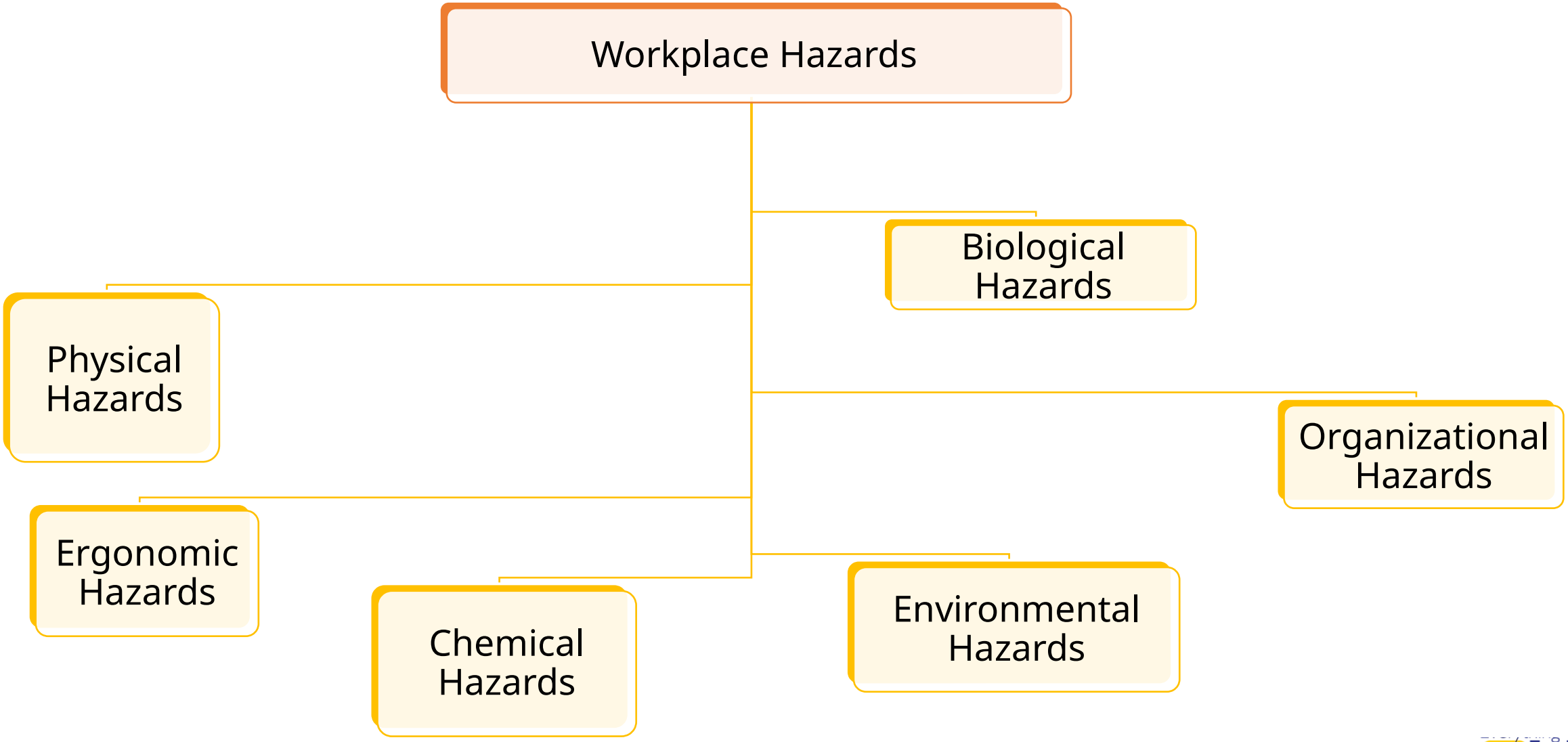
WORKPLACE HAZARDS

Instructor:
Engr. Hamza Nasir

Occupational Health and Safety (CH161)

Ghulam Ishaq Khan Institute of Engineering Sciences & Technology

WORKPLACE HAZARDS

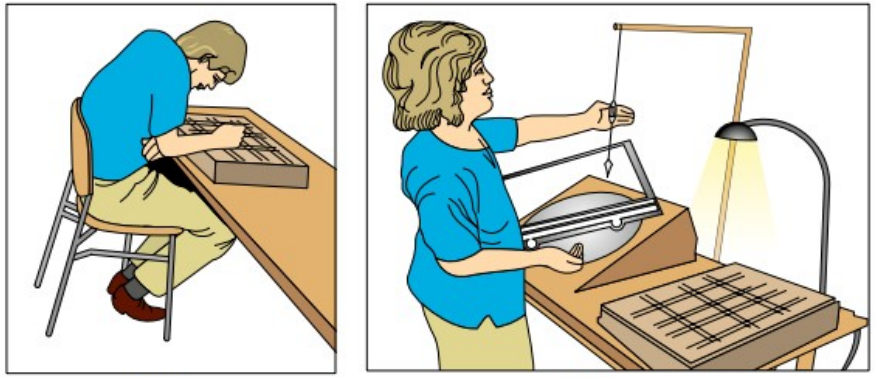


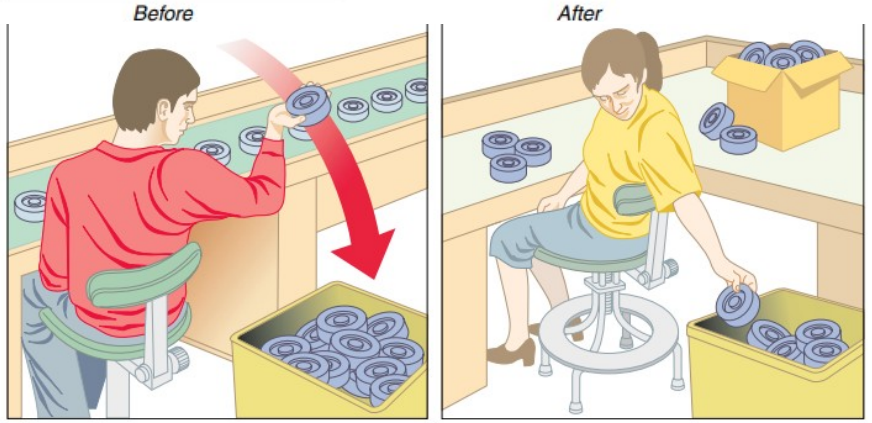
1. Physical Hazards

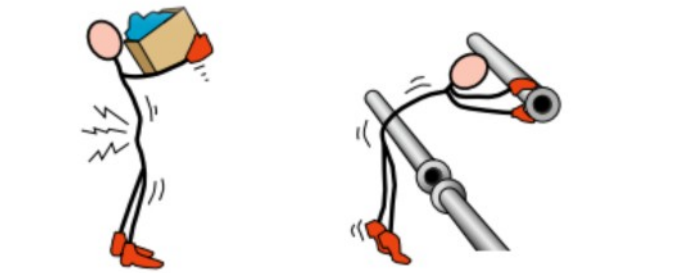
- Most common type of workplace hazards.
- Over half of all trip accidents are caused by poor housekeeping.
- **Examples**: slips, trips due to sloping or uneven floors, falls, exposure to loud noises, falls from work at height, vibrations, being struck by moving, falling or flying objects and unguarded machinery.

2. Ergonomic Hazards

- *Ergonomic hazards occur as a result of physical factors that can harm the musculoskeletal system. This type of hazard is not easily identified.*
- It includes the manual handling and lifting of loads, pulling and pushing loads, prolonged periods of repetitive activities and work with vibrating tools.
- The common ill-health effects of ergonomic hazards are:
  - Musculoskeletal disorders (MSD)
  - Work-related upper limb disorders (WRULDs) including repetitive strain injury (RSI)
  - Deteriorating eyesight caused by poor posture
  - Pains in the back, shoulders, neck or arms.

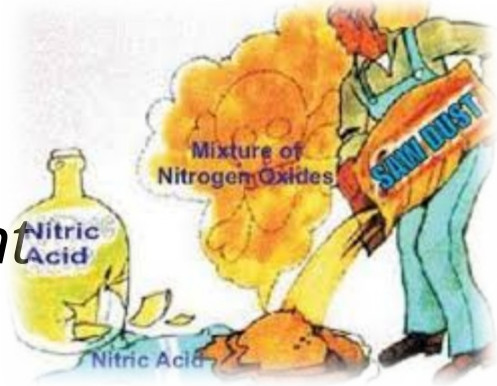






3. Chemical Hazards

- *Exposure to chemical substances.*
- *e.g., Cleaning solutions and solvents, vapors, dust, solvent mists and fumes, carbon monoxide and any other gases.*



4. Biological Hazards

- *Working with infected people, animals or infectious plant material.*
- *Examples include blood or other bodily fluids, animal care, insect bites, fungi, moulds, bacteria or viruses.*

5. Environmental Hazards

Local Exhaust Ventilation

- Polluted Air from burning rubbish or emissions from chimneys;
- Poor Ventilation can make people feel drowsy and reduce their ability to operate machines safely due to low oxygen levels and possible buildup.
- The supply of fresh air should not normally fall below 5–8 litres per second, per occupant (Ventilation Rate).
- The Workplace (Health, Safety and Welfare) Regulations 1992, under regulation 6 states that 'effective and suitable provision shall be made to ensure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air'

5. Environmental Hazards:

- Excessively hot working conditions can cause heat exhaustion and **Hyperthermia**;

- Cold conditions may cause **Hypothermia** and in extreme cold there is a danger of frostbite.

6. Organizational Hazards

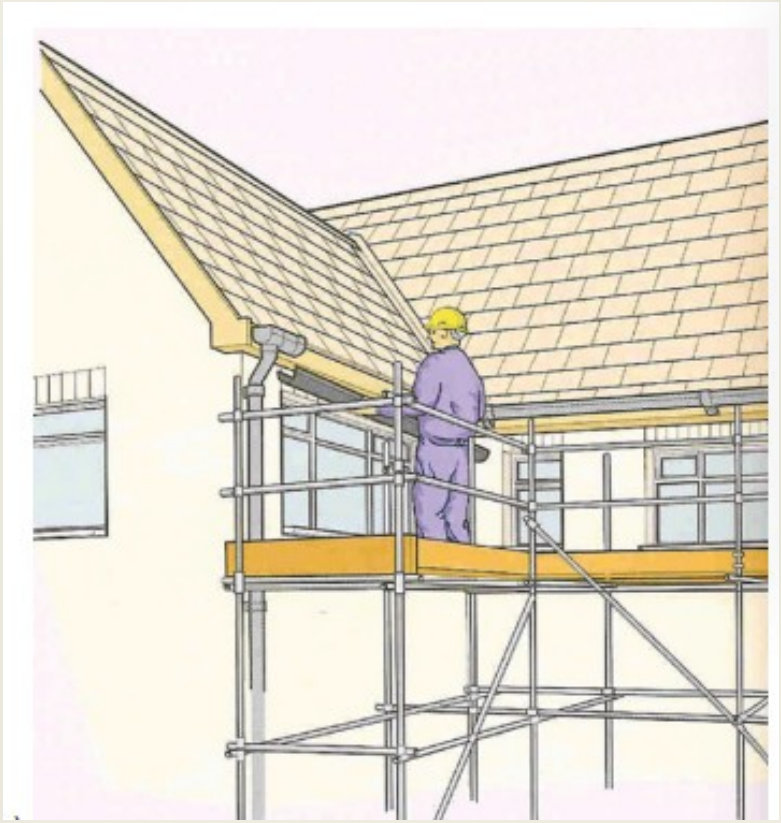
Includes (Psychosocial Hazard)

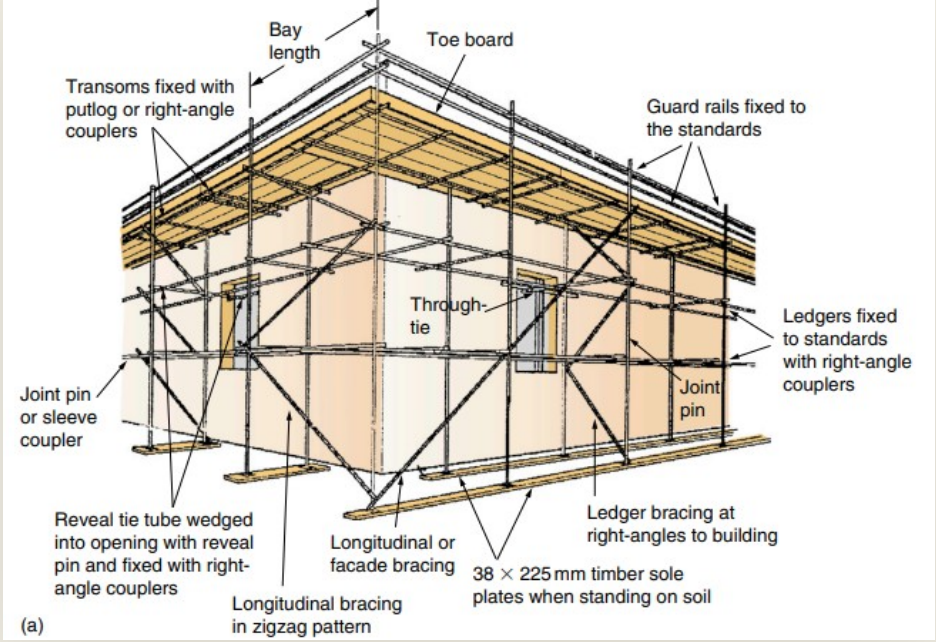
such as:

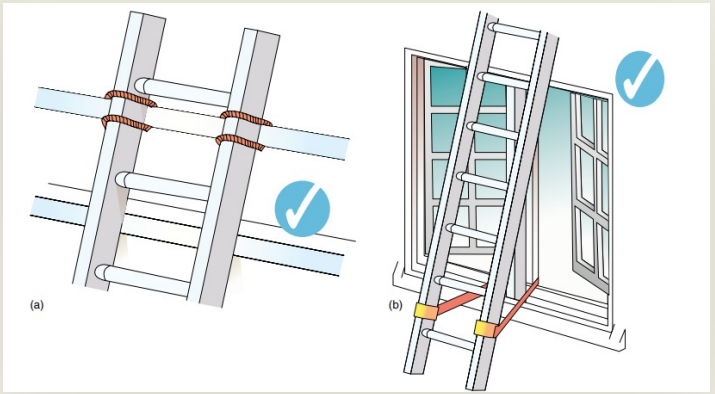
- **Social interaction** (e.g. : interactions with supervisors and co-workers)
- **Job demand** (e.g.: requires to work very fast or very hard).
- **Job satisfaction** (satisfied with the nature of work that he/she do, or satisfied with his/her income)
- Violence at work is defined by the HSE as:

  Any incident in which an employee is abused, threatened or assaulted in circumstances relating to their work.

SAFE WORKING







Working with step ladder

✗ Wrong way

- ✗ Stepladder too short
- ✗ Hazard overhead
- ✗ Over-reaching up and sideways
- ✗ No grip on ladder
- ✗ Sideways-on to work
- ✗ Foot on handrail
- ✗ Wearing slippers
- ✗ Loose tools on ladder
- ✗ Slippery and damaged steps
- ✗ Missing or warped rungs
- ✗ Uneven soft ground
- ✗ Damaged stiles
- ✗ Non-slip rubber foot missing

Right way ✓

- Steps at right height ✓
- No need to over-reach ✓
- Good grip on handrail ✓
- Working front-on ✓
- Wearing good flat shoes ✓
- Clean undamaged steps ✓
- Firm level base ✓
- Undamaged stiles ✓
- Rubber non-slip feet all in position ✓
- Meets British or European standards ✓

Is this an appropriate Hard Hat ?

Is this an appropriate Respirator?

Personal Protective Equipment (PPEs)

- To protect employees from serious workplace injuries or illnesses resulting from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.
- Examples of PPE: face shields, safety glasses, hard hats, safety shoes, goggles, coveralls, gloves, vests, earplugs, respirators, and safety harness.
- Least preferred method of protection from hazardous exposures.

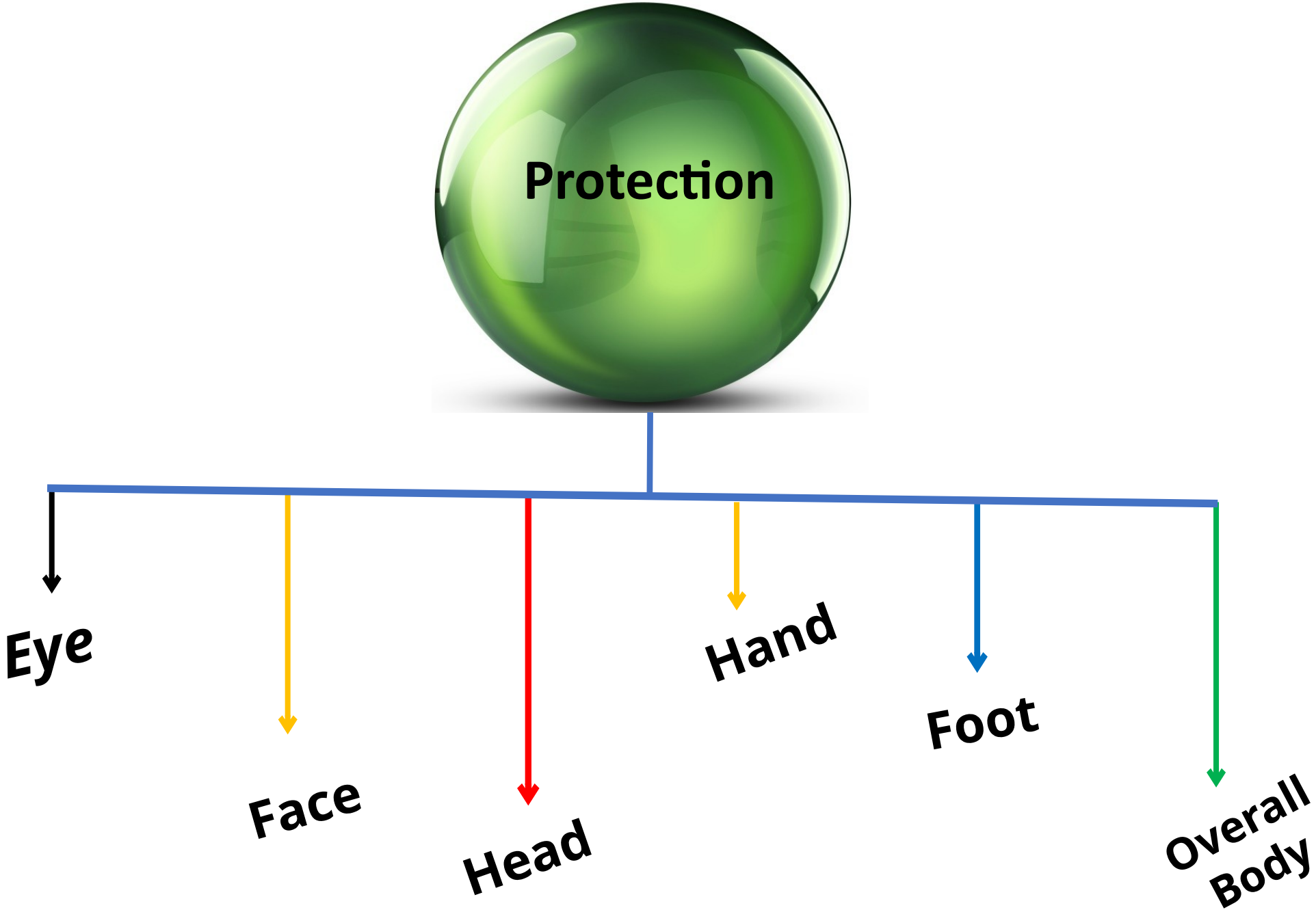
When appropriate protective clothing or equipment needs to be provided the following **precautions** should be taken

- ✓ Ensure that equipment/clothing is suitable and appropriate for the hazard that is being protected against.
- ✓ Ensure that it prevents or properly controls the risk.
- ✓ Ensure the equipment/clothing is of good quality made to a recognized standard.
- ✓ Ensure the equipment/clothing suits the wearer in size, weight and fit.
- ✓ Consider the compatibility of different PPE for example goggles and the fit of a face mask.

Training

Employees required to use PPE must be trained to know at least the following:

- When PPE is necessary
- What type of PPE is necessary
- How to properly put on, take off, adjust and wear PPEs
- Limitations of PPE
- Proper care, maintenance and disposal of PPEs


Protection
Eye
Face
Head
Hand
Foot
Overall Body

1. Eye and Face Protection

Thousands of people are blind each year from work related eye injuries. Injuries that could have prevented, if only people would have used eye or face protection.

Types of eye/face hazards

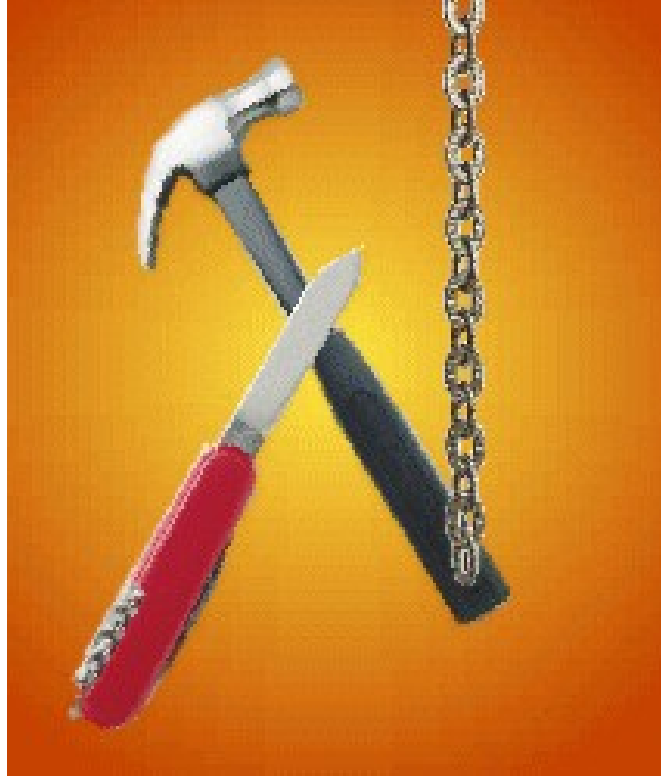
- Impact
- Heat
- Chemicals
- Dust
- Light and/or Radiation




Potential Incidents of Eye/Face Hazards:

1. **Object Sticking Eyes**
   - **Dust, powder, Fumes and Mists**
   - Small particles of matter can enter your eyes and damage them. Operations such as grinding, chiseling, sanding, hammering and spraying can release small airborne particles
2. **Contact with Chemicals**
   - **Toxic Gases, Vapors and Liquids**
   - Toxic chemicals in the form of gases, vapors and liquids can damage eyes and face.


Potential Incidents of Eye/Face Hazards:



3. Swinging Object

- **Large objects such as**
  - Swinging chains, rope, cables.
  - Tools that are thrown or fall.

4. Thermal and Radiation Hazard

- Operation such as welding, metal cutting and working around furnaces can expose your eyes to heat and radiations.

Eliminating Hazards to the Eyes and Face

Safety Glasses or Spectacles

Safety Goggles

Eye Shields

Face Shields

2. Head Protection

- **Hard hats** that are “OSHA approved” meet the minimum criteria established by the American National Standards Institute (ANSI).
- If a hard hat is necessary, the next step is selecting the most appropriate hard hat for your work environment.

Types of Hard Hats:

The three classes are based on the level of protection they provide from electrical hazards.

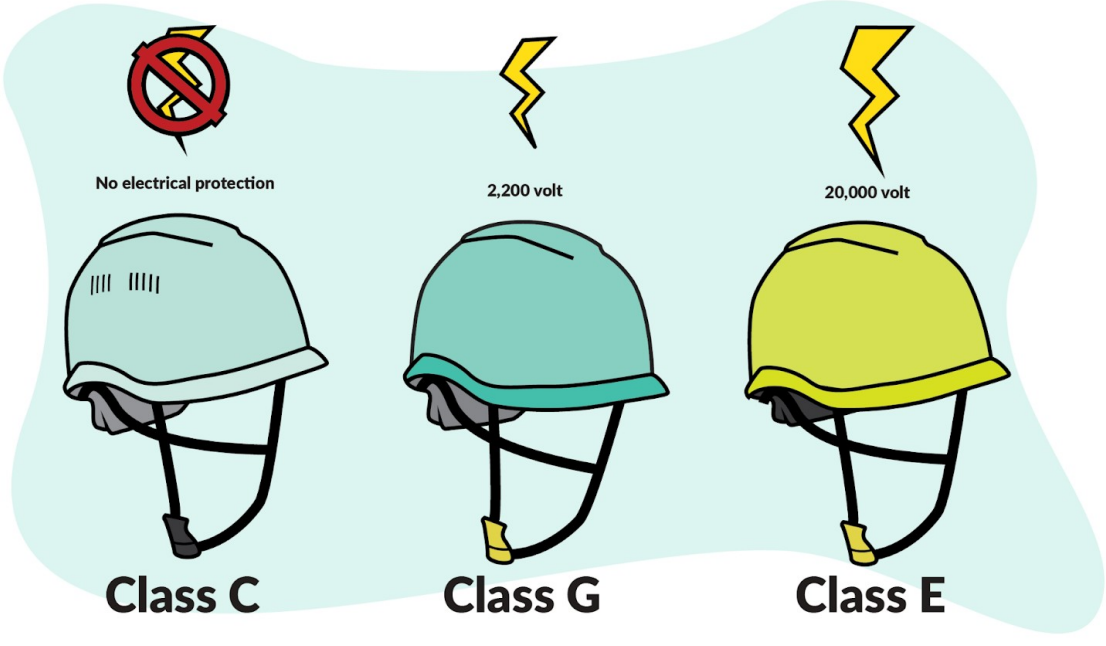
- **Class G** (General): Rated for 2,200 volts.
- **Class E** (Electrical): Rated for 20,000 volts.
- **Class C** (Conductive): These hard hats do not offer electrical protection.

- Bump Caps:

Bump caps are made from lightweight plastic and are designed to protect you from bumping your head on protruding objects.

2. Head Protection:

Types/Classes of Hats



COLOUR	IMAGE	FOR
Yellow		Labourer, Heavy-duty operations, & Construction tasks
Grey		Site visitors
Red		Firefighters
Brown		Welders, high heat operations
Blue		Electricians and Technical operators
Green		Safety officers
Pink		female workers* *in some companies it is used as an additional helmet

3. Hand Protection

Types of Hand PPE:

Gloves

– Padded cloth gloves

• protect your hands from sharp edges, dirt, and vibration

– Heat resistant gloves

• protect your hands from heat and flames

– Latex disposable gloves

• used to protect your hands from germs and bacteria

– Lead-lined gloves

• used to protect your hands from radiation sources

3. Hand, Arm and Finger Protection

- Forearm Cuffs
  - – used to protect your forearm
- Thumb Guards and Finger Cots
  - – protect only your thumb or fingers
- Mittens
  - – protect your hands while working around very cold or hot materials
- Hand Pads
  - – Hand pads protect your hands while working around very hot materials.

4. Foot Protection

- Safety footwear protects against falling objects, collision with hard or sharp objects, hot or molten materials, slippery surfaces and chemical spills.
- It has metal toecaps and comes in the form of shoes, ankle boots or knee-length boots and is made of a variety of materials dependent on the hazard (e.g., thermally insulated against cold environments).
- The footwear must have the correct grip for the environment, a hard-wearing sole unit and a good shock-absorbing capability.
- It must be used cautiously near flammable liquids and unprotected live electricity.
- Examples: Steel toe footwear, Metatarsal footwear, Latex/Rubber footwear, Reinforced sole footwear, butyl, vinyl, and nitrile footwear.

THANK YOU!