

Power Tools and GFCI's



Toolbox Talk #31

Overview

One may ask, what does the abbreviation “GFCI” stand for? GFCI is the abbreviation for ground fault circuit interrupter; these devices were created to provide protection for users of electrical equipment. The function of a GFCI is very similar to a circuit breaker; the main difference is that GFCI interrupts the flow of power to protect the operator of the tool instead of the tool itself. When an electrical fault or “leak” develops, the return current is less than the current supplied. This can result in three different outcomes contingent on the milliamperes of the current. If it is below one milliampere, the tool operator may feel a slight tingle and usually results in no injury. When the current is between 10-16 milliamperes, the tool operator will experience a painful shock and will have difficulties releasing the tool due to muscle contractions resulting from the shock. Any current 18 milliamperes or more may cause breathing to stop, unconsciousness, and even death.

Different Types of GFCI's

Circuit Breaker/GFCI

- The circuit breaker GFCI serves dual purpose—not only will it shut off electricity in the event of a “ground fault,” but it will also trip when a short circuit or an overload occurs.

Receptacle

- This type of GFCI is used in place of a standard duplex receptacle. It fits into the standard outlet box and protects against “ground faults” whenever an electrical tool is plugged into the outlet. Receptacle-type GFCIs can be installed so that they also protect other electrical outlets in the branch circuit.

Portable

- One type contains the GFCI circuitry in a plastic enclosure with plug and receptacle slots in the front. It can be plugged into a standard receptacle; then, the electrical tool is plugged into the GFCI. Another type of portable GFCI is an extension cord combined with a GFCI. It adds flexibility in using receptacles that are not protected by GFCIs.

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