1. What is a GFCI?
A GFCI receptacle is different from conventional receptacles. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury.

Definition of a ground fault:
Instead of following its normal safe path, electricity passes through a person’s body to reach the ground. For example, a defective appliance can cause a ground fault.

A GFCI receptacle does not protect against circuit overloads, short circuits, or shocks. For example, you can still be shocked if you touch bare wires while standing on a non-conducting surface such as a wood floor.

2. The GFCI’s features

3. Should you install it?
Installing a GFCI receptacle can be more complicated than installing a conventional receptacle.

Make sure that you:
• Understand basic wiring principles and techniques.
• Can interpret wiring diagrams.
• Have circuit wiring experience.
• Are prepared to take a few minutes to test your work, making sure that you have wired the GFCI receptacle correctly.

4. LINE vs. LOAD
A cable consists of 2 or 3 wires.

LINE cable:
Delivers power from the service panel (breaker panel or fuse box) to the GFCI. If there is only one cable entering the electrical box, it is the LINE cable. This cable should be connected to the GFCI’s LINE terminals only.

LOAD cable:
Delivers power from the GFCI to another receptacle in the circuit. This cable should be connected to the GFCI’s LOAD terminals only. The LOAD terminals are under the yellow sticker. Do not remove the sticker at this time.

5. Turn the power OFF
Plug an electrical device, such as a lamp or radio, into the receptacle on which you are working. Turn the lamp or radio on. Then, go to the service panel. Find the breaker or fuse that protects that receptacle. Place the breaker in the OFF position or completely remove the fuse. The lamp or radio should turn OFF.

6. Identify cables/wires
IMPORTANT:
Do not install the GFCI receptacle in an electrical box containing (a) more than 4 wires (not including the grounding wires) or (b) cables with more than 4 wires (not including the grounding wire). Contact a qualified electrician if either (a) or (b) is true.
• If you are replacing an old receptacle, pull it out of the electrical box without disconnecting the wires.
• If you see one cable (2-3 wires), it is the LINE cable. The receptacle is probably in position C (see diagram to the right). Remove the receptacle and go to step 7A.
• If you see two cables (4-6 wires), the receptacle is probably in position A or B (see diagram to the right). Follow steps a-e of the procedure to the right.

Procedure: box with two cables (4-6 wires)
(a) Detach one cable’s white and hot wires from the receptacle and cap each one separately with a wire connector. Make sure that they are from the same cable.
(b) Re-install the receptacle in the electrical box, attach the faceplate, then turn the power ON at the service panel.
(c) Determine if power is flowing to the receptacle. If so, the capped wires are the LOAD wires. If not, the capped wires are the LINE wires.
(d) Turn the power OFF at the service panel, label the LINE and LOAD wires, then remove the receptacle.
(e) Go to step 7B.

Placement in circuit:
The GFCI’s place in the circuit determines if it protects other receptacles in the circuit.

Sample circuit:

1. What is a GFCI?• To prevent severe shock or electrocution, always turn the power OFF at the service panel before working with wiring.
• Use this GFCI receptacle with copper or copper-clad wire. Do not use it with aluminum wire.
• Do not install this GFCI receptacle on a circuit that powers life support equipment because if the GFCI trips, it will shut down the equipment.
• For installation in wet locations, protect the GFCI receptacle with a weatherproof cover that will keep both the receptacle and any plugs dry.
• Must be installed in accordance with national and local electrical codes.

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A GFCI receptacle does not protect against circuit overloads, short circuits, or shocks. For example, you can still be shocked if you touch bare wires while standing on a non-conducting surface such as a wood floor.

This is a Self-Test GFCI Receptacle with SafeLock™ Protection; it conducts an automatic test every three seconds, ensuring it’s always ready to protect. If the device fails the test, the indicator light flashes to signal that the GFCI should be replaced. It also has our proven SafeLock Protection feature: if critical components are damaged and protection is lost, power to this receptacle, and any downstream receptacles, will be disconnected.

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Sample circuit:
7. Connect the wires (choose A or B)... only after reading other side completely

A: One cable (2 or 3 wires) entering the box

- Grounding connection box (if box has a grounding terminal)
- Yellow sticker remains in place to cover the LOAD terminals

B: Two cables (4 or 6 wires) entering the box

- Connect the LINE cable wires to the LINE terminals:
  - The white wire connects to the White terminal (Silver)
  - The black wire connects to the Hot terminal (Brass)

- Connect the LOAD cable wires to the LOAD terminals:
  - The white wire connects to the White terminal (Silver)
  - The black wire connects to the Hot terminal (Brass)

- Connect the LOAD cable wires to the LOAD terminals:
  - The black wire connects to the Hot terminal (Brass)
  - The white wire connects to the White terminal (Silver)

- Connect the LOAD cable's bare copper (or green) wire using a wire connector. If these wires are already in place, check the connections.

Complete the installation:
- Fold the wires into the box, keeping the grounding wire away from the White and Hot terminals. Screw the receptacle to the box and attach the faceplate.
- Go to step 8.

8. Test your work

Why perform this test?
- If you miswired the GFCI, it may not prevent personal injury or death due to a ground fault (electrical shock).

Procedure:
(a) Turn the power ON at the service panel. Press the RESET button fully. The RESET button should stay in. If the RESET button does not stay in, go to Troubleshooting. If the RESET button stays in, plug a lamp or radio into the GFCI and (leave it plugged in) to verify that the power is ON. If there is no power, go to Troubleshooting.

(b) Press the TEST button in order to trip the device. This should stop the flow of electricity, making the radio or lamp shut OFF and the GFCI's red indicator Light (if present) come on. Note that the RESET button will pop-out. If the power stays ON, or the red Indicator Light stays off, go to Troubleshooting. If the power goes OFF, and the red Indicator Light comes on, you have not installed the GFCI receptacle correctly. To restore power, press the RESET button.

(c) If you installed your GFCI using step 7B, plug a lamp or radio into surrounding receptacles to see which one(s), in addition to the GFCI, lost power when you pressed the TEST button. Do not plug life saving devices into any receptacles that lost power. Place a “GFCI Protected” sticker on every receptacle that lost power.

(d) Press the TEST button (then RESET button) every month to assure proper operation.

(e) This is a Self-Test GFCI Receptacle with SafeLock Protection™; it conducts a self-test every three seconds, ensuring it is always ready to protect. If the device fails the test, the indicator light flashes to signal that the GFCI should be replaced. It also has our proven SafeLock Protection feature: if critical components are damaged and protection is lost, it will power off to this receptacle, and any downstream receptacles, will be disconnected.

TROUBLESHOOTING

Turn the power OFF and check the wire connections using the appropriate wiring diagram in step 1A or 7B. Make sure that there are no loose wires or loose connections. Also, check the LINE and LOAD connections. LINE/LOAD reversal will be indicated by no power at the GFCI and by the RESET button not staying in when pressed, or by the indicator light remaining off after you press the GFCI's TEST button. Reverse the LINE and LOAD connections if necessary. Start the test from the beginning of step 8 if you rewired any connections to the GFCI.