



Know the Ground Rules for Electrical Safety

Did you know that 69% of all electrical fatalities do NOT involve electricians? Use these tips to avoid getting shocked (or worse).

Severity of shock

It's important to know how the following factors affect the severity of a shock.

- **The rate of current** flowing through your body, also called conductivity. The more conductivity you have the more severe the shock. If you have dry hands and are standing on a non-conductive surface such as a rubber mat, you may not even feel a shock. If you are standing in water with sweaty hands, you could be killed.
- **The length of time** the current flowed through your body. The longer the contact, the greater the shock.
- **What path** did the electrical current take through your body? The most dangerous is through vital organs.

By the Numbers

According to the electrical safety foundation, 46% of all electrical fatalities are caused by contact with overhead power lines. Of those fatalities, 57% of overhead power line fatalities were in *non-electrical occupations*.



Overall, five sources accounted for 92% of all electrical fatalities:

- Overhead power lines
- Unexpected contact with electricity
- Working on energized parts
- Ground faults
- Damaged wiring

Are you Qualified?

Employees working on electrical systems and equipment must be qualified either by training, experience, or instruction in electrical safe work practices. Even so, you must be authorized by your District *before* working on electrical systems or equipment.

Working on Equipment

Notify anyone affected by the repair or preventative maintenance activity. Follow your District's procedure for controlling hazardous energy (aka Lock Out Tag Out).

Always assume electrical equipment and systems are energized until confirmed otherwise. Suitable personal protective equipment and safe work practices must be used. Talk to your supervisor for details.



Overhead Power Lines

Look up before carrying extension ladders, using forklifts, scaffolding, aerial lifts, or cranes. Maintain at least 20' clearance from overhead electrical lines (more if over 350 kV).

Stay away from downed power lines which can energize other nearby objects such as fences, water pipes, bushes, and trees. If your vehicle or equipment contacts a downed power line and there is no threat of fire, stay put and remain inside until the utility company can de-energize the circuit.

If there is a fire and you must exit your vehicle after contacting a downed power line, do the following:

- Remove loose items of clothing
- Keep your hands at your sides
- Jump clear of the vehicle so you are not touching the vehicle when your feet hit the ground.

Clearance

Adequate working space must be maintained around electrical panels and equipment. This allows for safe and quick access in the event of an emergency. As a rule of thumb, ensure 3 feet by 3 feet of clearance that extends 6 feet high. The more voltage, the more clearance required.

Use of Cords

- Do not “daisy chain” multiple electrical cords together
- Inspect the outer sheath of the cord for damage. Ensure no splices, exposed wires, or frayed ends
- Do not remove the ground prong from an electrical cord
- Cords designed without a ground prong must be double insulated (and labeled).
- Use Ground Fault Circuit Interrupters (GFCI's) whenever possible, but especially in wet locations or outdoors. GFCI's are fast-acting circuit breakers designed to shut off electric power in the event of a ground-fault (i.e., through your body) within as little as 1/40 of a second. Circuit breakers protect equipment; GFCI's protect people.

Keep Safe

- Read and follow all instructions before handling electrical equipment. Get qualified help if you don't understand something.
- Do not force or alter a plug by bending, twisting, or removing the prong blades.
- Know the signs of an overloaded circuit including flickering / dimming lights, warm cords / wall plates, and frequently tripped circuit breakers.
- When handling cords, firmly grip the plug when disconnecting. Do not yank the cord to prevent cord damage.



This *Safety Talk* provides awareness level training on electrical safe work practices. If this information is unclear or if you have any additional questions, please talk to your supervisor.