**How A GFCI Circuit Works**
A typical household circuit has a fuse or circuit breaker which is rated at 15 or 20 amps. An electrical shock of 10 milliamps (1/100 of 1 amp) is enough to stop a human heart resulting in death. A ground fault circuit interrupter (GFCI) can help prevent this type of electrocution inside and outside the home. The GFCI circuit monitors the amount of current exiting one side of the circuit and compares it with the amount of current returning. With a properly operating appliance/device the current will be the same exiting and returning. When someone receives an electrical shock the current is exiting the device, but is traveling through the person and going to ground (a ground fault). If the GFCI circuit detects that 6 milliamps or more of the electrical current leaving the device is not returning, it turns the current off. By installing GFCIs in every home in the United States, the U.S. Product Safety Commission (CPSC) estimates that more than two-thirds of the approximately 300 electrocutions occurring each year could be prevented.

**Use of GFCI Protection on an Ungrounded Circuit**
The National Electric Code permits the use of GFCI protection on an ungrounded circuit (e.g. a 2-prong or 'open ground' 3-prong receptacle). The receptacle must be labeled indicating the lack of a grounding conductor. While this method can reduce the risk of a fatal electrical shocks it does **NOT** reduce the overall risk of electrical shocks. An electrical shock strong enough to trip a GFCI circuit is still very painful and could cause injury. An ungrounded GFCI circuit also does not provide the surge and static protection offered by a properly grounded circuit. For these reasons I personally do not recommend the use of GFCI circuits in place of a 2-prong, ungrounded outlet except in areas where a GFCI circuit should be installed anyway.

**GFCI'S Must Be Tested Regularly**
GFCIs are an effective means of protecting against electrical shock, however, they must be tested regularly -- UL recommends once a month -- to verify they are working properly.Like all products, GFCIs can be damaged. GFCIs damaged by lightning or electrical surges may fail to provide adequate protection. A simple test once a month and after any violent thunderstorm should be conducted. To properly test GFCI receptacles in your home:

- Push the "Reset" button located on the GFCI receptacle, first to assure normal GFCI operation.
- Plug a night light (with an "ON/OFF" switch) or other product (such as a lamp) into the GFCI receptacle and turn the product "ON."
- Push the "Test" button located on the GFCI receptacle. The night light or other product should go "OFF."
- Push the "Reset" button, again. The light or other product should go "ON" again.

If the light or other product remains "ON" when the "Test" button is pushed, the GFCI is not working properly or has been incorrectly installed (mis wired). If your GFCI is not working properly, call a qualified, certified electrician who can assess the situation, rewire the GFCI if necessary or replace the device."GFCIs are proven lifesavers, however, consumers need to take a few minutes each month to do this simple test. By taking action, you can help protect your family from the risk of electric shock," says John Drengenberg, UL Consumer Affairs Manager.

**Types of GFCI Devices**
Several types of GFCIs may be installed in/around your home. Look for the UL Mark on GFCIs when purchasing them or when specifying the product to your electrician.

- Wall Receptacle GFCI -- This type of GFCI -- the most widely used -- fits into a standard outlet and protects against ground faults whenever an electrical product is plugged into the outlet. Wall receptacle GFCIs are most often installed in kitchens, bath and laundry rooms, and out-of-doors where water and electricity are most likely to be in close proximity.
- Circuit Breaker GFCI -- In homes equipped with circuit breakers, this type of GFCI may be installed in a panel box to give protection to elected circuits. Circuit breaker GFCIs should also be checked monthly. Keep in mind that the test will disconnect power to all lights and appliances on the circuit.
- Portable GFCI -- A portable GFCI requires no special knowledge or equipment to install. One typecontains the GFCI circuitry in a self-contained enclosure with plug blades in the back and receptacle slots in the front. It can then be plugged into a receptacle, and the electrical products are 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. Portable GFCIs should only be used on a temporary basis and should be tested prior to every use.

**Recommended Locations for GFCI Protection**

- All bathroom receptacles
- Kitchen counter top receptacles withing 6 feet of a sink
- Any receptacle near a sink
- All exterior receptacles
- Receptacles in garages
- Receptacles in crawlspaces
- Receptacles servicing or near pools and spas

**Where to Not Use GFCI Protection**
A GFCI can trip due to surges during normal cycling of motor driven appliances. This is mostly an inconvenience, however it can result in damage (food spoilage, flooding due to non-operational sump pump). If GFCI protection is not used, then ensure that the appliance is properly grounded to reduce the risk of electrical shock. The design of modern appliances and GFCI devices has reduced incidences of nuisance tripping.

- Refrigerators and freezers
- Sump pumps
- Sewage ejector pumps