



lev@mweb.co.za  
www.sakhisisizwe.co.za

0825722599

**Sakhisisizwe Projects**

# **LEARNER GUIDE**

## **Apply health and safety to a work area**

**Unit Standard  
9964  
Level 2**

**Credits 3**

Learner First Name:

Learner Surname:

Learner ID Number:

Company / Project:

# SECTION 1: INTRODUCTION TO SAFETY IN THE WORKPLACE

## ***Specific Outcome 1***

Identify potential hazards in the work area.

## ***Assessment Criteria***

- ✓ Potential hazards are correctly identified and removed, reduced or reported.
- ✓ Implications of exposure to hazardous substances and hazards are known.
- ✓ A health and safety plan is drawn up.
- ✓ Protective clothing requirements are identified and protective clothing is used.

This course has been compiled and designed to assist the layman with various precautionary measures which should be taken in the workplace to make the work environment a safer and more congenial place within which to operate. Accidents do not happen - they are usually caused by unsafe acts and negligence. Few accidents are caused by unsafe physical or mechanical conditions, or by acts of providence, i.e., acts of God. This is because safety is the direct result of the standard processes of good management.

## ***Unsafe Acts***

Four basic reasons for unsafe acts are as follows:

- ✓ Improper attitudes of the workers;
- ✓ Lack of knowledge or skills;
- ✓ Physical unsuitability; and
- ✓ Improper mechanical or physical environment.

Except for reflex actions, unsafe acts are **learnt** acts, and can be replaced with learnt safe acts. If an employee's learning has been inadequate or misdirected, it is necessary to retrain an employee in the safe way.

Many employees suffer injury because they are unschooled in safe behaviour, i.e.,

- ✓ because there is a lack of knowledge of safety rules and procedures,
- ✓ or a lack of skill in the safe execution of job tasks.

Safe patterns of behaviour must become second nature to employees, so there should be a culture of continual learning in the organisation. This will eventually make safe acts automatic.

Some employees commit unsafe acts to satisfy certain needs, and therefore an employee will try to



get away with an unsafe act by using one of his own tricks of the trade. In this case the employee is trying to satisfy an emotional or psychological need. To correct this behaviour will take more than retraining the employee.

When an employee becomes frustrated in the workplace this could result in irrational acts, often of an aggressive nature, which expose other employees to possible injury. Some frustration may also arise from off-the-job conditions, such as domestic circumstances. These frustrations are beyond the supervisor's control, although they too can lead to unsafe acts.

Another cause of unsafe acts is the employee's preoccupation with matters that have nothing to do with his work, for example financial worries can cause undue stress.

To summarise, the causes of unsafe acts could be:

- ✓ Lack of knowledge and inadequate skills as discussed above
- ✓ Motivational factors
- ✓ Difficulties of inattention
- ✓ Perceptual difficulties

The last three aspects are discussed in detail below:

## **Motivational factors**

The following factors can influence the employee positively or negatively:

### ***Display of Manhood***

Some injuries and accidents on duty are caused by the fact that a man tries to perform an act in the "hard way" to demonstrate his manhood.

### ***Job competency***

Every person wants to be skilled at his job. This is a significant reward in itself and usually results in job satisfaction. However, a show of "expertise" may degenerate into getting away with hazardous actions. In this case, the supervisor will have to step in to bring the situation under control,

### ***Higher earnings***

Some employees want to earn more money, and to prove themselves worthy of promotion and higher earnings. It is here that these employees take chances to increase their output just to impress their seniors. They could endanger their lives in this attempt.

### ***Security***

Some employees may endanger their lives just to retain their jobs, particularly in an economic depression when jobs are not freely available. Physical safety measures could be ignored if the employee becomes desperate not to lose his job.



Supervisors must change the employee's ideas of how job security can best be achieved. They must make it clear that job security and economic security are inextricably linked and that it is only by safe working habits that job retention/ security can be achieved.

### ***Seeking approval of others***

New employees could want to seek the approval of their peers. They may perform an unsafe act in the work-place to gain such approval. In most situations, employees will probably see greater advantage in doing the job the way their work group does, even at the risk of displeasing the supervisor and endangering their own lives. The desire for acceptance becomes a risky venture if unsafe acts are among the work habits sanctioned by the group because new employees may absorb these habits in order to be accepted by the group.

## **Difficulties in Inattention**

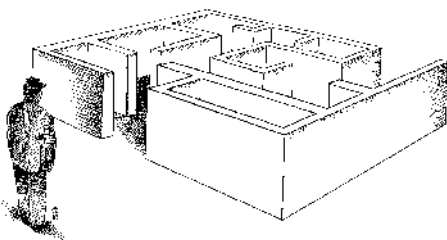
Sometimes an employee manifests temporary inattentive behaviour. Some of the causes could be as follows:

### ***Temporary Periods of Stress***

Whatever their ages, all employees are at times subject to temporary periods of unusual stress. If accidents are to be prevented in such periods of tension, it is necessary to assist employees to cope with their times of travail, at least to the extent of providing safeguards and helping with solutions which are within the supervisor's control.

### ***Effect of Personal Problems***

Inattention could in many instances be attributed to personal difficulties such as domestic circumstances which cannot be shed by employees as they daily enter the work-place. It could be helpful if the supervisor became a good listener during these periods, although it is undesirable for the supervisor to become intimately involved with the personal life of the employee. If an employee is enabled to talk out a problem with a sympathetic and understanding listener, he or she could see it in a different and more constructive light.



### ***Effect of Job-related Conditions***

Sometimes a number of accident ingredients are present which are beyond the control of the employee. These pre-existing conditions could be hazardous. The employees may be unaware of these hazards, and their reaction to

the situation, if they become aware, may be trial-and-error. If their response does not work, emotions may be aroused. The momentarily blind act or emotional act is often an unsafe act. The continuance of adverse job conditions can have an ominous and frustrating influence on employee conduct. This frustration may manifest itself in aggression, rigidity and childishness. These frustrations could also manifest themselves through unsafe acts.



### ***Distractions related to Work-place Location and***



## ***Job Monotony***

Work-place locations can lead to unsafe acts if they subject the employee to competing demands, e.g., where workstations are near the toilets or a cafeteria. Monotony can also be troublesome as it often results in self-induced distractions. Supervisors should be on the lookout for any form of distraction.

## ***Communication the Key to Inattention***

The supervisor should communicate meaningfully with the employee.

Sometimes the source of frustration can be rectified by the supervisor.

The supervisor must try to pinpoint the problem clearly. Sometimes the difficulty may have to be resolved jointly by the supervisor and the subordinate. At other times, the problem **MUST** be resolved unilaterally by either the employee or the supervisor.

## ***Perceptual difficulties***

It could happen that the reason for an unsafe act is as a result of perceptual failure. Perception means the ability to see, hear or become aware of something through the senses. It is also a way of understanding something. Perceptual failure means that the worker sees, hears or understands the facts wrongly.

This can happen because the worker has been bombarded with too much information at one time. There are too many signals reaching the worker and this causes a wrong response or a late response. Because of a lack of perception, the worker can react in an uninformed or emotional manner; the worker could also react to a compelling signal without awareness of counter-indications

These kinds of difficulties are present in many industrial jobs. Workers have to adjust to the safe sequencing of their work and this takes time. There may be dangerous hazards of which the worker is unaware.

Supervisors should ensure that the perceptual requirements of a job are not unreasonable. All jobs should in the beginning take account of the perceptual limitations of human beings. As part of job training, supervisors should emphasise the perceptual aspects of a job, and make the safety requirements for a job as clear as possible so that the employee's perceptions are realistically specific to the situation and not based on wants and prior experience alone.

The Supervisor must make sure that the employee can pick up all the signs of a job in time and that the employee can make the correct response and choice to the signs when counter indications occur.

For this purpose, lecturing (counselling) is insufficient; there must also be practical coaching. Employees must also be protected against incorrect performance during the training period so that they are not injured by unsafe acts.

# ***Participants in the Prevention of Accidents***

## **Functions of the Manager**

It is the function of the manager to monitor and prevent accidents. Management has the best

opportunity and ability to initiate the prevention of accidents, and therefore it should assume responsibility for any occurrences.

Every accident occurring in a manager's department is a reflection on his ability to manage. He is obliged to supply a safe environment and tools, and safe methods of working. Morally, the manager is bound to maximise a company's profits, and minimise the losses and see to it that the company remains in business. If people are continually injured on duty, no one will be willing to work for such a company.

## Functions of the Supervisor

The supervisor has an important role to play in accident prevention because he controls the work performance of the subordinates and can contribute considerably toward accident prevention.

The supervisor or foreman is a key person as he is directly involved in and responsible for the day-to-day activities of the plant or factory or business venture.

The supervisor must know the standard methods of safe working and should be able to communicate in such a manner that management and employees understand him clearly. Supervisors are not expected to become safety engineers: they cannot be expected to

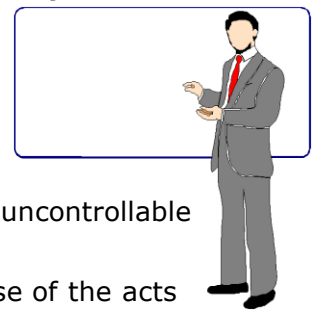
- ✓ build machine guards
- ✓ design the danger out of machinery
- ✓ determine the harmful qualities of materials
- ✓ establish weight loads or other operational limitations for equipment used in the lifting or moving of materials
- ✓ or design safety equipment and protective clothing for operators
- ✓ be experts in zoning, layout or colour coding of the factory

Supervisors are concerned with the use of materials and the effect of machinery on the employee. They must see to it that the workers are properly trained in the use of the machinery or equipment, in the safe execution of whatever processes and operations their jobs require, and in safe activity and movement within the work area. They must reinforce good working habits which represent the safest as well as the most efficient and effective method of production.

Supervisors must be competent motivators of people. They must motivate people to practise safety in the workplace. In order to motivate and correct others, the supervisors themselves must be motivated and adequately trained for the job at hand.

**Remember that safety is trainable - safe acts and unsafe acts are learnt and can be taught. New employees MUST not learn safe or unsafe acts by experience.**

**This could maim or kill them.**



## ***Safety is also controllable***

Most accidents result from the unsafe acts of employees rather than from uncontrollable physical conditions.

Even when physical conditions are hazardous, accidents occur usually because of the acts of employees within the dangerous environment. Supervisors must not assume that accidents

happen due to carelessness because it is then difficult to correct the problem for such a broad classification of causes of accidents.

The supervisor should go much deeper into the matter by trying to find out what the cause of the carelessness or thoughtlessness was. The cause is usually found in the drives underlying human behaviour and other factors forming part of human nature and which affect safe job performance.



***The supervisor has to assume responsibility for accident prevention for the following reasons:***

- ✓ Accidents are usually preventable, but once an accident has occurred, the severity of the injury cannot be reversed.
- ✓ The supervisor is responsible for good housekeeping and a safe environment.
- ✓ The maximum quantity and quality of goods and services must be produced at the lowest cost with the least disruption. If and when an accident occurs, it could cause delays, damaged material, damaged equipment, dissatisfied customers, and a repetition, or duplication of the same work.
- ✓ The supervisor is usually in direct contact with the subordinates (workers) and is therefore in the best position to know their weaknesses and strengths.
- ✓ The supervisor must prevent buck-passing, and wrong mental attitudes.

## ***Steps in Safety Training***

The supervisor must determine and define what has to be learnt and what knowledge and skills must be acquired by the old and new employee. The supervisor must look at three kinds of hazards in the workplace:

- ✓ Machine hazards,
- ✓ Workplace hazards
- ✓ And employee acts (safe and unsafe)

After the supervisor has decided what is to be learnt, he must then arrange to create an environment which is conducive to learning. A supervisor must not assume that:

- ✓ An employee has understood the meaning of words used;
- ✓ The employee is listening;
- ✓ The employee is learning and will remember;
- ✓ The entire subject has been covered by himself.

The supervisor must ensure that his communication to subordinates is effective

- ✓ He must see that there are no distractions while he is instructing the worker;
- ✓ He must find out how much the worker already knows;
- ✓ He must use simple vocabulary;
- ✓ He must organise his presentations properly and logically;
- ✓ He must check periodically to see that employees are listening and understanding;





- ✓ He must use repetition;
- ✓ And he must provide for follow-up.

It is essential that the supervisor has an interest in his subordinates and does not merely treat them as factors of production. This attitude will ensure a good rapport between supervisor and subordinates.

Employees will not merely learn safe acts by listening to lecturers; there has to be practice as well. The following steps must be taken after each lecture-session:

- ✓ Enough supervised practice must be permitted in each job task to make sure that the trainees have genuinely learnt the right and safe method.
- ✓ The job should be broken down into training tasks in order not to put too heavy a learning burden on the employees.
- ✓ Rest periods should be provided at frequent intervals to offset fatigue.
- ✓ What is learnt in theory must be able to be put in to practice; in other words, learning must be realistic and feasible. The main task of the supervisor is there to coach subordinates.

The following methods of coaching can be used:

- ✓ The job method must be explained to indicate why the job is done in a particular manner to enhance safety;
- ✓ The demonstration method can be used in coaching;'
- ✓ Practice cuing and feedback can be used;
- ✓ Safe performance should be rewarded by showing approval; and
- ✓ Unsafe acts should be detected and immediately corrected.

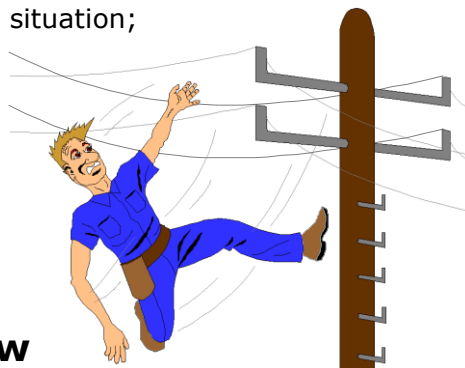
Such reinforcement often serves as motivation enough for the employee's continuation of safe job performance.

## ***Preventing***

## ***Future Accidents***

The supervisor must:

- ✓ Identify the dysfunctional situation;
- ✓ Understand the existence of the
- ✓ Select an appropriate situation;
- ✓ Apply the remedy; and
- ✓ Follow up.



reason(s) for the dysfunction(s).  
remedy for the

## **Corrective interview**

Although a corrective interview is not the only method of correcting unsafe acts, it is a starting point. This is the time when the supervisor / interviewer must be all ears.



### ***Follow these steps***

1. Establish what went wrong and what the causes of the unsafe acts have been.
2. Do not make premature judgements of causes and do not force these judgements on the employee.
3. In order to get at the genuine causes, you must find out how the employees view the accident. Such a step requires the supervisor to withhold blame or criticism and to invite the employee to talk. There must be a permissive atmosphere and a sincere effort in listening to what the employee has to say.
4. During the corrective interview, assist the employee to accept new and better methods of doing a job without the risk of injury. It is also possible to find out during this corrective interview whether the unsafe act was caused by temporary factors such as stress, or whether it had become an established manner of doing things. The unsafe act could have been due to perceptual failure - this too can be established during the corrective interview.
5. Once the cause of an unsafe act is determined and common understanding reached on it, a further agreement is needed - an agreement concerning the mode of correction. Supervisors should always try to make subordinates understand the wisdom of a solution to a problem.
6. Once the solution has been agreed upon, there must be close follow-up and monitoring to ensure that the worker is performing the work in the prescribed manner and that good habits are being cultivated and reinforced.



Because the corrective interview is conducted in an atmosphere of permissiveness, it does not mean that there is no room for firmness. At times, firm and even drastic measures are required. As a last resort, in order to protect both the employee and the fellow workers from the employee's wilfully dangerous acts, the use of disciplinary action may be justified. When supervisors try to remedy unsafe acts, their firmness is not therefore discarded, but should be brought into play at the appropriate times.

### **Conclusion**

This summarised some of the reasons for unsafe acts, and the roles that the supervisor and manager play in rectifying unsafe behaviour. It must be remembered that unsafe behaviour can be modified to bring about safe behaviour. Of course, all this depends on the willingness of the subordinates to be taught. One can take a horse to the water, but one cannot make it drink.

### ***Loss Control***

Control means to guide something in *the direction* it is intended to go. To control, means seeing that everything occurs according to established rules and expressed commands. Control involves determining where you want to go, observing to see that you keep on the course and schedule, and giving orders when necessary to correct variances.

## **Definition - loss control**

Loss control is the elimination of all, errors, incidents, and undesired or unwanted events caused by improper planning, organising, leading and controlling which result in business losses and which can be obviated by using sound management principles and practices.

## **Purposes of loss control**

***There are three phases to loss control, namely,***

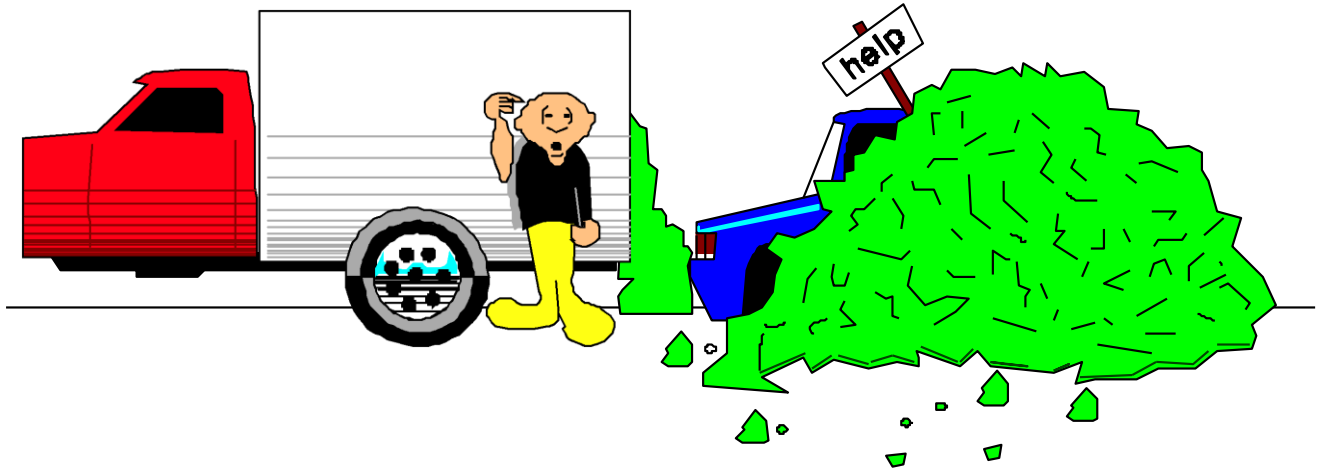
- ✓ The prevention of injuries;
- ✓ The control of damage;
- ✓ And lastly, loss control.

***Loss control must prevent***

- ✓ Injury
- ✓ damage to property
- ✓ fire losses.
- ✓ interruption of the normal course of business
- ✓ accidents from occurring

**Accidents are unplanned and uncontrolled events which can be caused by unsafe acts and/or unsafe conditions.**

All unsafe acts must be eliminated as far as possible. Unsafe conditions are caused by any departure from accepted safety standards.



### ***Prevent or reduce accidents***

In order to prevent or reduce accidents, unsafe acts and unsafe conditions must be reduced to the absolute minimum.

If unsafe acts and unsafe conditions are not kept to an absolute minimum, it could lead to many man-days being lost in the factory and ultimately the whole country. Besides the money being paid out by the WORKMEN'S COMPENSATION ACT, 1941 (Act 30 of 1941), there are also several "hidden costs" which must be borne by the employer. For example, there is time lost through injury to the worker; there is time lost by other workers who stop work out of curiosity, sympathy or a desire to assist the injured person; there is time lost by the foreman, supervisors and other staff members who have to assist the injured person; there could also be damage to machinery and tools; and the production process could be disrupted thus failing to meet orders on time.

### **Causes of accidents (also called downgrading incidents)**

There are four basic causes of accidents, namely, unsafe conditions; lack of knowledge and/or skill; physical or mental defects; and improper attitudes. There are four major elements in the business concern which contribute to downgrading incidents. to eventually cause accidents.

#### ***People***

All the elements that were mentioned usually interact to cause an accident.

The human element is directly involved with most accidents, since what he does or fails to do is seen as the immediate causal factor.

## ***Equipment***

Tools and machinery are a big target for mechanical safeguarding and operator training. The improper design of controls and displays on machinery and equipment have been frequently named as the source or cause of many downgrading incidents involved with safety, quality and production problems.

## ***Material***

The material people use is another major source of incident causes. These elements are a source of serious injury for a large number of people. Material can be sharp, heavy, hot, or toxic.

## ***Environment***

The work environment is a cause of a number of diseases and health-related conditions. The environment is also a major source of incident causes associated with absenteeism and poor work quality.

## **Remedies to accidents**

There are four remedies to accidents, namely,

- ✓ Engineering revision;
- ✓ Education, training, persuasion and appeal;
- ✓ Proper personnel placement and adjustment;
- ✓ And discipline.

## **Responsibility for accident prevention**

There are two parties responsible for accident prevention, namely,

- ✓ The employer who is responsible for safe working conditions
- ✓ And the worker who is responsible for safe work. The worker must develop safe working habits and use safeguards and protective equipment properly.

An accident prevention programme needs the unqualified support of management who also have to vote/authorise the necessary funds for the accident prevention programme. Accident prevention methods in most large companies have become part of the normal managerial function because a low accident rate saves money for the company. There are, in fact, several types of costs involved when the frequency of accidents is high. These are discussed below.

## **Cost of Accidents**

Accidents always have financial or other implications which are usually more severe than anticipated.

## ***Cost to the Victim***

The employee's capital asset is invested in his ability to attend and perform at this place of work. Take away that from him, and his losses begin to accumulate quickly. His costs are very personal

ones, and because he is at the sharp end of the incident, he will naturally feel his position strongly. The victim's costs are by no means exclusively financial. These might well include:

- ✓ Pain and suffering
- ✓ Loss of wages
- ✓ Loss of overtime
- ✓ Curtailment of leisure activities
- ✓ Loss of social interaction
- ✓ Family stress
- ✓ long-term disablement
- ✓ Psychological damage,
- ✓ Perhaps even death.

### ***Cost to the Company***

The company will suffer a different range of costs:

- ✓ Lost production
- ✓ Repair and replacement cost
- ✓ Increased insurance premiums
- ✓ Cost of investigation and documentation Industrial relations problems.
- ✓ Loss of promotional prospects
- ✓ Damage to equipment
- ✓ Consequential overtime costs
- ✓ Legal penalties
- ✓ Compensation expenses
- ✓ Loss of goodwill and reputation

There are also a variety of "hidden costs", which the company does not need and cannot really afford. No employer can afford to ignore the cost of accidents and injuries. To take a lax view of a poor safety record is just plain bad management.

### ***Cost to the Nation***

A company may be seen as a microcosm of the nation when considering cost. The nation will therefore suffer the accrued expense of production losses associated with injury and accidents.

### ***Cost to the Manager***

The manager is right in the front line of the battle to cut costs; it is part of his job to operate his department efficiently and economically. Accidents represent failure and wastage and are in the main preventable. Therefore it is the duty of every manager to try and contain or prevent accidents whenever and wherever possible.

## **Enhancement of loss control**

Loss control can be enhanced through periodic safety inspections which take the following forms:

### ***Safety Audit***

This is an exercise in which many areas of the company's activities are examined in-depth.

### ***Safety Survey***

This is a more sharply focussed examination; a hard look at an area which has a known problem.

### ***Safety Tour***

This is merely an unscheduled inspection of a work area to check on such aspects as good housekeeping.

### ***Safety Sampling***

This is a procedure in which a team of trained observers carries out a regular tour of the work area, armed with pad and pencil.

### ***Scheduled Safety Inspection***

This is the routine, disciplined, solid, no-nonsense technique which turns over the stones to reveal the unsafe acts and conditions lurking beneath.

Inspections and checking are an integral part of loss control and loss prevention. The whole idea is to cast a critical eye over the work-place, its hardware, its working methods, its general condition, i.e., to discover hazards before they harm the unwary employee.

## **Formative Assessment 1**

What are the four basic reasons for unsafe acts?

Explain perceptual failure

Why do we say that safety is controllable?

What must the supervisor do to prevent future accidents?

.

What are the three phases to loss control?

What must loss control prevent?

What must happen in order to prevent or reduce accidents?

Name the two parties that are responsible for accident prevention.

What are the four remedies to accidents?



## SECTION 2: IDENTIFY POTENTIAL HAZARDS

### ***Specific Outcome 2***

Limit damage to persons or property in the case of an emergency.

### ***Assessment Criteria***

- ✓ The location of fire extinguishers, hoses and alarms is known.
- ✓ Different fire extinguishers are identified and used correctly.
- ✓ Procedures for the identification of emergencies are known and followed promptly and correctly.
- ✓ Injuries involving individuals are reported promptly to the relevant persons.

### ***tatutory Requirements***

The O.H.S. ACT 85 of 1993 (Occupational Health and Safety) requires the employer to bring about and maintain, as far as reasonable practicable, a workplace that is safe and without risk to the health of the workers. This means the employer must look in to the following:

That the workplace is free of hazardous substances, such as benzene, chlorine, and micro organisms, articles, equipment, processes, etc. that may cause injury, damage or disease. Where this is not possible, the employer must inform workers of these dangers, and how to work safely, and provide personal protective equipment for a safe workplace.

However it is not the sole responsibility of the employer to adhere to the O.H.S. ACT but the worker is also responsible that he/she adheres to the regulations within this legislation. In short this means that the worker and the employer share responsibility regarding Health and Safety in the workplace.

The Act, known as the Occupation Health and Safety Act (Act 85 of 1993), consists of 50 sections approved by parliament. The purpose of the Act is to provide for the health and safety of persons at work or in connection with the use of plant and machinery. It also provides for the protection of persons other than persons at work from hazards arising out of or in connection with the activities at work.

The Act or regulations can be purchased from the Government printer in Gazette form or bound form from various publishers.

This means that, in terms of South African legislation, each employer must maintain a safe and healthy workplace which is free from all reasonable hazards.

All factories have to be kept clean and free of smells or leakages arising from drains and toilets or any other nuisance.

In addition to a safe and healthy work environment, there should also be receptacles for waste; the aisles, roadways and passages should be properly marked; the stockpiling of materials should be

prohibited or carefully monitored; there should be proper storage space; notices should be put up for staff; and colour coding should be introduced in the factory.



## Proper place for everything

In the plant or factory, it is essential that everything has its proper place, i.e., the factory must be orderly and tidy so that there is no need to search for tools; so that space is saved; so that fire hazards are reduced; and so that injuries are avoided. If there is poor housekeeping, the incidence of accidents is bound to increase, e.g., tripping over loose objects; articles dropping from above or on a worker's head; slipping on greasy and dirty floors; staff running into protruding materials and objects; hands and other bodily parts being injured on projecting items such as nails; and fires.

## Benefits of good housekeeping

The effect of good housekeeping on staff is that it improves both the working environment and morale of the workforce. This means more pleasant working conditions which will in the long-term increase efficiency, ineffectiveness and economy.

The main benefits of good housekeeping are as follows:

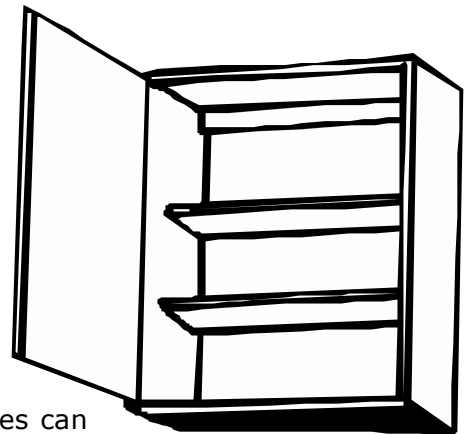
- ✓ Reduced operating costs
- ✓ Improved production control
- ✓ Production time is saved;
- ✓ Traffic flow is facilitated;
- ✓ There is higher employee morale
- ✓ Increased production materials and parts are conserved
- ✓ Space is better utilised;
- ✓ Accidents are reduced;
- ✓ Fire hazards are reduced.

## Special precautions

Special care must be taken with substances such as liquids and chemicals, and also with tools and equipment, particularly explosive powered tools.

Guidance should be sought from the manufacturers about the handling of hazards associated with the storage of oils, reagents, acids, flammable and toxic substances. The three commonly used mineral acids; nitric, hydrochloric and sulphuric are explosive under certain circumstances and require careful handling and storage.

Powerful oxidising agents such as chlorates, nitrates and peroxides can also become explosive when they are mixed or come into contact with organic matter such as starch, gum and resin.



Sodium peroxide will heat up in the presence of moisture, and all of these substances will release oxygen if sufficiently heated, thus enhancing the danger of fire.

Racks and holders suited to the size of tools and equipment should be provided.

Explosive powered tools and cartridges must be stored in a safe place to ensure that they are inaccessible to unauthorised persons.

Tools must never be stored in a loaded condition. Well-organised storage and housekeeping will not only promote safety in the workplace, but will also assist in the efficient operation of any organisation.

## **Other precautionary measures**

### ***Colour Coding for Safety Identification***

It is usual practice in the factory setup to colour code some hazardous areas, machinery or dangerous substances, e.g. ,

- ✓ the colour RED usually indicates danger; fire protection equipment or stop buttons and emergency stop controls;
- ✓ YELLOW usually indicates caution; and warnings of hazards from radio-activity;
- ✓ GREEN indicates the location of first aid facilities; location of gas masks; exit signs other than emergency signs; safe areas; parking areas; equipment storage; safety instruction; toilets; offices and entrances;
- ✓ light ORANGE is used on the inside surfaces of machine guards as well as the dangerous parts of a machine capable of cutting, shearing or crushing; the surfaces of protruding shafts, the faces of gear wheels and any rotating part of a machine.

### ***Factory Layout***

It is essential that the factory layout and premises in general are maintained in a good condition. This will minimise the risk of accidents.

Faulty design or maintenance of premises, obstruction of access routes and traffic aisles should be prevented.

Floors should not be overcrowded/overloaded.

Floor and wall openings, staircase wells, passenger and goods lift cages, gangways and overhead platforms should all be suitably fenced.

Guard rails should be of adequate dimensions and strength, and toe-boards should be fitted on gangways passing over areas where people are working and where there is a danger of falling objects.

Suitable means of access to machinery and equipment should be provided so that maintenance teams are not required to perform dangerous or acrobatic manoeuvres in their regular work.

Crush, nip or shear points between moving and stationary objects should be eliminated or guarded.

Emergency exits to ensure a means of escape in the event of fire should be sufficient in number, correctly positioned and signposted, and free from encumbrance.

Good lighting is essential for the safe movement of persons, plant and equipment. Inadequate

lighting levels may conceal obstacles or danger zones, whereas badly positioned or excessively powerful light sources may cause glare.

## **Methods of motivating good housekeeping practices**

There must always be orderliness in the workplace. Order is the first step in doing anything right.

A programme of orderliness carried out by supervisors and individual employees, can bring large reductions in accidents, stores inventories, and wasted time and energy.

The end result of order is greater and safer production of better products at lower costs. Improved production and costs mean increased business and prosperity for any organisation and its employees.

The following measures can be used to encourage improved housekeeping practices.

### ***Supervisor to understand concept of order***

A supervisor must know that it is not only cleanliness that makes a safe plant, but that everything must have its proper place.

This proper place should be the correct storage place for an item, because if it is not stored/found in its proper place, it will cost the company money to search for it, or to have it replaced.

Disorderly management is unacceptable. Housekeeping includes both cleanliness and orderliness. Should a supervisor fail to convey to his subordinates the necessity of cleanliness and orderliness, this could result in downgrading accidents.

### ***Supervisor to teach order***

The supervisor should teach the meaning and values of order to others by:

- ✓ Explaining the meaning of order and its benefits to everyone;
- ✓ Selecting items of disorder for discussion purposes;
- ✓ Questioning the necessity of disorder-creating items;
- ✓ Instituting an orderliness campaign; and
- ✓ Establishing a system to recover unnecessary items of value and returning these to a central point for inventory and value assessment..

### ***Recognise/Reward routine orderliness***

A supervisor should try to reinforce good housekeeping practices by rewarding orderliness. Proper recognition of the orderly arrangement of the individual's tools and equipment will soon develop into personal pride of his work and working environment, and this is bound to radiate to the other workers.

### ***Learn by personal observation***

With a better understanding and a new insight of what housekeeping or order is really about, the supervisor will be equipped to get many things done in the interest of general efficiency and loss control that he might not otherwise have been motivated to do.

The supervisor will observe disorder through regular inspections and will then be able to make recommendations to prevent downgrading accidents. If a supervisor is going to get order in his operation, the greatest tool he has at his disposal is his everyday opportunity to look around, and to examine everything.

The benefits that can accrue to an organisation applying principles of order are significant. The supervisor in his informal inspections should look carefully at each individual work area, as well as the general areas.

In his search for a lack of order; he must decide whether or not corrective action is necessary to put any area in order; and he must implement action by using whatever help might be required of immediate supervisors to have order instituted and to start its benefits working for him.

It must always be remembered that everything in the factory has got its proper place. If items are not stored correctly and in their proper places, this carelessness will lead to a heightened incidence of accidents, and in some instances these accidents could be fatal.

## ***Identify Potential Hazards***

There are various substances in the workplace which could harm the physical and possibly the mental health of workers. For example, toxic waste can be just as deadly as an unguarded machine mechanism, or over-exposure to poisonous gases or radiation can kill just as surely as a treacherous fall.

The types of hazards which could be detrimental to the health of workers are mentioned in this lesson. These health hazards can be combated or reduced by wearing appropriate protective clothing and/or equipment. Some protective clothing is washable and can be re-worn, while other clothing is disposable. It is even possible to apply protective ointments and creams (barrier creams) to the body, and after the job has been completed, to simply wash off these creams. Workers must realise the importance of their health and safety, and must be diligent in wearing the appropriate protective clothing and/or equipment.

## **Unsafe acts**

- ✓ Failure to warn (not telling the worker of the dangers in the workplace)
- ✓ Failure to secure (fail to fasten at the top of a ladder while working on a roof)
- ✓ Operating at improper speed (working too fast to get the job done, chasing production)
- ✓ Making safety devices inoperative (bypassing circuit breakers that keep on tripping)
- ✓ Removing safety devices (removing thermostats from equipment or bypassing earth leakages)
- ✓ Using defective equipment (Using electrical equipment where open wiring is visible)
- ✓ Failure to use personal protective equipment (**PPE**) (not using proper clothes when removing hot foods from the oven)
- ✓ Improper loading (unsafe loading of goods on a vehicle or trolley which can fall off and injure people)
- ✓ Improper placement (storing of food stuff in the same area where cleaning materials are kept, this can result that the food stuff can be affected and become poisonous).

- ✓ Improper lifting (picking up heavy objects the wrong way. See demonstration of proper lifting)
- ✓ Improper position for task (taking up a unsafe position while working)
- ✓ Horseplay (playing in the work place chasing each other or to through a fellow worker with objects or water)
- ✓ Alcohol and drugs (workers working while under the influence of alcohol or drugs can result in injuring them self or fellow workers)

## **Unsafe conditions**

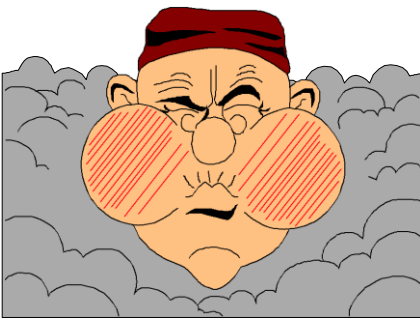
- ✓ Inadequate guards and barriers (open components of machinery that can result that the workers hands or clothing can be caught in)
- ✓ Inadequate PPE (No or little personal protective equipment or the wrong type of PPE)
- ✓ Defective tools, equipment or materials (Using a teaspoon to remove chips from the hot oil in a pot. Working at the stove while the extractor unit is out of order)
- ✓ Congestion or restricted action (Working in the kitchen where to many workers are. This can result in workers bumping into each other)
- ✓ Inadequate warning system (No fire alarm that can be activated if a fire breaks out in the work place)
- ✓ Fire and explosion hazard (Flammable liquids stored in areas with extreme temperatures. Storing chemicals in the same area that reacts with each other)
- ✓ Bad house keeping (Every thing in its place and a place for every thing. Keep your work place clean, neat and free from obstruction and keep it bacteria free. This is very important in the food preparation process)
- ✓ Noise exposure (A area that exceeds a noise level more than 85 disables)
- ✓ Temperature extremes (If good ventilation in the workplace are not adequate, this can result in worker are exposed to heat exhaustion, and can become unconscious)
- ✓ Inadequate or illumination (Good lighting is very important in the work place to ensure that the worker can do his/her job properly. Where lighting is to extreme workers can also damage there eyes by not using PPE)
- ✓ Inadequate ventilation (ventilation in the work place is from utmost importance, lack of proper ventilation can cause workers to become drowsy and this will result in accidents)

## Types of Hazards Encountered In the Workplace

The OHS Act defines a **hazard** as "a source of or exposure to danger" and a **risk** as "the probability that injury or damage will occur." Each hazard thus has risk(s) involved. If you don't disconnect the electricity supply before working on an electrical appliance you run the risk of being electrocuted.

The degree of risk involved varies according to the situation. When using a sharp knife to peel an apple, a two year old toddler will run a much greater risk of cutting himself than an adult performing the same exercise.

**Safe**, according to the OHS Act means "free from any hazard".



### **Air Pollutants**

For example, dust, fumes, smoke, mist, gases, vapours, free silica and asbestos.

### **Skin Irritants**

For example, abrasion, bacteria, parasites, friction, sumac and radiation.

### **Noise**

For example, temporary loss of hearing, headaches and ringing in the ears, difficulty in verbal communication and thus shouting to communicate, warnings which cannot be heard because of excessive noise, and any loss of hearing which is sometimes attributed to ageing.

### **Extremes of Temperature**

For example, extreme cold can cause frostbite and the destruction of tissue - extended exposure to extremely low temperatures can even cause death. Excessive heat can cause a strain on the heart and circulatory system, cramps, heat exhaustion, heat stroke and death of exposure and exertion

For cold environments, employees should be equipped with proper clothing, they should keep themselves healthy and they should never work alone, but always in pairs. For hot environments, reflective clothing can be used effectively to protect workers from radiant heat and extraordinary hot environments. Such garments are used widely in the steel industry, foundries and other hot metal industries. Coats, pants, coveralls, and hoods are also available.

In hot climates, there must also be sufficient air circulation; workers must use heat shields or barriers; and finally, workers must replace body fluids regularly which have been lost due to heat.

### **Illumination**

For example, employers should attend to burnt out globes; defective fluorescent tubes; light fixtures covered with dirt, grease, or oil; little or no provision for



emergency lighting; unlighted or dimly lit exits;

Temporary lighting that has become permanent through oversight; and poorly-placed lighting sources that cast shadows in the employee's work areas.

## ***Radiation***

For example, ionising radiation which can cause anaemia, sterility, leukaemia, bone damage, damage to unborn children, genetic damage, tumours, cataracts and shortening of the lifespan; non-ionising radiation such as infra-red and ultraviolet radiation, microwaves, lasers and visible light can produce burns or excessive heating of the skin and tissues just below it. The burns produced vary in their severity according to the extent of the exposure.

## ***Ventilation***

Proper ventilation is essential to a good environmental health programme. Adequate ventilation and air replacement are necessary for employee health and well-being. One should take advantage of the natural air movement by opening windows or roof monitors. Do not allow ventilation methods to permit noxious fumes or dust to enter the factory environment from other nearby factories.

## ***Confined spaces***

Areas, which are very small, or ventilation is inadequate, resulting in dangerous circumstances.

## ***Electricity***

Electricity is one of the main causes of injuries and fires in the workplace. DO NOT work with faulty electrical equipment, DO NOT work on equipment before isolating the electricity and use the correct lockout procedures.

## ***Fire and explosions***

Flammable liquids used unsafe, chemicals that are mixed that react with each other. Striking a match when smelling gas, wrongly installed gas installations and many other examples. A experiment will be conducted to illustrate this.

## ***Mechanical devices***

Mechanical devices such as hand mixers, hand operated food processors, which can injure workers if not operate properly.

## ***Chemicals:***

Chemicals such as cleaning agents can be corrosive, flammable and even explosive. Chemicals that are not used in the correct prescribed manner as stipulated by the manufacturer can be dangerous and even fatal to the user.

## ***Pressure:***

Pressure cookers in kitchen have caused many accidents in the past. Many working environments use steam for cooking purposes and extreme caution should be taken when working with this

medium for many burns are caused by steam operating equipment. Gas bottles are also classified as pressure vessels and can cause burns and explosions.

### ***Tools and equipment:***

Tools and equipment used in the kitchen such as knives, blenders, stoves, refrigeration, microwave ovens, food processors, extraction fans, and many more can be potential dangers if not properly operated. Safe working procedures must therefore be introduced for each and every task in the profession of the worker for the task to be performed.

### ***Vehicles and machinery:***

In accordance with the O H S act every worker must be trained for the specific job that he/she performs or is. In some cases a worker is not allowed to operate a machine or a vehicle without a special license after undergoing training by an accredited company and found competent to operate the machine or vehicle, and a special license must be issued. These examples can be lifting equipment, forklift trucks and motor vehicles and trucks.

### ***Welding, cutting and grinding operations:***

Welding can cause severe harm to the eyes of the welder if the proper PPE is not used during the performance of the task. This does not only comply with the welder but also the workers working in the same area. This can be overcome by either the workers wearing the same PPE as the welder or by leaving the area where the welding takes place. Grinding and cutting is as dangerous to fellow workers as to the worker performing the job. The reason is that during grinding and cutting small parts of the material that is worked on can be flung in fellow workers eyes and can cause severe injury or permanent disablement.

### ***Working at heights and excavations:***

Proper training must be must be given to workers before performing these tasks. These tasks include working on ladders, scaffolding, heights and trenches that have been dug. Ladders can be dangerous if not in good working order and inspected regularly, if scaffolding has no firm base were it is erected it can collapse, and if special precautions are not taken when trenches are dug, collapse of the side walls can cause workers to be buried alive if the side walls collapse.

## **Hazardous substances**

"**Substance**" includes any solid, liquid, vapour, gas or aerosol, or combination thereof.

Examples are

- ✓ inorganic materials such as lead, mercury, arsenic, cadmium, and asbestos
- ✓ and organic substances such as polychlorinated biphenyls (PCBs), vinyl chloride, and the pesticide DDT, benzene

## ***Protective Clothing***

### **Reasons why protective equipment and clothing is not worn**

- ✓ The equipment cannot be worn comfortably and with ease.
- ✓ The protective equipment interferes with normal working procedures.

- ✓ The worker does not understand (ignorant) the necessity of wearing the equipment and clothing;
- ✓ There has not been proper training and induction of the worker to his work environment.
- ✓ The worker is not penalised or disciplined for not wearing the equipment.

## **Requirements for protective clothing and equipment**

As far as personal protective clothing and equipment are concerned, the worker must be able to wear the equipment with ease and comfort; the protective clothing or equipment must not interfere with his normal working procedures; the necessity for wearing protective clothing/equipment must be brought home to the worker; and economic and other disciplinary action must be used to coerce the worker to constantly use protective clothing and equipment.

The problem encountered with protective clothing and equipment is the fact that- these measures do not' eradicate the danger out of mechanical hazards of machinery - these hazards have to be designed out of machinery; the correct choice of equipment is not always easy; and getting workers accustomed to protective gear is sometimes difficult.

## **Types of physical protective equipment available**

Besides respirators and masks to filter out dust and fumes, and goggles and shields to guard the eyes, the following protective equipment is available:

- ✓ Protective hard hats/caps and women's nets;
- ✓ Aprons, Suits and jackets;
- ✓ Ear muffs;
- ✓ Visors and face shields;
- ✓ Welding helmets;
- ✓ Boiler suits;
- ✓ Dust-coats;
- ✓ Safety boots and smelter boots;
- ✓ Spats and leggings;



- ✓ Air-suits for radiation and chemical protection;
- ✓ Gloves and mittens; and Safety shoes.

Protective garments can be made of plastic, leather, asbestos, artificial fibres and so forth, depending on what type of protection is desired.

The aim of using protective clothing and equipment is to protect the human body and all its senses, e.g., hearing, seeing and smelling, from harm. Workers who do not wear goggles or ear muffs could lose their sight or sense of hearing.

Workers should also be protected from the stealthy killers such as asbestos dust, imperceptible gases, e.g. LPG or liquefied petroleum gases, and mercury poisoning. Gases and other harmful substances should be correctly stored in properly marked containers. Employers should always monitor the levels of poisonous gases and other dangerous substances in their factories.

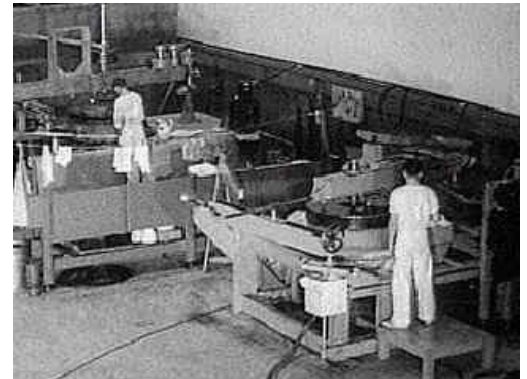
Because every injury on duty has financial implications for both the employer and the employee, it is essential that injuries should be reduced to the absolute minimum.

Workmen who are injured on duty can claim for compensation in terms of the WORKMEN'S COMPENSATION ACT, 1941 (Act 30 of 1941). No compensation is paid if the workman is guilty of serious and wilful misconduct, unless the accident causes serious disablement or the workman dies. If the accident leads to serious disablement or death, the Commissioner will pay compensation even if the workman contravened the law or his employer's instructions, or acted without instructions, but only if he was injured while engaged in his employer's business. Should the workman be killed, his dependents are entitled to compensation. Workmen are usually not covered while travelling from home to their place of work. He must set foot on the premises of the work-place to be covered by the Act.

## ***Safeguarding Machinery and Equipment***

A machine guard is a barrier which suitably encloses the moving parts of a machine. It must prevent any part of the body from reaching under, over, around or through the guard and entering the danger zone.

It is necessary to safeguard machines because the injuries caused by machines could be severe, disabling and permanent; such injuries are generally preventable; danger can often be reduced or removed by mechanical safeguards; and workers realise that unguarded machinery is dangerous. The employer should spend money on the safeguarding of machinery to show his sincerity in protecting the workers from injury.



### **Classes and types of machine guards**

There are **two classes** of machine guards, namely, transmission guards and point of operation guards.

There are **three types** of guards, namely:

- ✓ Fixed Guards - these do not move with each operation;
- ✓ Interlocking Guards - these guards prevent the controls of the machine from being used until the guard is moved into place; and
- ✓ Automatic Guards - these prevent the machine operator from coming into contact with the dangerous parts of a machine while it is moving.

## Requirements of machine guards

Machine guards should comply with the following requirements:

- ✓ They should afford the maximum protection possible;
- ✓ The danger zone(s) should be blocked out during operation;
- ✓ The guards should be corrosion-free and fire-resistant;
- ✓ The guards should not produce splinters or pinch the operators;
- ✓ The guards should be fixtures of the machinery;
- ✓ The guards should not affect the efficiency of the machine; and
- ✓ They should be strong enough to withstand normal wear and tear.

## Various machine mechanisms

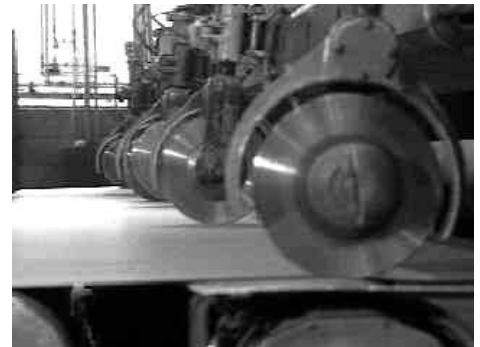
Machines that should be guarded may have one or more of the following mechanisms:

- ✓ Rotating mechanisms
- ✓ In-running nip points
- ✓ Forming or bending mechanisms
- ✓ Cutting or shearing mechanisms
- ✓ Screw or worm mechanisms

A piece of equipment may use more than one basic mechanism and therefore present more than one type of hazardous exposure. A belt and pulley, for example, has a hazardous rotating mechanism and as well as hazardous in-running nip points.

Circular saws, for instance, present the following hazards:

- ✓ The natural characteristics of the wood which could make it dangerous', e.g., knots;
- ✓ contact between a part of the worker's body and the saw teeth;
- ✓ kickback of the stock (this is a particular characteristic of a circular ripping saw);
- ✓ contact between a part of the worker's body and the saw transmission;
- ✓ hands being drawn into the automatic feed device;
- ✓ inadequacy of the machine guards, e.g. , if the guard is incorrectly adjusted;
- ✓ bad working practices, e.g. , loose clothing getting entwined in the mechanisms;
- ✓ noise; and
- ✓ The stock being sawn.



## Suggested materials for machine guards

The preferred material for guards, under most circumstances, is metal. The framework of guards is usually made from structural shapes such as pipe, strapping and bar or rod stock. Filler material generally is expanded metal, perforated metal, solid steel metal or heavy wire mesh. Where visibility is required, guards of formed transparent plastic or of safety glass are widely used. An important factor in the design of a guard is to provide complete protection; the openings must be large enough to admit stock, but small enough to prevent a person or object from getting into the danger zone.

## Machine guards for electrical equipment

In addition to safeguarding machinery by mechanical means, the machines which operate by electrical means must be connected correctly, i.e., all machinery which exceeds 42 volts should be connected to an earth-leakage system to prevent electric shock.

An earth-leakage system is so designed that, any leakage to earth on the tool being used will immediately be detected and the flow of current switched off automatically. In some cases, electrical machinery is double insulated to protect the user from electrical shock.

The person installing the machinery must make sure that the machinery has three-core wiring, unless of course it is double insulated.

**In other words, the machinery that is not double insulated must have an earth wire which is usually GREEN/YELLOW in colour. Usually the BLUE wire is the neutral wire and the BROWN wire is the live or line wire. The wiring of electrical tools and machinery must be connected correctly.**

Portable electrical tools/machinery must be checked regularly for: loose connections; cracked or broken insulations; earth continuity; switches in bad order; and joins in flexible cords. To protect maintenance workers from injury or electric shock from electrical tools and equipment, it may be necessary to place warning notices over machinery to indicate what dangers are latent in the machinery. It may also be necessary to lock the switches to the equipment by padlocks, and only to switch on the equipment where and if necessary. Main switches should be prominently marked.

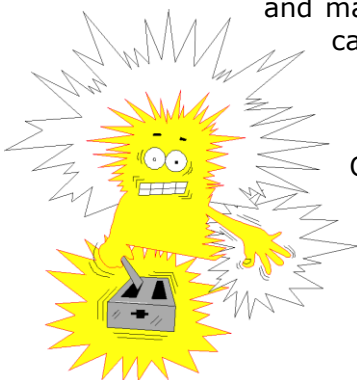
## Burns from electrical apparatus

Besides electric shock, electricity can also cause external burning, e.g. the arc of a welding machine produces temperatures between **6 000 to 8 000** centigrade. Persons standing nearby such an arc will be severely burnt and such an arc may start a fire by igniting flammable material.

When the arc resulting from a breakdown of the insulating material or insulating medium is contained in an enclosure, the heat produced causes the surrounding air or oil to expand rapidly and may also cause an explosion by the expansion of air or oil. Such an explosion can produce extensive damage to property and to persons.

## Faulty electrical circuits

Overloading of electrical circuits can produce localised heating of the conductors. The heat so generated may be sufficient to ignite nearby flammable material and thus cause a fire, or alternatively, the heating of the conductors may result in a deterioration of the insulating material and



cause a fire.

To ensure a safe and uninterrupted supply of electricity, an industrialist must ensure that the electrical installations

- ✓ Are correctly designed;
- ✓ Proper and suitable equipment must be used;
- ✓ Electrical installations
- ✓ And equipment must be maintained in accordance with planned maintenance programmes.

A well-thought out planned maintenance programme of the electrical installation will ensure that regular cleaning, inspections, adjustment, testing and planned part replacement, are carried out. Experience has shown that this significantly reduces breakdowns, including dangerous breakdowns or dangerous conditions.

Personnel should only be permitted to work on electrical systems if the circuits have been isolated, in other words switched off or if a lock-out system has been secured. Electrocutions are frequently caused when personnel work on electrical equipment which they either believe or assume have been isolated.

There should also be electrical protective devices such as overload and fault protection mechanisms, such as

- ✓ Double insulated portable electric tools;
- ✓ Double wound transformers;
- ✓ And earth-leakage systems, as described above.

However, sometimes fault protection devices do not work - this could lead to fires in storerooms and warehouses. The recommended protection of the electrical installation in storerooms or other areas where flammable materials are stored or used is to provide earth-leakage devices on all circuits, which will either isolate the circuits or sound an alarm if a pre-set leakage current is exceeded.

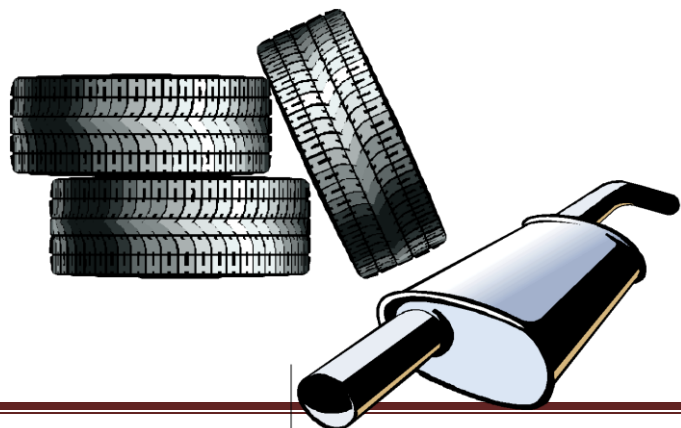
## **Other safety measures in a factory**

Besides the above-mentioned safety measures, there are a number of other safety precautions which should be practised.

### ***Company Vehicles***

Company vehicles should be checked regularly for

- ✓ Faulty brakes;
- ✓ Faulty headlights;
- ✓ Damaged connecting cables;
- ✓ General lighting;
- ✓ Worn tyres;
- ✓ Faulty windscreen wipers





- ✓ Defective steering wheels;
- ✓ Broken windows;
- ✓ Broken hooters;
- ✓ Rear-view mirrors;
- ✓ Engine idling system;
- ✓ Instruments;
- ✓ Exhaust;
- ✓ Fire extinguishers,
- ✓ Cooling system;
- ✓ And emergency equipment such as fire spare bulbs and emergency triangles.



### ***Handling of Ladders***

There are a number of rules which have to be adhered to whilst handling/ using a ladder:

- ✓ Avoid bringing a metal ladder near electricity (electrical overhead wires).
- ✓ Place the ladder so that its feet are a quarter of its own length from the object it is resting against.
- ✓ Let someone hold the ladder if it is not tied at the top.
- ✓ Let the ladder extend for a considerable distance above its support' in case it slips down.
- ✓ Inspect ladders regularly to repair or replace defective rungs and other parts.
- ✓ Rather varnish than paint a ladder because defects may be

concealed by paint.

- ✓ Keep ladders clean to expose defects.
- ✓ Do not expose ladders to inclement weather.
- ✓ Do not use ladders as scaffolding.
- ✓ Haul tools and equipment up by rope instead of hanging them onto the sides or rungs of the ladder.
- ✓ Do not leave a ladder where it may fall and be damaged.
- ✓ Do not place ladders in front of doors which are regularly used as thoroughfares. The door could suddenly be opened and you could be flung to the ground.
- ✓ Equip the ladder with safety feet or non-skid devices.
- ✓ Use both hands when climbing a ladder.
- ✓ Only one person at a time should climb a ladder.

## **Formative Assessment 2**

What are the benefits of good housekeeping?

List and explain the special precautions

Explain the colour coding for safety identification.

Name 7 types of hazards encountered in the workplace.

Give 5 reasons why protective clothing is not worn.

- ✓
- ✓
- ✓
- ✓
- ✓

Name the types of protective clothing that is available

List the requirements of machine guards.

- ✓
- ✓
- ✓
- ✓
- ✓
- ✓

What must be done to ensure a safe and uninterrupted supply of electricity?

Ensure that electrical installations:

Distinguish between unsafe acts and conditions. Tick the appropriate box:

Example	Act	Condition
Using petrol to light a fire.		
Tools and equipment in poor state.		
A tree branch overhanging a power line.		
Worn tyres on a bus.		
Driving a bus with worn tyres.		
A swarm of angry bees in a tree outside the office.		
Disturbing the bees.		

Taking medicine of which the expiry date has lapsed.		
Storing paraffin in a "Sprite" bottle.		
Having casual sex without using a condom.		
A faulty electric appliance.		

## SECTION 3: LIMIT DAMAGE TO PERSONS OR PROPERTY

### ***Specific Outcome 3***

Follow procedures that apply to illness or injury in the work area.

### ***Assessment Criteria***

- ✓ Procedures for reporting and recording are demonstrated.
- ✓ Procedures to be followed if an injury may lead to a claim against workman's compensation are followed.
- ✓ A brief incident report is written and delivered to the relevant authority.

## ***Fire Prevention and Fire Protection***

**People can cause fires and people can also control and extinguish fires. Therefore, it is essential that all factory employees are familiar with the basic procedure to be followed in the event of a fire and are trained in the correct use of fire fighting equipment**

Prevention of fire is usually a matter of

- ✓ Alertness,
- ✓ Observation
- ✓ And an ability to identify potential fire hazards
- ✓ And then to rectify such hazards.

The key to any effective fire loss control programme is the supervisor. Without him, it is nearly impossible to have a meaningful fire prevention programme.

A business cannot remain in business if the building, the plant and the stock are destroyed by fire. There is certainly no quicker way to destroy a business than by fire.

There are some main causes of fires:

## ***Electricity***

- ✓ faulty electricity;

### **Causes of fire**

- ✓ open matches and cigarettes;
- ✓ spontaneous ignition
- ✓ chemical reactions;
- ✓ static electricity;
- ✓ friction etc.

The abuse of electricity is often the cause of a fire: overloading of a wall socket; unattended; temporary wiring; and wires which are frayed. Some examples are electrical appliances left switched on and cables and wires under carpets.

The precautionary measures to be adopted with electricity are

- ✓ to ensure the wall sockets are not overloaded;
- ✓ switch off appliances when not in use or unattended;
- ✓ replace temporary wiring with permanent wires;
- ✓ do not lead wires under carpets;
- ✓ let a competent person check factory wiring at regular intervals.

Fires can also be caused by electric heaters which have been left on; also never overload plugs with electrical appliances or place electric heaters near combustible materials such as curtains and other materials which could catch fire.

## ***Sparks***

Sparks can also cause fires. The precautionary measures to be adopted when using cutting tools and welding equipment (which could cause sparking) are as follows:

- ✓ Ensure that any work done on the premises which creates sparks be carried out by a competent person;
- ✓ Permits must be issued to persons carrying out hot works;
- ✓ Do not allow flammable liquids in the vicinity of the welding or cutting works.

## ***Spontaneous Combustion***

Spontaneous combustion or ignition can also be a cause of fires. Ensure that no oil-soaked rags are left lying around; and provide metal bins for the discarding of old rags.

## ***Flammable Liquids***

- ✓ Always store flammable and hazardous substances in safe places.
- ✓ Do not store flammable liquids and combustibles or gas in the same room.
- ✓ Flammable liquids should be correctly marked and stored in proper containers
- ✓ Do not store flammable liquids under stairs or near fire escapes;

- ✓ Never store combustibles near escape routes or escape stairs;
- ✓ Take care when storing substances that might ignite with others, e.g., chlorine tables may
- ✓ And always see that storage heights are correct.

## **Arson**

Fires may also be caused by arsonists. This may be related to revenge, spite, mental instability or pyromania. Therefore, everyone must constantly be alert and report suspicious looking persons to security.

Always keep window glazing and doors in good repair; the factory in good repair; check unattended areas periodically; keep fences on the perimeter maintain good housekeeping at all times; screen and select new employees carefully; and promote good employer/employee relations at all times.

## **Elements present to cause fire**

**The three elements which must be present in any fire are oxygen, heat and fuel. This is known as the fire triangle.**

These elements usually cause a chain reaction. Remove any of the elements and the fire will be extinguished. Pouring water on the fire will remove the heat. Blanketing it with sand, foam or a chemical will exclude oxygen supply. Cut off the fuel and the fire will extinguish itself,

## **Classes of fire**

There are four classes of fire, namely:

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CLASS A - which are mostly wood and paper fires;

CLASS B - which is mainly flammable liquids such as thinners and gasoline;

CLASS C - which is mainly electrical fires; and

CLASS D -which is mostly flammable metal fires such as titanium, magnesium and lithium.

For each class of fire, a different method of extinguishing the fire used, namely:

CLASS A fires usually need soda-acid extinguishers

CLASSB fires usually need foam, dry chemical extinguishers

CLASS C need carbon dioxide or dry chemical extinguishers

CLASS D usually need special chemicals, iron filings and French chalk.

It is essential to note that soda-acid or foam fire-extinguishers must not be used on electrical fires because one must always assume that all electrical installations are live. The water and foam discharged by the fire extinguishers are both conductors of electricity. Thus the person operating the fire-extinguishers may receive an electric shock.



## Evacuation of the work-place in case of fire

Safety law is concerned with the preservation of life rather than property. For this reason, the following procedure must be followed in the evacuation of property:

- ✓ All emergency doors should be able to open outwards;
- ✓ All doors and exits where people are constantly working should be kept clear for emergency evacuation;
- ✓ There should be easy access to outer escape exits;
- ✓ Staircases should have proper handrails;
- ✓ Staircases which are going to be used as fire escapes must not be constructed of combustible materials; they should be kept clear of obstructions; they must not terminate in an enclosed area or cul de sac;
- ✓ Staircases and passages must be constructed in such a manner that they can be easily negotiated and that easy exit can be facilitated; and there should be at least two means of

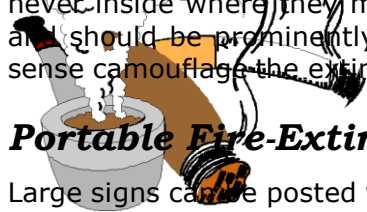


egress which are situated as far apart as possible.

It's the duty of the employer to provide on the premises an adequate supply of suitable fire-fighting equipment at strategic locations or as may be recommended by the fire-chief of the local authority concerned, and this equipment must be maintained in good working order.

## Location of fire-extinguishers

Fire-extinguishers should be placed close to likely fire hazards, but not so close that they can be damaged or suddenly cut off by fires. They should be located outside entrances to danger areas, never inside where they might become inaccessible. They should be placed in conspicuous places, and should be prominently marked by, for example, red paint. The type of paint used must in no sense camouflage the extinguishers.



### **Portable Fire-Extinguishers**

Large signs can be posted where extinguishers are not readily located.

Fire-extinguishers should be checked monthly by a responsible person and should be serviced annually.

The demarcation, accessibility and location must be checked; the cylinders must be visually checked for corrosion or damage; the nozzle must be checked for blockage or dirt; the breather must be checked for blockage; and the rubber hose must be inspected for deterioration, damage and correct coupling.

The inspection of fire-fighting equipment, the maintenance of a fire alarm system, and the practising of fire drill must be carried out regularly because most fires start in a small way, therefore whilst they are still small, property and human lives can still be saved.

## Measures to prevent fires

The keystone of an effective fire loss control programme is inspection. A supervisor should train himself to recognise fire hazards, and these should form part and parcel of his regular factory inspections. He should take corrective action where necessary. The following could be potential fire hazards:

- ✓ Cigarette ends and half-smoked cigarettes;
- ✓ Use of waste paper baskets (which are highly combustible) instead of litter bins;
- ✓ Radiant heaters placed near combustible material. Switch off all electrical appliances when not in use and remove plugs from their sockets;
- ✓ Flammable liquids in open containers which could cause spillage;
- ✓ Fuel and oxygen lines that are unmarked or improperly identified, allowing them to be mistaken for water or air lines;
- ✓ Fire extinguishers that are inappropriate to the type of fire hazard in the area;
- ✓ Fittings that could allow pneumatic tools to be inadvertently connected to fuel or oxygen lines;
- ✓ Unmarked and/or blocked fire exits or means of escape from an area in event of a fire;
- ✓ Absence of "NO SMOKING" signs in areas where flammable liquids, vapours, gases or other

highly combustible materials are stored or used;

- ✓ Inadequate ventilation in areas where painting, solvent cleaning, or other operations are performed that produce flammable vapours or gases; and
- ✓ Collections of flammable debris that could become ignited or supply fuel to a fire starting from some other source.

## ***Emergency Procedures***

Every industrial organisation should establish an internal mechanism that will be able to act swiftly in time of an emergency and protect property and lives. For this purpose, emergency co-ordinators should be appointed at top management level to devise and prepare for any emergency situation or other eventuality.

Industrial civil protection consists of the planning and preparation carried out by management in any organisation to achieve a state of preparedness.

The plan of action should firstly take into account the self-sufficiency of the enterprise, and the extent to which outside sources of help, e.g., fire and police departments and hospitals, may be required. In wide-spread emergency situations, regular supplies and equipment may not be immediately available or may be in short-supply, the community services may not be able to cope. Emphasis in any emergency should therefore first be placed on self-help, and thereafter, the assistance of the relevant authorities should be sought.

### **Definition - disaster**

A disaster is any unforeseen, uncontrolled incident with potential to cause loss or damage of a severe nature and considerable extent.

### **Types of disasters**

There are various types of natural disasters over which man has no control, and which require quick action and civil emergency procedures. These are floods, tornadoes and earthquakes.

However, there are also man-made or man initiated disasters for which man is usually directly responsible. These are plant fires, chemical accidents, civil disturbances and riots and sabotage.

### **Coping with an emergency**

All available manpower and resources to cope with an emergency and thus to keep essential services running smoothly is needed during an emergency situation.

In the case of a civil emergency, the following points should be remembered:

- ✓ One should be spiritually and emotionally prepared to handle disasters, i.e. to keep up the morale of workers or inhabitants;
- ✓ At home one should always keep an emergency cupboard where items such as a fire-aid kit, fire-extinguisher, gas, paraffin and an extra stove, tools such as pliers, a small spade and bucket, disinfectant, candles, a tin-opener, fuse wire, water sterilisation tablets, glucose, etc., are kept;
- ✓ One should also have a pre-packed haversack or small Suitcase containing personal requisites;
- ✓ There should also be emergency food rations to provide for each member of the family for at least seven days;

- ✓ Other compact meals could be kept in the event of a crisis, but most essential, water is necessary. Water should be kept in a cool place. If uncertain about the purity of water, it should be boiled.

## **Handling selected emergency situations**

Some of the emergency situations which could be encountered within the work situation or even at home are discussed below. Guidelines to handle these situations are also suggested.

### ***Fires***

If there are burglar bars on the windows of a building, ensure that there is an alternative easy way of escape from a building.

- ✓ Children should be wrapped in blankets to protect them against flames.
- ✓ Sound the alarm immediately.
- ✓ Proceed to an area such as a common or a declared emergency shelter.
- ✓ Evacuate all people and pets from the building;
- ✓ Close up interleading doors as you go out;
- ✓ Disconnect the electric power before you try to extinguish the fire;
- ✓ Aim the extinguisher or water jet at the centre of the fire;
- ✓ If the floor is burning, direct the jet from the bottom upwards;
- ✓ Do not enter a burning room or building;
- ✓ If someone is running with burning clothes on, catch them and roll them in a blanket;
- ✓ Do not pour water on burning liquids;
- ✓ Use wet blankets to smother fires;
- ✓ When someone is trapped in a burning car, do not break the windows unless you are sure the door can be opened. The influx of air will fan the flames;
- ✓ When trapped in a burning building, handkerchief;
- ✓ Be careful of poisonous gases; cover your mouth with a wet cloth
- ✓ Move along the sides of walls so that you do not lose your way;
- ✓ Wet the roofs of other buildings in the vicinity to prevent fires from spreading;
- ✓ Notify the fire officials as soon as possible, e.g., the local fire brigade;
- ✓ Always check fire extinguishers regularly to ensure that they are in good working order.

### ***Power Failures***

During power failures, you will not have cooking and lighting facilities. Always have alternative means available such as coal, wood, gas or paraffin. It is always advisable to have candles in the workplace or home and battery torches ready for use.

### ***Refuse Removal***

If refuse is not collected, burn or bury refuse. Keep a supply of disinfectant in the house to sprinkle over the refuse before it is buried.

## ***Hurricanes***

Stay indoors during a hurricane. Take cover under a table or bed. If the roof should be ripped off, these places are the safest.

## ***Earthquakes***

Disconnect all power and gas at once and evacuate the house or building as quickly as possible. If you are trapped in a house or building, take shelter under a bed or table and protect yourself against falling objects such as bricks or glass.

## ***Floods***

If you live in a low-lying area, first assist children and elderly persons to higher ground or onto a roof as quickly as possible. Take warm clothing and food to this spot, as well as a torch with which to signal. If time permits, you could also carry some of your possessions to a safe place. Try to divert the water flow with sandbags or other objects at strategic points. Wait for help.

## ***Civil Defence for Commerce And Industry***

It is essential to assess the property and/or firm in terms of its vulnerability for any disasters or threats it may encounter. One should always find out what would be the risk to people, property and productivity, and what procedures can be adopted to deal with specified dangers, depending on the time they occur.

There must always be proper planning; it may be necessary to get the advice of experts such as the fire brigade. In the planning of civil emergency procedures in the factory or in any other business, it is desirable to involve shop stewards and any other representatives of labour.

This is necessary because whatever measures are taken, they are for the protection of the lives and jobs of the employees as well as for the protection of the property of that specific company.

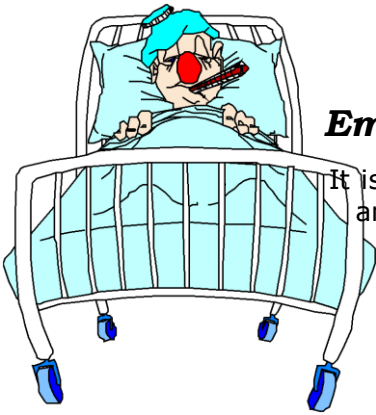
You should also make provision for alternative contingency plans, and there should be adequate emergency (food and medical) supplies if a disaster should strike the community.

## **Emergency manual**

Once you have assessed the potential dangers and possible courses of action, you have to formulate specific procedures for dealing with each type of emergency. All but the smallest of firms should encode their policy and procedure in times of emergency in a manual to be issued to all employees.

### ***Contents of an Emergency Manual***

- ✓ A description of possible disasters with policy and risk statements;
- ✓ A description of the types of plant warning system in operation;
- ✓ A detailed map of the plant, office or store;
- ✓ A list of emergency services and telephone numbers;
- ✓ The order and route of evacuation depending on the type of disaster; and
- ✓ The listing of key personnel and their deputies.
- ✓ The procedure to report an injury



## ***Emergency Control Centre***

It is also essential to establish an emergency control centre in large firms plus an equipment control centre, where the following will be found:

- ✓ A large facility map showing all building locations and layouts;
- ✓ A fire map overlay showing all fire appliances, stand-pipes and hose or sprinkler-systems;
- ✓ Emergency personnel and equipment records;
- ✓ The names of emergency task forces;
- ✓ Emergency plant equipment;
- ✓ The names of key personnel;
- ✓ The names of emergency back-up forces;
- ✓ The names of mutual aid groups;
- ✓ Local civil defence organisation contact telephone numbers and names;
- ✓ Proper training and involvement facilities;
- ✓ An organisational diagram showing the correct chain of command.

## **Disaster - natural or man-made**

A disaster is any unforeseen, uncontrolled incident with potential cause of loss or damage of a severe nature and of considerable extent. There are both natural disasters such as floods, tornadoes and earthquakes and manmade disasters such as fires, chemical accidents, civil disturbances and riots, and sabotage.

### ***Methods to Minimise Effects of a Disaster***

In order to minimise the loss of lives and property, and to reduce the loss in production during any type of disaster, an organisation should:

- ✓ Establish warning and alert signals and systems;
- ✓ Establish emergency evacuation routes; in fact, point out all possible exits before they ever need to be used;
- ✓ Appoint evacuation wardens;
- ✓ Establish emergency rescue teams;
- ✓ Establish stand-by communication systems and operators;
- ✓ Have available emergency transport;
- ✓ Have available emergency sanitation to prevent disease-spreading;
- ✓ Advise all employees to keep their work areas clean, neat and unobstructed so that they will be easy to inspect and easy to evacuate in an emergency;
- ✓ Know where the fire-extinguishers are kept and which types are appropriate to the types of fires which may arise in the workplace; train staff to locate and correctly use all the fire-



fighting equipment;

- ✓ Establish a first-aid station with properly trained first-aid officers; make sure everyone knows who to call for first-aid treatment; and
- ✓ Record and post police, fire, ambulance and hospital telephone numbers next to the telephone for immediate reference. An emergency is no time to be hunting for telephone numbers.

## Bomb threats

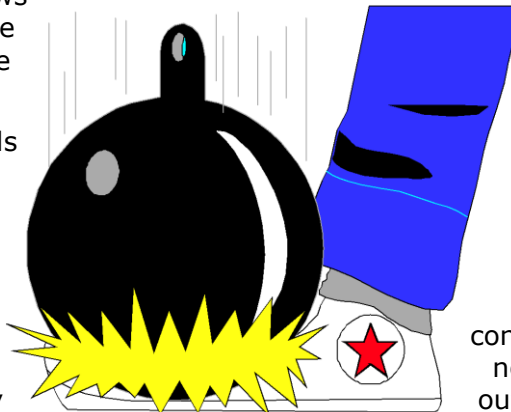
If a bomb threat is telephoned in, it is essential to get as much information as possible from the call/caller. Try to find out where the bomb is located and the reasons for the threat. Note any background noise and try to form an impression of where the call is being made from.

If a suspicious parcel is found, alert the switchboard immediately. Identify yourself and give the operator the location of the parcel and its appearance. Stay on the telephone until you have answered all the questions. The telephonist should initiate the action to set off the alarm(s) and to telephone the necessary authorities.

It is essential to keep staff calm. Panic is contagious and might spread to others, thus causing more harm than good.

When the alarm is sounded, there are three things to remember:

- ✓ Open as many windows as possible to minimise the damage caused by the sudden rise in air pressure should an explosion occur;
- ✓ Gather those parcels you to help make the task of searching for foreign parcels easier;
- ✓ Leave the building by the stairs and by the shortest route possible rather than by the lifts.



One must be on the task of searching for and parcels, but one must and bags that belong to objects. Once one is safely task of searching for on duty or the security department about the parcel. and

constant alert for suspicious bags not touch or move any suspicious out of the building, tell the officer

The police and the security personnel can usually examine suspicious parcels without having to handle them. Trained sniffer dogs and special equipment can be used to detect whether a package contains explosives. Walk quickly and calmly to the nearest exit. Always walk clear of the buildings and assemble staff away from the building. Ensure that all the staff have been evacuated from the building and do not allow anyone to leave before they have been told to do so. Should anyone be missing, contact the security department. Under no circumstances should anyone go back into the building without the permission of the security officer(s).

In the event of a bomb threat, investigating authorities need to have architectural plans of the building involved. Therefore, it is recommended that a copy of these plans be kept with the security officer at the entrance of the building.

## **Unemployment insurance**

The UNEMPLOYMENT INSURANCE ACT, 1966 (Act 30 of 1966) makes provision for the establishment of a central fund to be utilised for the payment of unemployment, maternity, death and sick benefits. The fund makes provision for the insurance of employees contributing to the fund, against the risk of loss of income through termination of their services, illness or pregnancy. In addition, there is also provision made for the payment of benefits to dependents of deceased contributors.

## **Accident insurance**

The WORKMEN'S COMPENSATION ACT, 1941 (Act 30 of 1941) provides compensation for employees' loss of earnings because of disablement or death caused by an accident at work or the effects of a contagious/industrial disease contracted at work.

The Fund is controlled by the Workmen's Compensation Commissioner. When an accident occurs, the employer has to notify the Commissioner immediately. It is a type of State-run compulsory insurance cover, although it must be noted that employers can set up their own schemes. Membership is not compulsory for all employers, and they need not pay assessments to the Accident Fund in terms of the Act. Some classes of workers are excluded from cover. It must also be noted that the Act provides for loss of earnings: it does not compensate for pain and suffering.

There are three types of disabilities covered by the Act, namely: temporary partial disability; temporary total disability; and permanent disability.

### **Formative Assessment 3**

What are the main causes of fire?

Name the three elements that must be present in order to cause a fire.

Name and explain the four classes of fire.

Explain the methods of extinguishing the fire for the four classes of fire.

What procedure must be followed in the evacuation of property?



Where should fire extinguishers be located?

List and describe potential fire hazards.

Describe the contents that should be in the emergency manual.

What should an organisation do in order to minimise the loss of lives and property, and to reduce the loss in production during any type of disaster?

## **SECTION 4: SAFETY PROCEDURES**

Follow procedures that apply to illness or injury in the work area

### ***Assessment criteria***

- ✓ Procedures for reporting and recording are demonstrated
- ✓ Procedures to be followed if an injury may lead to a claim against workman's compensation are followed
- ✓ A brief incident report is written and delivered to the relevant authority
- ✓ A health and safety plan is drawn up.

The management of safety programmes is an essential element of any management loss control function. If there is a lack of management control, there could be numerous losses and downgrading incidents, and various other related difficulties. Managers and supervisors have an essential pro active role in loss control, rather than an after-the-loss role, i.e., they have a preventive role. It is necessary for the individual supervisor, in conjunction with the sanction of top management, to practise professional managerial techniques to ensure the optimum control of accidents.

### ***Role of Management***

An accident prevention programme should start with top management because:

- ✓ Management has the authority to determine policies and execute them;
- ✓ Management must want to reduce injuries badly enough to make accident prevention a vital part of operations; and
- ✓ Accident prevention must receive continuous attention along with senior management matters such as costs, quality and production.

Furthermore, upper management should support and see to the implementation of the following practices to ensure proper loss control:

### **Clearly defined Organisational Policy**

An organisation-wide policy that can be utilised continually as a focal point of reference should logically be a prerequisite of any organised effort in loss control programming.

### **Clearly delineated Standards for Management Work**

There should be a clearly documented and delineated explanation of work and its required standards for each level of management. This documentation could vary from complete manuals, outlining all aspects of management responsibility, to smaller booklets with carefully chosen explanations.

Regardless of the degree of sophistication or detail of explanation, the need to clearly identify management work required in the programme, and the standards of performance required, is basic to the operation of any management system. This essential need is usually a major deficiency in the programmes of the average organisation.

### **Evaluate individual performance**

Traditionally, the loss control performance of individuals has invariably not been evaluated. Nowadays, an increasing number of leaders are evaluating performance and therefore loss control is also being evaluated and controlled.

### **Management Support of Safety Programmes**

Management should take the following action to implement a safety and loss control programme:

- ✓ Make it clear to all supervisors and workers that top management is behind (supports) the safety programme.
- ✓ Provide a safe and healthy working environment.
- ✓ Provide adequate training to develop safe working habits in all workers.
- ✓ The safety and loss control activities should become mandatory managerial function.

### **Identifying safety hazards**

The following methods can be used to go about finding hazards in the workplace:

- ✓ Plant inspection
- ✓ Job safety analysis
- ✓ Accident investigation.

### **Methods of enforcing safe behaviour**

The following methods can be used to develop safe and correct behaviour among workers:

- ✓ Advertise safety and educate staff in its techniques.
- ✓ Condition the minds of workers in favour of safety.
- ✓ Modify the workman's methods and practices with specific training.
- ✓ Enhance the workman's knowledge through reading matter on safety and posters designed to increase the worker's knowledge of the subject where it applies to his job.

## **Aims of a safety training programme**

The major aims and requirements of a safety training and loss control programme are to:

- ✓ Encourage a safe way of doing each job or sequence of jobs;
- ✓ Bring various hazards to the light;
- ✓ Ensure that training is systematic and thorough;
- ✓ Explain the reason for wearing protective equipment and clothing; and

## **Health and Safety Committees**

*In terms of Section 19 of the Act:*

- Employers must establish one or more health and safety committees where two or more health and safety representatives have been designated, and, at every meeting of such a committee, consult with the committee on measures to ensure the health and safety of his employees at work.
- Nominees on a health and safety committee shall be designated in writing by the employer for a specific period. Health and safety representatives must be members of the committee for the period of their designation.
- Health and safety committee meetings must be held at least once every three months, at a time and place determined by the committee. Under certain circumstances a DoL inspector may in writing direct a safety committee to hold a meeting.
- A health and safety committee may appoint advisory members with particular knowledge of health or safety matters. These advisory members will have no voting rights.
- Inspectors of the DoL may direct employers in writing to increase the number of safety committees if they feel that, under certain circumstances, the prescribed number is not adequate.

## ***Functions of health and safety committees***

*In terms of Section 20 of the Act:*

- A health and safety committee may make recommendations to the employer or an inspector regarding any matter affecting the health or safety of persons at the workplace, discuss and report to an inspector on any incident causing injury or death at the workplace.
- A health and safety committee must keep record of recommendations made to an employer and of any report made to an inspector in terms of the above.

Employers must take the prescribed steps to ensure that a health and safety committee complies with the provisions of the Act.

In the management of a safety programme, it may be required to make use of the services of a safety officer, and it may also be necessary to establish a safety committee to co-ordinate all safety programmes. The main functions of safety committees could be to:

- ✓ Eliminate physical hazards;
- ✓ Plan and promote safe operating practices;
- ✓ Plan and promote safety training;
- ✓ Apply disciplinary procedures;
- ✓ Dispose of specific problems;
- ✓ Pass on specific recommendations;
- ✓ Investigate accidents;
- ✓ Study accidents and record accidents; and
- ✓ Organise safety competitions (contests)

Safety management, programmes should not only protect employees against hardship caused by illness and injuries contracted in the work-place, but there should also be measures to prevent illness and injuries, i.e., the institution or organisation should strive at preventing illnesses and injuries because these interrupt the work flow and have serious financial implications for any company.

## ***Basic Safety Rules***

Keeping employees fit for duty is clearly a legitimate function and goal of management. Employers should also be aware of the fact that absenteeism due to sickness and possible subsequent employee turnover entails cost of operation in excess of any cost of maintaining the health of the workforce. This lesson will discuss some of the health aspects of the worker and suggest various measures which could keep the work force fit, healthy and productive.

### **On-the-job health measures**

There are various on-the-job health measures which could be adopted by the organisation, such as.

- ✓ Physical examinations, particularly for prospective entrants to the organisation;
- ✓ Emergency treatment of employees as quickly as possible - this could be a function of an emergency health room.
- ✓ The emergency health room should also be prepared to handle minor illnesses such as colds and stomach disorders, besides the major or serious illnesses/ accidents.
- ✓ Much absenteeism can also be prevented by proper sanitation, early diagnosis and treatment, and health education, which are all responsibilities of an employee health service. If sick-leave use is to be contained, visiting nurses and physicians may be necessary. However, health service staffing is seldom adequate to permit visits to the homes of absent employees.



Usually, the most effective work of a medical division is accomplished through health education. This includes the dissemination of information on ordinary matters such as personal hygiene, adequate sleep, cleanliness, diet, and also instruction in home remedies for colds and other common ailments.

## **Alcohol and drugs**

Dealing with alcoholism and drug abuse has become prominent in recent years as part of employer responsibility in coping with the effects of the excesses at the work-place. They tend to command special attention in operations where large numbers of persons are employed in routine tasks, i.e. boring and monotonous work.

## ***Loss Control Programme***

Protection of employees against hardship caused by illnesses and injuries incurred on duty is usually provided for in legislation, e.g. the WORKMEN'S COMPENSATION ACT, 1941 (Act 30 of 1941).

Illnesses and injuries cause interruption/disruption of services and work, and should be prevented wherever and whenever possible, so health risks and safety risks should be eliminated as far as possible. This programme of accident prevention also forms part of loss control as discussed in a previous section.

To create and maintain a productive labour force, the health and safety of the worker is very important. Towards this end, the workers should be examined regularly, for example, once a year, to check for lung diseases and other illnesses.

The examinations can also take the form of preventative medical care, ie, the employer should arrange for discussions with the employees to inform them as to how to keep themselves healthy and fit for work. Some large organisations could consider employing their own medical practitioners to keep losses as a result of illness low.

Another approach could be to provide medical (curative) services for employees to ensure that they will not be without medical services because of financial reasons.

Where numerous unskilled, hourly paid or weekly paid employees are concerned, it may be necessary to provide for health counselling for these employees. Such employees should be informed about personal hygiene, cleanliness, nutrition, rest and diseases more prevalent in particular environments.

## **Programme for injury prevention**

Preventing injuries on duty is a function of every employer. Injuries on duty cause losses to an organisation. There should always be a specific programme for the prevention of injuries on duty.

The goals of the programme should be stated clearly; the top executives should identify with the programme and also support it; organisational arrangements should be made for the implementation of the programme; and all employees of all ranks should be trained to prevent injuries.

If top executives are ignorant about measures to prevent injuries on duty, the programmes will fail and no money will be provided for the implementation of the programmes.

All subordinates should be trained on how to handle injuries on duty. They must also be alert and be on their guard against injuries. Workplaces should be so designed that they will prevent or minimise accidents.

Measures to prevent injuries must be enforced and those who deviate from the prescribed procedures must be punished, e.g., the omission to wear protective clothing. Safe working environments must be created, and unsafe machinery should be eliminated or guarded wherever possible. For further details, see a previous lesson on the guarding of machinery.

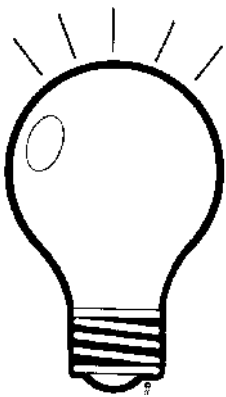
## **First-aid**

Provision should also be made for first-aid. Employers and the employees must receive training in basic first-aid procedures. Facilities and equipment for first-aid must be available at appropriately and conveniently located spots. Some organisations may even have nurses or doctors working on a full-time basis at their organisation or factory.

## **Healthy competition**

It is also desirable that organisations compete with each other on the performance of their accident-free factories. These factories can get a star-rating from NOSA. If accidents do occur, there should be facilities available to rehabilitate the injured and even the disabled workers.

It is more than justified to spend money on the preparation and implementation of programmes to prevent injuries and illnesses. No organisation can afford to neglect measures to prevent illnesses and injuries.



## **Good physical working conditions**

Besides properly constituted safety programmes in the workplace and compensation for injuries on duty, it is also essential that the physical working conditions are conducive to productivity and a stable and contented workforce. Some of these working conditions are:

### ***Ventilation***

The workplace must not be too cold, too hot or too humid. There must be a continual circulation of air.

### ***Lighting***

Adequate lighting is essential to prevent eyestrain and to prevent permanent impairment to the eyesight.

## **Noise**

The noise levels in offices and factories should be reduced or eliminated wherever possible. This can be achieved through the use of particular types of building materials or through proper office planning and layout. Typing operations should, for example, be kept separate from interview rooms. Noise could also add to fatigue.

## **Space and Equipment**

In communal offices, it is preferable to separate technical workers from clerical workers. It is also necessary to note that those who spend a large portion of their day on the telephone, e.g., marketing staff or despatch departments/order departments, should be kept separate from office workers who have to do creative work. There must also not be overcrowding of office space.



## **Sanitation**

General cleanliness is an elementary requirement for satisfactory work space. Cleaning floors and windows and dusting furniture are tasks best done outside the daily working hours by a special work-force/group of office-cleaners. There must also be adequate and accessible drinking water, clean and uncrowded

toilet facilities, and where appropriate, suitable wash and locker rooms. The general impression created by surroundings that is felt by workers who spend the best part of their waking hours on the job can be a potent attitudinal factor which can influence productivity in the long-term. The worker who spends eight hours or more in a clean, cheerful and comfortable working environment is likely to have a different outlook from one who is forced to exert himself in a drab, dirty, or uncomfortable environment. Quite apart from any attendant losses in efficiency, anything less than desirable for the physical environment is indefensible on broader grounds.

## **Health risks**

Some of the health risks which are found in the workplace and the substances which cause them are listed below:

- ✓ Arsenic - lung cancer and lymphoma;
- ✓ Asbestos ~ white lung diseases, asbestosis, lung cancer, and cancer of other organs;
- ✓ Benzene - leukemia and aplastic anaemia;
- ✓ Bischloromethylether - lung cancer;
- ✓ Coal-oven waste - lung cancer and kidney cancer;
- ✓ Cotton dust - brown lung diseases, chronic bronchitis and emphysema;
- ✓ Lead - kidney diseases, anaemia and damage to the central nervous system, sterility, birth defects;
- ✓ Radiation - cancer of the thyroid gland, lungs and legs, and leukaemia;
- ✓ Carbon waste - black lung disease; and
- ✓ Benzal chloride - brain cancer and cancer of the liver.

it is the function of the human resources manager to be alert to these health risks and to try and prevent them before they take root and become chronic or serious illnesses. It is necessary to ensure that the work-place is such that occupational health is promoted and that health programmes are -introduced to reduce health and safety risks to the absolute minimum.

## ***Incidents***

### **Reporting of incidents**

In terms of Section 24(1) of the OHS Act any employer must report incidents resulting in death or serious injury to an inspector within the prescribed period.

Regulation 8(1) of the General Administrative Regulations states that an employer must, within seven days after an incident referred to in section 24(1)(a) of the Act, give notice thereof to the provincial director in the form of WCL1 or WCL 2. (Prescribed forms)

## **Recording of incidents**

Regulation 9(1) of the General Administrative Regulations states that an employer must:

- ✓ keep a record in the form of Annexure 1 (below) for a period of at least three years,
- ✓ allow access to the record for inspection by an inspector, of all incidents reportable in terms of section 24 of the Act and also of any other incident which resulted in the person concerned having had to receive medical treatment other than first aid,
- ✓ investigate incidents or cause them to be investigated by a person appointed by him or her, by a health and safety representative or a member of a health and safety committee within 7 days from the date of the incident and finalised as soon as is reasonably practicable, or within the contracted period in the case of contracted workers,
- ✓ cause the findings of the investigation to be entered in Annexure 1 immediately after completion of such investigation,
- ✓ cause every record to be examined by the health and safety committee for that workplace or section of the workplace at its next meeting and shall ensure that necessary actions, as may be reasonable practicable, are implemented and followed up to prevent the recurrence of such incident.

## **Company Policy**

Company policy will accommodate the implementation of legal requisites regarding reporting and recording of incidents in the workplace. In addition to this, management may deem it necessary to implement additional procedures for the company's purposes.

Information available in incident reports may assist management to:

- ✓ formulate future policy to incorporate and implement agreed upon proposals to improve the management of safety, health and environmental protection matters,
- ✓ identify trends developing e.g. recurrence of incidents in a working section,
- ✓ motivate proposals made to management by presenting facts,
- ✓ assist researchers by granting them access to information from incident reports,
- ✓ communicate effectively with elected safety representatives, safety committees and union representatives.

## **Annexure 1**

### **ANNEXURE 1**

#### **OCCUPATIONAL HEALTH AND SAFETY ACT, 1993**

#### **(ACT NO 85 OF 1993)**

#### **REGULATION 9 OF THE GENERAL ADMINISTRATIVE REGULATIONS**

#### **RECORDING AND INVESTIGATION OF INCIDENTS**

#### **A. RECORDING OF INCIDENT**



1. Name of employer.....
2. Name of affected person.....
3. Identity number of affected person.....
4. Date of incident .....5. Time of incident.....

- |                                   |                    |                     |             |                 |                                    |                      |
|-----------------------------------|--------------------|---------------------|-------------|-----------------|------------------------------------|----------------------|
| 6. Part of body affected          | Head or Neck       | Eye                 |             | Trunk           | Finger                             | Hand                 |
|                                   | Arm                | Foot                |             | Leg             | Internal                           | Multiple             |
| 7. Effect on person               | Sprains or strains | Contusion or wounds |             | Fractures       | Burns                              | Amputation           |
|                                   | Electric shock     | Asphyxiation        |             | Unconsciousness | Poisoning                          | Occupational Disease |
| 8. Expected period of disablement | 0-13 days          | 2-4 weeks           | >4-16 weeks | >16-52 weeks    | >52 weeks or permanent disablement | Killed               |

9. Description of occupational disease.....
10. Machine/process involved/type of work performed/exposure\*\* .....
11. Was the incident reported to the Compensation Commissioner and Provincial Director?

- |   |     |    |
|---|-----|----|
|   | Yes | No |
| 12. Was the incident reported to the police?* |     |    |

Yes No

13. SAPS office and reference .....

## **Formative Assessment 4**

During your pre-training assignment, you were requested to obtain a copy of a health and safety plan as well as health and safety procedures. Do the following in groups:

1. Describe the procedure for reporting accidents
2. Describe the procedure for reporting injuries
3. What is the procedure when a claim against workman's compensation must be lodged?
4. Does the health and safety plan contain the emergency evacuation procedures?
5. Does the plan contain guidelines about practicing fire drills and evacuation procedures?
6. What does the plan say about the location of fire extinguishers?
7. Which hazards does the plan identify?
8. What are unsafe acts according to the plan?
9. How should an incident report be written?
10. Who should accidents and injuries be reported to?
11. What are the procedures for the identification of emergencies
12. What does the plan say about the safety committee:
  - ✓ Who must be members of the committee?
  - ✓ What are their duties?
  - ✓ How often must they meet?