

# ***Module 2, Unit B***

## Preparing for Hazards in the Workplace

# *Overview*

- Electric shock
- Fires
- PPE
  - Hard hats
  - Eye protection
  - Gloves
  - Fall protection
  - Safety vests
  - Respirators
  - Hearing protection

# ***Electric Shock***

- Coming into contact with an electrical voltage can cause current to flow through the body.
- Effects of exposure to electricity include:
  - **Electric shock**
  - **Burns**
  - **Serious injury**
  - **Death**

# ***Electric Shock***

- Electric Shock can be caused by:
  - **Inadequate wiring,**
  - **Exposed electrical components**
  - **Overhead power lines**
  - **Defective insulation**
  - **Improper grounding**
  - **Electrical overload**
  - **Wet conditions**
  - **faulty tools or equipment**
  - **Improper use of PPE**

# ***Electrical Fires***

- Electrical Fires can be caused by:
  - **Inadequate wiring,**
  - **Exposed electrical components**
  - **Defective insulation**
  - **Improper grounding (causing arcs and sparks)**
  - **Electrical overload**
  - **Defective or misused tools or equipment**

# *Electrical Fires*

- Electrical Fires can be prevented by:
  - Compliance with safe work procedures
  - Inspection of work areas
  - Knowledge of potential fire hazards
- If it is necessary to use a liquid to fight a fire, make sure that all equipment is de-energized.
  - **It is never appropriate to put out an electrical fire with a pressurized water extinguisher**

# *Electrical Fires*

- Fire extinguishers are marked with **LETTERS** and **SYMBOLS** to indicate the type of fire they can put out.
- Regular inspection of fire extinguishers should be preformed to make sure they are not:
  - Damaged
  - Out of Date
  - Discharged
  - Partially discharged

# *Electrical Fires*

- PASS!
- P = Pull the pin
- A = Aim at the base of the fire
- S = Squeeze the handle
- S = Sweep from side to side



# ***Electrical Fires***

- Types of fires:
  - A: Ordinary combustibles
  - B: Flammable liquids
  - C: Energized Equipment/Electrical Fires
  - K: Cooking oils

# ***PPE: Hard Hats***

- Hard hats are worn to protect against:
  - Impact or penetration from falling objects
  - Electric shock or electric arcs
- Hard hat ANSI Standards
  - Type I: Protection from above
  - Type II: Protection from above and sides
  - Class E: Electrical- withstands 20,000V (20kV)
  - Class G: General- withstands 2,200V (2.2kV)
  - Class C: Conductive- provides no electrical protection

# ***PPE: Eye Protection***

- Eye protection is worn to protect against:
  - Impact
  - Heat
  - Chemicals
  - Dust
  - Optical Radiation
- Types of eye protection include:
  - Safety glasses
  - Safety goggles
  - Face shields

# ***PPE: Gloves***

- Gloves are worn to protect against:
  - Abrasions and lacerations
  - Heat
  - Chemicals
  - Sparks and arcs
- Types of gloves include:
  - Leather, canvas, metal mesh
  - Chemical and liquid protection
  - Electrical protection

## ***PPE: Gloves (cont.)***

- Inspect gloves on a regular basis, for:
  - Discoloration
  - Tears
  - Cuts
- Use air to to check for other defects
- Rubber gloves must be electrically tested
- Chemical-resistant glove materials include:
  - Butyl
  - Neoprene
  - Nitril

# ***PPE: Fall Protection***

- Fall protection categories:
  - Fall arrest
  - Work positioning
  - Travel restricting
- Components of fall protection equipment
  - Harness
  - Anchorage
  - Lanyard

# ***PPE: Safety Vests***

- Safety vests are worn to increase visibility of workers.
- ANSI standards:
  - Class I: vehicle traffic <25mph
  - Class II: vehicle traffic >25mph
  - Class III: vehicle traffic >50mph

# ***PPE: Respirators***

- Respirators are worn to protect against:
  - Hazardous levels of airborne contaminants
- Types of respirators:
  - Air-purifying
    - Particulates
    - Gas and vapor
    - Combination
  - Atmosphere-supplying
    - Air supplied
    - Combination
    - Self-contained breathing apparatus



# ***PPE: Hearing Protection***

- Hearing protection is worn to protect against:
  - Hazardous levels of noise
- Types of respirators:
  - Single-use earplugs
  - Pre-formed earplugs
  - Earmuffs

# *Review*

- Electric shock
- Fires
- PPE
  - Hard hats
  - Eye protection
  - Gloves
  - Fall protection
  - Safety vests
  - Respirators
  - Hearing protection