

# Working Safely with Electricity

Working with electricity can be dangerous. Engineers, linemen, electricians, and others work with electricity directly, including overhead lines, cable harnesses, and circuit assemblies. Office works and salespeople work with electricity indirectly and may be exposed to electrical hazards.

## Generators

One of the common tools utilized following loss of power are portable generators. Most generators are gasoline powered and use internal combustion engines to produce electricity.

Carbon monoxide is a colorless and odorless gas produced during the operation of the gasoline powered generators. When inhaled, the gas reduces your ability to utilize oxygen. Symptoms of carbon monoxide poisoning include headache, nausea and tiredness that can lead to unconsciousness and ultimately prove fatal.

- DO NOT bring a generator indoors. Be sure it is located outdoors in a location where the exhaust gases cannot enter a home or building.
- Good ventilation is the key.
- Be sure that the main circuit breaker is OFF and locked out prior to starting any generator. This will prevent inadvertent energization of power lines from back feed electrical energy from generators and help protect utility line workers from possible electrocution.
- Turn off generators and let them cool prior to refueling.

## Power Lines

Overhead and buried power lines are especially hazardous because they carry extremely high voltage. Fatal electrocution is the main risk, but burns and falls are also hazards.

- Look for overhead power lines and buried power line indicators.
- Stay at least 15 feet away from overhead power lines and assume they are energized.
- De-energize and ground lines when working near them.
- Use non-conductive wood or fiberglass ladders when working near power lines.

## Extension Cords

Normal wear on cords can loosen or expose wires. Cords that are not 3-wire type, not designed for hard-usage, or that have been modified, increase your risk of contacting electrical current.

- \* Use only equipment that is approved to meet OSHA standards.
- \* Do not modify cords or use them incorrectly.
- \* Use factory-assembled cord sets and only extension cords that are 3-wire type.
- \* Use only cords, connection devices, and fittings that are equipped with strain relief.
- \* Remove cords from receptacles by pulling on the plugs, not the cords.

## Equipment

Due to dynamic, rugged nature of construction work, normal use of electrical equipment causes wear and tear that results in insulation breaks, short-circuits, and exposed wires. If there is no ground-fault protection, it can cause a ground-fault that sends current through the worker's body.

- Use ground-fault circuit interrupters (GFCIs) on all 120-volt, single-phase, 15- and 20-ampere receptacles, or have an assured equipment grounding conductor program (AEGCP).
- Use double-insulated tools and equipment, distinctively marked.
- Visually inspect all electrical equipment before use. Remove from service any equipment with frayed cords, missing ground prongs, cracked tool casings, etc.

## Electrical Incidents

If the power supply to the electrical equipment is not grounded or the path has been broken, fault current may travel through a worker's body, causing electrical burns or death. Even when the power system is properly grounded, electrical equipment can instantly change from safe to hazardous because of extreme conditions and rough treatment.

- Visually inspect electrical equipment before use. Take any defective equipment out of service.
- Ground all power supply systems, electrical circuits, and electrical equipment.
- Frequently inspect electrical systems to insure that the path to ground is continuous.
- Do not remove ground prongs from cord- and plug-connected equipment or extension cords.
- Use double-insulated tools and ground all exposed metal parts of equipment.
- Avoid standing in wet areas when using portable electrical power tools.