



Search



[Home](#) > [Research & Reports](#) > [Fact sheets](#) > [Electrical safety](#) > [Electrical circuit-interrupters](#)



## Electrical circuit-interrupters

Mor

[NFPA fact s](#)  
[NFPA' site](#)

### Research & Reports

[Electrical circuit-interrupters](#)

[Electrical safety in the home](#)

[printer version](#)

[email page](#)

Protective devices capable of responding to overloads and short circuit, such as circuit breakers, have been available for a number of years. Newer technologies now provide enhanced protection from arcing or ground-faults, which may prevent fires or shock.

### AFCIs (arc-fault circuit-interrupters)

When an electrical switch is opened or closed, an arc, or discharge of electricity across a circuit, occurs. Unintentional arcs can occur at loose connections or where wires or cords have been damaged. Such arcs can lead to high temperatures and sparking, possibly igniting combustibles. AFCIs (arc-fault circuit-interrupters) protect against fire by continuously monitoring the electrical current in a circuit and shutting off the circuit when unintended arcing occurs. These devices are designed to discriminate between unintended arcing and the type of arcing that occurs when a switch is operated.

FEA

### GFCIs (ground-fault circuit-interrupters)

A ground-fault is an unintentional electrical path between a source of electrical current and a grounded surface. Electrical shock can occur if a person comes into contact with an energized part. GFCIs (ground-fault circuit-interrupters) can greatly reduce the risk of shock by immediately shutting off an electrical circuit when that circuit represents a shock hazard (i.e., a person comes in contact with a faulty appliance together with a grounded surface). GFCIs can be installed in a circuit breaker panelboard or directly in a receptacle outlet.

[Nations Softbou Edition](#)  
Meet th today's with the *Electric*

### Facts and figures

- **AFCI** installation is required by the [National Electrical Code® \(NEC\)](#) in bedrooms of new residential construction (effective as of January 1, 2002). Bedrooms were selected as the first area in which to implement this requirement because of a history of fires there.
- **GFCI** installation is required by the *NEC* for receptacles in kitchens, bathrooms, outdoor areas, basements and garages in new residential construction because of a history of shock hazards in these areas.

### Safety tips

- All AFCIs and GFCIs, whether circuit-type or breaker-type, should be installed by a qualified electrician.
- Test AFCIs and GFCIs after installation and once a month thereafter to make sure they are working properly.
- Replace defective AFCIs and GFCIs immediately. A defective device may create a false sense of security to those who do not know that it is non-functional.

Choose AFCIs and GFCIs that carry the label of an independent testing

laboratory and always follow the manufacturer's instructions.

Updated 4/02

[top of page](#)

NFPA Mission: Reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. [More about NFPA.](#)

[Advertising](#) | [Privacy Policy](#) | [Terms of Use](#) | [Help](#)

© [Copyright](#) 2006, NFPA. All rights reserved.

**URL:** <http://www.nfpa.org/itemDetail.asp?categoryID=285&itemID=19048&URL=Research%20%20Reports/Fact%20sheets/Electrical%20safety/Electrical%20circuit-interrupters>