Electrical Safety Compliance Guidelines

INTRODUCTION AND SCOPE

Arizona State University's (ASU) academic, research, athletic and public events, and ancillary support operations utilize electrical equipment as well as have electrical power distribution throughout the facilities in which they reside. ASU and each university department are responsible for ensuring their facility and special events are compliant with applicable federal, state, and local regulations relating to the use of electrical appliances and flexible cords, electrical distribution, installation of electrical distribution as well as ensuring a safe operation. ASU Environmental Health & Safety (EH&S) is responsible for inspecting, reviewing plans, and corresponding with each department or unit to facilitate a safe compliant facility and operation. The following guidelines have been prepared for university personnel to facilitate a safe and code compliant operation.

REQUIREMENTS

General Safety

Ensure that unsafe electrical conditions and practices are promptly reported to your supervisor and to University Services Customer Service Desk at (480) 965-3363. Only authorized, qualified electricians install, service, or repair electrical equipment or wiring. All electrical equipment and lighting must be tested and approved by a recognized testing laboratory, e.g., Underwriters Laboratory (UL).

Receptacles

Receptacles are designed to adequately distribute an electrical power source for the occupant and must be installed by qualified electricians to ensure compliance with the electric code. The following items are general guidelines to help ensure a compliant and safe environment.

1. Receptacles and cover plates must be serviceable and adequately placed for occupant use, as well as free of cracks/damage, and securely mounted.
2. Receptacles located outdoors, in damp areas, or located near (within 6 feet) of a water source (e.g., sinks, faucets, fountains) must be Ground Fault Circuit Interrupter (GFCI) rated.
3. Receptacles located outdoors and in damp areas must have a weatherproof cap installed.

Multi-Plug Adapters

Because of the risk of overloading electrical circuits, multi-plug adapters are prohibited. (Exception: any adapter or cord that has an operational circuit breaker is acceptable for more than one appliance as long as used within the recommended use, design, and load capacities of the manufacturer, and the system in which it is connected to is capable of supporting the demand.)

Electrical Equipment Cord Plugs

Electrical equipment including the cord and plug (e.g., computers, typewriters, copiers, portable power tools) must be of dead front construction with no metal exposed. When in use, fully insert plugs so no parts of the prongs are exposed. Inspect equipment periodically to ensure no damage or hazard exists with the cord, plug, and the apparatus. Unsafe equipment must be put out-of-service until repaired or disposed of properly.

Flexible Cords and Extension Cords

The use of extension cords in lieu of permanent wiring, other than temporary use is prohibited. Flexible and extension cords must be tested and approved by Underwriters Laboratories (UL). Extension cords must be at least a minimum of 16 gauge or heavier with a ground (three prong). Periodically inspect cords for signs of fraying, cracking, wear, tear, or any damage to the cord or prongs and the adapters, outlets, or equipment they are plugged into. Remove defective cords from service immediately. Extension cords

must always be used in accordance with manufacture's guidance and applicable codes. Other code restrictions of flexible cords are as followings:

1. Use of cords that constitute a safety or fire hazard such as hung over nails or rafters.
2. Securing cords in a manner that will prevent visible inspection or that can cause damage to the cords or plug.
3. Running cords through walls, ceilings, floors doorways, window, or similar openings.
4. Running electrical cords under rugs, carpets, or other combustible materials. (If cords must be placed in travel lanes, protect them with molded housings or bridges).
5. Use of cords in a manner in which they are stretched or bent excessively. (This damages internal wire strands. Using cords in continuous length will help to prevent damage to internal wire strands and insulation cover).
6. Running cords through puddles of standing liquids, such as water or oils. (Cords should always be maintained dry and free from oil, grease, water, or waxes. If extension cords are used within 6 feet or a water source, they must be GFCI rated).

When disconnecting cords, pull on the plug rather than the cord to avoid damaging connections or pulling insulation cover away from the plug.

Electrical Panels
A minimum 36-inch clearance must be maintained around electrical controls, panels and disconnects at all times. Do not tape circuit breakers in the "ON" position. Breakers that frequently trip indicate possible electrical problems and must be promptly reported to University Services Customer Service Desk at (480) 965-3633. Electrical panels must have a current legend identifying each breaker switch's area of control and no wiring can be exposed inside the panel.

Portable Heaters and Home Appliances
It is preferred that home appliances (toasters, hot plates, fans, etc) not be used in University Buildings. If they are used, each unit must be tested and approved by UL; plugged directly into a wall outlet or surge protector with a circuit breaker; in good working condition with no sign of damage; and placed where it will not cause a trip or electrical hazard. When portable heaters are necessary the manufactures guide to safe use must be followed and they must have the extra safety features (automatic shutoff if tipped over, temperature control with automatic shutoff it temperature exceeds a predetermined degree as specified by the manufacturer).

Applicable Regulations

29 CFR § 1910
Arizona Administrative Code R4-36-201 et seq
National Electric Code (NFPA 70)

University Documentation and Manuals

Arizona State University Fire Prevention and Safety Plan

This guideline is provided as a general guideline for office safety practices and does not cover all code compliance issues. If you have any questions or concerns, or need additional information, contact the ASU Fire Marshal at (480) 965-1823 or e-mail at EHS@asu.edu.