



STANFORD UNIVERSITY

ENVIRONMENTAL HEALTH & SAFETY

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ELECTRICAL SAFETY

The danger of injury through electrical shock is present whenever electrical power is used. All electrical equipment should be adequately insulated, grounded, or isolated to prevent bodily contact with any source of dangerous potentials. Under certain conditions people can be injured severely even from relatively low voltages coupled with high current.

The primary effects of electrical shock are due to current actually flowing through the body. Electrical burns occur when the body, or a part of it, completes a circuit connecting the power source with the ground. Although the resistance of dry, unbroken skin to electric current is relatively high, the amount of current necessary to kill a person is small. Therefore, it is easy to exceed lethal levels of current flow, especially if the skin is broken, wet, or damp with sweat.

If your equipment runs erratically or if you feel an electrical “tingle” when you touch it, stop using the tool, tag it, and have it repaired. Whenever the risk of electrocution is high, wear the right protective clothing-insulated gloves, eye protection, boots, and head gear. If you are not sure what to wear, ask your supervisor or contact EH&S for assistance.

General electrical safety is currently addressed in the General Safety Training (EHS 103). Specific electrical hazards and safe practices are to be covered locally by supervisors via safety training on standard operating procedures.

Below are basic electrical safety rules, taken from Stanford University’s Code of Safe Practices:

1. Immediately report damaged/ malfunctioning items to supervisor and take out of service until repaired by a qualified electrician
2. Equipment and handheld tools should have 3-prong plugs and/ or double insulation
3. Portable electric tools shall not be lifted or lowered by means of the power cord. Ropes shall be used
4. Use Ground Fault Circuit Interrupter (GFCI)-type outlets or portable GFCIs when possible (esp. outdoors, or other potentially wet areas)
5. For any tool/ equipment that generates heat, unplug when not in use
6. Avoid using extension cords as permanent wiring (>90 days)
7. Do not “daisy chain” extension cords and/ or power strips

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8. Prevent damage to the cord and plug (i.e., avoid using nails to secure cord, avoid placing in walkways/ driveways)
9. Only use extension cords rated for the equipment power needs
10. Avoid overloading electrical outlets
11. Label all circuit box switches
12. Leave at least 36" clearance in front of electrical panels
13. Ensure no energized or circuits/ parts are exposed (i.e., outlet cover plates, electrical panel doors)
14. NEVER repair/ modify electrical wiring unless shop-specific training is provided (Contact the University's Electric Shop (x3-1836) for assistance)

For more information, please contact the EH&S Occupational Health and Safety Program, at 725-3209.