ELECTRICAL SAFETY

Unsafe work practices near electricity can kill you!

Electricity can cause:

- a mild shock,
- a severe shock,
- or even a deadly shock

You are responsible for protecting yourself from electrical shock.

ELECTRICAL SAFETY

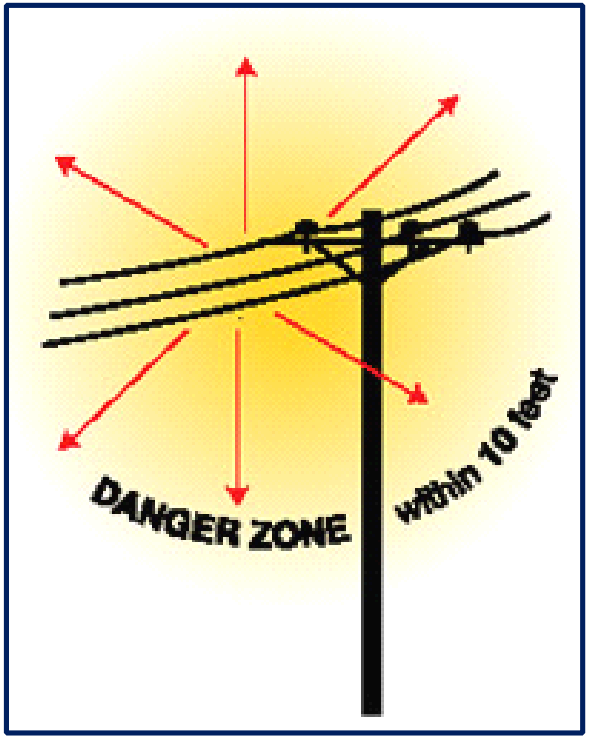
- Before you can work on <u>any</u> exposed electrical circuit or part, you must be ***<u>"qualified"</u>.***

- A "qualified" worker is someone who has had training on how to avoid the electrical hazards of working <u>on or near</u> exposed energised circuitry.

SAFE WORK PRACTICES

- **Always** stay **<u>at least 10 feet</u>** from electric lines with voltages of 50 kilovolts (50, 000 volts) or less.

- For overhead lines with 132,000 Volts or less stay away **<u>at least 25 feet</u>**.



"DE-ENERGIZED" & "ENERGIZED" EQUIPMENT

De-Energized Equipment is equipment in which the circuits have been disconnected from all their power sources. Sometimes referred to as being **'Dead'**

Energized Equipment is equipment that has exposed, live parts of circuits that may be directly contacted, or contacted by tools or materials…and can present electrical hazards. Sometimes referred to as **'Live'.**

PORTABLE ELECTRICAL EQUIPMENT SAFETY

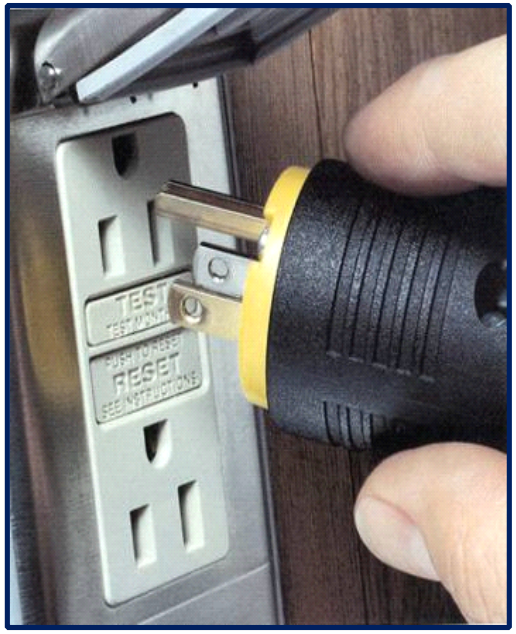
All portable electrical tools must have a grounding prong or must be labeled as <u>double insulated.</u>

PORTABLE ELECTRICAL EQUIPMENT SAFETY

Make sure that any extension cords you use properly fit the plug for the electrical equipment' you're using.

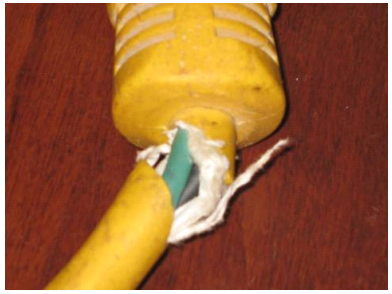
Never cut off the grounding pin or earth pin on the plug.

Never raise, lower or carry portable electrical equipment by its cord.



INSPECT ELECTRICAL EQUIPMENT

- Always inspect equipment at the **beginning of your work shift** and **each time** you use the equipment
- Inspecting your equipment can prevent you from being shocked. Look for:
  - visible wear,
  - frays,
  - breaks,
  - or other damage to the insulation or outer jacket of the cord.
- Make sure the grounding prong is in place if the tool in not labeled ‘double insulated’.



GROUND FAULT CIRCUIT INTERRUPTER (GFCI)

Always use a Ground Fault Circuit Interrupter (GFCI).

- A GFCI will instantly disconnect a circuit when an electrical short occurs.

"INTRINSICALLY SAFE" ELECTRICAL EQUIPMENT

Flammable Atmospheres –

- When the work area could have such hazards, only **specially-designed** electrical equipment can be used.
- This equipment is "intrinsically safe" electrical equipment –
  - equipment that would not spark or
  - produce enough heat to cause a fire even in a flammable atmosphere.

LOCKOUT-TAGOUT

- Lockout-Tagout is used to control the unexpected release of hazardous energy.
- Equipment that has not been locked-out, tagged-out or tested is considered to be energized.
- Locks and tags should be installed on equipment to protect workers from hazardous energy.

LOCKOUT-TAGOUT PROCEDURES

- *Only* persons who are **trained**, **qualified** and **authorized** can perform a lockout/tagout procedure. *Only* the authorized person who put on the lock can take it off (or a supervisor in special circumstances).

- **Trained**: knowledge and skills for safely performing a particular job or task.
- **Qualified**: A worker is "qualified" when he/she has knowledge and accompanied by training and experience
- **Authorised**: The worker is then "authorized" by his supervisor personnel to perform the task safely. This authorization is usually proven by the supervisor's personal signature, such as within a work permit.

LOCKOUT-TAGOUT PROCEDURES

Before starting the job:

- **Locate** and identify ***all*** energy sources and their isolating devices. (Equipment will usually involve at *least* two types of energy.)
- **Notify all** authorized and affected workers. (People who work in the area should be told about the work so they will not disturb anything by mistake.)
- **Barricade** the work area and install warnings signs. (If signs and barricades do not provide sufficient warning and protection, an attendant must be stationed to prevent and warn others away from the area.)

LOCKOUT-TAGOUT PROCEDURES

- **Shut down** the equipment. (Shut down equipment at the local start/stop switch.)
- **Isolate** the equipment from **all** energy sources. (All sources of energy must be de-energized and disconnected. Circuit control devices, such as ON-OFF buttons, selector switches, and interlocks, must never be used as the only means of de-energizing circuits or equipment.)
- **Purge** all hidden or trapped energy.

LOCKOUT-TAGOUT PROCEDURES

- **Apply** (put on) locks and tags on each device that was used to isolate the energy from its source.

Remember: locks can only be put on by persons who are **authorised** to do so and can only be removed by the person who put it on (or supervisor in special circumstances.)

- **Verify** (recheck to make sure) all energy has been isolated.

LOCKOUT-TAGOUT PROCEDURES

After work is complete:

- **Remove** all tools and material from work area.
- **Visually inspect** the area and ensure that all employees are clear of the area.
- **Notify all** authorised and affected workers that equipment is being put back into service and all energy sources will be re-established.

LOCKOUT-TAGOUT PROCEDURES

After work is complete:

- **Remove all** locks and tags. This must be done by authorized personnel using the key before re--energizing equipment.
- **Verify** that the equipment can operate properly after energy is restored if possible.