

# BASIC ELECTRICAL SAFETY



Never connect extension cords/power strips to each other.



A GFCI should be installed in any location with a potential water hazard (either at the outlet or the circuit breaker).



FM-OHS:

[fm-ohs@virginia.edu](mailto:fm-ohs@virginia.edu)

(434) 297-6379

With this toolbox talk, we will shed light upon basic electrical safety geared towards non-electricians.

## Extension Cords & Power Strips:

- Extension cords should not be used in place of permanent wiring.
- Ensure that cords are in proper working condition (the outer insulation should not be cracked/broken, the ground pin needs to be intact). Discard unsafe extension cords.
  - Only licensed electricians are authorized to replace plugs, or splice cords.
  - Extension cords need to be protected from motor vehicles, fork lifts, pallet jacks, heavy pedestrian traffic, etc.
- Power strips should not be permanently mounted to a wall or any other structure, even if the power strip has specific mounting fittings.
- Power strips or extension cords should not be connected to each other. Doing this can overload the circuit creating a potential fire hazard.

## Circuit Overload Protection Devices:

- These devices are designed to protect the wiring in a house/building and to prevent a potential fire.
- **Fuses:** Break the circuit when too much current is flowing through the circuit. A small conductor inside the fuse heats up and melts when it reaches a specific temperature.
- **Circuit Breakers:** As current increases in the circuit, an electromagnet inside the breaker generates increased magnetic force, eventually being great enough to pull the switch on the breaker from the "on" to the "off" position.

## Ground Fault Circuit Interrupters:

- GFCI's are designed to protect people from an electric shock.
- A GFCI works by detecting a current drop from the hot to the neutral wiring in a circuit. The GFCI detects energy that is escaping the circuit.
- GFCI's should be installed wherever a water hazard is present.
- You will commonly find GFCI plugs on hairdryers, wet vacs, etc.
- GFCI's can be at the breaker, the outlet, incorporated with the plug of the appliance/equipment, or part of a short extension cord.

## Other Common Electrical Safety Issues:

- Discard any piece of equipment that gives you even the slightest shock. If the resistance through your body is lowered (i.e. standing in water or touching metal), even the slightest shock can be deadly.
- Never use electrical equipment in or around water.
- Junction boxes and electrical panels need to have proper covers in place to conceal all wiring.
- Hard wiring should not be exposed/accessible to non-electrical employees.