

Electrical wiring is to blame for over 40,000 home fires annually. When an electrical arc fault occurs, high temperatures are produced creating risk of ignition of nearby wood, paper and carpets.

There is no way to stop an appliance or electronic device from shorting out, but the risk of an arc fault occurring can be reduced by installing an Arc Fault Circuit Interrupter (AFCI). An AFCI stops all electric current when detecting change in the charge from hot to neutral.

There are three types of arc fault circuit interrupters; branch/feeder AFCI, outlet circuit and combination.

- Required by the National Electric Code, branch/feeder AFCI's are installed within a panel board to provide parallel arc protection of the branch or feeder circuit wiring. It also aids in the protection of arcs in the cord sets and supply cords.
- An outlet circuit AFCI is placed at a branch circuit outlet providing protection against arcing within the cord sets and power supply cords plugged into an outlet. This specific AFCI does not provide protection on feed-thru branch circuit conductors.
- A combination AFCI is typically a receptacle providing protection downstream of the device for branch circuit wiring, cord sets and power supply cords.



Arc Fault Circuit Interrupter

Some electronics such as computers, microwaves and TV's are equipped with transformers that hold power when not in use as long as it is plugged into a receptacle receiving an electric charge. If an arc fault circuit interrupter (AFCI) is in place, the AFCI would trip the breaker stopping all electricity to the device if shortage occurs.

Bedroom lamps are high on the list of household items causing arc faulting because of their low voltage shorting making it hard for a circuit breaker to recognize an abnormality in order to trip the breaker. In 2002, the National Electric Code made it a requirement to have an arc fault circuit interrupter installed on all bedroom receptacle outlets.

An arc fault can occur because of damaged or deteriorating wires and cords, yet such causes like the puncturing of the wire insulation due to picture hanging or cable staples, poorly installed outlets or switches, cords caught in doors or under furniture, furniture pushed against plugs in an outlet, natural aging and cord exposure to heat vents and sunlight are also to blame.

In the case of Unit 4 of the Tennessee Valley Authority power plant, an Arc Fault Circuit Interrupter would have prevented the fire caused on December 31, 2009 at the Rogersville, TN, John Sevier Fossil Plant. As quoted by TVA spokesman Scott Brooks, a large electrical panel caught fire when the unit failed and began to arc. To read more on the John Sevier Fossil Plant fire visit www.timesnews.net.