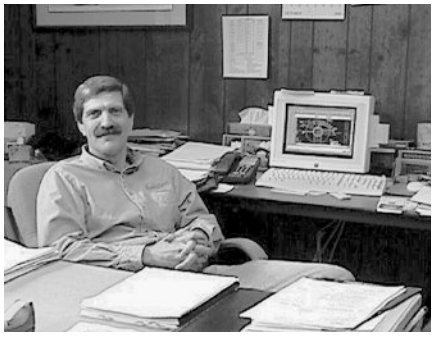

Dave's Corner

Ground Fault Circuit Interrupters

A Ground Fault Circuit Interrupter (GFCI or GFI) is an electronic device that monitors the current in the black and white wires of an AC circuit. If there is an imbalance in the current between the two wires greater than 5 milliamps (thousands of an amp) the GFI will quickly open up the circuit to remove a potential shock hazard. The assumption is that the imbalance is caused by an alternate path to ground (other than the white wire) and that alternate path may represent a human body. But the GFI is also subject to nuisance trips caused by moisture, dirt and even a gathering of lady bugs seeking the warmth of a radon fan motor which can provide an alternative path to ground. Should you use a GFI in a radon fan installation? The short answer is no. Most radon fans have plastic housings and will not present a shock hazard and also nuisance trips render the system ineffective for radon but there are electrical code issues to be considered.

The National Electrical Code (local codes may vary) requires that GFCI receptacles be installed residentially in bathrooms, garages, outdoors, crawl spaces, unfinished basements, kitchens, laundries and boathouses. There are exceptions for various locations if the receptacle is inaccessible or if a single dedicated receptacle is provided for an appliance but these may not cover plug-in installations outdoors depending on the interpretation of the inspector. You can avoid any vague interpretation by hardwiring the fan to a switch. Is there an issue if you hardwire the fan? Possibly; because a GFI outlet is designed to potentially protect more than 1 receptacle in a circuit, as shown below:

If you tap a circuit in an unfinished basement to run a circuit outside for a hard-wired radon fan you may inadvertently connect into a GFCI protected circuit. The first cold snap will generate condensation inside the fan and piping system and you could possibly get a call-back because of a GFCI nuisance trip. Talk about a nuisance.