

Manufactured Housing Consensus Committee

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TO: Manufactured Housing Consensus Committee Members
FROM: Robert E. Solomon *RES*
DATE: May 21, 2004
SUBJECT: Ballot for MHCC –Changes to Standards

The ballot and ballot material for action on a series of proposed changes to the Standards are enclosed. Your vote on these actions is to be based upon the Committee deliberations that resulted in the recommendations being approved and submitted to the letter ballot. This was agreed to during the MHCC meeting on 25 February 2004.

If you wish to vote negative or if you abstain, please indicate your reason for doing so. Do not cast a negative vote for items that are editorial in nature, but do bring any such items to my attention. The final date for **return of this ballot is 11 June 2004**. Feel free to call or email me if you have any questions.

By way of a brief explanation, you have 4 voting options on this ballot. If you agree with the change as is, you simply vote affirmative. If you agree with the change, but have a minor concern with one or two items, or if you see some editorial glitch, you may want to vote affirmative with comment. If you disagree with a substantial part of the change, you would vote in the negative. Abstain votes are normally only reserved if you believe there is some conflict of interest, or if you do not feel qualified to pass judgment on an issue.

When you vote, you need only return the ballot page. Please feel free to attach additional pages if you need to provide more information on your reasons.

**LETTER BALLOT
CHANGES TO THE CONSTRUCTION STANDARDS**

Please complete the ballot as indicated. If you vote affirmative with comment, negative, or if you abstain on any section, please indicate the reason(s) for doing so. Once you have reviewed the material, and completed this ballot, return to:

**Jill McGovern
NFPA
1 Batterymarch Park
Quincy, MA 02269
FAX: (617) 984-7110
EMAIL: jmcgovern@nfpa.org**

The due date for receipt of this ballot is: 11 June 2004:

NAME:

DATE:

With respect to the proposed changes to the standards, record my vote as:

- AFFIRMATIVE ON ALL**
- AFFIRMATIVE WITH COMMENT***
- NEGATIVE***
- ABSTAIN***

***Requires supporting reason**

Proposed Change Number	24 CFR 3280 Referenced Section	Comm Action	Affirm with Comment	Negative	Abstain*
1-Log#4	§3280 (804(m) (NEW))	A			
2-Log #5	§3280 (802(42)(m) (NEW))	A			
3-Log #6	§3280 (801(a) and (b) (NEW))	AIP			
4-Log# MHCC1	§3280(Various) (NEW))	A			

A- Accept

AIP- Accept in Principal

The following information shows the activity of the HUD Manufactured Housing Consensus Committee for revisions to the current edition of 24 CFR 3280 (1999).

#5

From left to right: The 1st column ("Ref.") corresponds with the supporting material for technical revisions acted on by the MHCC. The 2nd column reflects the text of the MHCC recommendation (the underlined text is not a requirement in the 2003 edition of NFPA 501). The 3rd column of the table reflects the proposed changes to 24 CFR 3280. The **bolded** text indicates a revision to 24 CFR 3280. The 4th column shows the current wording of 24 CFR 3280 (1999 version).

Ref. (Log/Section)	MHCC Recommendation (underlined text is not shown in the 2003 edition of NFPA 501)	24 CFR 3280 text shown with changes taken from the MHCC Recommendations	Current Text of 24 CFR 3280 <i>(new material not currently addressed in 3280)</i>
#4 / 3280 (804(m) NEW)	<u>804(m)</u> Bedrooms of manufactured homes. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s).	804(m) Bedrooms of manufactured homes. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s).	<i>(new material not currently addressed in 3280)</i>
#5 / 3280 (802(42) NEW)	802(42) <u>Arc-fault circuit interrupter. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.</u>	802(42) Arc-fault circuit interrupter. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.	<i>(new material not currently addressed in 3280)</i>
#6 / 3280 (804(a) and (b))	11.1 Scope. 11.1.1 This chapter and Part I of Article 550 of NFPA 70, National Electrical Code®, shall apply to the electrical conductors and equipment installed within or on manufactured homes, and the conductors that connect manufactured homes to a supply of electricity. 11.1.2 In addition to the requirements of this standard and Article 550 of NFPA 70, National Electrical Code®, the applicable portions of other articles of the National Electrical Code that cover electrical installations in manufactured homes shall be followed. Wherever the requirements of this standard differ from the requirements of the National Electrical Code, this standard shall apply.	Sec. 3280.801 Scope. (a) Subpart I of this standard and part A of Article 550 of the National Electrical Code (NFPA No. 70-2002) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. (b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70-2002) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply.	Sec. 3280.801 Scope. (a) Subpart I of this standard and part A of Article 550 of the National Electrical Code (NFPA No. 70-1993) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. (b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70-1993) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply.

14.1.1 NFPA Publications.
NFPA 70, *National Electrical Code*®, 2002 edition.

Ref.
(Log/Section)

MHCC Recommendation

24 CFR 3280 text shown with changes taken
from the MHCC Recommendations

Current Text of 24 CFR 3280

MHCC #1	MHCC Recommendation	24 CFR 3280 text shown with changes taken from the MHCC Recommendations	Current Text of 24 CFR 3280
MHCC #1	14.1.1 NFPA Publications. NFPA 70, <i>National Electrical Code</i> ®, 2002 edition.	607(c)(6)(iv) (iv) <i>Electrical</i> . Refer to the National Electrical Code, NFPA 70–2002, Part VII of Article 680. 801(a) (a) Subpart I of this standard and Part I of Article 550 of the National Electrical Code (NFPA No. 70–2002) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. 801(b) (b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70–2002) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply. 803(k)(1) (k) Where the calculated load exceeds 50 amperes or where a permanent feeder is used, the supply shall be by means of: (1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002 containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or 803(k)(3) (3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002; and 803(k)(3)(ii) (ii) Exterior equipment, or the enclosure in which it is installed shall be weatherproof and installed in accordance with Article 312.2 of the National	607(c)(6)(iv) (iv) <i>Electrical</i> . Refer to the National Electrical Code, NFPA 70–1993, Article 685G. 801(a) (a) Subpart I of this standard and part A of Article 550 of the National Electrical Code (NFPA No. 70–1993) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity. 801(b) (b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70–1993) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply. 803(k)(1) (k) Where the calculated load exceeds 50 amperes or where a permanent feeder is used, the supply shall be by means of: (1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code NFPA No. 70–1993 containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or 803(k)(3) (3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code NFPA No. 70–1993; and 803(k)(3)(ii) (ii) Exterior equipment, or the enclosure in which it is installed shall be weatherproof and installed in accordance with Article 373–2 of the National

<p>MHCC #1 (cont.)</p>		<p>Electrical Code NFPA No. 70-2002. Conductors shall be suitable for use in wet locations;</p> <p>803(k)(3)(iii) (iii) The neutral conductor shall be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles 250.24, 250.26, 250.24(C), and 250.28 of NFPA No. 70-2002.</p> <p>804(a) (a) The branch-circuit equipment shall be permitted to be combined with the disconnecting means as a single assembly. Such a combination shall be permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains shall be plainly marked with lettering at least 1/4-inch high and visible when fuses are changed. See Article 110.22 of the National Electrical Code (NFPA No. 70-2002) concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.</p> <p>804(k) (k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors shall be provided in accordance with Part IV of Article 230 of the National Electrical Code, NFPA No. 70-2002. The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by §3280.804(c). The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (l) of this section.</p> <p>805(a)(3)(iv) (iv) The rating of range branch circuit shall be based on the range demand as specified or ranges in § 3280.811, Item B(5) of Method 1. For</p>	<p>Electrical Code NFPA No. 70-1993. Conductors shall be suitable for use in wet locations;</p> <p>803(k)(3)(iii) (iii) The neutral conductor shall be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles 250-23, 25, and 53 of NFPA No. 70-1993.</p> <p>804(a) (a) The branch-circuit equipment shall be permitted to be combined with the disconnecting means as a single assembly. Such a combination shall be permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains shall be plainly marked with lettering at least 1/4-inch high and visible when fuses are changed. See section 110-22 of the National Electrical Code (NFPA No. 70-1993) concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.</p> <p>804(k) (k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors shall be provided in accordance with Part F of Article 230 of the National Electrical Code, NFPA No. 70-1993. The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by §3280.804(c). The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (l) of this section.</p> <p>805(a)(3)(iv) (iv) The rating of range branch circuit shall be based on the range demand as specified or ranges in § 3280.811, Item B(5) of Method 1. For</p>
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<p>MHCC #1 (cont.)</p>		<p>central air conditioning, see Article 440 of the National Electrical Code (NFPA No. 70-2002).</p> <p>806(a)(2) (a) All receptacle outlets shall be: (1) Of grounding type; (2) Installed according to Article 210.7 of the National Electrical Code (NFPA No. 70-2002).</p> <p>807(c) (c) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the enclosed and gasketed type, listed for wet locations. See also Article 410.4(D) of the National Electrical Code NFPA No. 70-2002.</p> <p>808(a) (a) Except as specifically limited in this part, the wiring methods and materials specified in the National Electrical Code (NFPA No. 70-2002) shall be used in manufactured homes.</p> <p>808(m) (m) Outlet boxes of dimensions less than those required in Table 314.16(A) of the National Electrical Code (NFPA No. 70-2002) shall be permitted provided the box has been tested and approved for the purpose.</p> <p>808(q) (q) A substantial brace for securing a box, fitting or cabinet shall be as described in Article 314.23(B) of the National Electrical Code (NFPA 70-2002) or the brace, including the fastening mechanism to attach the brace to the home structure, shall withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface in which the box is installed.</p> <p>811(b) (b) The following is an optional method of calculation for lighting and appliance loads for</p>	<p>central air conditioning, see Article 440 of the National Electrical Code (NFPA No. 70-1993).</p> <p>806(a)(2) (a) All receptacle outlets shall be: (1) Of grounding type; (2) Installed according to section 210-7 of the National Electrical Code (NFPA No. 70-1993).</p> <p>807(c) (c) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the enclosed and gasketed type, listed for wet locations. See also Article 410-4(d) of the National Electrical Code NFPA No. 70-1993.</p> <p>808(a) (a) Except as specifically limited in this part, the wiring methods and materials specified in the National Electrical Code (NFPA No. 70-1993) shall be used in manufactured homes.</p> <p>808(m) (m) Outlet boxes of dimensions less than those required in table 370-6(a) of the National Electrical Code (NFPA No. 70-1993) shall be permitted provided the box has been tested and approved for the purpose.</p> <p>808(q) (q) A substantial brace for securing a box, fitting or cabinet shall be as described in the National Electrical Code, NFPA 70-1993 Article 370-13(d), or the brace, including the fastening mechanism to attach the brace to the home structure, shall withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface in which the box is installed.</p> <p>811(b) (b) The following is an optional method of calculation for lighting and appliance loads for</p>
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Ref.
(Log/Section)

MHCC Recommendation

24 CFR 3280 text shown with changes taken
from the MHCC Recommendations

Current Text of 24 CFR 3280

MHCC #1 (cont.)			
		<p>manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation shall be permitted to have the neutral load determined by Article 220.22 of the National Electrical Code (NFPA No. 70-2002). The loads identified in the table as "other load" and as "Remainder of other load" shall include the following:</p>	<p>manufactured homes served by single 3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation shall be permitted to have the neutral load determined by section 220-22 of the National Electrical Code (NFPA No. 70-1993). The loads identified in the table as "other load" and as "Remainder of other load" shall include the following:</p>

3280HUD- Log #4
(804(m) (New))

Final Action: Accept

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER

Recommendation:

Add a new paragraph (m):

Bedrooms of manufactured homes. All branch circuits that supply 125-volt, single-phase, 15- and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc-fault circuit interrupter(s).

Substantiation:

210.12 of the National Electrical Code, NFPA No. 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Further, 550.25 of NFPA No. 70-2002 requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. In a companion proposal to the MHCC, Cutler-Hammer has provided the AFCI definition from the NEC. AFCIs are readily available from circuit breaker manufacturers, and during the past year, millions of AFCIs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker. The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology is about \$20, and a recent CPSC cost-benefit analysis (1) shows that the benefits exceed the costs. further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible. 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like other dwelling units, was a primary source of fires. Most recently, this has been confirmed in the NFPA Report "Manufactured Home Fires in the U.S." (2). That report lists the "Fires by Cause" for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17 percent) of fires in manufactured homes. Cutler-Hammer urges the MHCC to include the wording from NEC NFPA No. 70-2002 in 3280.804. Manufactured homes have a greater need for fire protection than other types of dwelling unit. A Federal Emergency Management Agency publication entitled "Fire in the United States 1987-1996" (3) states that "Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share of fires (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings". Although this FEMA report does not separate out the fires of electric origin, it will be apparent that reductions in the number of fires will reduce the overall death toll. A more recent NFPA report (4) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. This same report shows that bedrooms are the location for the highest percentage (19 percent) of electrical fires. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Marshals (NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFI). Adding this requirement to 24 CFR Part 3280 would ensure that people living in manufactured homes would benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.

(1) "Economic Considerations - AFCI Replacements", letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov)

(2) "Manufactured Home Fires in the U.S.", NFPA Report, John R. Hall Jr., April 2001.

(3) "Fire in the United States 1987-1996", Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.

(4) "NFPA Statistics for Manufactured Homes", K. Rohr, NFPA, 2003.

Note: Supporting material is available for review at NFPA Headquarters.

Cost Benefit: No data provided.

Committee Meeting Action: Accept

Committee Statement:

The MHCC agrees with the substantiation.

3280HUD- Log #5
(802(42) (New))

Final Action: Accept

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER

Recommendation:

Add a new definition (42) for subsequent alphabetic inclusion:

Arc-fault circuit interrupter. An arc-fault circuit interrupter is a device intended to provide protection from the effects of arc faults by recognizing characteristics unique to arcing and by functioning to de-energize the circuit when an arc fault is detected.

Substantiation:

210.12 (A) of the National Electrical Code, NFPA No. 70-2002 defines an arc-fault circuit interrupter. 210-12(B) then requires arc-fault circuit interrupter protection for the bedrooms of dwelling units. Similarly 550.25 of NFPA No. 70-2002 deals with arc-fault protection for mobile homes and manufactured homes. 550.25 (A) defines an arc-fault circuit interrupter by referencing 210.12(A), and 550.25(B) requires arc-fault circuit interrupter protection for the bedrooms of mobile homes and manufactured homes. This proposal copies the arc-fault circuit interrupter definition from 210.12(a) into the definitions section of 24 CFR Part 3280. This is needed because, in a companion proposal to 3280.804, Cutler-Hammer has proposed that all branch circuits that supply 125-volt, single phase, 15-and 20-ampere outlets installed in bedrooms of manufactured homes shall be protected by arc fault circuit interrupter(s). Cutler-Hammer urges the MHCC to include the definition from NEC NFPA No. 70-2002 in 3280.802. Manufactured homes have a greater need fire protection than other types of dwelling units. A Federal Emergency Management Agency publication entitled "Fire in the United States 1987-1996" (1) states that "Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share of fires (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings". Although this FEMA report does not separate out the fires of electrical origin, it will be apparent that reduction in the number of fires will reduce the overall death toll. A more recent NFPA report (2) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Administration (USFA), the Consumer Product Safety Commission (CPSC), the National Association of State Fire Marshals (NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFI). further, a CPSC cost/ benefit analysis (3) shows that AFCIs are cost effective. Adding the definition in 24 CFR Part 3280. 802 and the location requirement in 3280.804 will ensure that people living in manufactured homes benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.

(1) "Fire in the United States 1987-1996", Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.

(2) "NFPA Statistics for Manufactured Homes", K. Rohr, NFPA, 2003.

(3) "Economic Considerations - AFCI Replacements", letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov).

Note: Supporting material is available for review at NFPA Headquarters.

Cost Benefit: No data provided.

Committee Meeting Action: Accept

Committee Statement:

The MHCC agrees with the substantiation.

Submitter: Brendan A. Foley, EATON CUTLER-HAMMER

Recommendation:

In each of these paragraphs, change the reference to the National Electrical Code from NFPA No. 70-1993 to NFPA No. 70-2002. Thus: NFPA No. ~~70-1993~~ 2002

Substantiation:

Cutler-Hammer considers that 550.25 of NFPA No. 70-2002 should be recognized in the Manufactured Housing code. This clause requires Arc Fault Circuit Interrupters that provide enhanced fire protection for bedroom circuits. Cutler-Hammer has submitted other proposals to reproduce the wording of 550.25 in 24 CFR Part 3280. However, an alternative would be to update the references to NFPA No. 70 in the scope from NFPA No. 70-1993 to NFPA no. 70-2002. Such an update would be consistent with the article entitled "Manufactured Housing Safety. congress speeds up the process for updating manufactured housing safety standards" that appeared in the March/April 2002 NFPA Journal. In particular, such an update would provide the bedroom circuits of manufactured homes with the same enhanced fire protection as the bedroom circuits of other dwelling units. AFCIs are readily available from circuit breaker manufacturers, and during the past year, millions of AFCEs have been installed in dwelling unit load-centers. These devices combine the wire-protection features of conventional circuit breakers with specific protection against arcing faults. Thus arcing events, with their associated fire initiation risk, are detected and interrupted under circumstances that would not trip a conventional circuit breaker. The cost differential between a conventional residential circuit breaker and a circuit breaker incorporating AFCI technology in about \$20, and a recent CPSC cost-benefit analysis (1) shows that the benefits exceed the costs. Further, since circuit breakers with AFCI are readily accessible at the load center, the additional inspection cost is negligible. 550.25 was added to the National Electrical Code because it was recognized that the electrical distribution system of manufactured homes, like other dwelling units, was a primary source of fires. Most recently, this has been confirmed in the NFPA Report "Manufactured Home Fires in the U.S." (2). That report lists the "Fires by Cause" for an annual average during the period 1989-1998. Electrical distribution fires were the leading cause (17 percent) of fires in manufactured homes. Cutler-Hammer urges the NHCC to include AFCI protection by broadening the scope in 3280.801 to reference the requirements of NFPA No. 70-2002. Manufactured homes have a greater need for fire protection than other dwelling units. A Federal Emergency Management Agency publication entitled "Fire in the United States 1987-1996" (3) states that "Manufactured Housing, separated from the dwelling category, has a much greater share of fire deaths (11 percent) relative to its share (4 percent). Deaths per fire are approximately twice as high for manufactured housing as for other dwellings". Therefore the need for fire protection in Manufactured Housing is even greater than for other types of dwelling units. Although this FEMA report does not separate out the fires of electrical origin, it will be apparent that reductions in the number of fires will reduce the overall death toll. A more recent NFPA report (4) shows an average annual number of 5200 fires in manufactured homes where the form of heat of ignition was due to electrical equipment arcing or overload. This is comparable to the fire rates in dwelling units with due regard to the relative numbers of manufactured homes. This same report shows that bedrooms are the locations for the highest percentage (19 percent) of electrical fires. The arc-fault circuit interrupter is available and is deemed effective by the United States Fire Administration (USFA), the Consumer Product Safety Commission (CPSC), the National Association of State Fire Marshals (NASFM), Underwriters Laboratories (UL) and the Electrical Safety Foundation International (ESFIO). Including this requirement within the scope of 24 CFR Part 3280 would ensure that people living in manufactured homes would benefit from this enhanced fire-protection with a resulting decrease in property losses and, most importantly, decreases in burn-injuries and deaths.

(1) "Economic Considerations - AFCI Replacements", letter dated 3/10/2003 from William H. King of CPSC (available on the CPSC website www.cpsc.gov).

(2) "Manufactured Homes Fires in the U.S.", NFPA Report, John R. Hall Jr., April 2001.

(3) "Fire in the United States 1987-1996". Eleventh Edition, Federal Emergency Management Agency, FA-173/August 1999.

(4) "NFPA Statistics for Manufactured Homes", K. Rohr, NFPA, 2003.

Note: Supporting material is available for review at NFPA Headquarters.

Cost Benefit: No data provided.

Committee Meeting Action: Accept in Principle

Committee Statement:

The MHCC notes that a separate change to update CFR 3280 did propose an update to CFR 3280 to adopt the 2002 NEC. NOTE: According to review of the recent MHCC ballots, there is no record of the 2002 NEC being voted on by MHCC. The MHCC Standards SC says the AO missed the change in Chapter 14-NFPA 501 did make the change, but it was never included in MHCC ballot. NEED TO RESOLVE by balloting a change to make the update (NFPA 70-2002 ed) universal through out Part 3280. See Log # MHCC 1.

Submitter: HUD Manufactured Housing Consensus Committee

Recommendation:

Update 24 CFR Part 3280 to reflect a reference to NFPA 70, 2002 Edition. Revise the noted sections to reflect use of the latest edition of NFPA 70.

607(c)(6)(iv)

(iv) *Electrical*. Refer to the National Electrical Code, NFPA 70–2002, **Part VII of Article 680**.

801(a)

(a) Subpart I of this standard and **Part I** of Article 550 of the National Electrical Code (NFPA No. 70–2002) cover the electrical conductors and equipment installed within or on manufactured homes and the conductors that connect manufactured homes to a supply of electricity.

801(b)

(b) In addition to the requirements of this standard and Article 550 of the National Electrical Code (NFPA No. 70–2002) the applicable portions of other Articles of the National Electrical Code shall be followed covering electrical installations in manufactured homes. Wherever the requirements of this standard differ from the National Electrical Code, this standard shall apply.

803(k)(1)

(k) Where the calculated load exceeds 50 amperes or where a permanent feeder is used, the supply shall be by means of:

(1) One mast weatherhead installation installed in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002 containing four continuous insulated, color-coded, feeder conductors, one of which shall be an equipment grounding conductor; or

803(k)(3)

(3) Service equipment installed on the manufactured home in accordance with Article 230 of the National Electrical Code NFPA No. 70–2002; and

803(k)(3)(ii)

(ii) Exterior equipment, or the enclosure in which it is installed shall be weatherproof and installed in accordance with Article **312.2** of the National Electrical Code NFPA No. 70–2002. Conductors shall be suitable for use in wet locations;

803(k)(3)(iii)

(iii) The neutral conductor shall be connected to the system grounding conductor on the supply side of the main disconnect in accordance with Articles **250.24, 250.26, 250.24(C), and 250.28** of NFPA No. 70–2002.

804(a)

(a) The branch-circuit equipment shall be permitted to be combined with the disconnecting means as a single assembly. Such a combination shall be permitted to be designated as a distribution panelboard. If a fused distribution panelboard is used, the maximum fuse size of the mains shall be plainly marked with lettering at least 1/4-inch high and visible when fuses are changed. See **Article 110.22** of the National Electrical Code (NFPA No. 70–2002) concerning identification of each disconnecting means and each service, feeder, or branch circuit at the point where it originated and the type marking needed.

804(k)

(k) When a home is provided with installed service equipment, a single disconnecting means for disconnecting the branch circuit conductors from the service entrance conductors shall be provided in accordance with **Part IV of Article 230** of the National Electrical Code, NFPA No. 70–2002. The disconnecting means shall be listed for use as service equipment. The disconnecting means may be combined with the disconnect required by §3280.804(c). The disconnecting means shall be rated not more than the ampere supply or service capacity indicated on the tag required by paragraph (l) of this section.

805(a)(3)(iv)

(iv) The rating of range branch circuit shall be based on the range demand as specified or ranges in § 3280.811, Item B(5) of Method 1. For central air conditioning, see Article 440 of the National Electrical Code (NFPA No. 70–2002).

806(a)(2)

(a) All receptacle outlets shall be:

(1) Of grounding type;

(2) Installed according to **Article 210.7** of the National Electrical Code (NFPA No. 70–2002).

807(c)

(c) If a lighting fixture is provided over a bathtub or in a shower stall, it shall be of the enclosed and gasketed type, listed for wet locations. See also **Article 410.4(D)** of the National Electrical Code NFPA No. 70–2002.

808(a)

(a) Except as specifically limited in this part, the wiring methods and materials specified in the National Electrical Code (NFPA No. 70–2002) shall be used in manufactured homes.

808(m)

(m) Outlet boxes of dimensions less than those required in **Table 314.16(A)** of the National Electrical Code (NFPA No. 70–2002) shall be permitted provided the box has been tested and approved for the purpose.

808(q)

(q) A substantial brace for securing a box, fitting or cabinet shall be as described in **Article 314.23(B)** of the National Electrical Code (NFPA 70–2002) or the brace, including the fastening mechanism to attach the brace to the home structure, shall withstand a force of 50 lbs. applied to the brace at the intended point(s) of attachment for the box in a direction perpendicular to the surface in which the box is installed.

811(b)

(b) The following is an optional method of calculation for lighting and appliance loads for manufactured homes served by single

3-wire 120/240 volt set of feeder conductors with an ampacity of 100 or greater. The total load for determining the feeder ampacity may be computed in accordance with the following table instead of the method previously specified. Feeder conductors whose demand load is determined by this optional calculation shall be permitted to have the neutral load determined by **Article 220.22** of the National Electrical Code (NFPA No. 70–2002). The loads identified in the table as “other load” and as “Remainder of other load” shall include the following:

Substantiation:

The use of the latest edition of NFPA 70 will permit the Federal Manufactured Housing Construction and Safety Standards to reflect the latest technologies available for electrical safety and installation.

Committee Meeting Action: Accept