

What is an AFCI?

Just when you figured out what a GFCI (Ground Fault Circuit Interrupter) is, here comes another electrical device everybody is asking about. It is called an AFCI (Arc Fault Circuit Interrupter). An arc fault circuit interrupter is located in the main electrical distribution panel (usually) and is designed to monitor circuits that serve the sleeping areas of the home. Its function is to protect the occupants from an electrical hazard, specifically fires. The definition of an arcing fault is: "A plasma flame with associated temperatures in excess of 6000 degrees Celsius. Arcing Faults occur when insulation damage or loose connections allow a gap between two conductors or a conductor ground. This gap can allow current to jump between the conductors." The device monitors the wiring for arcing on the circuit to which it is connected to. Once the insulation is damaged or a connection loosens the arcing can overheat nearby components (i.e. wood framing) to become charred. Typically this would not cause a fire immediately; however, over time the wood would become "charred" (which is actually carbon) and be very susceptible to low temperature flash ignition.

A study of U.S. Fire Statistics revealed that in 1999 1.8 million fires were reported, resulting in a \$10 billion loss of property. There were over 3500 deaths and more than 21,000 injuries as a result of these fires. Residential fires made up 21% of all fires and 73% of structural fires. Of the more than 3500 deaths, 82% occurred inside the home.

Well, what does all this mean? This new device will actually monitor the circuit for arcing and if detected can shut the power supply off, something a GFCI cannot do! This device was designed with the fire statistics in mind, and the intention of reducing residential fires and preventing deaths as a result of the fires.

Andy Hilton
Hilton Home Inspection, Inc.
Co-Chair WSRAR/Home Inspectors Task Force Committee