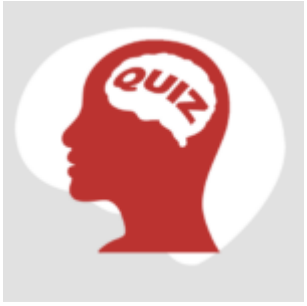
Electrical Quiz



QUESTION

Name the three factors that cause electrical accidents’

ANSWER

Most of electrical accidents are the result of one of three following factors:

- Unsafe equipment or installation,
- Unsafe environment, or
- Unsafe work practices.

WHY IS IT RIGHT

PREAMBLE

Hazards / Dangers associated with electricity affect the majority of workplaces. In general industry, construction, or farming electrical hazards / dangers are present. The task is to have the ability to identify and recognize electrical hazards around you and then to reduce / mitigate and eliminate them.

ELECTRICITY BASICS

Electricity flows more easily through some materials than others. Some substances such as metals generally offer very little resistance to the flow of electric current and are called ” conductors.” A common but perhaps overlooked conductor is the surface or subsurface of the earth. Glass,

plastic, porcelain, clay, pottery, dry wood, and similar substances generally slow or stop the flow of electricity. They are called ” insulators.” Even air, normally an insulator, can become a conductor, as occurs during an arc or lightning stroke.

INJURIES / FATALITIES

Workers in almost every work environment are exposed to electrical currents powerful enough to cause death by electrocution. Yet many workers are unaware of the potential hazards, which makes them even more vulnerable to the dangers.

There are four main types of injuries that can result from electrical currents. These are:

1. Electrocution,
2. Electric shock;
3. Burns; and
4. Falls, which may occur when a worker contacts electrical energy.

ELECTRICAL EFFECTS OF SHOCKS

An electric shock can result in anything from a slight tingling sensation to immediate cardiac arrest. The severity depends on the following:

- the amount of current flowing through the body,
- the current’s path through the body,
- the length of time the body remains in the circuit, and
- the current’s frequency.

PREVENTION

Electricity is always trying to find its way to the ground. When electricity flows, it takes the path of least resistance. Materials with a low resistance to electricity are known as conductors. Moisture is a good conductor of electrical current. Unfortunately, so is the human body.

When you touch a live electrical component, you can provide the electricity with an easy route to the ground. This is especially true if your hands are moist, or if you're touching something metal which is touching the ground, such as a metal ladder, another wire or plumbing.

When the electricity passes through your body, you receive an electrical shock. If you're extremely lucky it could be a mild shock. But sometimes even a small flow of electrical current can cause heart failure, brain damage or severe internal burns leading to death.

Here are Ten General Safety Tips for Working With or Near Electricity.

1. Don't stand in wet areas when using electrical tools.
2. Inspect cords for damage or wear prior to each use.
3. Unplug machinery, power tools and appliances before cleaning, inspecting, repairing or removing something from them.
4. When unplugging a cord from an outlet, pull on the plug, not the cord. Pulling on the cord causes wear and may lead to a shock.
5. If outlets or switches feel unusually warm, don't use them and get a qualified electrician to check the wiring.

WHY IS EVERYTHING ELSE WRONG

It's important to take the time prior to beginning work at construction sites each day. The fluid nature of the activities, along with the changing environment and high potential for damage can let these items become a hazard quickly.

Electrical 'Ground' Rules

1. **The risk of shock or electrocution is greatest around metal objects and in damp conditions.**

- make sure all electric equipment, switch enclosures, and conduit systems are properly grounded and that all external or damp operations are wired for wet conditions.
- When working in damp areas, wear personal protective equipment such as rubber gloves and boots; use rubber mats, insulated tools, and rubber sheets to protect you from exposed metal.

2. **Keep your electrical system in good operating condition.**

- Damage and injuries can occur when equipment is defective. So, inspect your electrical equipment, outlets, plugs, and cords before each use.
- Remove, tag, and have repaired any faulty equipment. Make sure outlets and cords are of adequate size and length to prevent electric overload.
- If cords must cross a traffic area, protect them with planks or other means.

3. **Make sure you and other workers follow lockout and tagout procedures.**

- Treat every electric wire as if it were a live one.
- Stop using a tool or appliance if a slight shock or tingling is felt.
- Turn off the power if the smell of hot or burning substance is detected or if smoke, sparks, or flickering lights are noticed.

4. **Contact with overhead power supply lines is a frequent electrical-related killer.**

- Workers using high clearance devices should continually be aware of the dangers and take sensible precautions to avoid contact with overhead lines.
- If an overhead line breaks, keep away from the wire and everything it touches then call the power company to shut off the electricity.

- Only qualified electricians should repair electrical equipment or work on energized lines.