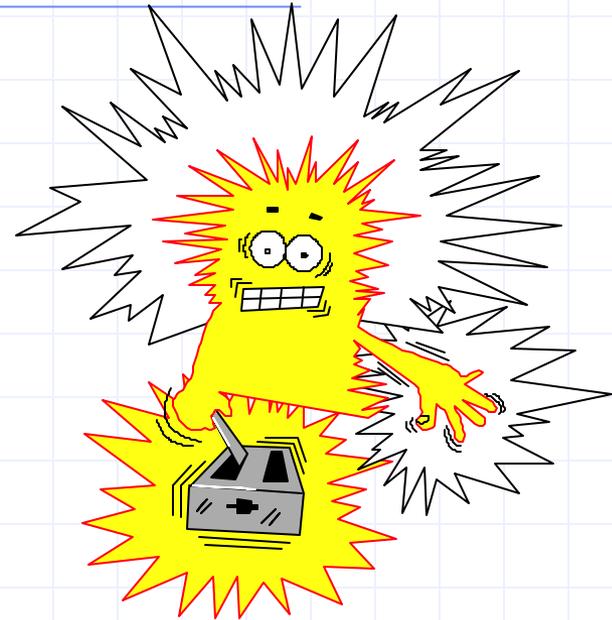


# Electrical Safety Awareness

For DOE Environment,  
Safety and Health  
Employees



A blueprint for employee safety

# Objectives

- ◆ As a general office worker you should be familiar with the fundamental concepts of electricity.
- ◆ And, you should be familiar with electrical protective devices.



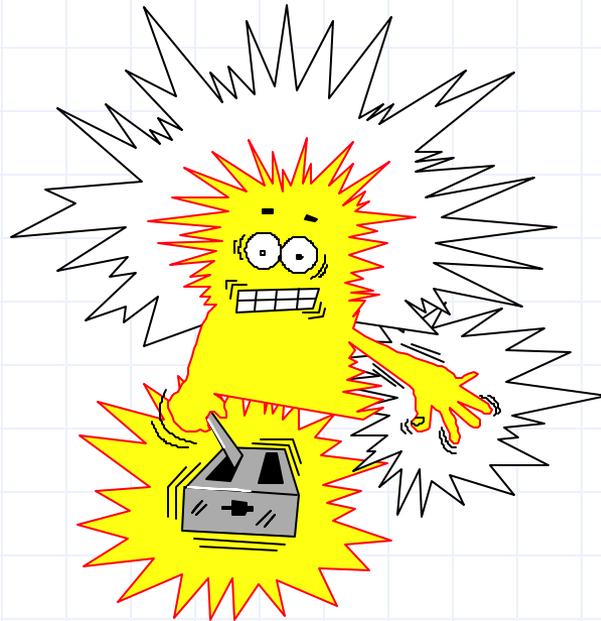
# Fundamentals of Electrical Hazards

- ◆ To flow, electricity must have a complete path.
- ◆ Electricity flows through *conductors*: water, metal, the human body.
- ◆ Insulators are non-conductors.
- ◆ The human body is a conductor.



# The Consequences

## ◆ Electrocution/Shock/Burns/Death



# Electrical Protection

## ◆ Distance

- If you sense the presence of an electrical hazard or exposed conductors that may be energized, keep your distance and **STAY AWAY!**



# Fundamentals of Electrical Hazards

## ◆ Circuit Breakers

- Are provided to protect EQUIPMENT, not people
- Do not reset breakers with a line voltage higher than 120V and only reset if you know why it tripped.

## ◆ Grounding

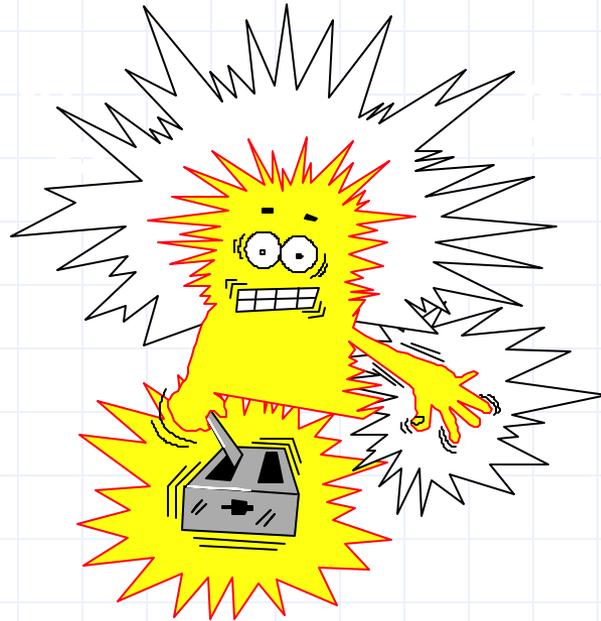
- Is protection from electric shock, normally a secondary protection measure.

## ◆ A ground is a conductive connection

- Between electrical circuit or equipment and earth or ground plane
- It creates a low resistance to the earth.



# Preventing Accidental Electrical Contact



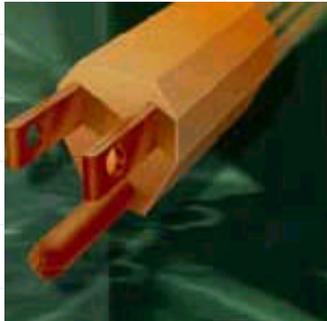
# Do's and Don'ts

- ◆ **Do** plug power equipment into wall receptacles with power switches in the Off position.
- ◆ **Do** unplug electrical equipment by grasping the plug and pulling. **Do not** pull or jerk the cord to unplug the equipment.
- ◆ **Do not** drape power cords over hot pipes, radiators or sharp objects.
- ◆ **Do not** plug one surge protector into another one, this can cause a fire.



# Do's and Don'ts

- ◆ **Do** check the receptacle for missing or damaged parts.
- ◆ **Do not** plug equipment into defective receptacles.
- ◆ **Do** check for frayed, cracked, or exposed wiring on equipment cords.



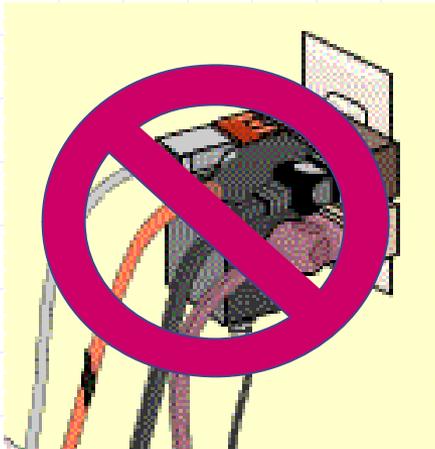
# Do's and Don'ts

- ◆ **Do** check for defective cords clamps at locations where the power cord enters the equipment or the attachment plug.
- ◆ **Do not** use extension cords in office areas. Extension cords should be limited to **temporary** use by maintenance personnel



# Do's and Don'ts

- ◆ **Do not** use “Cheater plugs”, which are like extension cords with junction receptacle ends.
- ◆ **Do not** use jury-rigged equipment.



# Do's and Don'ts

- ◆ **Do not** use consumer electrical equipment or appliances if not properly grounded.
- ◆ **Do** look for **three pronged plugs**, the **UL Label** on all appliances, and also a **ground fault interrupter** on appliances that may be used near water.



# Do's and Don'ts

- ◆ **Do know** the location of electrical circuit breaker panels that control equipment and lighting in their respective areas. Circuits and equipment disconnects **must be** identified.



# Do's and Don'ts

- ◆ **Do not** allow temporary or permanent storage of any materials within 3 feet of any electrical panel or electrical equipment.
- ◆ **Do tag** with a **Danger** tag or equivalent, any damaged electrical equipment that might cause a shock or with high leakage potential.



# Myths and Misconceptions

- ◆ **These statements are not true!**
- ◆ Electricity takes the path of least resistance. **False.**
- ◆ Electricity wants to go to ground. **False.**
- ◆ If an electric tool falls into a sink or tub of water, the item will short out. **False.**



# Myths and Misconceptions

- ◆ **These statements are not true!**
- ◆ AC reverse polarity is not hazardous. **False.**
- ◆ It takes high voltage to kill; 120 volts is not dangerous. **Dead wrong!**
- ◆ Double insulated power tools are doubly safe and can be used in wet and damp locations. **False.**



**Thank you for continuing to work safely!**

Contact your EH FEOSH unit coordinator for assistance or for more information. Visit the EH FEOSH Web Page at <http://tis.eh.doe.gov/feosh/>

**SAFETY  
FIRST**

**THE SAFE WAY IS  
THE BEST WAY**

