

NFPA Technical Committee Document Proposal Form

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Date Oct. 1, 2002 Name William King Telephone 301-504-0508, ext. 1296

Company U.S. Consumer Product Safety Commission

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Please indicate organization represented (if any) U.S. Consumer Product Safety Commission

1. a) NFPA Document Title National Electrical Code

b) NFPA No. & Edition 70-2002

c) Section/Paragraph 230.XX in Part V

2. Proposal Recommends (check one):

☒

new text

☐

revised text

☐

deleted text

3. Proposal. (Include proposed new or revised wording, or identification of wording to be deleted.) Note: Proposed text should be in legislative format, that is, use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).

(See attachment for Proposal)

4. Statement of Problem and Substantiation for Proposal. Note: State the problem that will be resolved by your recommendation. Give the specific reason for your proposal including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.

(See attachment for Statement of Problem and Substantiation for Proposal)

5. ☒ This Proposal Is Original Material. Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought, or research and, to the best of his/her knowledge, is not copied from another source.

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Signature (Required)

William H. King

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PROPOSAL.

Section/Paragraph: Art. 230, Part V. Service Equipment – General, new Section 230.XX

Add new Section 230.XX as follows:

230.XX Replacement of Service Equipment at Dwelling Units. When the service equipment at a dwelling unit is replaced, a listed arc-fault circuit interrupter, branch/feeder type, or a listed arc-fault circuit interrupter, outlet branch circuit type, shall protect each branch circuit that existed prior to the replacement and that supply 125-volt, single-phase, 15- and 20-ampere outlets for lighting and appliances. The arc-fault circuit interrupter, outlet branch circuit type, shall be the outlet closest to, and located within 3.0 m (10 ft) of the overcurrent device as measured along the branch circuit conductors.

FPN: See 210.12 (B) for complementary requirement for branch circuits.

(Editorial note: 210.12 (B) is a proposed new paragraph submitted to the CMP for Article 210, to complement the proposed new Section 230.XX. For information purposed, the proposed new paragraph (B) of Section 210.12 reads as follows: Lighting and Appliance Branch Circuits in Dwelling Units. When the service equipment at a dwelling is replaced, a listed arc-fault circuit interrupter, branch/feeder type, or a listed arc-fault circuit interrupter, outlet branch circuit type, shall protect each branch circuit that existed prior to the replacement and that supply 125-volt, single-phase, 15- and 20-ampere outlets for lighting and appliances. The arc-fault circuit interrupter, outlet branch circuit type, shall be located closest to, and within 3.0 m (10 ft) of the overcurrent device as measured along the branch circuit conductors.)

STATEMENT OF PROBLEM AND SUBSTANTIATION FOR PROPOSAL.

A report issued by the U.S. Consumer Product Safety Commission in 1987 (“Residential Electrical Distribution System Fires”, Smith & McCoskrie) provided evidence that fires originating in branch circuit wiring predominately occurred in dwellings over 20 years old, with the highest rates of fires occurring in dwellings over 40 years old. Older dwellings are frequently upgraded with replacement service equipment to increase the service rating to supply additional appliance and equipment loads. However, existing lighting and appliance branch circuits are not replaced when the service is upgraded in many cases due to the increased cost, and/or the inability to evaluate the extent of degradation in aged circuits. The branch circuit conductors are frequently located in concealed spaces surrounded with thermal insulation, and could be in a deteriorated condition at the time the service is upgraded. This proposal is intended to provide extra protection with the addition of arc-fault circuit interrupter (AFCI) protection to address the potential fire hazards in existing branch circuits. This proposal is not intended to apply AFCI devices as a substitute for replacing unsafe wiring. Unsafe wiring should be

replaced when it is identified, and the wiring methods should be done in accordance with the *NEC*.

In 1995 arc-fault detection was identified as a promising technology that could be applied to older homes to improve electrical safety by detecting symptoms that can cause fires (report “Technology for Detecting and Monitoring Conditions That Could Cause Electrical Wiring System Fires”, sponsored by CPSC and prepared by Underwriters Laboratories Inc.). Shortly after this report was issued, the production of listed arc-fault circuit interrupter devices began. In 1999 the *NEC* introduced the first AFCI requirement for branch circuit protection, limited to branch circuits supplying outlets in bedrooms. When considering needs for additional AFCI protection, one of the priority locations is the older home that undergoes a service upgrade intended to extend the service life of the structure. This is the situation where the existing, older branch circuits in the dwelling will be expected to continue to supply power for appliance and lighting loads in the years ahead. These circuits need the benefit of the extra protection afforded by AFCI devices.