

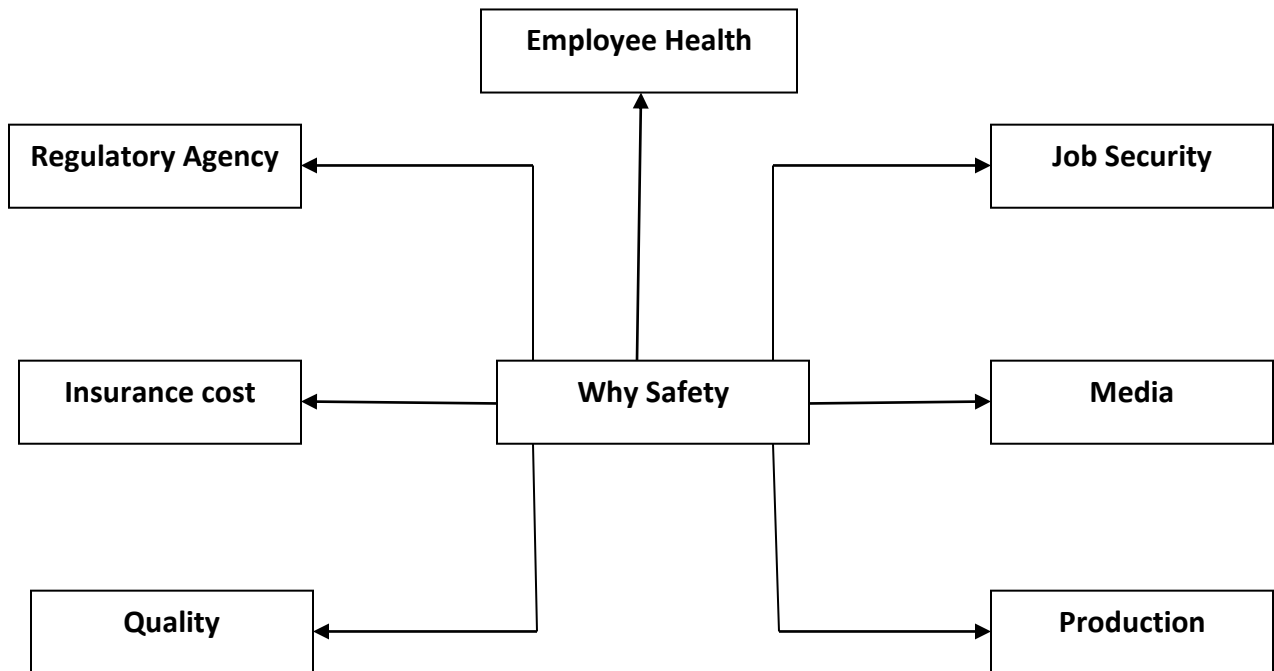
INDUSTRIAL SAFETY

“Safety First Production Must”

Need for Safety/“Why Safety?”

Safety in Industry helps-

- (i) Increasing the rate of production.
- (ii) Reducing production cost.
- (iii) Reducing damage of equipment and machinery.
- (iv) Preventing premature death of worker.
- (v) To adverse opinion in the publicity “media” which ultimately affect market share



Why Safety

Safety Management:

Management of safety depends on the root cause analysis “Accident do not happen, they are caused”.

Causes of Accidents:

To minimize the accidents it is necessary to know about the cause of accidents. General causes of accidents are given below:

- 1. Accidents due to dangerous machines-** These accidents occur from boilers, pressure vessels, prime movers, transmission system etc.
- 2. Unsafe physical condition-** It includes improper guards, improper illumination, improper ventilation, unsafe clothing.
- 3. Moving objects-** Sometimes moving objects or falling object causes accidents.
- 4. Personal factors-** Sometimes accidents occurs due to some personal factors like lack of knowledge, physical weakness.
- 5. Electrical causes-** Some of important causes are:
 - (a) Do not providing protecting devices.
 - (b) Not obeying proper instructions and not following safety precautions.
 - (c) Failure to use insulated pliers, screw drivers and rubber gloves etc.
- 6. Exposure to harmful substances-** Injuries due to accidents are also caused due to exposure to harmful substances, like toxic gases, fumes, dust, vapour mist etc.

Types of Accidents:

- 1. Near accident/Non-reportable accident:-** If a person has to be absent from less than 48 hrs., the notice need not to be sent to the Inspector of Factories.
- 2. Minor accident:-** Any accident causing injury to a person making him absent for two days or more upto 20 days is termed as minor accident.

3. Serious accidents:- Any accident causing injury of a person making him absent for more than 20 days is known as a serious accidents.

4. Fatal accidents:- Any accident causing death to a person is called fatal accident.

Losses due to accident:

Direct Losses:-

These are the losses to the employer, which he pays to the worker for compensation. Employer also pays for medical expenses incurred on the worker. These type of losses can be measured in terms of money.

Indirect Losses:-

These indirect losses arise from the following sources:

- (i) Loss of time of the injured person.
- (ii) Loss of time of his fellow workers, who stop work at the time of accident to help him or to show sympathy or for curiosity.
- (iii) Loss due to damage caused to machines.
- (iv) Loss due to reduction in the efficiency of the worker when he returns after recovery.
- (v) Loss of time of Supervisors:
 - (a) in assisting injured worker.
 - (b) in investigation and preparing a report of accident.
 - (c) in making alternative arrangement.
 - (d) in selecting and training the new worker to fill the vacancy if accident causes death of the worker.
- (vi) Loss due to the reduction in the efficiency of the other workers due to fall in their morale.

(vii) **Losses to the injure worker-** Injured worker suffers the following losses:

- (a) Loss of his income.
- (b) Loss due to medical expenditure.
- (c) Pain felt by worker, which cannot be compensated.

Safety Training:

1. Induction and orientation of new recruits to safety rules and practices.
2. Formulating safety committees and meeting.
3. Displaying charts, posters, films etc.

So, Our Aim to Develop.

S = Safe

A = Attitude

F = For

E = Employees

T = Throughout

Y = Years

Responsibilities of Supervisors regarding General Shop Safety:

1. Of a shop or any area where fixed or portable powered or unpowered machines and tools are located, is responsible for being familiar with all procedure for safe use and guarding of machines, personal protective equipment required, shielding against possible injury to other employees or visitors. Enforces safe practices.
2. Trains new employees by providing and requiring manuals to be studied, personally instructing and requesting the assistance of veteran employees already familiar with required safety precautions.

3. Posts signs indicating the use of powered machines by **“Authorized Personnel Only”** and requires the employees under his/her supervision to assist in the enforcement of this policy. No one is allowed to use fixed or portable powered shop machines or welding equipment without sufficient training to the supervisors satisfaction.
4. Designates a person to be responsible for general management of a specific shop area and notifies all concerned.
5. Designates a qualified person to be responsible for each major fixed, powered machine or tools, posts the name on or near the apparatus.
- 6 . Conduct safety meetings with employees as often as needed as warranted. Topics to be discussed each session will be selected to fit current operations any unsafe trends. Leads the discussion and encourages each employee to participate. May assign one employee on a rotating basis to make a short presentation of the topic to get discussion started.
7. Provides appropriate marking of shop floor areas to identified restricted work areas or **“Approved Operator Only”** yellow floor lines.
8. Makes periodic inspections of shop areas and other industrial areas. Notes all deficiencies and initiates corrective actions.
9. Ensures that all painting operations or other operations are conducted in well ventilated areas. Asks assistance from other branches in making this determination and to provide necessary protective equipment and respirators, when appropriate.

Responsibilities of Employees regarding General Shop Safety:

1. Complies with safety standards and good safe practices when using fixed and portable power tools, equipment and hand held equipment.
2. Cleans up when finished using equipment.
3. Maintains the tools, equipment and work area in an orderly and safe manner.

4. Properly trains new users of equipment for which he/she is responsible.
5. Shares responsibilities with supervisor for identifying and marking shop floor areas.
6. Will not use or permit use of defective equipment or tools in disrepair. Malfunctioning Equipment and damaged hand tools will be reported and repair made before using the Equipment or tools. If repairs not possible the equipment or tools will be discarded.

Q. What precautions should be taken to ensure proper safety and health in Work area?

Ans. **Shop Procedure:-**

- (a) All portable and fixed powered shop machines and tools should be equipped with approved guarding devices.
- (b) Proper personal protective equipment should be provided (safety glasses, goggles, shields) and used during grinding or other work that may produce flying particles (e.g. drill press, power saws etc).
- (c) Approved face, eye, and body protection should be used during any burning or welding operation.
- (d) No flammable materials (paints, solvents, chemicals, etc) will be stored within the immediate area of any burning or welding operation.
- (e) Any employee using portable fixed tools (drill press, jig, or hand saw etc) must not wear loose clothing.
- (f) Clean-up after using powered equipment or hand tools must be done immediately following use of apparatus.
- (g) Good housekeeping should be maintained in the shop area. Material should be stored in such a manner that there is no danger from sliding, falling or presenting a hazard by striking against or cutting. Scrap stock must be cleaned from floor and work benches following each job or at the end of each day.

Lighting:-

Lighting is extremely important. Provide enough windows, skylights or overhead lights to ensure good general lighting. Place additional lights over benches, stationary power tools and main work areas.

Ventilation:-

Include enough doors and windows to vent smoke, fumes and vapours. Ideally, the total window area should equal about 25% of the floor area. Exhaust fans can be used to clear smoke and vapors from welding, cleaning and painting areas.

A shop planned to be as hazard-free as possible should be equipped to handle emergency situations such as fire and personal injury. To prevent personal injuries, keep all tools and service equipment in good condition. Have a first aid kit handy.

Fire Extinguishers:-

Fire extinguishers should be checked annually. Replenish if the seal has been broken or if partially used. The dry chemical in a partially used extinguisher will cause the gas to leaky away.



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