

# Cal Poly

## Code of Safe Practice- General Electrical Safety

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These following general information and rules shall be followed when working with and around all electrical equipment on campus.

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Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. Electrical accidents usually occur as a result of faulty or defective equipment, unsafe installation, or misuse of equipment on the part of workers. It is important to note that the voltage of the electricity and the available electrical current on campus and in our homes has enough power to cause death by electrocution.

Electricity travels through electrical conductors through circuits which may be in the form of wires or parts of the human body. If a part of the body comes in contact with the electrical circuit, a shock will occur. People are injured when they become part of the electrical circuit. Humans are more conductive than the earth (the ground we stand on) which means if there is no other easy path, electricity will try to flow through our bodies. This electrical current will enter the body at one point and leave at another. The passage of electricity through the body can cause great pain, burns, destruction of tissue, nerves, and muscles and even death.

### General Electrical Safety Rules:

- Only “qualified” employees (campus electricians), may conduct adjustment, repair or replacement of electrical components or equipment.
- Do not enter an electrical power substation, or other marked areas.
- Do not block access to panels and circuit breakers or fuse boxes.
- Inspect portable cord-and-plug connected equipment, extension cords, power bars, and electrical fittings for damage, exposed wiring, or wear before each use. Repair or replace damaged equipment immediately.
- Use extension cords only to temporarily supply power to an area that does not have a power outlet.
- Always tape extension cords to walls or floors when necessary. Nails and staples can damage extension cords causing fire and shock hazards.
- Use extension cords or equipment that is rated for the level of amperage or wattage that you are using.
- Keep extension cords away from heat, water and oil. They can damage the insulation and cause a shock.
- Always use the correct size fuse. Replacing a fuse with one of a larger size can cause excessive currents in the wiring and possibly start a fire.
- Be aware that unusually warm or hot outlets may be a sign that unsafe wiring conditions exists. Unplug any cords or extension cords to these outlets and do not use until a qualified electrician has checked the wiring.
- If electrical equipment malfunctions or gives off a strange odor, disconnect it and call the appropriate maintenance personnel.
- Do not plug several items into one outlet.
- Do not disconnect power supply by pulling or jerking the cord from the outlet. Pulling the cord causes wear and may cause a shock.
- Never break OFF the third prong on a plug.
- Replace broken 3-prong plugs and make sure the third prong is properly grounded.
- Do not use portable cord-and-plug connected power tools with the guards removed.

- Switch all tools OFF before connecting them to a power supply.
- Do not clean tools with flammable or toxic solvents.
- Do not operate tools or electrical equipment in an area containing explosive vapors or gases, unless they are intrinsically safe and only if you follow the manufacturer's guidelines.
- Keep power cords clear of tools during use.
- Working in wet conditions is hazardous because of the easy path for electrical current. If you touch a live wire or other electrical component while standing in even a small puddle of water, you will receive a shock.
- Do not use electrical equipment in wet conditions or damp locations unless the equipment is connected to a GFCI (Ground Fault Circuit Interrupter).
- If a ground-fault circuit interrupter, or GFCI, keeps tripping (switching off) while you're using a power tool, there is a problem. Don't continuously reset (switch on) the GFCI and continue to work.
- Do not work close to power lines. Check for overhead power lines when working, driving, or parking maintenance vehicles.
- Always use ladders made with non-conductive side rails (e.g., fiberglass) when working with or near electricity or power lines.
- Do not touch a person or electrical apparatus in the event of an electrical accident. Always disconnect the power source first.
- If you are ever using any electrical device and feel a tingling or a slight buzz, turn off equipment immediately. Contact your supervisor and have the equipment serviced by an electrician.

## **Emergency Response for Electrical Hazards:**

### **Electrical Shock:**

If a coworker receives an electrical shock, you should take immediate action. Shut off the electrical current if the victim is still in contact with the energized circuit. If you can't get to the switch quickly, pry the victim from the circuit with something that doesn't conduct electricity such as a wooden or fiberglass pole. While you do this, have someone else call 911.

Don't touch the victim if he or she is still in contact with an electrical circuit! You don't want to be a victim, too!

### **Electrical Fires:**

Electricity is one of the most common causes of fires. Defective or misused electrical equipment is a major cause of electrical fires. If you encounter a small electrical fire, first call 911.

If you're trained in the use of fire extinguishers, make sure the fire isn't out of control, find the proper fire extinguisher, and extinguish the fire. If you're not trained, or the fire is too big, evacuate the area immediately.

Be sure to use only a Class C or multi-purpose (ABC) fire extinguisher to extinguish an electrical fire. Spraying a conductive material, such as water, on an electrical fire might make the problem worse.