SAFETY MOMENT: ELECTRICAL SAFETY

Electrical hazards can cause burns, shocks and electrocution (death)

- U.S. fire departments responded to an estimated annual average of 47,820 reported home structure fires involving electrical failure or malfunction in 2007-2011. These fires resulted in 455 civilian deaths, 1,518 civilian injuries and $1.5 billion in direct property damage.

Each year OSHA estimates:

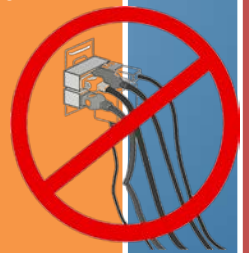
- Approximately 4,000 injuries occur from extension cord accidents; half of which involve fractures and sprains from misplaced cords around the work area.
- Approximately 3,330 construction site fires originate from extension cords resulting in 50 deaths and 300+ injuries. These fi res are frequently caused by short circuits, overloading, damaged cords and/or misuse of cords

ELECTRICAL SHOCK

- Received when current passes through the body
- Severity of the shock depends on:
  - Path of current through the body
  - Amount of current flowing through the body
  - Length of time the body is in the circuit
- LOW VOLTAGE DOES NOT MEAN LOW HAZARD

DANGERS OF ELECTRIC SHOCK

- Currents greater than 75 mA* can cause ventricular fibrillation (rapid, ineffective heartbeat)
- Will cause death in a few minutes unless a defibrillator is used
- 75 mA is not much current – a small power drill uses 30 times as much



OVERLOADS

- If too many devices are plugged into a circuit, the current will heat the wires to a very high temperature, which may cause a fire
- If the wire insulation melts, arcing may occur and cause a fire in the area where the overload exists, even inside a wall

PROTECTIVE DEVICES

- These devices shut off electricity flow in the event of an overload or ground-fault in the circuit
- Include fuses, circuit breakers, and ground-fault circuit-interrupters (GFCI's)
- Fuses and circuit breakers are overcurrent devices
- When there is too much current:
  - Fuses melt
  - Circuit breakers trip open
- **ONLY AUTHORIZED PERSONNEL ACCESS THE CIRCUIT PANELS**

GFCI

- This device protects you from dangerous shock
- The GFCI detects a difference in current between the black and white circuit wires
  - (This could happen when electrical equipment is not working correctly, causing current "leakage" – known as a *ground fault*.)
- If a ground fault is detected, the GFCI can shut off electricity flow in as little as 1/40 of a second, protecting you from a dangerous shock

ALWAYS

- Use extension cords properly and for their intended use.
- Inspect all extension cords **DAILY**.
- If a cord is damaged in **ANY** way; get in out of service and destroy it.
- Store properly and do not misuse any extension cord.
- **DO NOT** use more devices than circuit can handle.
- If circuit trips, contact Facilities.