



fast facts

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Temporary Extension Cords and Power Connectors Should Not Be Used for Permanent Wiring

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Improper use of easily overloaded, unapproved extension cords can present a serious fire safety hazard in the workplace as well as the home. In fact, misuse of extension cords led to a significant and costly fire in an Executive Branch office building in 1998. The National Fire Protection Association's report for 2008 explains that electrical fires, electrical failures or malfunctions result in an average of 53,600 home fires each year. These fires caused more than 500 deaths, injured 1,400 people and accounted for \$1.4 billion in property damage. The Bureau of Labor Statistics of the U.S. Department of Labor reports that during 2007, workers suffered 1,100 electrical burn injuries and 1,480 electrical shock injuries in the private sector.

Verification of a Safe Extension Cord

Extension cords and power connectors over 50 volts must be tested and labeled by an Occupational Safety and Health Administration (OSHA) recognized testing laboratory. Approved extension cords and connectors are safe for use when following the manufacturer's recommendations for brief periods of time. Figure 1 shows a non-compliant light duty extension cord that is not labeled by a laboratory and is considered unapproved. The U.S. Consumer Product

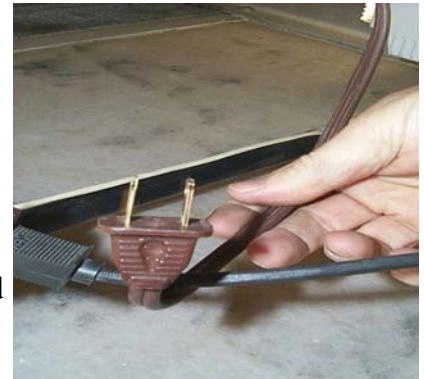


Figure 1 Non-approved light-duty extension cord

Safety Commission (CPSC) recalls unsafe extension cords. Many are foreign made and some have counterfeit labels. You may wish to check the CPSC website, www.cpsc.gov, before making a purchase.



Figure 2 Three prong plug into a two-wire extension cord

Extension cords vary from light to heavy duty based on intended use requirements. For example, extension cords made with only two wires and no ground wire (a two prong plug) are made to power a single lamp with a small current load. On the other hand, heavy duty three wire extension cords grounded with multiple covering layers of insulating protective covering materials are made to power heavy duty tools such as those used in construction work. Others are made for temporary service, such as for holiday lighting, or powering an electrical tool that is

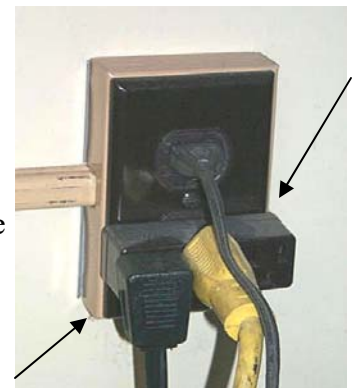


Figure 3 Multi-tap and extension cord in use.

moved to different locations, such as during maintenance or emergency repair work. There are varying regulatory requirements, depending on the use of extension cords, for connected cube taps (or a box with outlets), multi-taps, and other temporary wiring devices used to power grounded equipment. A ground connection is required in all of these devices in order to maintain a protective system. See Figure 3.

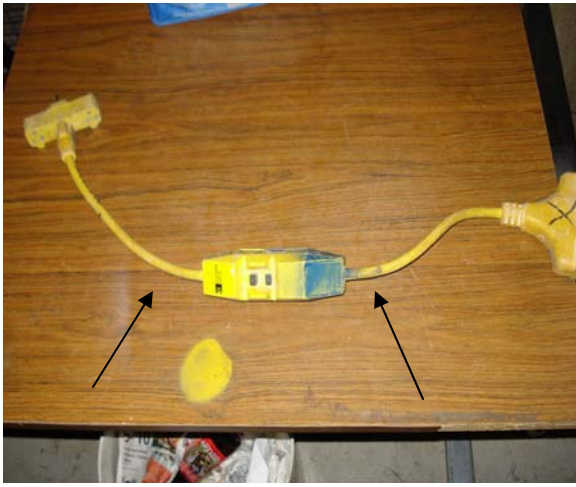


Figure 4 Extension Cord with a “pigtail” Ground Fault Circuit Interrupter

Many of the extension cords being used today have built-in ground fault circuit interrupters (GFCIs) to enhance the user’s protection during emergencies, wet locations, construction and similar types of work. See Figures 4 and 5. If double insulated tools are used, then grounded temporary receptacles are not required. The NFPA’s, National Electrical Code (NEC) and OSHA’s electrical standards require electrical equipment to be approved and used in accordance with the agency’s laboratory label and manufacturer’s requirements.



Figure 5 Extension Cord with “built in” Ground Fault Circuit Interrupter

Improper Application of Temporary Wiring Devices

The NEC and OSHA make clear that temporary electrical devices are to be removed immediately from service once the construction work or other purpose for using the temporary wiring is completed. Temporary wiring is not to be used as permanent wiring. For example, there is a 90 day limit for an extension cord and other temporary wiring devices used for holiday lighting at a given location, as established by the NEC and by OSHA in its electrical standards.

Most of the temporary wiring violations identified in the Legislative Branch are found in offices, particularly in historic buildings with limited electrical receptacles that are often beyond the reach of appliance power cords. When temporary wiring is necessary, avoid using extension cords having plugs with only two prongs and connections with two slot openings when you are powering grounded electrical devices. See Figure 1 for an image of what to avoid. (For more information see Fast Facts on *Damaged Power Cords, Power Strips & Dangerous Daisy Chains and GFCIs*).

Devices to Avoid for Temporary Wiring and Power Needs

Temporary wiring devices are not the solution when a permanent power supply is needed. A power strip or surge protector with a longer power cord could be an acceptable alternative. Two-wire extension cords are easily overloaded, causing them to get hot enough to short-circuit or ignite combustible materials in contact with them, especially those cords equipped with multiple receptacles. Light duty extension cords should never be used for powering multiple items at the same time, such as space heaters, toasters or hair dryers that have a high energy demand and those with exterior metal surfaces that need to be grounded. Visit the CPSC website and review the lists of those extension cords that have been recalled in recent years, including those with undersized electrical conductors and no ground connection.

Relevant OSHA and NFPA Standards

- 29 [CFR§1910.303 – Conductors and equipment are acceptable only if approved. Equipment shall be free from recognized hazards.
- 29 [CFR§1910.304(b)(3)(ii) – GFCI protections apply to temporary wiring used during maintenance, remodeling, repair of buildings, structures or equipment, or during similar construction-like activities.
- 29 [CFR§1910.305(a)(2) - Temporary wiring needs to protect flexible cords and cables from accidental damage.
- 29 [CFR§1910.305(g)(1) – Flexible cords and cables may not be run through holes in walls, ceilings, floors, doorways or windows, or concealed behind walls, ceilings, or floors.
- 29 [CFR§1910.305(a)(2)(i)(B) – period not to exceed 90 days for Christmas decorative lighting, carnivals and similar purposes, relating to lighting used for specific and temporary purposes, since over time the wiring can break down and become a hazard.

Similar to the above standards of Section 590.3 (B) of the National Electrical Code NFPA 70 establishes 90 days or less for temporary wiring for holiday decorative lighting and power use. Construction, emergencies and similar uses of temporary wiring is to be removed once the work is completed as stated in section 590.3(D).

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Consumer Product Safety Commission website:

<http://www.cpsc.gov/cpscpub/prerel/category/household.html>

By visiting the above website, you can find a complete list of electrical cords that have been recalled as well as detailed information as to where the cords were sold, the time period, and refund or exchange policy that has been implemented by each manufacturer or retailer.



If you have any questions, please do not hesitate to contact the Office of Compliance:

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