



DO THE **RIGHT THING!**

Install **FIRE-GUARD™**
Arc Fault Circuit Interrupters



**You may not carry
the hose or wear
the helmet,**

but as a contractor you are just as
important to preventing an electrical
fire as a fireman is to extinguishing it.

With today's technology, an electrical
fire caused by an arc fault doesn't
have to happen. At Eaton Corporation,
we have created the technology
that can prevent over 50,000 fires a
year. We invented Cutler-Hammer
FIRE-GUARD™ Arc Fault Circuit
Interrupters (AFCIs) almost a decade
ago. They are now included in the
Canadian Electric Code® for 15 ampere
bedroom receptacle circuits in new
residential construction.

800.268.3578
www.cutler-hammer.ca

EATON
Cutler-Hammer

© 2002 Eaton Corporation
All Rights Reserved
Printed in Canada
Publication No. SA00402001K
June 2003

EATON | **Cutler-Hammer**

Frequently Asked Questions About Arc Faults and Fault Protection

1. What exactly is an arc fault?

An arc fault is an electrical fault characterized by low and erratic current that may ignite combustible materials. There are three dangerous faults that are protected by AFCIs and one safe electrical arc to which AFCIs do not respond.

Parallel Arc — An arc between line and neutral or line and ground that has a high possibility of causing a fire due to its high energy.

Ground Faults — These can be high-energy parallel arcs or low-energy faults (if the current flow is from neutral to ground). In either case, there is a dangerous leakage of current to ground.

High Resistance Series Faults — These faults generally occur at loose electrical connections. There is no increased current or arcing to detect. Today's branch/feeder AFCIs have been shown to mitigate these faults by responding to the resulting parallel arc or ground fault due to insulation failure caused by the resistive heating.

Series Arcs — These are the sparks that occur when one wire in a circuit is broken. The current flow is very low (limited to the current that the load is drawing), and the spark interrupts within a short time (typically less than 1/60th of a second) causing the current to stop flowing. Such sparks are highly unlikely to cause a fire, and actually occur every time a light is turned on at a switch. Series arcs happen hundreds of times in homes every day in switches and appliances.

2. Why is it so important to provide arc fault protection in homes?

Arc faults, ground faults and high resistance series faults can occur in any home. Electrical arcs cause over 50,000 residential fires in North America each year^① and they often occur out-of-sight behind the walls or at electrical terminations. Conventional breakers and fuses do not protect against these faults, while AFCIs are designed to specifically look for these conditions.

3. How does the Cutler-Hammer FIRE-GUARD™ work?

The FIRE-GUARD uses electronic circuitry to identify the low and erratic current that parallel, ground and high-resistance series faults cause. Once these faults are recognized, the circuit is immediately de-energized — reducing the possibility of nearby combustible materials from igniting.

4. What should I know about the 2002 CEC Code changes?

The 2002 Code states:

26-722(f) - Branch circuits that supply receptacles installed in sleeping facilities of a dwelling unit shall be protected by an arc-fault circuit interrupter.

26-722(g) - For the purposes of paragraph (f), an arc fault circuit interrupter means a device intended to provide protection from the effects of arc-faults by recognizing characteristics unique to arcing and functioning to de-energize the circuit when an arc fault is detected.

5. What other information is available?

Cutler-Hammer can provide a variety of materials to help you understand and install AFCIs. They include installation and education videos, troubleshooting guides and customer brochures. Contact your local Eaton Cutler-Hammer business unit or authorized distributor.



How Can We Help You Comply With the Code?

As the inventor of this technology, we have innovated ways to install arc fault protection quickly and conveniently.



Technology

Cutler-Hammer AFIT — Get AFCI protection on multi-wire, shared neutral, or homerun circuits. This is a two-pole breaker with two independent 120V circuits. The breakers are designed to trip independently on overloads or short circuits, but trip in common on arc faults.

Contractor Benefit

You can continue using three-wire circuits for labor-saving installation.



Technology

AFCI/GFCI breakers — 15 and 20 ampere one- and two-pole combination breakers for circuits requiring ground fault and arc fault protection. Compliance has never been easier, and protection has never been stronger.

Contractor Benefit

By installing AFCI/GFCI combination breakers you are in compliance with a single installation.



Technology

Two-pole, 240V AFCI breakers — 15 and 20 ampere protection for baseboard heating, room air conditioning, and other 240V loads.

Contractor Benefit

Perfect for contractors looking for a standard 240V two-pole breaker with AFCI protection.

Why worry about arc faults?

Arc faults are small, sputtering electrical arcs that can reach temperatures of 10,000° F, igniting wood, carpet and other nearby combustibles. Many of the fires attributed to “faulty wiring” are caused by arc faults resulting in 500 deaths^② and over \$900 million^② in property damage every year in North America. Only the special electronics in arc fault breakers can sense their presence and shut down the circuit until it can be repaired.

AFCI breakers are the only devices available today that can actually help *prevent* electrical fires. Because there are other causes of fire, you still need to rely on your smoke detectors and fire extinguishers. Arc fault circuit breakers are endorsed by the Consumer Products Safety Commission, the National Fire Protection Association and the National Association of State Fire Marshals.

Where can I get FIRE-GUARD protection?

They are on the shelves of most Cutler-Hammer electrical distributors. For the name of the closest outlet, call 1-800-268-3578.

Make sure you ask for the FIRE-GUARD Arc Fault Circuit Interrupter.

Visit our Web page at www.cutler-hammer.ca

**Remember: You can stop a fire.
You can save a life.**

Bring any home you are working on into compliance by visiting your authorized Cutler-Hammer distributor.

^① Source: NFPA and NFIRS data, 1994-1998

^② Source: National Fire Protection Association (NFIRS) data-2002