

Workshop Technology

Workshop Safety

Accident

An accident is an unexpected, unplanned and undesirable event, which causes - or nearly causes- human injury or damage to property (damage to machine or tools and equipment and hence a loss to company as a whole).

The injury may be minor, may cause disability or even death.

Examples: falling from a ladder, objects falling from overhead, etc.

- Accidents mean suffering and loss for everyone
- Accidents seldom just happen - they are usually caused!

Causes of accidents?

Effect of accidents?



COST OF ACCIDENT

Direct cost:

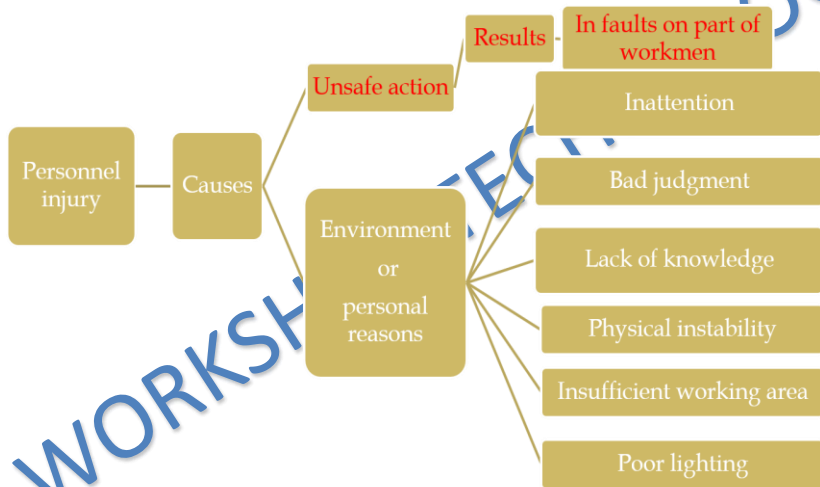
- ✓ Wages of the employee during the period of his absence from duty.
- ✓ The amount of compensation paid on account of death, permanent injury or temporary injury caused due to accident.
- ✓ Cost of medical care and hospitalization of injured employee.

COST OF ACCIDENT

Indirect cost:

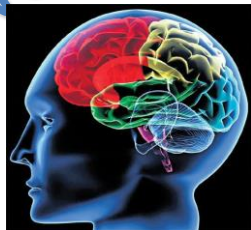
- ✓ Expenditure of recurring and training a person as a replacement of other injured worker.
- ✓ Cost of machine, equipment and other infrastructure facilities that might have been damaged in the accident.
- ✓ The cost of time lost by the other employees while assisting injured employee, investigating the cause of accident.
- ✓ Cost of delay in production due to accident.
- ✓ Loss of the production time and quality because of inexperience and lack of skill of new employee.

Introduction



Mental and Physical Acuity

- Are you able to concentrate and work safely?
- Never work while tired or taking medication.
- Try not to rush the job.
- Be aware of your attention or lack of it to do the job.
- Avoid distraction



General Environment Safety Checklist

- A fully equipped first-aid box.
- Work surface at comfortable height, plenty of room to set out tools and work-piece.
- No open flame and tobacco smoking.
- Evaluate lighting condition.
- Enough clearance around workbench.
- Arrangement of tools and equipment safely, securely
- Inspect regularly for loose knot and coupling.
- Keep work area neat and clean.



Clothing and Personal Safety

- Use leather apron, leather shoe with steel cap, leather gloves, safety glasses
- Never wear loose clothes, tie, wrist watch, bracelet, ring, etc.
- Long hair must be protected by a hair net or an approved protective shop cap.
- Wear ear plug or muffs for noisy works.
- Use dust mask against microscopic particles.
- Use disposable gloves while working with solvent base liquid.
- Do not run in workshop.
- Tools guard and rests should be properly adjustable and used.



General Hand Tools Safety

- Think enough throughout each operations before you execute it.
- Never cut or exert pressure toward any part of body.
- Use good and proper tool for proper work.
- Never let children play with tools.
- Keep tools in good working order.
- Always follow safe lifting practices.



Dust and Fumes Safety

- Use proper ventilation in workshop.
- Welding and hot working zones should be separately ventilated.
- Use mask and safety goggles.



Fire hazard

As with all workplace hazards, fire should be dealt with immediately and quickly. Various types of portable fire extinguishers, fire blankets, hoses and water can be used to extinguish fires.

- Electrical and spark generating appliances should be monitored regularly for leak and damage.
- Always dispose oily rags in proper metal container.
- Be sure of proper procedure before lighting a gas furnace.
- Know the location and the operation of every fire extinguisher in the shop.
- Know the location of the nearest fire exit from the building.

- When using a welding or cutting torch, be sure to direct the sparks away from any combustible material.



General Safety with Power Tools

- Inspect all floor machinery and portable hand tools and keep in safe working order.
- Care should be given with respect to safety, location, surroundings, area, accessory use/storage, safety devices, electrical setup and waste disposal.
- Read and study owner's manual.
- Never try to operate machines unless enough knowledge.
- Never remove guard from machine tools.
- Ask with workshop in-charge if any doubts.



Oil and wax safety

- Store turpentine, spirit and oil based stain in well ventilated area.
- Never spoil oil and oily material in workshop.
- Avoid vapors to contact skin and eyes.



Workshop Safety Rules

- Don't run in the workshop
- Always wear an apron
- Wear strong shoes
- Don't rush your projects
- Tie up long hair
- Roll up sleeves
- Never work alone in the workshop
- When necessary wear goggles
- Turn the machine off before cleaning it
- Always listen to the teacher
- Know where emergency buttons are located
- Listen carefully when a teacher is demonstrating something
- A machine must be operated by one student at a time
- Enter the workshop only with a teacher's permission
- Report any damage done to the machines

Safety Precautions while working with different hand tools

Screw Driver

- When working on electrical equipment use only a screwdriver with an approved handle
- One should wear goggles when re-sharpening screwdriver tips
- Screws with burred head must be replaced or the burrs removed with file or an abrasive cloth.
- Use correct tip while screwing. Too narrow or too wide tip will damage the work.



Safety Precautions while working with different hand tools

Wrenches

- One should not hammer a wrench to loosen a stubborn fastener
- Always pull on a wrench
- It is dangerous practice to lengthen the handle for additional leverage. Use a larger wrench
- Choose a wrench that fit properly
- Clean grease or oil from the floor in the work area while using wrench



Safety Precautions while working with different hand tools

Hammers

- One should not operate the hammer unless its head is tightly fixed to the handle
- Place the hammer on the bench carefully. Falling hammer can cause serious foot injuries
- Never strike two hammers together
- Never hold hammer too far on the handle when striking a blow
- Unless the blow is struck squarely, the hammer may glance off the work



Safety Precautions while working with different cutting tools

Files

- One should always use a file card or brush to clean the file. Never use your hand.
- One should not use file without a handle.
- Files are highly brittle and should never be used as a hammer otherwise the file will break.
- Never hammer on a file. It may shatter and chips fly in all directions



Safety Precautions while working with different hand tools

Saws

- One should not test the sharpness of the blade by running finger across the teeth
- One should not brush away the chips with your hand
- Store the saw so that you will not accidentally reach into the teeth when you pick it up
- If the blade breaks while you are on cutting stroke, your hand may strike the works and cause an injury. Therefore saw operator should work carefully



Safety Precautions while working with different hand tools

Taps and Dies

- One should use a brush to clean away chips formed by hand threading. Never use your hand
- One should always wear goggles if the tap, die or threaded piece is to be cleaned with compressed air
- Tap operator should be careful that other person working in the area also wearing goggles
- Handle broken taps has sharp edges and are dangerous to handle
- Wash your hand after using cutting fluid
- Take care of any cuts immediately



Safety Precautions while working in machine shop

- One should use the correct tools and work holding devices recommended for the processes
- One should hold the work piece and tool securely on the machine
- One should not try to remove chips from machine with your hands.
- Never use compressed air for cleaning. Use brush.
- One should not touch a job-piece with bare hand while doing inspection or removing it from the machine. Use gloves always.
- One should use recommended coolant depending upon work-tool material
- One should re-sharp the tools immediately when it starts producing rough surfaces on the job-piece or produces chatter.
- In case of power failures, switch off the machine and retrieve tool from the workpiece



Thank You!