

## Factsheet: Electrical Safety Summary

1. ***Cord and plug operated*** electric tools with exposed metal parts must have a *three-prong grounding plug* – **and** be *grounded* – or else be *double-insulated*.
2. ***Equipment grounding*** only works when there is a *permanent and continuous* electrical connection between the metal shell of a tool and the earth.
3. ***Proper polarity in electrical wiring is important:*** hot to hot, neutral to neutral, equipment ground to equipment ground. *Polarized plugs* have a wider neutral blade to maintain correct polarity.  
**Reversed polarity can kill.**
4. ***Circuits must be equipped with fuses or circuit breakers*** to protect against dangerous overloads. Fuses melt, while circuit breakers trip to turn off current like a switch.  
**Overcurrent protection devices protect wiring and equipment from overheating and fires.** They may, or may not, protect you.
5. ***Most 120 volt circuits*** are wired to deliver up to 15 or 20 amps of current. Currents of ***50-100 milliamperes*** can kill you. (1 mA = 1/1,000 of 1 Amp.)
6. ***Wet conditions lower skin resistance***, allowing more current to flow through your body. Currents ***above 75 milliamps (mA)*** can cause ***ventricular fibrillation***, which may be fatal. Severity of a shock depends on:  
*path of current, amount of current, duration of current, voltage level, moisture and your general health.*
7. ***A Ground Fault Circuit Interrupter (GFCI)*** protects from a *ground-fault*, the most common electrical hazard. A GFCI detects differences in current flow between hot and neutral conductors.  
It trips when there is *current leakage* – such as through a person – of about ***5 milliamperes (mA)*** and acts within ***1/40 of a second***.  
**Test a GFCI every time you use it. It must “Trip” and it must “Reset.”**
8. ***Extension cord wires must be heavy enough*** for the amount of current they will carry. For construction, they must be UL approved, have strain relief and a 3-prong grounding plug, be durable, and be rated for hard or extra-hard usage.
9. ***Overhead power lines can kill.***  
Three major methods of protection are:
  - maintaining a *safe distance*,
  - *de-energizing and grounding lines*,
  - having the power company install *insulating sleeves*.**Have a power company rep on site.**
10. ***Underground power lines can kill.***  
**Call 811 before you dig to locate all underground cables. Hand dig within three feet of cable location!**