

# What's the Risk?

## Ungrounded Electrical Circuits



### THE ISSUE

Until the early 1960's ungrounded circuits were used in residential and commercial wiring. With an ungrounded circuit, there were only two wires in the conductor, a load wire, and a neutral wire. Most new conductors now have a load wire, a neutral wire, and a ground wire.



### THE RISK

Receptacles with only two slots (as shown in the image) are an indicator of ungrounded circuits. However, if a new receptacle with three slots was added to old wiring it may also be ungrounded even though it may appear to be a grounded receptacle. A polarity tester can be used to determine if the circuit is grounded or not.

With modern wiring when a short circuit occurs the electricity flows to ground (safely back to the earth) on the ground wire. Without the ground wire, electrical shorts may travel to ground through a person, a metal object a person may be touching (both shock/death hazards) or it might arc to another conductor (a fire hazard).



### WHAT CAN BE DONE?

The preferred solution is to have a qualified electrical contractor upgrade the circuits with new grounded conductors; however, this is not always practical. There are options available to provide protection for ungrounded circuits by using a GFCI (Ground Fault Circuit Interrupter).

A GFCI can be installed as follows:

Type	Where to install
Breaker	<ul style="list-style-type: none"><li>• at the breaker panel to protect the entire circuit</li></ul>
Receptacle	<ul style="list-style-type: none"><li>• at the beginning of the circuit near the electrical panel to protect the circuit downstream of the GFCI</li><li>• at the first receptacle in the circuit to protect the remainder of the circuit</li></ul>

These solutions will not ground the circuit but will shut off the flow of electricity in milliseconds if a short exists.

**In all cases a qualified electrician should be consulted to determine the safest method to address the issue.**

