

Three primary factors affect the severity of the shock a person receives when he or she is a part of an electrical circuit:

- Amount of current flowing through the body (measured in *amperes*).
- Path of the current through the body.
- Length of time the body is in the circuit.

Other factors that may affect the severity of the shock include:

- The voltage of the current.
- The presence of moisture in the environment.
- The phase of the heart cycle when the shock occurs.
- The general health of the person prior to the shock.

Effects can range from a barely perceptible tingle to severe burns and immediate cardiac arrest.

If electrical equipment is used in ways for which it's not designed, you can no longer depend on the manufacturer's built-in safety features. This may damage your equipment and cause employee injuries.

Common Examples of Equipment Misuse:

- Using multi-receptacle boxes designed to be mounted by fitting them with a power cord and placing them on the floor.
- Fabricating extension cords with ROMEX® wire.
- Using equipment outdoors that's labeled for use in only dry, indoor locations.
- Attaching ungrounded, two-prong adapter plugs to three-prong cords and tools.
- Using circuit breakers or fuses with the wrong rating for over-current protection (e.g., using a 30-amp breaker in a system with 15- or 20-amp receptacles). Protection is lost because it won't trip when the system's load has been exceeded.
- Overloading circuits.
- Using modified cords or tools (e.g., removing ground prongs, face plates, insulation, etc.).
- Using cords or tools with worn insulation or exposed wires.
- Using extension cords as a means of permanent wiring.
- Using extension cords or other electrical equipment in areas requiring specialized protection (e.g., flammable liquid storage rooms or paint mixing rooms).

How to Avoid Hazards:

- Use only equipment that's approved to meet OSHA standards [[29 CFR 1926.403\(a\)](#)].
- Use all equipment according to the manufacturer's instructions [[29 CFR 1926.403\(b\)\(2\)](#)].
- Don't modify cords or use them incorrectly.
- Be sure equipment that has been shop fabricated or altered is in compliance.
- Frequently (at least daily) check and inspect tools and cords for damage, missing grounds, or worn cords and damage. Immediately remove and replace all equipment identified with a problem.
- Ensure GFCIs are provided for outdoor or wet environments.
- Use the appropriate equipment for the appropriate environment.

* Source material taken from www.osha.gov.