

## Electrical Safety

The hazards associated with the use of electricity include electrical shock and electrical fires caused by shorts and overloaded circuits or wiring. In addition, sparks from electrical equipment can serve as an ignition source for flammable or explosive vapors or combustible materials. Most incidents are a result of unsafe work practices, improper equipment use, and faulty equipment. Adherence to the following rules and procedures can significantly reduce the electrical hazards one might encounter in the workplace:

- Know the location of electrical panels and disconnect switches in or near your laboratory so that power can be quickly shut down in the event of a fire or electrical accident. To enhance safety, post the location of the electrical panel on the equipment it services.
- Never obstruct electrical panels and disconnect switches. **A minimum 3-foot clearance must be maintained around electrical panels at all times to permit ready and safe operation and maintenance of such equipment.**
- **Do not overload circuits or wiring.** Overloading can lead to overheated wires and arcing, which can cause fires and electrical shock injuries.
- Inspect all electrical equipment (hot plates, stirrers, ovens, extension cords, etc.) before use to ensure that cords and plugs are in good condition—not worn, twisted, frayed, abraded, corroded, or with exposed wires or missing ground pins. Live parts must be effectively insulated or physically guarded. Equipment with damaged or defective cords or plugs should be taken out of service immediately and repaired by qualified personnel.
- Follow the manufacturer’s operating instructions.
- Use physical barriers to prevent inadvertent contact with the equipment
- Do not disable safety devices.
- Use warning signs to alert others of the potential electrical hazard.
- Ensure that all electrical outlets have a grounding connection requiring a three-pronged plug. All electrical equipment should have three-pronged, grounded plugs or be double insulated.
- Electrical outlets, wiring, and other electrical equipment integral to the building may only be serviced and repaired by Facilities Operations qualified trades personnel or other qualified electricians.
- Work on electrical equipment must be done only after the power has been disconnected.
- On cord and plug connected equipment, the power cord must be unplugged and under the exclusive control of the person performing the work so that the equipment cannot be accidentally turned on by someone else. On hard-wired equipment, the main disconnect device or circuit breaker must be shut off and locked and tagged with a special padlock and tag.
- **Service and/or repair work on hard-wired equipment may only be carried out by authorized individuals who have received Lock out/Tag out training**