



UNITED STATES
CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

Memorandum

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TO : Jacqueline Elder
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THROUGH: Hugh McLaurin *HML*
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FROM : William H. King, Jr. *WHK*
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SUBJECT : CPSC Staff Proposals for New AFCI Requirements in the *National Electrical Code (NEC)* to Reduce the Risk of Electrical Wiring Fires in Residences

One strategic goal of the U.S. Consumer Product Safety Commission (CPSC) is to reduce the rate of death from fires by 10% over the ten-year period 1995 to 2005. A portion of the fire death problem is fire associated with electrical distribution systems in residences (estimated at 38,800 fires, 280 deaths, and 1,230 fires in 1998). While electrical distribution fire deaths have declined from an estimated 380 in 1995 to an estimated 280 in 1998, further reductions can be achieved by expanding the application of the relatively new electronic device known as the arc fault circuit interrupter (AFCI).

In 1999, the *NEC* adopted a requirement supported by the CPSC staff for AFCI protection for the electrical circuits that supply power to receptacle outlets in bedrooms of dwellings.

Based on technical analyses of electrical distribution system fires, the priority area for expanding AFCI protection is the existing branch circuits in older homes. In order to address these structures in a significant way, the staff is proposing that AFCIs be required for existing circuits in homes whenever the service equipment (circuit breaker panel or fuse panel) is replaced. This replacement happens frequently with older homes when homeowners have damaged and obsolete electrical panelboards replaced, or desire to have greater capacity to operate additional appliances and equipment. Although the CPSC staff would encourage greater application of AFCIs for circuits in new construction in addition to bedroom circuits, we have not prepared a formal proposal in this regard in order to focus attention where the problem is most acute, i.e., circuits in older housing.

Attached are five individual AFCI proposals to accomplish the objective.