News at work

Extension cord and power strip safety

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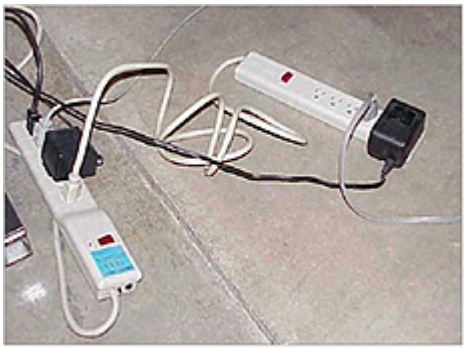

Do not plug power strips into other power strips. Power strips must be plugged into permanent outlets. *Photo: Fermilab Roads and Grounds*

Extension cords and power strips offer convenience and flexibility, but improper use can create fire hazards and is the most commonly cited problem during safety inspections at Fermilab.

The most frequent violations are:

1. **High-power appliances plugged into power strips**: According to the rules of safety standards company UL and Department of Energy policy, high-power devices such as space heaters, refrigerators and most counter top kitchen appliances must be connected only to permanent building outlets, not to extension cords or power strips. Heavy-duty extension cords, called appliance cords, may be used for these appliances if a work area cannot be rearranged to eliminate the need. They are available from the Fermilab stockroom, item numbers 1170-092000 and 1170-094000.

2. **Daisy chains**: A daisy chain is a power strip or extension cord that is plugged into another power strip or cord. Daisy-chaining is not allowed at the laboratory. Each power strip and extension cord must be plugged into a permanent outlet. The stockroom carries a power strip with a 25-foot cord (1170-102300) to help prevent this problem.

3. **Improper installations**: Extension cords and power strips are considered temporary wiring, so they must be accessible and removable. Cords cannot be attached to or hidden in walls, ceilings or under carpet and flooring. Access to their plugs cannot be blocked by heavy furniture or equipment. To prevent pinching and fraying, cords must not pass through windows or doorways. To protect cords and reduce tripping hazards, cords that cross passageways must have covers. See stockroom number 1125-120000. Power strips cannot hang from their cord or the cords of their loads. The receptacle end of a power strip may be attached to a building or furniture, but it must be removable without tools.

4. **Overloads**: An appliance's power draw (in watts) is found in the fine print on its bottom or side. The total watts of all loads on cord or power strip must not exceed its capacity. A power strip's capacity is found in its fine print; the capacity of a cord is determined by the size of its wires. A cord's wire size, for example 18 AWG, is stamped into its jacket. The capacity of an 18 AWG cord is 960 watts; for 16, 14, and 12 AWG cords, the watt limits are 1,248, 1,728 and 2,400 respectively.

5. **Wear and damage**: Cords and power strips that have been damaged or that no longer hold plugs firmly in their receptacles are a fire hazard that must be promptly replaced or repaired by trained personnel.

For more information, please see the Electrical Safety Subcommittee's determinations regarding multiple outlet strips and appliance cords and the Visual Guide to Stockroom Electrical Safety Supplies.

—Dave Mertz, ESH&Q electrical safety officer

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