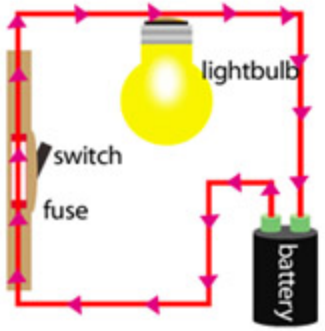
Basic Electrical Safety in the Workplace

How Electricity Works

- The different types of electricity are:
  - low voltage and high voltage
  - static electricity
  - alternating and direct current
- Static electricity originates when two different materials are brought together such as shoe soles and carpet and then separated.
- When the two materials are forced apart, two kinds of electricity are produced: one on the carpet, the other on the shoe soles.
- The two materials attract each other and attempt to reconnect.

How Electricity Works

- If the two materials do not reconnect and the person touches a doorknob, the electricity flows through the body, arm and finger leaving the doorknob.
- Static electricity is electrical charges.
- A circuit consists of three essential elements:
  - One element is the source of energy that supplies the voltage to make the current flow.
  - Next, there must be a user of electricity such as a light bulb.
  - Third, there must be a transmission line or wire to conduct the electricity.



- For current to flow there must be a closed circuit. Cutting the wire forms an open circuit and will stop the flow of current.
- Birds can sit on high voltage lines without getting shocked, but a human would get shocked.

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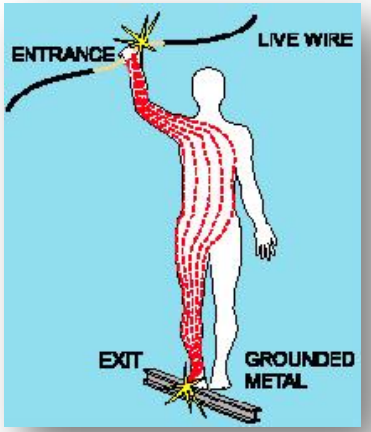
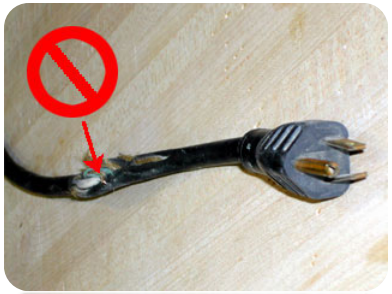
- The bird is part of the electrical circuit with a continuous flow of charges. A human can be electrocuted since he would be grounded by, for example, a crane.
- The large prong on a 3-prong plug is the ground. The prong is a protection from shock.
- Electricity flows through the path of least resistance.
- Electricity will always flow through the ground wire and not the body.
- Flammable agents found in work environments can be ignited by electrical sparks and static electricity.



Electric Shock Prevention

- The 2 electrical blades on a 3-prong plug are for electrical current to flow.
- The 3-prong plug is called a ground plug.
- Wiring or cables that are cracked, frayed, cut, or damaged must be replaced.
- A 2-prong plug must not be used on a 3-pronged receptacle since it offers no protection.
- There are some approved appliances and tools that use only a 2-prog plug. It can only be used with double-insulated equipment.
- The protection is double-insulated inside the equipment and not through a grounding wire and prong.
- Never use electrical equipment when any part of your body is standing on or near fluids.



Safety Tips

- Never place electrical cords where they can be tripped over or receive excessive wear.
- Keep cords away from heat and liquids.
- Remove electrical plugs from the wall receptacles by pulling the plug and not the cord.
- Avoid kinking, crushing, or binding cords.
- Inspect cords and cables frequently for wear.
- Avoid overloading any electrical circuits. Do not use octopus adapters.
- Extension cords must be of the same thickness and rating as the equipment cord.
- Do not use defective electrical equipment if it becomes excessively warm or hot.
- Unplug the equipment if it begins to smoke even if it give you a mild shock.

References

- Digital-2000 – www.digigtal-2000.com