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REAL ESTATE

Preventing Shocks and Electrical Fires

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HOME electrical fires kill some 480 people a year in the United States, injure more than 2,000 and destroy more than \$868 million in property, the National Electrical Manufacturers Association says. And while smoke detectors can alert the household to a fire, other devices can help prevent a fire in the first place. There are also devices that can protect people from electrical shock.



Gerard Winstanley, a program manager for the manufacturers' group, said that one of the newest and most effective prevention devices is the arc fault circuit interrupter, or A.F.C.I., which can replace the ordinary circuit breaker.

Mr. Winstanley explained that the device is designed to trip if an arc — basically, a spark flowing through the air from one piece of metal to another — is detected anywhere in that circuit. Arcing is dangerous, he said, because carbon can build up where the arc occurs and can eventually create enough heat to cause a fire.

The A.F.C.I. is able to distinguish between the normal arc produced by electrical motors, lights and switches, and arcs that are occurring where they are not supposed to.

A.F.C.I.'s must have the same amperage as the circuit breaker being replaced. While they cost more — about \$30 as opposed to \$5 or so for an ordinary circuit breaker — the money laid out to replace the 15 to 20 breakers in an average house could be well spent.

Another high-tech device that can replace ordinary electrical outlets is the ground-fault circuit interrupter, or G.F.C.I. While not intended to prevent fires, these devices can keep people from getting shocks.

"G.F.C.I.'s are marvelous devices," said John Drengenberg, the consumer affairs manager for Underwriters Laboratories, the electrical testing organization in Northbrook, Ill.

G.F.C.I.'s monitor the power going into an appliance and the power coming out, and if an imbalance is detected, they will shut down the outlet in microseconds, thus preventing an electrical shock.

When a G.F.C.I. is the first outlet of a series of outlets wired together, it will protect against ground faults in the other outlets. A G.F.C.I. circuit breaker will protect an entire circuit.

A G.F.C.I. outlet costs about \$10, compared with \$1 for an ordinary outlet. A G.F.C.I. circuit breaker is about \$30.

One of the most common and least expensive electrical safety devices is the little gray or orange connector that converts a three-pronged plug into a two-pronged one. But it is also the one most likely to be used incorrectly.

Brett Brenner, president of the Electrical Safety Foundation International, which is affiliated with the manufacturers' association, said that for the adapter to work properly, its grounding wire or tab should be attached to the face of the outlet, using the screw that holds the outlet cover in place. Just plugging an appliance into the adapter and the adapter into the outlet will provide no protection at all.

Additional safety information is available at [esfi.org/safety-tips](https://www.esfi.org/safety-tips) and at [afcisafety.org](https://www.afcisafety.org).