

University of Tennessee

Extension Cord Safety Guidelines

Extension cords provide a convenient method of bringing AC power to a device that is not located near a power source. They are also used as temporary power sources. As such, extension cords are heavily used. They are also often involved in electrical code and safety violations. Improper use of extension cords can lead to shock hazards. In addition, use of an undersized extension cord results in an overheated cord and insufficient voltage delivered to the device, thus causing device or cord failure and a fire hazard.

- Extension cords must be approved (by Underwriter Laboratories or another NRTL) and properly maintained with no exposed live parts, exposed ungrounded metal parts, damage, or splices.
- Extension cords must be made of a heavy-duty or extra-heavy-duty rated cable and must be a continuous length. A spliced cord is never permitted.
- Around construction sites, in damp areas, or in an area where a person may be in direct contact with a solidly grounded conductive object such as working in a wash bay, extension cords must be protected by a ground fault circuit interrupter (GFCI). The GFCI can consist of a special circuit breaker, a GFCI outlet, or an extension cord with a built-in GFCI.
- Extension cords should be of sufficient current-carrying capacity to power the device. An undersized cord is a fire hazard.
- Extension cords must be three-conductor (grounded) even if the device has a two-conductor cord. Never use two-conductor extension cords at UT. (Equipment grounding conductors that are part of flexible cords or used with fixture wires shall not be smaller than 18 AWG copper and not smaller than the circuit conductors.)
- Cord repair is not encouraged. In the event it becomes necessary; only qualified personnel may make repairs of extension cords.

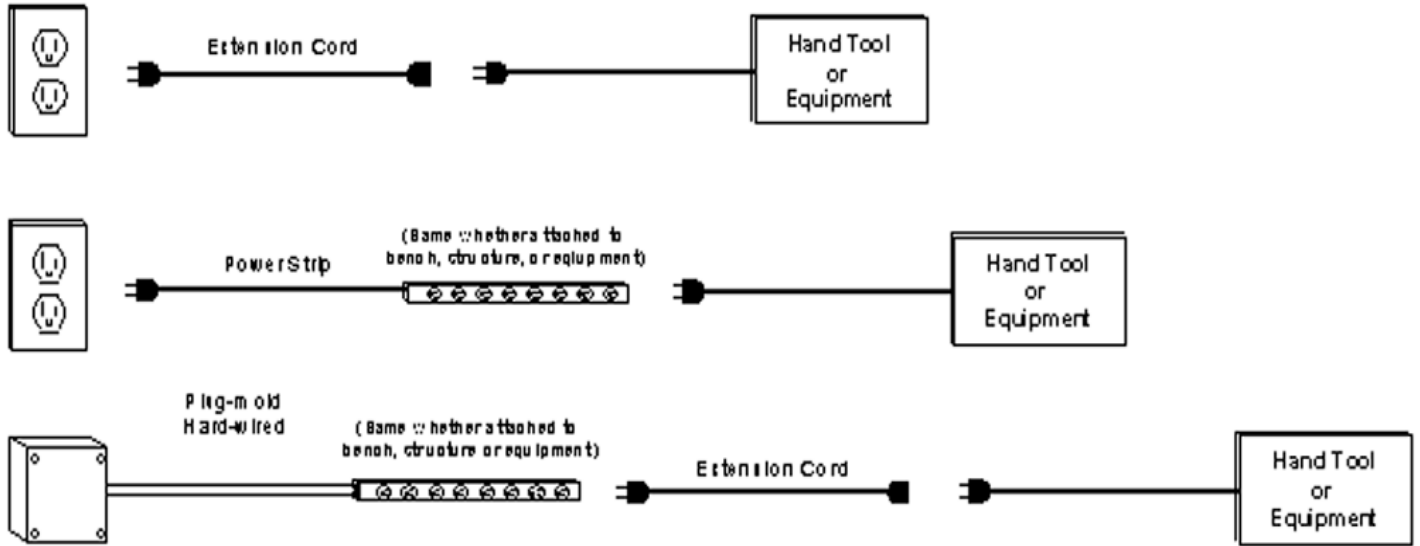
There are very few acceptable combinations of extension cords and devices. Some acceptable combinations are:

- Extension cord to device (electrical equipment)
- Power strip to device
- Surge protector (with cord) to device
- Direct surge protector to extension cord to device
- Direct surge protector to power strip to device

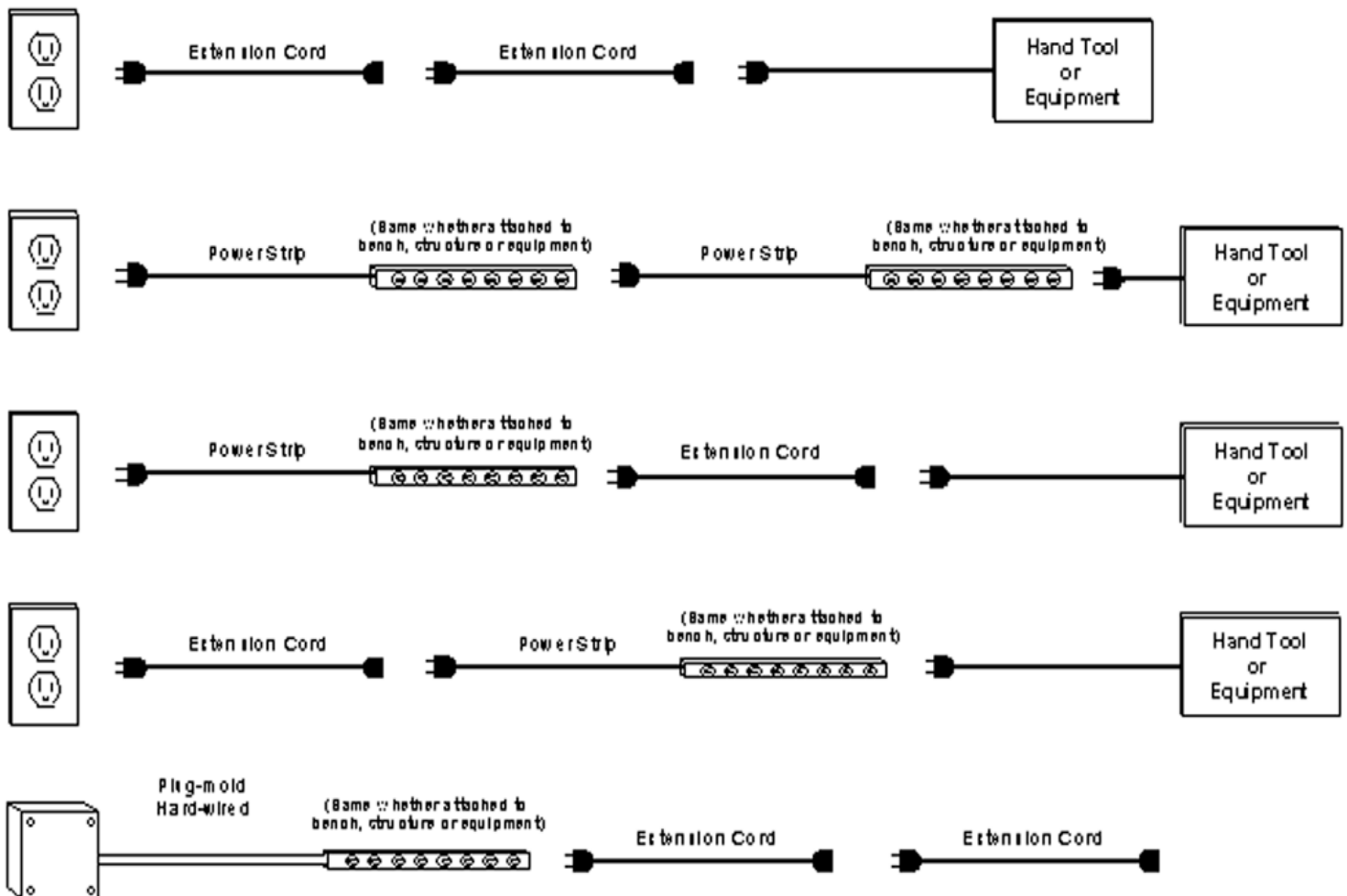
For examples of acceptable and unacceptable combinations of extension cords and power strips, see Figure 1. The examples have been chosen as representative of applications found at UT, however acceptable and unacceptable combinations are not limited to the examples. For questions on a particular application of extension cord or power strip use, please contact the Office of Environmental Health & Safety, University Facilities Services Electric Shop or review Electrical Safety Policy # GS 50 on our website at the following link: <http://web.utk.edu/~ehss/safety%20manual/Safetymanual2kj.html>

Figure 1 below shows acceptable and unacceptable combinations of extension cords and power strips.

Acceptable combinations of extension cords and power strips.



Unacceptable (Daisy-chain) combinations of extension cords and power strips.



Below are some examples of improper extension cord usage.

Examples of Improper Extension Cord Usage

**Power tool –
extension cord –
power strip- outlet**



**Insulation Missing;
Exposed wires**



**Damaged Cord at
plug**



Knotted Cord



**Too many plugged into
one outlet**



**Extension cords on
floor; trip hazard**



**Ground plug broken
off**



**Strained extension
cords**



Examples of Improper Extension Cord Usage

Daisy chained



Person not properly trained working on extension cord; should be discarded



Bent plug



Used as permanent wiring



Below are some examples of proper extension cord use.

Examples of Proper Extension Cord Use

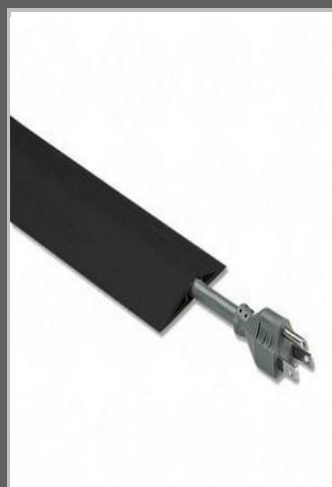
Power tool – extension cord - outlet



Power tool –power strip- outlet



Cord protected from trip hazard in walkway



Extension cord good condition

