off work due to health and safety related issues. For most this a number of days. However, in some cases people suffer major injuries and even sometimes death. A hard-hitting fact is that majority of these accidents could have been avoided if good standards of health and safety in the workplace had been better.

Risk Assessment is an important step in protecting people from ill health and accidents by recognising what can cause harm and how to prevent them from occurring by implementing controls.

Legal Requirement

ILO C155, Article 16 states that

It is the responsibility of the employer to take reasonable toward their employees.

1. Employers shall be required to ensure that, so far as is reasonably practicable, the workplaces, machinery, equipment and processes under their control are safe and without risk to health.

2. Employers shall be required to ensure that, so far as is reasonably practicable, the chemical, physical and biological substances and agents under their control are without risk to health when the appropriate measures of protection are taken.

Management of Health and Safety at Work Regulations (MHSWR)

The legal requirement is in Management of Health and Safety at Work Regulations 1992 amended in 1999, clearly gives details of how to conduct risk assessment are in the form of Approved Code of Practice states, **that Every employer shall make an assessment of the risk to employees and others.**

Reasonably Practicable

The employer makes a balanced judgement about the extent of risk and severity, against the time, cost and inconvenience or effort needed to remove or reduce it.

Meaning of Hazard, Risk and Risk Assessment

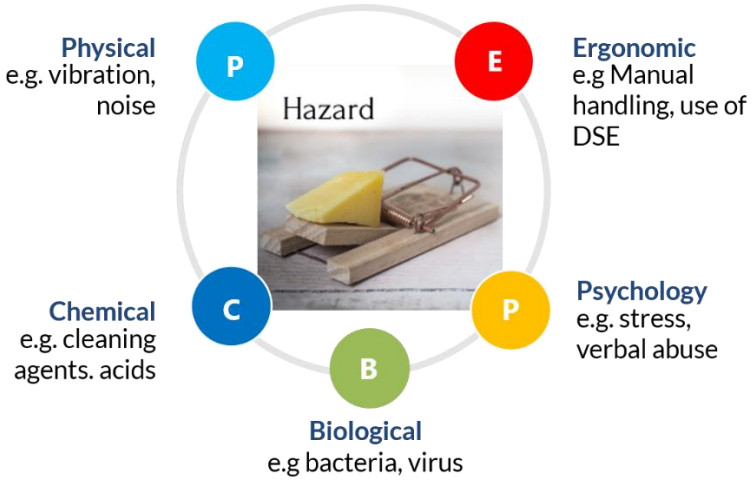
Hazard

'something or anything with the potential to cause harm.

this can include

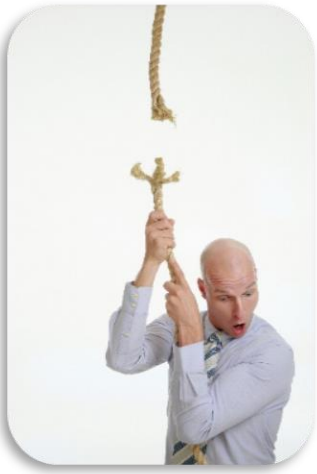
- articles, such as screwdriver, hammer.
- substances, such as chemical agents used in the workplace including cleaning agents, paint, thinner, cement etc.
- plant or machines, for example the work equipment such as x-ray machine, mobile cranes, grinding machine, jack hammers.
- methods of work, the step by step procedure for carrying out the task, standard operating procedures, examples procedures for electrical maintenance for a machinery.
- the working environment, example, hot temperature in a foundry, cold temperature in the catering unit storage area, noise from the machine shop, ventilation system, lighting in the workplace.
- and other aspects of work organisation including access controls at entry points, breaks, shifts, working with vulnerable groups.

Hazards are broadly classified into



For instance, A person who is working with a grinding machine during fabrication work, had an eye injury from the ejected rotating wheels due to absence of fixed guard, then the grinding machine is the hazards not the absence of guard. The injury is caused due to absence of guards which is failure in preventing accidents, if the guards were fixed, still the hazard is present from the rotating wheels, it would have been controlled adequately from ejection of broken wheels.

Risk



"Risk is a combination of how likely the hazard will cause harm and the potential severity of the harm"

Quantitative Risk Assessment

If the rating is calculated using numerical values is called as quantitative risk assessment.

This is used in high risk activities to calculate the likelihood of an occurrence by giving numerical values to the risk rating by evaluating the results against specified risk criteria.

Qualitative Risk Assessment

This is a subjective judgement backed by information and knowledge about the workplace, so the assessor's competence is relied on. This type of risk assessment is adequate for most workplaces and uses a risk evaluation table with works not numbers to determine the risk ranking. For instance, High, Medium and Low.

Risk Profiling

The risk profile of an organisation informs all aspects of the approach to leading and managing its health and safety risks.

Every organisation will have its own risk profile. This is the starting point for determining the greatest health and safety issues for the organisation. In some businesses the risks will be tangible and immediate safety hazards, whereas in other organisations the risks may be health-related, and it may be a long time before the illness becomes apparent.

A risk profile examines:

- the nature and level of the threats faced by an organisation
- the likelihood of adverse effects occurring
- the level of disruption and costs associated with each type of risk
- the effectiveness of controls in place to manage those risks

The outcome of risk profiling will be that the right risks have been identified and prioritised for action, and minor risks will not have been given too much priority. It also informs decisions about what risk controls measures are needed.

Risk Assessment

Risk assessment is the process of assessing the risks arising from the hazard, identifying the people who might be affected from the hazard, identifying suitable preventive and protective measures, evaluating and deciding the adequacy of existing risk control measures and analysing whether the risk is acceptable or further risk control measures are required, recording and update if necessary.

The Purpose of Risk Assessment

Risk assessment is often a legal requirement, for example in Great Britain and the EU, there is a statutory duty place on employers to carry out and record general risk assessments of the risks to employee and others.

Specific risk assessments must be carried out under the requirement of legislation, for example in Britain Control of Substances Hazardous to Health (COSHH) Regulations require an assessment of the risk to health of exposure to hazardous substances.

Objectives of Risk Assessment; prevention of workplace accidents

The main objective of the risk assessment process is to evaluate hazards, then remove the hazard or minimize the level of its risk by implementing new control measures, as necessary. By doing so, you can create a safer and healthier workplace.

Risk Assessment process is proactive measure which identifies hazards before things go wrong (to prevent injury or ill health), to avoid workplace accidents and enforcement actions due to breach of law, the financial losses followed by an accident either direct or indirect monetary losses.

Certainly, risk assessment evaluates the priority and required resources to control them. This ensures that control measures are applied on time to reduce the risk to an acceptable level or eliminated in certain activities.

Risk Assessment involves

1. Identify the hazards
2. Identify the population at risk, who might be harmed and how (including special category of people).
3. Evaluation of risk with its likelihood and severity and existing risk control measures and decide on additional precautions.
4. Record significant findings and implement them.
5. Review the risk assessment and update if it is necessary (followed by any accident, change in the process, new hazard information available, change in the management or legislation)

Many of us undertake risk assessment as part of our routine lives, for instance when riding the bike, or crossing a road in order to avoid injury. Therefore, we take corrective actions since we are able to recognise hazards at early stage.

The risk assessment must be suitable and sufficient and cover the entire activities in the organisation. It should also be broad enough so that it remains valid for a reasonable period. Trivial risks associated with routine activities usually be ignored unless the work activities compound these risks.

Risk Assessors

Composition of a Risk Assessment Team

Risk assessment is carried by competent person, generally it comprises a team to bring in various opinion and views to make it as a successful assessment. the risk assessment team composes of the following personnel:

- Employee familiar with the task and area being assessed.
- Team Leader / line managers / duty managers responsible for task being assessed.
- Health and Safety Specialists, advisors, occupational doctors, Occupational health care nurses
- Employee safety representatives.

The size of the risk assessment team may vary depending on the

- size of the organisation and activities being carried out.
- Complexity of the work task.
- Environment in which the task is being carried out.

Team members must be competent in various disciplines and expertise in carrying out risk assessment. The team members and competence may be decided based on the problem being assessed. A successful assessment lies with the dedicated team leader, team leader must be identified with adequate competence during the risk assessment process.

Team leader is responsible for ensuring that all the tasks being assessed, documented and reporting with recommendations to the appropriate person with authority. Team leader is expected to be an expertise to carryout risk assessment successfully.

The team should include those people who

- Can answer technical questions about the design and functions of the equipment or process.

- With adequate experience of how the equipment or process is operated, set-up, maintained, serviced, etc.

- Have knowledge of the accident history of this type of equipment or process.

- Understanding relevant regulations, standards associated with the tasks; understand human factors, for instance why worker may make mistakes or not follow procedures.

It is always not required to set a team for carrying out risk assessment, typically, if the hazard or the activity is not complex, the hazards is simple to understand and risk is not high.

Competence

The size of the team is defined by the size of the organisation. The risk assessment must be carried out by a competent person.

The competent assessor must be able to demonstrate health and safety knowledge and experience that is relevant to the organisation and have the ability to apply these qualities to practical situations.

The assessors must have the ability to interpret technical information and standards, be systematic in their approach and be capable of communicating the findings in a comprehensible and relevant manner.

The content of a training course to assist with competence of people who are to carrying out risk assessments should include:

- Legal requirements with respect to risk assessment.
- Process of identifying hazards and evaluating risks.
- Identification and selection of appropriate control measures.
- Awareness of the individual's own limitations and the occasions when specialist assistance might be required.
- Accessing sources of information, such as legal guidelines and in-house information including accident, ill-health records.
- Report-writing skills.
- Interpretation of regulations and standards.
- Means available for disseminating the outcomes of the assessment.

Criteria for a 'Suitable and Sufficient' Risk Assessment

The term suitable and sufficient is not defined in the regulations, however the risk assessment must be appropriate the nature of the work. The more complex the hazards the more sophisticated the risk assessment will be.

The aim of the risk assessment is to reduce ill health and accidents caused by work activities and a measure of whether it is suitable and sufficient is surely the absence or low rate of accidents and ill health, with good controls in place understood and followed by all.

In order to be suitable and sufficient the risk assessment must

- State the names and competence of the assessor including HSE advisor assisted in carrying out the assessment.
- Identify the hazards and risks from the work activities
- Identify the category of person at risk, including employees, visitors, trespassers and vulnerable group.
- evaluate the risk and the effectiveness of existing controls
- identify suitable protective measures to reduce the risk level.
- prioritise the protective measures that be must be applied to prevent people.
- Comply with legislative requirement.
- also state that risk assessment remains valid for a reasonable time.

Risk assessment is a step by step approach to ensure that a suitable and sufficient is undertaken.

Carrying Out a Risk Assessment

Five Steps to Risk Assessment

Step 1 - Identify the Hazards

The first step in risk assessment is to identify the hazards that exist in the workplace. You need to be aware of all the possible hazards, but it is the significant ones are important.

One approach is to take each task and break it down into steps, assessing the hazards associated with each step. Each step will have its own hazards. The staff, actually performing the tasks are likely to be the best people to assess them, although their familiarity with the job may make them less objective about potential hazards:

- **Physical, for example:**
  - Slipping or tripping hazards.
  - Moving parts of machinery.
  - Work at heights.

- **Chemical, for example:**
  - Fumes, Vapours
  - Chemicals (e.g. battery acids).

- **Biological, for example:**
  - Viruses, Fungi
  - Bacteria

- **Ergonomic, for example:**
  - Manual handling.
  - Poor lighting.

Information sources

Internal and External sources of Information

There are numerous sources of health and safety information availably both internal and external to the organisation. This information must be consulted before assessing risks, developing safe system of work or introducing any control measures for particular risk.

Internal sources of information

- Accidents records
- ill-health / Medical records
- Absence record
- Risk Assessments
- Incident investigation reports
- Health surveillance records
- Maintenance reports
- Inspection / Audit report
- Safety committee minutes meetings

External Sources of Information

- Manufacturers Data
- Material Safety Data Sheet
- Relevant Legislation – Health and Safety (Information for Employees) Regulations 1989.
- Guidance from national and international enforcement agencies (Health Safety Executive, UK's national enforcement agency).
- National and international standards (BSI, OSHA, OHSAS, ISO, EMS, BS EN ISO 12100
- that covers machinery hazards and guarding).
- Safety Journals / magazines.
- Guidance from national and international Safety organisation https://osha.europa.eu/en http://www.ilo.org/global/lang--en/index.htm)

Other organisations that provide useful health and safety guidance include:

- RoSPA (Royal Society for the Prevention of Accidents).
- BSC (British Safety Council – monthly Safety Management publication).
- WHO (World Health Organisation)
- IOSH (Institute of Occupational Safety and Health -monthly Safety and Health Practitioner (SHP) magazine and other publications).
- National Safety Council, India.

Hazard Identification Methods

The hazard identification is carried out using different ways:

Task Analysis

specifically used for critical jobs as it identifies the potential hazards before the work starts as part of planning process. The job is broken down into steps and then identifying associated hazards in each step, followed by hazard identification, hazard control and safe working methods shall be established to deal with critical jobs.

Select the task
Record each steps of the tasks
Evaluate the risk associated with each step
Develop safe working methods
Implement safe working methods
Monitor performance to ensure its effectiveness.

Legislation

One of the reliable sources to get hazard information from the workplace. For example, regulations and supporting documents may set limits for exposure for noise level in the workplace, or exposure to hazardous substances, when a worker is exposed above to these levels are hazardous to their health. Changes to legislation, such as reduction in the noise action value may indicate increased hazard.

Manufacturers information or data sheets for chemicals and equipment as they can be helpful in spelling out the hazards and putting them in their true perspective.

Look back at your accident and ill-health records - these often help to identify the less obvious hazards.

Take account of non-routine operations (eg maintenance, cleaning operations or changes in production cycles)

Remember to think about long-term hazards to health (eg high levels of noise or exposure to harmful substances)

Step 2 – Identify the People at Risk

This is the process of determining who may be at risk from the hazards – the workers, contractors and others likely to be affected in the case of an incident involving the hazard.

It is important to consider the wider implications of hazards, not just as they may affect those working in the immediate environment.

Workers

Workers affected because of risks associated with the particular jobs they do, such as setting, production, they use various work equipment, possibilities of slip, trip and fall due to poor environment. Consideration to work timings, breaks and fatigue are usually significant.

Maintenance Personnel

Maintenance activities may result in injury due to unfamiliarity of the plant and machinery, poor access and egress. The poor competence of the maintenance personnel may lead to serious injury or accident. The maintenance work is carried alone hence no supervisor to monitor the safe working methods.

Cleaners

Cleaner often engaged in handling of hazardous substance, lack of awareness on the effects of hazardous substances and improper use of without using suitable PPE increases the risk of health effects.

Contractors

Contractors are often involved in high risk activities due to complex nature of the work activity, the contract worker may fail to understand the workplace hazards due to incompetence, lack of knowledge on the work procedures and correct use of work equipment.

Visitors / Public

Visitors and public needs to be identified and require special attention when they are in the workplace. They tend to perceive the hazards in a different way, since they are unfamiliar with the workplace hazards. They are also considered as vulnerable group due to lack of awareness and ability to protect themselves from hazard.

Consider vulnerable groups for which you may need to put in place additional control measures. These vulnerable groups may include:

- young people, who may be more at risk due to their inexperience and lack of training
- elderly people
- pregnant, post-natal and breastfeeding employees
- night and shift workers
- people with different abilities or disabilities; and
- people who are handling money or dealing with the public.

Step 3 - Evaluate the Risks and Decide on Precautions

The term risk can be defined as 'the likelihood of harm'. This is usually regarded to have two components:

- The likelihood of the hazardous event occurring
- The severity of the harm that results

Thus, a better definition might be 'the likelihood of harm together with the potential severity of harm that results from a hazard'.

The simplest way to evaluate the risk is to allocate descriptions such as high, medium and Low to the level of risk. Another method is to use a numerical system, allocating numbers to variations in likelihood and severity, and then applying these to a matrix e.g.

When considering the severity of the injury that may result, it is important to be realistic. If someone tripped over a trailing cable on the floor in a warehouse, the person may end up with bruises or a fractured bone. However, if the cable was running across the entrance to the busy metal stairs on the second floor, a more severe injury, even death may result. It is often useful to ask the question: 'Based on actual injuries – how many of the injuries resulting from that hazard did result in the severity of injury that I have proposed?'

Again, some organisations will adapt their own accident experience over these subjective statements with a view to making them more relevant for their own organisation. This simple model allows this, and customisation, without over complication, is to be encouraged.

Risk rating

In our simple risk assessment, the next stage is to multiply the 'likelihood' number by the 'severity' number to arrive at a risk rating for each hazard. The result of this exercise will provide a risk rating from 1 to 25, as seen in the table that follows.

SEVERITY		1	2	3	4	5
		RARE	UNLIKELY	POSSIBLE	LIKELY	CERTAIN
CATASTROPHIC	5	5	10	15	20	25
MAJOR	4	4	8	12	16	20
SIGNIFICANT	3	3	6	9	12	15
MINOR	2	2	4	6	8	10
INSIGNIFICANT	1	1	2	3	4	5

LIKELIHOOD

5×5 Risk assessment matrix

The graphic explains how risk levels can be classified using numbers and colour coding. In this example, green identifies a low risk and red identifies a high risk and intermediate risks are show in orange.

Numerical rating system such as the example shown above can be useful for numerous reasons:

Clarity of thinking – careful consideration given on the likelihood and severity of foreseeable injury when they matrix system, it gives accurate outcome.

Consistency of approach – the outcome will be of similar results, even if it is used by different people.

Prioritisation – the risk level is represented by number, and the higher the number the greater the risk, it is also possible to categorize risks presented by the hazards and rank them with sequence.

Quantitative Risk Assessment

The simplest way to quantify the risk is low, medium or high:

Low risk: This is where the likelihood of an accident occurring is low and the severity is low. For example, intermittent work on a computer where the workstation is well laid out is unlikely to result in any harm to the user.

Medium risk: As the level of likelihood and severity increases, a hazard may be assessed as a medium risk. For example, manual handling of heavy loads without mechanical aids. You should use control measures to reduce these hazards to low risk.

High risk: You should focus on high risk hazards first, as there is a likelihood that an accident could occur and if it does then there could be serious injuries, ill health or death. For example, vehicles reversing where pedestrians / members of the public are walking

Risk Reduction through prevention and control measures

Risk assessment steps evaluate the adequacy of existing control measures in place. Thought must be given whether they achieve the principles of prevention with reference to hierarchy of control.

Principles of Prevention

When the hazards are identified then the next option is to control those hazards with suitable precautions to bring the risk to acceptable level. This is the significant part of risk assessment to implement precaution to reduce the risk level.

The General principles of prevention encourage risks to be combatted at source, also introduce further prevention principles such as a adapting the work to the individual can have significance in risk reduction.

Hierarchy of Control with reference to ISO 45001 Clause 8.1.2

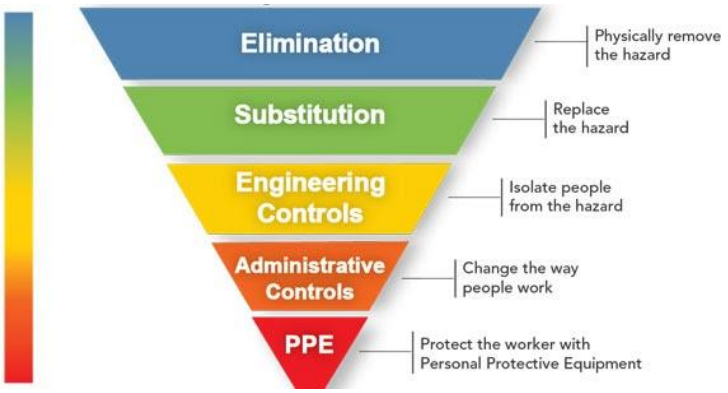
When determining controls, or considering changes to existing controls, consideration shall be given to reducing the risks according to the following hierarchy:

- eliminate the hazard.
- substitute with less hazardous processes, operations, materials, or equipment.
- use engineering controls and reorganization of work.
- use administrative controls, including training.
- use adequate personal protective equipment.

In many countries, legal requirements and other requirements include the requirement that Personal Protective Equipment (PPE) is provided at no cost to workers.

General Hierarchy of Controls

Risks should be reduced to the lowest reasonably practicable level by taking preventative measures, in order of priority. This is what is meant by a hierarchy of control. The list below sets out the order to follow when planning to reduce risks you have identified in your workplace. Consider the headings in the order shown, do not simply jump to the easiest control measure to implement.



Hierarchy of Risk Control

Eliminate the Hazard

Elimination is always the best option as it removes the hazard. This can be achieved by avoiding the use of certain processes or activities.

For example, buy in ready-cut timber rather than using a circular saw (this removes the risk of amputations), or use battery-powered tools rather than electrically powered (this removes the risk of an electric shock).

Substitute the Hazard

Substitute the hazard by replacing the material or process with a less hazardous one.

The process still takes place, but the remaining risk is low.

For example, substitute a corrosive chemical with an irritant chemical that is health risk, or if working at height use a mobile working platform instead reduces the risk of falling.

Engineering Controls

Engineering controls are methods that are built into the design of the plant equipment or process to reduce the risk by placing a barrier between the hazard and employee or designing the equipment or processes, so the risk is reduced.

- **Isolate, enclose or separate**

These controls rely on keeping the hazard in and the worker out (or vice-versa)

For example, providing a separate walkway for pedestrians in a loading bay, a locked cupboard for dangerous chemicals, or high-voltage cables placed at a high level so they cannot be reached.

- **Automation and mechanisation**

Many tasks have now become automated through the use of modern equipment. Automated processes stop the worker carrying out the task therefore the worker is not exposed to hazards. Repetitive tasks that cause upper limb disorders may be automated, for example labelling and sorting. A machine may assist the worker to carry out the task so that the task is still completed but the risk is reduced through the use of equipment and machinery, for example using a hoist to lift a load

- **Design, guards and ventilation**

A process may be altered to reduce the risk, for example using pellets and not powder would reduce the risk of airborne particles

Machines should be designed so they are safe to use and any remaining risk should be minimised with the guarding of dangerous parts.

Ventilation systems should be used to extract airborne hazardous substances to prevent inhalation, for example an extraction hood placed directly over an employee welding.

Reduced time exposure is used to limit the amount of time a worker is exposed to the hazard, however, the hazard still remains. This control may be used for controlling health hazards such as extreme temperatures, vibration, hazardous substances and noise. Hazardous substances may have workplace exposure limit; information is available from is available from the HSE – EH40. In many workplace job rotation can assist with exposure limits.

Administrative Controls

These are all about identifying and implementing the procedures you need to work safely. For example: reducing the time workers are exposed to hazards (eg by job rotation); prohibiting use of mobile phones in hazardous areas; increasing safety signage, and performing risk assessments.

- **Safe System of Work (SSow)**

A safe system of work (also referred to as standard operating procedure or method statement) describes how the job or task should be completed taking into account procedures to follow, technical controls to use and the behaviours which must be followed. Safe systems of work are usually formal and documented, but in some low risk workplaces they may be informal in that only verbal instructions are given and followed.

- **Permit to Work**

A Permit to Work is a formally documented safe system of work used when high residual risk remains after controls have been put in place. The Permit to Work will give very specific instructions on how to complete the job safely stating:

- The work to be carried out; and
- The controls to be in place at each stage of the work

Permit to Work must be used with a high degree of supervision and issued by a responsible person, who will sign it in at the beginning to allow the task to take place and sign it off at the completion of the task and cancel the permit.

Common situations when a Permit to Work is issued are when working on High-voltage electrical equipment and entry into confined spaces.

- **Information, instruction, training, and supervision**

In most current health and safety legislation training is a requirement. In the MHSWR there are additional requirements to make the employee aware of the risks to their health and safety identified by the assessment. Training will reduce the likelihood of an accident occurring because the employee is aware of the hazards and controls required to prevent the hazard causing harm.

In addition to training, employees must be given information about preventive and protective measures. Information and instruction may be verbal or written, however it must always be comprehensible. If instructions and information are given verbally care must be taken to ensure employees fully understand.

A safety sign is only used when a hazard is not controlled by another means or as an additional control. Although safety signs can be helpful they tend to become ineffective after a few days and lose any impact they may have had**.**

Safety Signs and Signals

Safety sign provides information or instructions by a combination of shape, colour and a symbol or pictogram which is rendered visible by lighting of sufficient intensity. In practice, many signboards may be accompanied by supplementary text, eg 'Fire exit', alongside the symbol of a moving person.

The Health and Safety (Safety Signs and Signals) Regulations 1996
The Regulations require employers to ensure that safety signs are provided (or are in place) and maintained in circumstances where there is a significant risk to health and safety that has not been removed or controlled by other methods. This is only appropriate where use of a sign can further reduce the risk.

Colour	Meaning Or purpose	Instruction and information	Intrinsic Features
Red 	Prohibition sign Danger alarm a sign prohibiting behaviour likely to increase or cause danger (eg 'no access for unauthorised persons')	Dangerous behaviour; stop; shutdown; emergency cut-out devices; evacuate	round shape; black pictogram on white background, red edging and diagonal line
Yellow 	Warning Sign – a sign giving warning of a hazard or danger (eg 'danger: electricity)	Be careful; take precautions; examine	triangular shape; black pictogram on a yellow background with black edging
Blue 	Mandatory Sign a sign prescribing specific behaviour (eg 'eye protection must be worn)	Specific behaviour or action, e.g. wear protective equipment	round shape; white pictogram on a blue background
Green 	Emergency escape First aid sign Safe Access a sign giving information on emergency exits, first aid, or rescue facilities (eg 'emergency exit/escape route'	Doors; exits; escape routes; equipment and facilities Return to normal.	rectangular or square shape; white pictogram on a green background

Personal Protective Equipment (PPE)

PPE is equipment that will protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protection, high-visibility clothing, safety footwear and safety harnesses. It also includes respiratory protective equipment (RPE).

Worker Wearing PPE

Personal protective equipment should be used in addition to other controls and only as a last resort as there are many limitations associated with its use; for example, it does not provide collective control measures, nor does it fail to safety.

For instance, hearing protection only protects the employee wearing the protection and if removed the noise has the potential to cause hearing damage. It is far better to replace the equipment with less noisy equipment than rely on the hearing protection.

Even where engineering controls and safe systems of work have been applied, some hazards might remain. These include injuries to:

- the lungs, e.g. from breathing in contaminated air
- the head and feet, e.g. from falling materials
- the eyes, e.g. from flying particles or splashes of corrosive liquids
- the skin, e.g. from contact with corrosive materials
- the body, e.g. from extremes of heat or cold.

It is important to determine the limitations of PPE before its use.

Benefits and Limitations of Personal Protective Equipment are summarised below:

Benefits	Limitations
• Portable • Low cost • Protects the wearer • Interim control measures until difficult controls are implemented.	• PPE may not provide adequate protection because of poor selection, poor fit, incompatibility with other PPE, misuse of PPE or non-use of PPE. • It protects only the wearers not others who are nearby. • Relies on the behaviour of the people wearing the equipment always. • PPE may bring in new hazard for instance impaired vision, unable to hear emergency alarms, wearing for long time causes fatigue. • It only reduces the injury rather than preventing it. • If fails to danger, does not provide 100% protection.

Good practice principle encourages employers to:

- ensure PPE is suitable for the hazard and the wearer.
- Provide adequate training / instruction on the correct usage.
- Issue, obtain signature and maintain record.
- Set up monitoring systems though enforcement.
- Organise routine exchange systems in case of damage or lost.
- Issue written/verbal instructions define when and where to use.
- Provide suitable storage place.

If this is the case then it may be necessary to use Personal Protective Equipment (PPE), there are variety of PPE to protect worker from injury, they are:

- Hard hats and helmets to prevent head and neck injury.
- Earmuffs and defender to protect against high level of noise to avoid hearing damage.
- Gloves, gauntlets to prevent contact with hazardous substances.
- Nose masks filtered masks to prevent inhalation of toxic substances.
- Safety boots with protective toecaps to prevent crushed feet.
- RPE in oxygen deficiency area, dust, vapour, and gas.

There are numerous reasons why PPE is considered as last resort control, even after implementing other protective measures, in many countries, it is a legal requirement that other means of protective measures are considered first, because PPE has various limitations:

When selecting and using PPE

- Choose products which are CE marked in accordance with the Personal Protective Equipment Regulations 2002 – suppliers can advise you
- Choose equipment that suits the user – consider the size, fit and weight of the PPE. If the users help choose it, they will be more likely to use it
- If more than one item of PPE is worn at the same time, make sure they can be used together, e.g. wearing safety glasses may disturb the seal of a respirator, causing air leaks
- Instruct and train people how to use it, e.g. train people to remove gloves without contaminating their skin. Tell them why it is needed, when to use it and what its limitations are.

Guidance

When making decision about risks and controls are adequate, the employer must refer to relevant standards and guidance.

The guidance and standards are available in the form of legislation, guidance documents, industry specific guidance documents, relevant national and international standards. If the proper guidance and standards are not referred, then the risk assessment may be determined as not suitable and sufficient.

Legislations Required to Control Specified Hazards

The personal Protective Equipment Regulations 1992 states that a risk assessment must be carried out when risks to health and safety cannot be avoided by other means. The assessment must include characteristics which the personal protective equipment must have in order to be effective and comparison of the characteristics of PPE available with the required characteristics to control risks.

Control of Substances Hazardous to Health Regulations 2002 states that assessments must take place before the event.

Applying Controls to Specified Hazards

Controls measures must be applied for specific hazards such as confined space, work at height, manual handling, electrical etc., methods for reducing the level of hazard may vary in accordance with the type of hazard**.**

For example, fall from height can be eliminated by working from the ground level or by using suitable equipment such as ladder, MEWP, whereas the reduction of hazards created by noise can be reduced by change in the work methods, job rotation or by providing sound proofed enclosures.

Residual Acceptable and Tolerable Risk

The risk that remains after introducing all control measures is referred **as residual risk.**
For example, the use of seat belts while driving a car reduces the probability and severity of injury from the road accidents, however in the event of accident there is probability of injury remains, this is referred as residual risk.

If the residual risk is low, then it is considered as acceptable risk – the existing control measures are adequate.

If the residual risk is high, then a decision has to be made whether the risk is tolerable or unacceptable. Tolerable implies that the risk is acceptable for short period of time, however further controls needs to be implemented to bring the risk to acceptable level. Unacceptable implies that the risk level is too high to continue the work.

Priorities and Timescales

Priority is based on the level of risk, higher the risk, higher the priority.

A low risk may be simple to rectify and it may have low cost solutions as well as, but it is unacceptable to keep a long timescale to rectify the simple problems, it should be rectified immediately because it can be done immediately.

There may be a high priority to reduce a high risk; however, the action needed may take a very long time to carryout. It is therefore not always helpful to class all high risks as requiring a solution within an immediate timescale. It is important not to ignore the risk and often it is possible to carry out some aspects of lesser control on an interim basis, while the longer-term solution is being established.

4. Record Your Findings

The significant findings of the assessment must be recorded and kept. There should, then, be a record of all hazards, the risks that they present and what precautions are in place to protect people from harm. This written record is an important reference for future use – as the basis for reviewing risks, but also as information for enforcement officers or even as evidence in any proceedings arising from an accident involving the risk.

The record needs to cover all significant risks and state the current position – for example,
"electrical wiring checks carried out in Work site ABC and everything found to be satisfactory".

If the company has less than five employees it is not necessary to prepare this written record, although it is always useful to keep one anyway.

5. Review your Assessments and Revise if Necessary

The way we work is constantly changing – as a result of new or modifications of existing equipment, building alterations, new procedures, new or modified products, etc. Sometimes systems and procedures get changed by the staff themselves. These all bring their own hazards, but new hazards can also arise in existing methods of work – the effects of stress is a recent example.

In addition, the following should always prompt a review

- Followed by an accident or an increase in near misses
- Significant change in the procedure, equipment and substances.
- New hazard information available as a result of health surveillance.
- Change or update in the legislation for e.g. Occupational Exposure Limits to hazardous substance.

It is also good practice to review risk assessment regularly, however many organisations have a system of annual review of risk assessment.

Special Case Application of Risk Assessment

Young Persons

A young person is anyone under 18 years of age.

Employer must take into accounts the characteristics of young people and activities, which present significant risks to their health and safety.

You need to consider the following when carrying out risk assessment for young person:

- Is the task beyond their physical or psychological capacity.
- Involves exposure to harmful substances that are toxic, carcinogenic or cause any chronic ill health effects.
- involves harmful exposure to radiation
- involves risk of accidents that cannot reasonably be recognised or avoided
- by young people due to their insufficient attention to safety or lack of experience or training.
- has a risk to health from extreme cold, heat, noise or vibration.

Factors why young person at work are more vulnerable

Generally, young people are not aware of risks in the workplace

- inexperienced and immature
- poor risk perception.
- easily influenced by peer pressure.
- they are excited and willing to work and take risks even though if they are not familiar with the tasks.
- lack of communication skills.

Hence, consider the above factors when carrying out the risk assessment, therefore

- Provide induction training to the young worker.
- Restrict young worker from high risk activities (e.g machinery operation, manual handling etc.)
- Restrict hours of work (no overtime and no shifts).
- Provide thorough training to make them competent to a level where they can work without putting themselves and others at risk.
- Provide more supervision to ensure that training is fully understood and followed.
- Conduct regular health surveillance.

Expectant and Nursing Mothers

Expectant and nursing mothers might be at risk from processes, working conditions or physical, biological and chemical agents and these risks will vary depending on the health, and at different stages of pregnancy.

Some of the more common risks might be

- lifting/carrying heavy loads.
- standing or sitting still for long lengths of time.
- exposure to infectious diseases
- exposure to lead.
- exposure to toxic chemicals.
- work-related stress.
- workstations and posture.
- exposure to radioactive material.
- threat of violence in the workplace.
- long working hours.
- excessively noisy workplaces.

The regulations require that employer must carry out a risk assessment for any specific risks to female employees of childbearing women, and new or expectant mothers and their baby.

If the risk assessment identifies risks which cannot be controlled, then the employer must alter her working conditions or hours of work.

If hours of work and working conditions cannot be changed and risk remains then it may be necessary to suspend her from work on paid leave for as long as necessary, to protect her health and safety and that of her child.

Disabled Worker

People with physical disability are at greater risk in the workplace. For example, a worker with hearing disability can perform x-ray screening of cargos at the cargo terminal but finds difficult to hear emergency alarm in the event of an emergency, especially when he is a lone worker. In such cases he needs assistance from his co-workers to alert them on the fire alarm, as well as to evacuate the building safely.

Workers need to inform the employer about their disability which could affect their job. Informing employer, they are disabled means an employer can make changes to make work safer.

Remember to consider the needs of disabled workers as part of the assessment. Speak to the disabled person about any changes that could be helpful.

Example of changes employers can make

- Changing access to a building to make it easier for wheelchair users
- Looking at who does what tasks
- Moving a disabled person into a different job
- Changing the working hours of a disabled person
- Giving a disabled person time off for appointments with doctors and other healthcare workers
- Training for a disabled person and people who work with them

Source : http://www.hse.gov.uk/disability/easyread.pdf

Lone Workers

Lone workers are those who work by themselves without close or direct supervision, for example:

- A person working alone in a small workshop, petrol station, kiosk or shop

- People working on their own outside normal hours, e.g. cleaners and security, maintenance or repair staff

Lone workers are at the increase of violence when their job involves

- work from a fixed base, such as one person working alone on a premise (e.g. shops, petrol stations etc)
- work separately from others on the same premises (e.g. security staff) or work outside normal hours
- work away from a fixed base (e.g., maintenance workers, health care workers, environment inspectors)
- work at home (homeworkers); and
- mobile workers (e.g., taxi drivers)

There is a risk of injured or fall ill. Certain activities involve high risk of injury or ill health e.g. entry into confined space. Lone working in confined space shall be inappropriate or need additional precautions to protect the lone worker.

Lone workers should not be put at more risk than other employees. Establishing a healthy and safe working environment for lone workers can be different from organising the health and safety of other employees.

Some of the issues that need special attention when planning safe working arrangements, but your risk assessment process should identify the issues relevant to your circumstances.

3.5 The Management of Change

Introduction

Workplace experience change frequently. Changes may be due to various reasons including change in the process, change in the equipment, change in the working practices and construction work often referred to as temporary works.

Temporary work include demolition, renovation, maintenance of building, short-term building projects (constructing labour camp) and excavation works. Temporary works can be very minor, short-duration work which includes painting, dismantling of scaffold components, office decoration, refurbishment works to the interior and exterior of an old building, trench work for laying power cables or communication cables.

The hazards of temporary nature or work can present significant risks to the workers and others who are associated with the temporary works. They may include own employees of the client for example quality monitoring team. They may be engaged contractors to undertake construction work.

The hazards of temporary nature of work can also present risk to those who might or might not be involved to the business such as a visitor or trespassers.

For example, external lamp cleaning and maintenance work were undertaken by external contractors at a leisure centre run by a local council could potentially present the risk to:

- The workers themselves.
- Leisure centre staff.
- Leisure centre customers (including children, the elderly and the disabled).
- Members of the public passing by outside the site.

The establishment of a temporary work site within an existing work can disrupt the 'usual' control measures that will already exist within that workplace. Again, the disruption caused will depend very much on the nature of the existing work and the nature of the temporary works. Examples would include:

- Disruption to the one-way system of an on-site vehicle traffic route caused by emergency drain repair works to part of the traffic route.
- Isolation of part of an automatic fire detection system because of hot works in one part of a multi-story building.
- Closure of a fire escape route because of refurbishment works to the corridor and stairway that forms a part of the escape route.

Managing the Impact of Change

Risk Assessment

Risk assessment must be carried out considering the hazards associated with temporary works and its effect on the existing workplace. Consideration must be given to all of the people who might be affected by the hazards with special consideration given to vulnerable groups such as pregnant women, children, the elderly, physically challenged, etc.

It is the employer's duty to carry out a suitable and sufficient risk assessment for the work activity. This duty would, therefore, fall to any contractor involved in the work activity but would also fall to any employer occupying a workplace where the work was taking place.

Communication and Co-operation

Effective communication and co-operation between the all parties undertaking the work and all those affected by the work are important. Effective communication can be achieved by proper planning of the temporary works. Information on the hazards and risks present in the existing workplace and created by the temporary works must be shared between all the parties. In this way, the employer in control of the existing workplace can anticipate foreseeable risks to their employees created by the works.

This communication and co-operation are best achieved by pre-work organizing meetings including all the parties. Such meetings are best conducted at the works site in order to foresee site-specific issues.

Appointment of Competent People

All of the workers involved in temporary works must be competent. This includes not only the workers involved in the work itself but also those involved in the management of the work. Competent includes KATE – Knowledge, Ability, Training and Experience and to be able to carry out their task safely.

Segregation

The temporary work area must be segregated from the existing workplace

This can be achieved by the use of physical barriers and signage. Access points to the temporary work site must be controlled to prevent unauthorized access. Signage may need to be used at these access points to indicate additional rules that may apply within the work area (such as the use of PPE).

Segregation is required to prevent unauthorized people to have access into the areas where the temporary works are carried out. This might include employees of the workplace where the work is taking place, customers and members of the public who want to pass through the work area. Segregation is also necessary to protect the worker engaging in the temporary works from other routine work activities taking place in their vicinity, such as workplace vehicle movements.

Emergency Procedures

Consideration must be given to the emergency procedures that may have to be established because of the nature of the temporary works. For example, work involving the use of cherry pickers (mobile elevating work platform) may require the development of an emergency procedure in case a worker should become stranded in the cradle of the machine. Inevitably some emergency procedures will involve the existing workplace where the temporary works are taking place.

For example, procedures to deal with chemical spill that might have to be practice if a hazardous chemical were involved as a part of the temporary works.

Consideration must also be given to existing emergency procedures that have to be modified because of the impact of the temporary works. For example:

- Alternative fire detection and alarm procedures that are put in place because of the temporary isolation of part of an automatic fire detection and alarm system during hot works.
- Alternative emergency escape routes that must be designated because of the closure of an existing escape route. This may require the use of temporary signage and emergency lighting.

Welfare Provision

Adequate welfare provision must be made for the workers engaged in the temporary works. This will include all the welfare requirements that were covered in the early parts of this element:

- Drinking water.
- Sanitary conveniences.
- Changing rooms.
- Washing facilities.
- Accommodation for clothing.
- Resting and eating facilities.

Review

It is also important that proposed changes are introduced and implemented, there is a regular review process to confirm that health and safety risks are controlled. This review should involve relevant stakeholders and forms an integral part of the communication and co-operation process outlined above. It will also include review and update of the relevant risk assessments.

Review process must be done at the completion stage of the changes. The reasons are:

- to address the issues and opportunities that exist by the changes that was made
- to highlight learning opportunities for the change management process, hence proposed changes in the future can be carried out more effectively.

Introduction to Safe system of Work

A safe system of work is a formal procedure which results from a systematic examination of a task in order to identify all the hazards and assess the risks, and which identifies safe working methods to ensure that all hazards are eliminated, or the residual risks are minimised.

A safe system of work is a step by step procedure to carry out the tasks safely considering the hazards, control measures, the equipment, the environment in the task is carried out and the competence of the worker.

Employer's Responsibility to Provide Safe System of Work

The employer is ultimately responsible to ensure that safe system of work is available for all activities where hazards cannot be physically eliminated.

Most of the hazards are clearly recognisable and can be controlled by separating people from them physically, e.g. using a guard on machinery. There will be often circumstances where hazards cannot be eliminated, and risk remain associated with the task. Where risk assessment indicated this is the case, a safe system of work will be required.

Safe system of work becomes more significant when residual risks remain even after introducing all the possible control measures into the processes.

Requirements for a safe system of work

The ILO Occupational Safety and Health Convention C155 sets out requirements at the level of the undertaking to establish health and safety. Article 16 requires:

"1. Employers shall be required to ensure that, so far as is reasonably practicable, the workplaces, machinery, equipment and processes under their control are safe and without risk to health.

2. Employers shall be required to ensure that, so far as is reasonably practicable, the chemical, physical and biological substances and agents under their control are without risk to health when the appropriate measures of protection are taken.

ILO Recommendation R164 recommendation 10 directs employer to consider the work methods employed:

"10. The obligations placed upon employers with a view to achieving the objective set forth in Article 16 of the Convention might include, as appropriate for different branches of economic activity and different types of work, the following:

(a) to provide and maintain workplaces, machinery and equipment, and use work methods, which are as safe and without risk to health as is reasonably practicable."

Role of Competent Person

Safe system of work should be developed by competent person with relevant Knowledge, experience, training and skills, depending on the technical issues and the risk associated with the task, it may be necessary to have competent person to develop SSoW. Absence of competence may lead to key issues being overlooked, hence results in poor quality of SSoW and in effective in controlling the risk to an acceptable level.

Worker Involvement

It is essential to involve workers when developing and reviewing the safe system of work to ensure that a safe behaviour is followed. The workers are working on grounds and they know the practical difficulties which arise out of the risk, the flaw in the existing working methods such as absence of equipment or the need to involve more workers to the task than normal force. Workers can also involve themselves in assessing plans, writing proposed system of work, providing feedback on the existing proposed system.

The proposed system of work must be communicated with the workers to understand the practical difficulties in implementing and taking into account of proposed system of work. Involving workers ensures they understand the hazards and risks involved in the task, and how effectively safe system of work will reduce such risks, thus it brings ownership and commitment to the proposed system of work, involving workers in the developing safe system of work is likely to improve positive safety culture of the organisation.

Written Procedures

The documented safe system of work results in increased level of consistency, it becomes a reliable reference for all work activities. Procedures may be difficult to follow when communicated verbally, it is unreliable communication method which could lead to errors.

Written document provides a consistency approach

Written safe system of work provides a reliable reference used for the purpose of training new workers.

The importance of creating written procedures is that they serve as a clear setting of standards of work, including how the risks of the work are to be combated. Written procedures can contribute to tender document use to win work, will enable supervisors and others to monitor health and safety against set standards.

The construction industry makes particular use of written procedures in the form of '**method statement'.**

Recording of SSW provides detailed information on the steps to taken when carrying out activities where the risk cannot be physically eliminated or activities with lengthy procedures such as carrying out break down maintenance for the drilling machine. SSW can be accompanied with a check list to ensure that all steps are followed correctly before starting the operations.

Written records can be a document used for audit, required for legal reasons for the employer at the time of carrying out accident investigation.

Technical, procedural and Behavioural Controls

In order to deal with the hazard effectively, we will need to use all three forms of control, to a greater or lesser degree for example, the use of an ear plugs for the control of a hazard of noise from machinery.

Technical controls

Strategies which can prevent hazards, mitigate its severity, or minimise the likelihood, for example gas/fire detection system, early warning radar system, fencing and machinery guards, emergency stop buttons.

Procedural Controls

Procedures to carry out the task to manage the hazard. They will specify the task involved, the sequence in which the task is carried out with safety actions in place. Procedures often, relate to the application of technical controls correctly during operations, for example standard operating procedures, procedures to deal with emergency, maintenance procedures etc.

Behavioural Controls

The behaviour of the individual workers to manage work related hazard. This is considered through positive behaviour of the worker towards health and safety, for example using guards while operating machinery, using necessary personal protective equipment required to carry out the task, monitoring the work by the supervisor, reporting near misses and accidents.

Technical control does not rely on human intervention, whereas behavioural controls depend on personal behaviour.

Developing Safe system of Work

Task analysis specifically used for critical jobs to identify the potential hazards before the work starts. The job is broken down into steps and then identifying associated hazards in each step, followed by hazard identification, hazard control and safe working methods shall be established to deal with critical jobs.

Task Analysis

Do you remember SRIDEM as discussed earlier in hazard identification and task analysis

Select the task
Record each steps of the tasks
Evaluate the risk associated with each step
Develop safe working methods
Implement safe working methods
Monitor performance to ensure its effectiveness

So, for example, a battery-operated forklift requires a replacement of its battery, the task analysis on the job of changing battery for a forklift.

Task analysis might identify the key steps of the tasks

Step 1 Disconnect the terminals

Step 2 Remove exhausted battery

Step 3 Fit new battery

Step 4 connect terminals

Each step involves risks

The risks associated with each of these steps are then evaluated, for example while connecting terminals might cause electrocution, battery handling could raise manual handling hazard, eventually this is the risk assessment process applied during the planning stage of a task.

Introducing Controls and Formulating Procedures

Once the risks are evaluated, then the safe working methods can be developed. The workers must be consulted prior to implement SSoW, so that the concerns are raised at initial stage, the workers have ownership towards proposed methods. Without consultation it is often difficult to implement safe working methods as it may be difficult to the workers to adopt new working methods and control measures.

Instruction and Training

To be more effective the workers must be provided with information, instruction, and training on the proposed safe working methods. Training is key factor to ensure that workers understand the safe working methods which can be applied for the task.

Monitoring

When the safe working methods are implemented it must be monitored to check the effectiveness of it. This is to ensure that

- to emphasis monitoring if the new safe working methods not followed and implemented.
- The proposed method is reducing the risk or not, if not, then the proposed method must be reviewed.

3.7 Permit to Work Systems

Introduction

Permit-to-Work

A Permit to Work is a formally documented safe system of work used when high residual risk remains after controls have been put in place. The Permit to Work will give very specific instructions on how to complete the job safely stating:

- The work to be carried out; and
- The controls to be in place at each stage of the work

Permit to Work must be used with a high degree of supervision and issued by a responsible person, who will sign it in at the beginning to allow the task to take place and sign it off at the completion of the task and cancel the permit.

Common situations when a Permit to Work is issued are when working on High-voltage electrical equipment and entry into confined spaces.

What is Permit-To-Work System?

permit-to-work system is a formal written procedure used to control certain types of work which is identified as potentially hazardous.

The permit is a detailed document which authorises certain people to carry out specific work at a specific site at a certain time, and which sets out the main precautions needed to complete the job safely.

Why Permit to Work Systems are Used

Permit-to-work systems should be considered whenever it is intended to carry out work which may adversely affect the safety of personnel, plant or the environment. However, permit-to-work systems should not be applied to all activities, as experience has shown that their overall effectiveness may be weakened. Permits-to-work are not normally required for controlling general visitors to site or routine maintenance tasks in non-hazardous areas.

Permit-to-work systems are normally considered most appropriate to:

- non-production work (e.g. maintenance, repair, inspection, testing, alteration, construction, dismantling, adaptation, modification, cleaning etc);

- non-routine operations jobs where two or more individuals or groups need to co-ordinate activities to complete the job safely; jobs where there is a transfer of work and responsibilities from one group to another.

More specifically, the following are examples of types of job where additional permits or certificates (e.g. isolation certificates - see Appendix 2) should be considered:

- work of any type where heat is used or generated (eg by welding, flame cutting,
- grinding etc); work which may generate sparks or other sources of ignition.
- work which may involve breaking containment of a flammable, toxic or other
- dangerous substance and/or pressure system; work on high voltage electrical equipment or other work on electrical equipment.
- which may give rise to danger, entry and work within tanks and other confined spaces.
- work involving the use of hazardous/dangerous substances, including
- radioactive materials and explosives; well intervention.
- diving, including onshore operations near water.
- pressure testing.
- work affecting evacuation, escape or rescue systems.
- work involving temporary equipment, e.g. generators, welding equipment etc.
- work at height.
- any operation which requires additional precautions or personal protective
- equipment (PPE) to be in place; any other potentially high-risk operation.

Operation and Application

Permit to Work consists of following four stages:

- Issue
- Receipt
- Clearance/Return to service
- Cancellation
- Extension

Permits are used with unique identification number for reference purposes and are usually made as triplicate copy. The Permit to work operate in the following way.

Issue

This section identifies the nature of hazards present and determines the suitable precautions that are required.

The permit issuing authority must complete this section, followed by carrying out a risk assessment to satisfy that all hazards are identified and precautions in place are suitable. The permit issuing authority must be competent person, he must specify;

- The nature of the work to be carried and the location or area.
- The names of each workers authorised to perform the task.
- The date and time of the work can Commence.
- The time limit for which the permit is valid for.

The control measures that are in place before, during and after the task.

Any Restrictions applicable – for example, the use of lighting in a confined space.

Any associated permits that are relevant.

The Permit issuing authority signs the permit to confirm that all necessary precautions are implemented, and the work can start now. The issuing authority must include their name and signature, along with date and time of when the permit is issued.

Receipt

The workers sign and accepts the permit to confirm that they fully understand the nature of hazards, risks and control measures in place which they will comply.

Workers name and signature, along with date and time must be clearly mentioned.

Clearance / Return to Service

Workers sign in this permit section to confirm that they left the workplace in safe conditions, confirming that the work is completed and ready to resume normal operations.

Cancellation

The issuing authority signs to accept the hand-back of the workplace from the workers followed by work completion, also considered as cancellation of the permit, so that no further work is allowed to undertake.

Extension

Extension/shift handover procedures – signatures confirming that checks have been made to ensure that the plant remains safe to be worked upon, and that the new acceptor/workers have been made fully aware of the hazards and precautions. Where an extension to the work is involved, a new expiry time for the permit must be given

Copies of the permit should be clearly displayed

- One copy at the work site or near the locations where the work is carried out
- One copy in the main control or permit co-ordination room
- One copy should be kept with the issuing authority.

Having permit to work document does not ensure safety is in place. Management system to put permit in practice ensures safety. Permits are often treated as unnecessary paperwork as it is a mandatory documentation process, which makes the issuing authority to issue permits without identifying the hazards or confirming that suitable controls in place before the work starts, hence it can lead to adverse effects.

A Permit to work system will be effective only when

- When issued by the authorised issuing authority
- Issuing authority is familiar with the nature of work carried out as well as hazards associated with the work.
- Checking precautions before authorising permits
- Permits must never be modified
- All workers must be trained and competent
- Effective monitoring to make sure that the permits are effective in reducing the risks. High hazards require greater degree of monitoring.
- Permit issuers need sufficient time to check site conditions (as a minimum, at start and completion of tasks, plus intermediate checks as appropriate), to ensure effective implementation of the system.

Typical Uses of Permit to Work Systems

Hot Work

Hot work permits are used to control hot work where naked flames will be used (e.g. butane, propane, or oxyacetylene torches) or where potential source of ignition will be created (e.g. welding, grinding or fabrication work).

Typical precautions to control hot work:

- Remove all flammable items from the hot work area.
- Cover items with fire blankets where it cannot be removed from the hot work area.
- Floors swept clean
- Wooden floors must be damped down.
- Appropriate fire extinguishers must be in place

- Firewatcher must be assigned in the hot work area.
- Routine visits after the work to check the area for smouldering

Working on Electrical Systems

Working on live electrical systems including high voltage systems must be controlled with a permit to work system to confirm that all precautions are in place. Work with non -live electrical system is often subject to permit-to-work control in order to ensure that electrical systems are fully de-energised and isolated with LOTO.

Electrical permit system is used to ensure that

- Working with live electricity is justified (if it is not possible to operate with the power off)
- All precautions have been put in place
- The workers are competent to carry out the task.

Machinery Maintenance

Machinery maintenance requires removal of guards or disabling control systems(e.g. sensors), it also requires more workers to involve in the work at the same time, involves many risks from energy sources, dangerous rotating parts of the machinery or being trapped inside the plant. The risks are best controlled with established permit to work system.

The permit ensures that

- All workers are competent to carry out the maintenance work.
- The work is carefully planned.
- Power sources are isolated and locked off.
- Release of stored energy – hydraulic or kinetic energy.

Confined Spaces

By virtue of its enclosed nature, frequent access in to confined space are extremely dangerous, this must be controlled with permit to work system. This requires the employer to carryout a suitable and sufficient risk assessment to manage risks to workers and others. The risk assessment will help identify the necessary precautions and emergency arrangements to be included in the safe system of work.

Permit to work system ensures that

- Workers are aware of confined space hazards, nature, and extent of work to be carried out.
- Formal checks are undertaken confirming elements of safe system of work are in place. This must be done prior to workers enter into confined space.
- The need to coordinate or exclude, using controlled and formal procedures.
- There is time limit on entry as well as number of persons allowed to work inside, or any communication devices needed or if RPE or PPE is required.

Work at Height

Work at height' means work in any place at or below ground level, were if no precautions in place, a person could fall a distance liable to cause personal injury, for example While working at height.

Since some of the work at height are considered as high risks which needs to be controlled with a permit.

Permit ensures

- Consider avoiding work at height
- Use of fall prevention strategies – creating safe workplace, or using work equipment (ladders, MEWPs)
- Fall arrest strategies – lanyards and nets
- Permit also includes the influence of weather conditions while working at height. E.g. heavy wind or rain.

The Need for Emergency Procedures

Even though when control measures are in place, there are chances that still things may wrong. The organisation must develop and maintain procedures to deal with accidents and emergency situations in order to prevent and minimise the impacts arising from it.

A workplace emergency is unforeseen that threatens the business operations. Such emergencies may include the following:

- Fires
- Toxic gas releases
- Chemical spills
- Radiological accidents
- Explosions
- Floods
- Threats from terrorists
- Workplace violence resulting physical harm and trauma

Emergency Procedure Arrangements

The organisation will have to make internal arrangements to deal with each emergency, these arrangements should include:

Foreseeable emergencies

It is advisable to see the foreseeable emergencies that could occur in your workplace and the potential consequences of it. This helps to identify what could cause emergency and why procedures will have to be followed.

Procedures for raising the alarm

Make sure alarms are distinctive and unique and easily recognised by all the workers as a signal to evacuate the workplace or perform actions identified in your emergency plan. Use of emergency communication system – public address system. Such alarms should be able to be heard, seen and perceived by all the workers. Consider providing auxiliary power to alarm systems to manage power shut off.

Procedures to deal with emergency

What the workers needs to do exactly in the event of any emergency situation, for fire they find the nearest safe exit routes and assemble at the assembly point, in case of bomb threat in an airport the area is divided into landside and airside where the people those who are at the terminal building will have to leave the building and assemble at the landside, whereas, those who are in the security hold area are needs to assemble at airside.

Suitable equipment

In the event of sudden release of toxic gas, respiratory protective equipment may be necessary, to deal with any chemical spill absorbent granules or mats used to remove the spill. In the event of bomb threat, bomb detector or warning devices necessary.

Responsible Persons

In case of any emergency the responsible person helps to move employees from danger to safe area, they need to assist during evacuation process, they must be aware of special needs assistance and avoiding hazardous area during emergency.

Dealing with Media

Emergency Situations at workplace attracts attention from the media. There needs to be nominated person to deal with media and develop procedures to deal with media. This may include answering to the reporters' questions.

Arrangements for contacting emergency services

The employer needs to develop arrangements to coordinate outside emergency services, such as medical aid and local fire departments, and ensuring that they are available and notified when necessary.

The arrangements may include

Communication equipment – mobile phones, land phones or VHF radio. Communication is more difficult for the remote locations.

Contact details – emergency contact numbers, fire service stations, nearest medical services or police station.

Trainer nominated person appointed to deal with emergency services for instance providing emergency details to the services so that an effective response are obtained for critical information immediately.

Training and Testing

Educate your employees about the types of emergencies that may occur and train them in the proper course of action. The size of your workplace and workforce, processes used, materials handled, and the availability of onsite or outside resources will determine your training requirements. Be sure all your employees understand the function and elements of your emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures. Discuss any special hazards you may have onsite such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances. Clearly communicate to your employees who will be in charge during an emergency to minimize confusion.

General training for your employees should address the following

- Individual roles and responsibilities
- Threats, hazards, and protective actions
- Notification, warning, and communications procedures
- Means for locating family members in an emergency
- Emergency response procedures
- Evacuation, shelter, and accountability procedures
- Location and use of common emergency equipment; and
- Emergency shutdown procedures.

You also may wish to train your employees in first-aid procedures, including protection against bloodborne pathogens; respiratory protection, including use of an escape-only respirator; and methods for preventing unauthorized access to the site.

Practising emergency procedures is a good idea to keep employees prepared. Include outside resources such as fire and police departments when possible. After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of your plan and work to improve it.

First-aid requirements in the workplace

First Aid

"The immediate care given to a person who has been injured prior to the obtain qualified medical assistance".

The role of first aid

- **Preserve life**
  Effective first aid helps to save life

- **Prevent condition from worsening**
  Treating the cause will prevent condition becoming worsening

- **Promote Recovery**
  Constant support and treating minor injuries help to promote recovery.

The aim of first aid is to reduce the effects of injury or illness suffered at work, whether caused by the work itself or not. First-aid provision must be 'adequate and appropriate in the circumstances.

This means that sufficient first-aid

- Facilities
- Equipment
- Personnel

These arrangements must be readily available to employees at all times.

First-Aid Facilities

The first-aid room(s) should contain essential first-aid facilities and equipment, be easily accessible to stretchers and be clearly signposted and identified. If possible, the room(s) should be reserved exclusively for giving first aid.

- First-aid rooms should be centrally located with large enough space for emergencies services to access.
- Well ventilated with adequate lighting, must be kept clean at all the times.
- Availability of chair, soaps and towels, waste disposal containers, etc.

First-Aid Equipment

As a minimum, first-aid equipment is a suitably stocked, supplied with sufficient quantity of first-aid materials suitable for the workplace.

The UK HSE provides suggestion on the content of first-aid kit, for example:

- individually wrapped sterile plasters of assorted sizes
- sterile eye pads
- individually wrapped triangular bandages, preferably sterile
- safety pins
- large and medium-sized sterile, individually wrapped, unmedicated wound dressings
- disposable gloves

Multiple first-aid kits shall be provided at convenient locations in a larger workplace where many people are involved.

- Eye wash stations
- Emergency showers
- Stretchers / scoops
- Wheelchairs
- Blankets
- Splints
- Tourniquets
- Defibrillator

First-Aid Personnel

Role of First Aiders

the minimum requirement for an employer is to appoint a person to take charge of the first-aid arrangements, including looking after the equipment and facilities, and calling the emergency services when required. Arrangements should always be made for an appointed person to be available to undertake these duties when people are at work. Appointed persons are not necessary where there is an adequate number of first aiders.

Appointed persons do not need first-aid training, though they may benefit from completion of an EFAW course (or another suitable alternative).

HSE also guides employer to make suitable provisions to identify and understand symptoms and able to support workers who experience mental ill health issue.

Number of First Aiders and Appointed Persons

This will depend upon the findings of the risk assessment. In the UK the minimum requirement is:

Low Hazard	Higher Hazard
e.g. offices, shops Fewer than 25 – One Appointed person 25-50 – 1 EFAW trained first-aider More than 50 – 1 FAW trained first-aider for every 100 employees.	e.g. light engineering and assembly work, food processing, working with dangerous machinery Fewer than 5 – One Appointed Person 5-50 – 1 EFAW trainer first-aider More than 50 – 1 FAW trained first-aider for every 50 employees

First-Aid Coverage

An employer should make an assessment of first aid needs appropriate to the circumstances (hazards and risks) of each workplace.

Factors to consider when deciding provision of first aid

- nature of the work and workplace hazards and risks
- organisation's history of accidents
- size of the organisation
- the needs of travelling, remote and lone workers
- work patterns
- distribution of the workforce
- remoteness and geographical location of the site from emergency medical services
- employees working on shared or multi-occupied sites
- first-aid provision for non-employees.

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Element 4

Health and Safety Monitoring and Measuring

Learning Objectives

1. Discuss common methods and indicators used to monitor the effectiveness of management system.

2. Explain why and how incidents should be investigates, recorded, and reported

3. Explain what an audit is and why and how they are used to evaluate a management system.

4. Explain why and how regular reviews of health and safety performance are needed.

Contents

Active and Reactive Monitoring

Investigating, Recording and Reporting Incidents

Health and Safety Auditing

Reviewing Health and Safety Performance

4.1 Active and Reactive Monitoring

Introduction to Active and Reactive Monitoring

We should monitor health and Safety as how an organisation monitors other aspects of the business.

The primary purpose of measuring health and safety performance is to provide information on the progress and status of the strategies, processes and activities used by an organisation to control risks to health and safety.

Measurement information sustains the operation and development of the health and safety management system, and so the control of risk by.

- providing information on how the system operates in practice
- identifying areas where remedial action is required
- providing a basis for continual improvement
- providing feedback and motivation

There are different types of monitoring but categorised under two major categories:

Active Monitoring Gathering information before an event, involves inspections, audit, safety survey and put things right to prevent accident happening.

For example
Monitor the design, development, installation, and operation of management arrangements. These are preventive in nature, for example:

- routine inspections of premises, plant, and equipment by staff
- health surveillance to prevent harm to health
- planned function check regimes for key pieces of plant.

Reactive Monitoring Gathering information followed by an event, to find out the reasons for failure in the systems, usually lessons learnt from mistakes. If an organisation needs to improve their performance, they need to monitor both the performances.

For example
monitor evidence of poor health and safety practice but can also identify better practices that may be transferred to other parts of a business, for example:

- investigating accidents and incidents
- monitoring cases of ill health and sickness absence records

Checking that you are managing risks in your organisation is a vital, sometimes overlooked step. It will give you the confidence that you are doing enough to keep on top of health and safety and maybe show you how you could do things better in the future.

Checking involves setting up an effective monitoring system, backed up with sensible performance measures.

Investigating and analysing incidents will also make a big contribution to understanding health and safety in your business.

Monitoring adds value and isn't just a tick-box exercise.

Good-quality monitoring will not just identify problems but will help you understand what caused them and what sort of changes are needed to address them. Poor monitoring might tell you that something is wrong but may not help you understand why, or what to do about it.

Active Monitoring Methods

Active monitoring is concerned with checking standards before an unwanted event takes place. The aim is to determine.

- Conformance with standards, so that outstanding performance is recognised and maintained.
- Non-conformance with standards, so that the reason for that non-conformance can be identified and corrective action taken.

There are various methods to monitor performance actively, one method is often referred as leading indicators

Leading indicators are proactive, preventive, and predictive measures that provide information on the organisation's health and safety performance.

If a positive graph is observed in leading indicators, then the chances of accidents happening is less. Conversely, if a negative graph is observed in leading indicators, then the chances of accidents happening is high.

For example, Workers will attend a safety meeting every month, because workers are involved in decision-making process, this is a positive leading indicator, it indicates that workers have increased awareness in health and safety systems so the accidents happening is very low. However, if the workers are not actively participating in the safety meeting, there is lack of worker involvement making this leading indicator to move towards negative graph, it indicates that workers may have reduced awareness about health and safety system, so the accidents may happen frequently.

Leading indicators can play a vital role in preventing worker fatalities, injuries, and illnesses, as well as strengthening safety and health outcomes in the workplace. Employers that use leading indicators as a tool for achieving these goals have a substantial advantage over their

competitors. By taking deliberate and measured actions that can prevent fatalities, injuries, and illnesses, these employers demonstrate their commitment to maintaining a socially responsible workplace that values workers.

Performance Standards

To actively monitor health and safety identification of exactly what to monitor and what level of performance standard is acceptable.

Performance standards are more concerned with physical control of workplace hazard conditions, for example the standards maintained for the lifting gears, this can be actively monitored through routine inspection of the lifting gears to ensure that the standards are met.

Even health and safety management activities can also be actively monitored to measure performance standards:

- Number and quality of risk assessment carried, covering work activities
- Provision of health and safety training to schedule
- Frequency of took-box talks
- Completion of job safety analyses against targets
- Completion of consultative committee meetings to schedule
- Completion of workplace inspections to schedule
- Completion of safety audits to schedule
- Completion of safety review meetings to schedule

All such above mentioned management tasks are expected to take place in the organization, so it is possible to evaluate whether they are taking place or not and the quality to what extent it is provided. For example, a standard might be that new workers must be provided with induction training covering the workplace procedures. Training records can provide information whether training took place or not, the number of trainings provided and the effective of the training can be checked. Hence, the performance standards can be actively monitored.

Safety Inspection, Sampling and Tours

Safety Inspection

A system for inspecting workplace precautions is important in any active monitoring programme. It can form part of the arrangements for the preventive maintenance of plant and equipment, legal requirements may also cover. Equipment in this category includes pressure vessels, lifts, cranes, chains, ropes, lifting tackle, scaffolds, trench supports, and local exhaust ventilation. But inspections should include other workplace precautions, such as those covering the use of premises, other places of work, and systems of work.

A suitable programme should take all risks into account but should be properly targeted. For example, low risks might be dealt with by general inspections every month or two, covering a wide range of workplace precautions such as the condition of premises, floors, passages, stairs, lighting, welfare facilities, and first aid. Higher risks need more frequent and detailed inspections, perhaps weekly or even, in extreme cases, daily, or before use.

The inspection programmes should satisfy any specific legal requirements and reflect risk priorities. Suitable schedules and performance standards for the frequency and content of inspection can help. The schedules can be supplemented with inspection forms or checklists, both to ensure consistency in approach and to provide records for follow-up action.

Safety Sampling

Safety sampling is a systematic sampling of specific items from a group. It's a method of measuring hazard or accident potential by random sampling and by counting safety defects while touring (Safety Tour**)** specified area by a recommended tour of 15 minutes at weekly intervals.

The quantum of defects noticed is applied to describe trends in a safety situation. The point on safety sampling sheet includes features such as non-use of personal protection, blocked fire exit, environmental aspects, lighting, ventilation, temperature, faulty hand tools, guarding position, Housekeeping machinery condition.

If the legal standard in a chemical industry is to measure airborne contaminants, then the employer requires adopting effective methods to evaluate the contaminants in the workplace. Based on the potential chemical hazards and the number of exposures by the employees. There are different ways to sample the airborne contaminants including Direct reading, Grab sampler, passive sampling, and surface contamination.

By adopting any of the methods, sampling can be collected and analyzed against it establishes the standards on a whole.

Safety Tours

Safety tour is an unscheduled examination of work area, carried out by top management from each department to explore the effectiveness of the existing control measures, this also ensures that standards of housekeeping are adequate, whether workers follow the rules for example wearing PPE while at work.

They can observe and discuss with workers about the working procedures and controls in place.

This proves a top management commitment towards health and safety which will positively reflect in the safety culture of the organisation.

The issues identified during the tour must have an intended outcome, so the issues must be recorded, and it needs to have improvement actions implemented.

Arrangements for Active Monitoring

We must consider the following factors while introducing active monitoring systems:

The type of active monitoring–carried out for various reasons. Different methods are used to examine various aspects of health and safety in the workplace.

- A general workplace inspection to ensure legal requirements are met in accordance with standards.
- Sampling methods to a specific item from a group.
- Safety tour of the entire organisation or department.

Frequency of Monitoring–is determined by the nature of inspection carried out and the risk level. General workplace may require inspection once in a month; however, it may require weekly inspection if there is a high-risk activity carried out. The frequency will also be decided on the condition of the equipment or environment and availability of a competent person. Statutory inspection depends on the legal requirement or organisation's requirement.

Competency of the Inspector - Workplace inspections are carried out by various people including senior managers, safety practitioners, representatives, specialist or from enforcement agencies.

Whoever is carrying inspection must have competency with adequate knowledge, ability, training and experience. Competence may require certification to a specific standard for example inspecting lifting tools against BS/ANSI standards. The inspection must have thorough knowledge of the workplace and understanding of the activities being carried out. The inspector must be trained in the inspection techniques with the use of checklist, he also possesses good communication and report writing skills.

Checklist - Checklist is a consistency approach when carrying out inspection, it helps the inspection to cover all the items listed in the checklist, upon completion it becomes an immediate written record. A checklist might include various points covered such as:

- Working environment
- Welfare facilities
- Standard operating procedures / SSoW

- Housekeeping
- Access and egress
- Transport
- Electrical safety
- Machinery safety
- Hazardous substances
- Personal Protective Equipment
- Emergency Arrangements

However, checklist has also some limitations which is, the inspector may not overlook apart from the items mentioned in the checklist, ignore hazards or risks which are not listed in the checklist, incompetent may attempt to carryout inspections.

Planning action - is essential for the issues found during the inspection to control the risks proactively before something goes wrong. Inspection without corrective action represents ineffective management system. Planning actions must be clear with:

- What corrective action required
- Person responsible to close out the action
- Timescale with priorities

The agreed methods of active monitoring shall be documented and put in to practice for effective functioning of the system.

Factors to be considered when determining the frequency of the inspections

- Activities being carried out and the level of risk present.
- Processes being carried out, changing processes may require frequent monitoring
- Followed by risk assessment, as it may emphasize inspection as an additional control measure
- Findings from previous inspection, as part of follow up routines
- Manufacturers recommendation–for example routine inspection of the equipment
- Statutory requirement may vary based on the legal standards
- Previous accident history
- Investigation outcomes
- Followed by worker complaints
- Recommendations from enforcement authority.

Reactive Monitoring

Failures in risk control also need to be measured (reactive monitoring), to provide opportunities for organisations to check performance, learn from failures and improve the health and safety management system.

Reactive monitoring arrangements include systems to identify and report:

- injuries and work-related ill health
- other losses such as damage to property.
- incidents, including those with the potential to cause injury, ill health or loss.
- hazards and faults
- weaknesses or omissions in performance standards and systems.

Lagging or reactive safety performance indicators measure events that have already occurred. They are also referred to as 'outcome-based SPIs' and are normally (but not always) the negative outcomes the organization is aiming to avoid.

Lagging safety performance indicators help the organization understand what has happened in the past and are useful for long-term trending. They can be used as a high-level indicator or as a sign of specific occurrence types or locations, such as 'types of accidents per job-role type' or 'specific incident types by location or region'

Statistics

Data collected and reported about several unwanted events, such as

- Near misses
- Dangerous occurrences
- Accidents
- Lost workdays
- Damaged property
- Ill health cases
- Workforce complaints
- Enforcement actions–number and type
- Civil claims–number and type
- Accident costs

The above data can be used to analyse

Trends–consistent increases or decreases in the number of certain types of events over a period

Patterns–hot-spots of collections of certain types of events.

This analysis usually involves converting raw data (the numbers) into an accident rate so that more meaningful comparisons can be made.

Accident rate used to measure an organisation's safety performance is Accident Frequency Rate:

$$Fr = \frac{\text{Number of injuries(per year)}}{\text{Number of hours worked(per year)}} \times 1{,}000{,}000$$

The reasons for using rate rather than actual numbers is because it allows for a more meaningful comparison of accident statistics from one year to next year, even there may be a change in the number of employees or there may be more hours worked.

Statistics are always not reliable because they may show a false projection as they incidents remain unrecorded or sometimes manipulated. Statistics must be carefully used to analyse what is the fact in the organisation. For example, encouraging employees to report near misses and accidents this can eventually increase the accident rate drastically. The date projects that number of accidents are happening, earlier the incidents were not reported even it was there, because of improved reporting system and awareness the workers are reporting all types of incidents now which turn in to increase in the number of accidents.

Introduction to Incident Investigation

Though an organisation has effective control measures in place, sometimes situations may go worst, and accidents tend to happen. It is significant to find out why they happen, the incidents must be reported, recorded, and investigated appropriately within the specified time.

The main aim of accident investigation is to prevent accidents from happening again. The organisation needs to identify the root cause of the accident so that corrective actions can be implemented to prevent such accidents again. Often the main thing that differentiates a near miss or a minor injury accident from serious-injury accident is the probability. A worker drops a hammer from scaffold which is missing a head of the worker below, but it if it is happening again it may hit the worker head causing a serious harm or injury, where there is a foreseeable probability, a thorough investigation must be initiated so that potential incident can be prevented.

If we have a system for reporting near-miss events, the organisation might have number of reported near-misses with more data available, this data will be incredibly helpful to identify the weakness in the management system.

All the accident does not require in-depth investigation which is greater an effort to the organisation and waste of time. However, all the accidents must be examined based on its probability so that decision can be made whether it requires a detailed investigation.

Reasons for Investigation Accidents

- To identify immediate cause and root cause–accident are caused by unsafe acts and unsafe conditions which arise from underlying or root causes.
- To prevent reoccurrence–introduce corrective actions so that accidents will not happen again is a key factor in incident investigation.
- Recording–recording incidents data can be used as a reactive tool in the future.
- Legal Reasons–certain types of incidents need to be reported to the enforcement authority to determine compliance with statutory requirements.
- Insurance Claims–insurance company will analyse accident investigation report to determine the liability.

- Staff Morale–investigating accidents and implementing corrective actions will enhance a positive safety culture in an organisation, if the organisation fails to investigate accidents, the workers may have thought their life is not valued by the employer.

- To review and update risk assessment–investigation may suggest the weakness in the risk assessment, hence the risk assessment may be reviewed.

- Disciplinary Actions–due unacceptable behaviour of the workers, disciplinary actions must be taken against the worker who failed to follow the standards.

Types of Incidents

Accident is an unwanted, unplanned event which results in injury, damage to property, plant and machinery or environment.

Injury Accidents is an unwanted, unplanned event which results in injury

Injury Accidents is an unwanted, unplanned event which results in damage to property, plant, and machinery.

Dangerous Occurrences ILO defines the term dangerous occurrence as a " readily identifiable event as defined under nation laws and regulations, with potential to cause an injury or disease to persons at work or to the public"

Dangerous occurrences describe significantly hazardous incident which has the potential to cause injury or death, failure of lifting equipment, electrical incident causing fire and explosion, collapse of scaffold, failure of breathing apparatus etc., must be reported to the enforcement authority.

Near Miss is an undesired event which did not result in physical injury or property damage, but has the potential to do so if it is going to happen again. E.g. hammer falling off a trestle and landing on the floor.

Work related ill health ill health caused by their work including physiological and psychological aspects. The work-related ill health examples are:

- exposure to noise causes Noise induced hearing loss.

- exposure to asbestos caused asbestosis where the ill health is developed gradually over several years.

- excessive work pressure causes Stress is also a work-related ill health.

Level of investigation

The amount of time and effort spent on information gathering should be proportionate to the level of investigation. Collect all available and relevant information. That includes opinions, experiences, observations, sketches, measurements, photographs, check sheets, permits-to-work and details of the environmental conditions at the time etc. This information can be recorded initially in note form, with a formal report being completed later. These notes should be kept at least until the investigation is complete.

Minimal level investigation, the relevant supervisor will investigate the circumstances of the event and try to learn any lessons which will prevent future occurrences.

Low level investigation will involve a short investigation by the relevant supervisor or line manager into the circumstances and immediate, underlying and root causes of the adverse event, to try to prevent a recurrence and to learn any general lessons.

Medium level investigation will involve a more detailed investigation by the relevant supervisor or line manager, the health and safety adviser and employee representatives and will look for the immediate, underlying and root causes.

High level investigation will involve a team-based investigation, involving supervisors or line managers, health and safety advisers and employee representatives. It will be carried out under the supervision of senior management or directors and will look for the immediate, underlying, and root causes.

Basic Investigating Procedures

Basic principles that can be used when carrying out an accident investigation are:

Step 1: Gathering the information

Step 2: Analysing the information

Step 3: Identifying suitable risk control measures

Step 4: Implement action plan

Prior to initiate accident investigation the following must be taken care.

When an incident (e.g. injury, ill health, or near-miss, damage to buildings or vehicles) occurs, immediate action is taken in order to make the situation safe and prevent further injury and to help, treat and if necessary, rescue injured persons. The first person aware of an incident must act, where safe to do so, to prevent further harm to people, product quality or supply, the environment, property.

Step 1: Gathering Information

- **Physical evidence** Preserve the incident scene for the purpose of gathering evidences to ensure the outcomes of the investigation are factual and enable the identification of causes.

- **Verbal evidence** identifies the witness, especially those who have been involved in the accident and know what had happened? If there are many witnesses everyone may be investigated separately. Their statement must be recorded.

- **Document evidence** this may include photographs, sketches, measurements, site map or layout, CCTV footages and samples collected from the accident spots.

This information must be recorded initially, later a formal report must be prepared once the investigation is completed.

Once this step is thoroughly completed move to the witnesses to gather information.

Interviewing witness can be challenging task sometimes. The interviewer must therefore carefully interview the witness to gather factual evidences.

Witness Interviewing Techniques

- Prompt witness interview followed by the event to avoid information being erased from their memory.
- Conduct interview in a private room, it should be free from distractions and interruptions.
- Introduce themselves and try to build a rapport with the witness, care should be given to observe witness body language, the interviewer must maintain their voice tone and provide response in calm and neutral manner.
- Explain the witnesses about the purpose of the interview i.e. its not about to blaming people, the main aim is to find the cause to prevent reoccurrence.
- Keep them informed that the explanation and responses will be taken as notes during the interview
- Use Open questions, such as, what, why, where, when, Who and How. For example, you can raise a question how did the accident happened? The witness tries to explain you the incident as the interviewer will get more information. Close end question will put the witness to answer Yes or No.
- Keep an open mind to the responses.
- Record the details including the names of the interviewer, interviewee, and any other witnesses. Location, date, and time of interview along with important comments during the interview.
- Summarise your understanding and ask witnesses to write and sign a declaration statement to generate a record of their testimony.
- Appreciate the witness for providing the information and thank them for their support.

Followed by witness interview now look on to the next source of information i.e. documents that should be examined while investigating accidents.

- Company polices - HSE, Quality etc.,
- Risk Assessment
- Safe system of work
- Permit to work documents
- Training records
- Plant and machinery maintenance records
- Previous accidents / ill-health reports
- Previous enforcement action reports
- Worker complaints register
- Inspection reports

Step 2: Analysing Information

An analysis involves examining all the facts, determining what happened and why. All the detailed information gathered should be assembled and examined to identify what information is relevant and what information is missing. The information gathering and analysis are carried out side by side. As the analysis progresses, further lines of enquiry requiring additional information will develop.

To be thorough and free from bias, the analysis must be carried out systematically to identify

Immediate Cause

unsafe act, unsafe condition which contributed to the accident. Unsafe acts show poor safety attitudes and show a lack of proper training. These unsafe acts and conditions are brought about by the so called 'root-causes' and are the latent failures and are brought about by failures in the organisation and its safety management system.

Unsafe act

The behaviour or omission of actions by the employees at the workplace is direct cause which can contribute to the accident.

Unsafe Conditions

The workplace condition including the environment, condition of the machinery which can contribute to the accidents.

For instance:

- Slippery surface due to oil spill on the floor
- Uneven floor surfaces, damaged mats, potholes on the floor or steep surfaces.

Underlying or Root Cause – Management failure

If you focus only on the immediate causes – i.e unsafe act or unsafe condition, there are possibilities that the accident will happened again. Its indeed important that underlying or root causes must be investigated to ensure that right controls are put in place to prevent accidents in future.

Underlying / root causes – often failure from the management system

- Failure to monitor.
- Failure to provide training to the workers
- Inadequate risk assessment
- Lack of provision of suitable PPE
- No maintenance carried out for plant and machinery.
- Inadequate inspections.

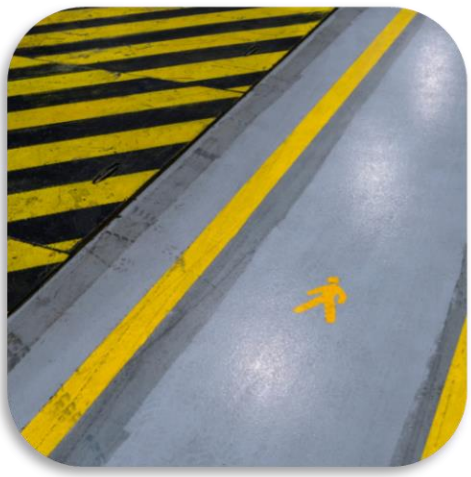
For instance:

We have to know the reasons for immediate cause, why there is an oil spill on the floor? Further identify the underlying or root causes for the oil spill, the introduction of new control measures must prevent accidents happening again.

Step 3 – Identifying Suitable Control Measures

Identifying suitable control measures to address the immediate and root-cause(s) of an incident are taken from the hierarchy of controls and may include the following remedial actions; eliminating hazards; substituting with less hazardous materials; redesigning or modifying equipment or tools; developing procedures; improving the competence of affected workers; changing the frequency of use; using personal protective equipment.

The timing and priority of any corrective action should be based on the risk of reoccurrence involved. Consult with workers in determining the recommended actions and solutions wherever required.



Marked walkway

In deciding which risk control measures to recommend and their priority, choose measures in the following order, where possible:

- measures which eliminate the risk, e.g. use 'inherently safe' products, such as a water-based product rather than a hydrocarbon-based solvent.
- measures which combat the risk at source, e.g. provision of guarding.
- measures which minimise the risk by relying on human behaviour, e.g. safe working procedures, the use of personal protective equipment

Step 4: Implement Action plan

At this stage in the investigation, senior management, who have the authority to decide and act on the recommendations of the investigation team, should be involved.

Earmuff could be an interim control measure

An action plan for implementing additional risk control measures is the desired outcome of a thorough investigation. The action plan should have SMART objectives, i.e. Specific, Measurable, Agreed, and Realistic, with Timescales.

Employees and their representatives should all contribute to a constructive discussion on what should be in the action plan. For high risks, controls must be implemented first or interim controls must be in place until controls are fully implemented.

For those risks that are not high and immediate, the risk control measures should be put into your action plan in order of priority. Each risk control measure should be assigned a timescale and a person made responsible for its implementation.

A specific person, preferably a director, partner or senior manager, is made responsible for ensuring that the action plan as a whole is put into effect.

Progress on the action plan should be regularly reviewed. Any significant departures from the plan should be explained and risk control measure rescheduled, if appropriate. Employees and their representatives should be kept fully informed of the contents of the risk control action plan and progress with its implementation.

Report to Management

The investigation is incomplete until a report is prepared and submitted the top management with following info:

- Who – the injured person, witnesses and interviewer.
- When – date and time
- Where – location details
- What – type of accident and nature of injury
- How – details of events
- Why – analysis of cause
- Investigation level
- Actions plans
- Documentation
- Legal references to breaches of law.

Recording and Reporting Requirements

Workers must report incidents internally to the management. The employer should have arrangements in place for reporting incidents which is described in detail in the arrangements sections of the Health and safety policy.

These arrangements should include:

- the identification of a competent person to prepare and keep records of all occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents, as required by national laws and regulations

- cooperation in recording procedures where two or more employers engage in activities simultaneously at one worksite, as required by national laws and regulations.

The employer should ensure that records of occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents are available and readily retrievable at all reasonable times.

In cases in which more than one worker is injured in a single occupational accident, a record should be made for each of the injured workers.

Workers' compensation insurance reports and accident reports to be submitted for notification are acceptable as records if they contain all the facts required for recording or are supplemented in an appropriate manner.

For inspection purposes and as information for workers' representatives and health services, employers should prepare records within a period to be determined by the competent authority, but preferably within no more than six days after reporting has occurred.

Workers while performing their work should cooperate with the employer in carrying out the arrangements within the enterprise for recording and notification of occupational accidents, occupational diseases and dangerous occurrences.

The employer should give appropriate information to workers and their representatives concerning:

- the arrangements for recording
- the competent person identified by the employer to receive and record information on occupational accidents, occupational diseases, commuting accidents, dangerous occurrences and incidents.

The employer should provide appropriate information to workers or their representatives on all occupational accidents, occupational diseases, dangerous occurrences and incidents in the enterprise, as well as commuting accidents, to assist workers and employers to reduce the risk of exposure to similar events.

Notification of Occupational Accidents

All occupational accidents should be notified, as required by national laws or regulations, to the competent authority, the labour inspectorate, the appropriate insurance institution, or any other body

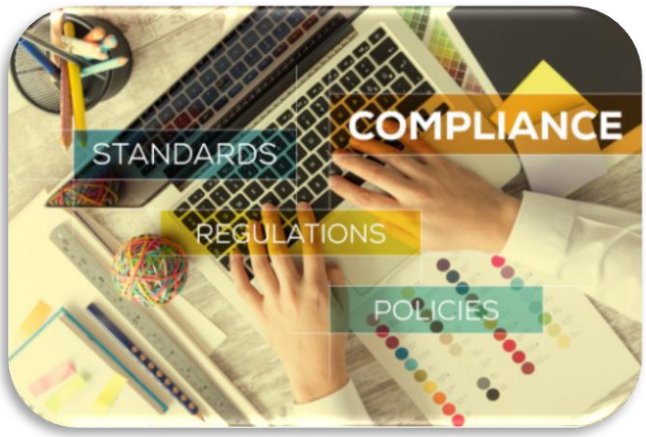
- after reporting of an occupational accident causing loss of life
- within a prescribed time for other occupational accidents.

Notification should be made within such time as may be specified, and in prescribed specific forms, such as:

- an accident report for the labour inspectorate
- a compensation report for the insurance institution
- a report for the statistics-producing body
- a single form which contains all essential data for all bodies.

4.3 Health and Safety Auditing

Introduction to Auditing



Auditing is the structured process of collecting independent information on the efficiency, effectiveness and reliability of the total safety and health management system and drawing up plans for corrective action.

Definition

Auditing is the systematic, critical examination of an organisation's health and safety management systems and procedures.

Scope and Purpose of the Audit

The main purpose of the audit is to evaluate how well health and safety is being managed against the standards. The audit identifies the strengths and weaknesses and areas which are vulnerable. The outcome of the audit is the report to the management with action plans which allows to manage health and safety successfully.

Consider the scope of the audit before audit starts. Questions to be asked will the audit cover health, safety, welfare, environment? Will the audit cover a department or a process? How comprehensive will the audit be? When you get answers for these questions, consider what information is required to be gathered.

The entire scope of the health and safety management system of an organisation should be subjected to a comprehensive audit from time to time. Individual aspects of the health and safety system and procedures can, of course, be subjected to individual audits for example.

- Occupational ill-health
- Fire prevention and emergency arrangements
- Work at height
- Confined space

Distinction Between Audits and Inspections

Health and safety audits assess health and safety management systems or part of it.

- It verifies standards through interviewing people and observation.
- It assesses documents including HSE policy, risk assessments, SSoW, SOP, PTW, internal audit reports.
- It also verifies records like maintenance, training, statutory examination.

Health and Safety inspection involves the examination of the workplace, equipment, and processes to identify hazards and therefore to put right controls in place to mitigate the hazards.

Inspection is concerned with hazard identification whereas auditing is linked to the systems that manage the prevention and control of hazards.

Audit Stages

Pre-Audit Preparations

The following should be defined prior to audit:

- The scope of the audit
- The area of the audit
- The extent of the audit
- Personnel requirements
- Gathering information

Competence of the Auditors

The auditor must be familiar with work practices as well as audit techniques, he also must be able to interpret standards and have up to date information with standards. Auditors must be trained on the audit skills which enables them to carry out audits effectively.

Time and Resources

Audits are in depth analysis of compliance with standards, it should not be treated lightly. The audit planning process itself a time-consuming part. Gathering evidence and verifying documents also a lengthy process which consume large amount of time. Employer should not put pressure on the auditor to get the work done in short period of time, the employer must allocate sufficient time to complete the task.

During the Audit

Auditors use three methods to gather information

- Physical observation – of the workplace, equipment, processes, and behaviour.
- Interviewing people – who needs to be interviewed, a meeting schedule must be planned and organised.
- Verifying documents – risk assessments, internal audit reports, HSE policy, training records etc.

Closing the Audit

The purpose of the audit report is to communicate the results of the audit outcomes. The report should provide correct and clear data that will be effective as a management aid in addressing important organizational issues. The audit process may end when the report is issued by the lead auditor or after follow-up actions are completed.

Requests for correcting nonconformities or findings within audits are very common.

- **Corrective action** is action taken to eliminate the causes of an existing nonconformity, defect, or other undesirable situation in order to prevent recurrence (reactive). Corrective action is about eliminating the causes of problems and not just following a series of problem-solving steps.

- **Preventive action** is action taken to eliminate the causes of a potential nonconformity, defect, or other undesirable situation in order to prevent occurrence (proactive).

Audit Records

The organisation should establish and maintain audit records consistent with the safety and health management system records. Their retention times should be established and should comply with legal requirements.

External Audit and Internal Audits

	Advantages	Disadvantages
Internal Audit	• Familiar with workplace and processes • Awareness and practicable knowledge of the workplace • Improves ownership of issues identified from the last audit. • Less expensive and easy to arrange.	• May not possess required auditing skills • Not up to date with standards and legal requirements. • May not notice certain issues • They are internally influenced by the top management.
External Audit	• Fresh pair of eyes • Auditor possess required auditing skills • Independent from internal influences • Up to date with standards and legal requirements	• Expensive • Requires lots of time • Auditor may be unfamiliar with the workplace, tasks, and processes; hence he may give unrealistic recommendations. • May intimidate workers so get inadequate evidence.

Review is an essential part of Management system

It is important that organisations review their health and safety performance.

It allows you to establish whether the essential health and safety principles – effective leadership and management, competence, worker consultation and involvement – have been embedded in the organisation. It tells you whether your system is effective in managing risk and protecting people.

Review your performance

- Learn from accidents and incidents, ill-health data, errors and relevant experience, including from other organisations.
- Revisit plans, policy documents and risk assessments to see if they need updating.

Take action on lessons learned

- Include audit and inspection reports.

Purpose of Regular Reviews

- **Monthly** – Department review to ensure performance is on track to achieve targets within their department.
- **Quarterly** – Management team review to ensure performance is on track to achieve targets of the whole organisation.
- **Annual** – review of organisation's safety management is usually done by the board of directors

Reviewing also gives you the opportunity to celebrate and promote your health and safety successes. Increasingly, third parties are requiring partner organisations to report health and safety performance publicly.

The most important aspect of reviewing is that it closes the loop. The outcomes of your review become what you plan to do next with health and safety.

Reasons why an organisation should review its health and safety performance

- To identify whether the organisation is moving towards achieving the target or not, if not then why?
- What changes we need to adopt to continually improve the performance.

- Monitoring and reviewing performance are significant part of management system.
- Review is part of accreditation to management system ISO 45001, ILO OSH 2001.

Records of performance review must be maintained to determine that such reviews are taking place. All such data can be used a performance indicator and source which supports review process.

Issues to be Considered during Reviews

Review is the process of gathering information, the information may be gathered widely from the following topics.

- Active monitoring (before things go wrong)
- Reactive monitoring (after things go wrong)
- Accident/incident/near-miss data
- Training record
- Inspection reports
- Investigation reports
- Risk assessments
- New guidance
- Issues raised by workers or their representatives
- Checks required by law, e.g. on lifting equipment and pressure systems.

Feeding into Plans as Part of Continuous Improvement

In all reviewing activity, the result should be specific remedial actions that establish who is responsible for implementation, with deadlines set for completion. These actions form the basis of effective follow-up, which should be closely monitored. The speed and nature of response to any situation should be determined by the degree of risk involved and the availability of resources. Reviewing demands the exercise of good judgement, and people responsible for reviewing may need specific training to achieve competence in this type of task. Key performance indicators for reviewing overall performance should include:

- assessment of the degree of compliance with the safety and health system and legal requirements

- identification of areas where the safety and health system is absent or inadequate (those areas where further action is necessary to develop the total safety and health management system).

- assessment of the achievement of specific objectives and plans.

- accident, ill-health, and incident data accompanied by analysis of the immediate and underlying causes, trends, and common features.

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