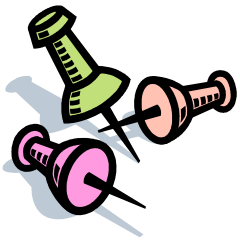
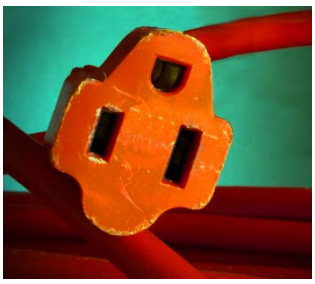
Safety Note

UNIVERSITY OF CALIFORNIA
AGRICULTURE AND NATURAL RESOURCES
ENVIRONMENTAL HEALTH AND SAFETY



Safety Note #144

ELECTRICAL EXTENSION CORD SAFETY



The U.S. Consumer Product Safety Commission (CPSC) estimates that each year, about 4,000 injuries caused by electric extension cords are treated in hospital emergency rooms. About half the injuries involve fractures, lacerations, contusions, or sprains from people tripping over extension cords.

CPSC also estimates that each year about 3,300 residential fires are caused by extension cords, killing 50 people and injuring about 270 others. The most frequent causes of such fires are short circuits, overloading, damage and/or misuse of extension cords. Here are some guidelines to follow when using an extension cord:

- Extension cords must be of sufficient current-carrying capacity to power the device(s) it will be used with (See table below). Longer extension cords require increased conductor size to compensate for voltage drop. Information on the wire gauge and amperage rating of an extension cord can normally be found printed on the cord. A good rule of thumb to follow is to use one wire gauge heavier for every 100 feet of additional cord length. Do not connect two or more cords together when additional length is needed.

Cord Length	Load Ampere (Current) Rating					
	0-2	2-5	5-7	7-10	10-12	12-15
25 ft	16 AWG	16 AWG	16 AWG	16 AWG	14 AWG	14 AWG
50 ft	16 AWG	16 AWG	16 AWG	14 AWG	14 AWG	12 AWG
100 ft	16 AWG	16 AWG	14 AWG	12 AWG	12 AWG	
150 ft	16 AWG	14 AWG	12 AWG	12 AWG		
200 ft	14 AWG	14 AWG	12 AWG	10 AWG		

(AWG: American Wire Gauge)

- Cords should not be repaired with electrical tape or any other type of tape. This may conceal damage the cord has received and it does not provide the integrity of the original jacket.
- Never use extension cords as a replacement for rope. It is not designed for securing or hauling equipment and/or materials.
- Do not use extension cords that are frayed, cut, or damaged such that inner conductors show, or that have outer sheaths which have pulled loose from their molded plugs exposing the inner conductors. In particular, do not use a cord that has a bare conductor exposed. In addition do not use extension cords missing the third post (ground post).
- Extension cords should not run through doors, ceilings, windows, holes in walls, or through hinged door openings in enclosures to prevent “pinch” damage to the cord. If it is absolutely necessary to run an extension cord through a doorway or open window for short-term use, the cord must be protected from damage should the door or window slam shut; it must be removed immediately when no longer in use; and must not be a trip hazard.
- Avoid running vehicles or equipment over uncovered extension cords. This can lead to splitting or internal damage to the extension cord.
- When running an extension cord along the ground is best to use a protective covering or duct of some kind or tape to help prevent creating a trip hazard.
- Extension cords should not be used in place of permanent facility wiring. Cords shall not be attached to building surfaces, structural members or permanently concealed in walls, ceilings, under floors or carpeting. In addition Title 8 Section 2799 of the California Code of Regulations (CCR) states that, except for construction purposes, temporary wiring can only be used for 90 days.
- Check the plug and the body of the extension cord while the cord is in use. Noticeable warming of these plastic parts is expected when cords are being used at their maximum rating, however, if the cord feels hot or if there is a softening of the plastic, this is a sign of a problem and the cord should be de-energized and discarded.