

May 28, 2008

Judge Richard Lewis
Office of Administrative Hearings
St. Paul, MN

Re: 2008 NEC, proposed amendments

Dear Sir,

I am writing you as president of the Minnesota Chapter of the International Association of Electrical Inspectors. I am also an electrical inspector for the City of St. Paul, and have been an electrical contractor for 6 years in southern Minnesota. We are not in favor of any of the proposed amendments for the 2008 National Electrical Code. We would like the code adopted, as written, as soon as possible, for the following reasons.

210.8 Ground-Fault Circuit-Interrupter Protection for Personnel.

GFCI's have evolved over the last 30 years as a means to protect people from hazardous electrical current. They operate by detecting any leakage current that is not flowing on the intended path, out on the "hot" conductor, and back on the "neutral" conductor. This leakage current could be flowing through you, to ground. Any current over 15 milleamperes can be painful and possibly harmful. At 40 milleamperes, if the current is through the heart, it can cause death. This is less amperage than it takes to light a 15 watt light bulb. A GFCI will trip of at about 6 milleamperes.

When a person is standing on concrete, whether or not the concrete is wet, the concrete provides a very good grounding path, allowing any leakage current to flow through the person through the concrete to ground. This is why the code requires GFCI protection for all unfinished areas such as garages and basements. The previous exceptions were in place because the older GFCI's didn't always work well with motor loads, and would occasionally nuisance trip during lightning storms. This problem has been remedied, as stated by Underwriter's Laboratory and several of the manufactures. Therefore, the exceptions for motor loads in these unfinished areas are no longer required, and we can install them for the reason that they were originally intended for, protection of people.

Per UL standards, all new appliances, sump pumps, air exchangers, refrigerators, etc, can not have more than .3 milleamperes of leakage current to ground. This would mean that it would take more than 20 of these appliances plugged into the same GFCI to cause it to nuisance trip. Incidental amperage from lightning strikes has been eliminated as a concern by new developments in GFCI circuitry. In the case of a direct lightning strike, nuisance tripping of the GFCI is probably the least of the problems.

When I was contracting, if a pump was so necessary that you could not risk loosing power to it, I would use a hard-wired pump, no cord and plug connection, or use a 240 volt pump so there was no chance of the homeowner unplugging it to plug in something

else. A lot of my service calls for pumps were because they had been unplugged, and no one had plugged them back in. Also, as pointed out by Dick Owen, sump pumps are required by the manufacturer to be plugged in to a GFCI-protected circuit.

For these reasons, the electrical inspectors in Minnesota feel that the language in the 2008 NEC, deleting the exceptions for sump pumps, etc. is correct, and the amended language is not needed, and will increase hazards to homeowners.

210.12 Arc-Fault Circuit-Interrupter Protection

AFCI's were developed at the urging of the National Fire Protection Association to stop electrical fires before they start. AFCI's monitor the sine wave flowing through the breaker, and will detect electrical arcing, such as a bad appliance or frayed extension cord, and turn off the power before a fire starts. Please see the attached pictures. These are of only a few of the electrical fires that occurred in St. Paul in April of this year. These fires probably would have not happened if they had AFCI protection for those circuits. A fire sprinkler system would have put the fire out, but it would not have prevented the fire from starting. According to the US Dept. of Homeland Security, Sept. 2007 report on "Benefit-Cost Analysis of Residential Fire Sprinkler Systems", a sprinkler system will only reduce the dollar damage of a fire by approximately 32%. An AFCI breaker would virtually completely eliminate any damage because the fire would never happen.

AFCI breakers are more expensive than standard breakers. A standard breaker is about \$10 – 15. An AFCI breaker is about \$35 – 40. But the cost of installing a sprinkler system, based on the previous Homeland Security report, is between \$1.01 to 1.62 per square foot of house. If we only consider the final cost to the homeowner, the sprinkler system is far more expensive than the AFCI breakers. If the homeowner is going to install a sprinkler system at \$2000 or more, the additional \$300 – 400 for AFCI breakers, to prevent the fire from starting, is probably not going to be a hardship.

Therefore, again, the electrical inspectors in Minnesota feel that the new language in the 2008 NEC is correct, and no amended language is needed. Any amendment would compromise the safety of homeowners.

210.70 Lighting Outlets Required

The exception to not require a lighting outlet in dwelling units for a radon control system in an attic does not make sense. If a radon system is installed, it must be maintained. Motors do fail. And the cost, if power has already been brought to the attic, to add a pull chain lamp holder, is very minimal. If the radon system is not installed, and the attic is not used for storage, the current language in the NEC would not require a light.

The electrical inspectors feel that amended language is not warranted, as there does not seem to be any exception required.

In closing, along with recommending that the 2008 NEC be adopted without amendment, we also ask that you would encourage immediate adoption of the code. The 2008 NEC has been in print and available since Sept. 2007. Many electricians have already taken their code-update classes and are aware of the changes. The state has usually adopted the new code on July 1 of the code-change year. Delaying the enactment date only confuses contractors, and makes it more difficult to bid work.

Thank you for your time and consideration.

Cari Williamette
President
MN Chapter, International Association of Electrical Inspectors