(B) Dwelling Unit Bedrooms. All 125 volt, single phase, 15 and 20-ampere branch circuits supplying outlets installed in dwelling unit bedrooms shall be protected by a listed arc-fault circuit interrupter, combination type installed to provide protection of the branch circuit.

Branch/Feeder AFCI's shall be permitted to be used to meet the requirements of 210.12(B) until January 1, 2008.

FPN: For information on types of arc-fault circuit interrupters, see UL 1699-1999, Standard for Arc-Fault Circuit Interrupters.

Exception: The location of the arc-fault circuit interrupter shall be permitted to be at other than the origination of the branch circuit in compliance with (1) and (2):

(1) The arc-fault circuit interrupter installed within 1.8 m (6 ft) of the branch circuit overcurrent device as measured along the branch circuit conductors.

(2) The circuit conductors between the branch circuit overcurrent device and the arc-fault circuit interrupter shall be installed in a metal raceway or a cable with a metallic sheath.

(C) Educational and Day Care Occupancies. All 125-volt single phase, 15-and 20Ðampere branch circuits supplying outlets installed in educational occupancies K-12 and day care centers for preschool age as defined by the Life Safety Code (NFPA 101) shall be protected by a listed arc-fault circuit interrupter, as listed in UL 1699, Standard for Arc-Fault Circuit Interrupters, installed to provide protection of the branch circuits.

Exception: The location of the arc-fault circuit interrupter combination type shall be permitted to be at other than the origination of the branch circuit in compliance with (1) and (2):

(1) The arc-fault circuit interrupter installed within 1.8 m (6 ft) of the branch Circuit overcurrent device as measured along the branch circuit conductors.

(2) The circuit conductors between the branch circuit overcurrent device and the arc-fault circuit interrupter shall be installed in a metal raceway or a cable with a metallic sheath.

**Substantiation:** The need to expand the use of AFCI technology is necessary to afford greater safety within these occupancies from the hazards arising from the use of electricity. Educational occupancies as defined by the Life Safety Code include grades K through 12. These facilities are supported by tax dollars as well as private funding and protecting this investment is vital to the educational programs. A school fire disrupts the educational process and disrupts the academia programs. Schools also contain many different hazards such as laboratories, shops etc. These hazardous areas in use by students present an even greater hazard and the installation of AFCI's would reduce one of those hazards. To prevent electrical fires in the educational occupancies is justifiable and vital to the safety of the students. It is not a matter of staffing but practical safeguarding from the hazards arising from the use of electricity.

Day care centers fall into the same category as educational occupancies substantiation except today many are private facilities.

**Panel Meeting Action: Reject**

**Panel Statement:** The submitter has not provided adequate substantiation to support the expansion of AFCI devices to the locations described in the proposed new subdivision (C). CMP-2 action supporting the use and expansion of AFCI protection has been based on dwelling unit fire data.

**Number Eligible to Vote: 12**

**Ballot Results:** Affirmative: 11 Negative: 1

**Explanation of Negative:**

KING, D.: I agree with the submitter that this proven safety technology should be expanded to educational facilities. The use of AFCI devices does reduce the incidence of fires due to arcing faults. The panel action on proposal 2-142 speaks to the confidence that panel 2 has with the reliability of these devices. The National Association of State Fire Marshals has documented that of the majority of the 5,500 fires in educational facilities that are reported on average annually, most occur during the hours when school is in session and the buildings are occupied thus increasing the risk of injury or death to persons occupying these facilities. The orientation of some of these documented fires is electrical in nature. Requiring AFCI protection for branch circuits supplying 125-volt 15-and 20-ampere receptacle outlets would reduce the number if not eliminate the number of fires resulting from electrical arcing on these branch circuits.

**Comment on Affirmative:**

BROWN, L.: Please see NAHB's Ballot Comment on Proposal 2-142, especially the use of dwelling unit fire data to support the expansion of AFCI protection.

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2-108 Log #616 NEC-P02 **Final Action: Reject**
**(210.12)**

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**Submitter:** Eddie Phillips, Southern Regional Fire Code Development Committee

**Recommendation:** Add a new Subsection of 210.12 to read as follows:

( ) Existing Occupancies: When the panelboard that contains the overcurrent protection devices for branch circuits is replaced in existing dwellings, apartments, lodging and rooming houses, residential board and care homes and dormitories as defined by the Life Safety Code, (NFPA 101), a listed arc-fault circuit interrupter as listed in UL 1699, Standard for Arc-Fault Circuit Interrupters, shall protect each branch circuit that serves 125-volt, single-phase, 15 and 20-ampere outlets.

E xception: The location of the arc-fault circuit interrupter shall be permitted to be at other than the origination of the branch circuit in compliance with (1) and (2):

(1) The arc-fault circuit interrupter installed within 1.8 m (6 ft) of the branch circuit overcurrent device as measured along the branch circuit conductors.

(2) The circuit conductors between the branch circuit overcurrent device and the arc-fault circuit interrupter shall be installed in a metal raceway or a cable with a metallic sheath.

**Substantiation:** Data provided CMP 2 from NFPA regarding lodging and rooming houses, existing dwellings, dormitories, apartments and residential board and care homes provide equivalent environments settings to dwellings (our homes). Previously CMP 2 indicated that apartments are considered dwellings; however, there is no definition of dwelling in the NEC. Therefore, utilizing the Life Safety Code definition provides consistency with NFPA documents. Apartments added to this section may be redundant but necessary to clearly provide intent of the code.

Existing occupancies as identified in this proposal house the largest number of citizens for living in an environment that has the greatest fire losses, human and property that must be provided the latest technology for electrical safety. Data clearly indicates that dwelling fires from electrical arcing conditions cause approximately 400 deaths, 1700 injuries and over a billion dollars in losses. These unnecessary and needless losses can be prevented by the use of arc-fault technology. Providing for the installation of AFCIs during electrical upgrades will greatly enhance the electrical safety in the proposed occupancies.

Wiring in older homes is a problem. Over the years circuits, receptacles and other accessories have been added, in most cases by inexperienced people, to the existing circuits and panel boards. The addition of AFCI's during change out would ensure an increased level of safety in these aging systems.

**Panel Meeting Action: Reject**

**Panel Statement:** The submitter has not provided sufficient substantiation to expand the requirement for AFCI protection beyond dwellings. CMP-2 action supporting the use and expansion of AFCI protection has been based on dwelling unit fire data. See panel action and statement on Proposal 2-138 regarding the use of AFCI protection in existing dwelling units.

**Number Eligible to Vote: 12**

**Ballot Results:** Affirmative: 10 Negative: 2

**Explanation of Negative:**

KING, D.: This proposal should have been accepted in principal with the panel rejecting the reference to the Life Safety Code, NFPA 101 and the addition of the reference to UL Standard 1699 in the main text. With regard to the part of the submitter's recommendation that AFCI protection be required for each 125-volt 15-and 20-ampere circuits installed in dwelling units, CMP-2 has accepted this for new installations with the panel meeting action on proposal 2-142. Panel 2 has been presented with data both in the past and present code cycle that shows evidence that there is an increased risk of fire in homes that are older than 20 years old, with even a more significant increase in fires in homes that are 40 years or older. The installation of these devices in older dwelling units will identify many wiring problems that will need to be corrected by the electrician installing these devices. This will help to mitigate the number of fires due to the improper installation of branch circuit wiring while ensuring that protection in the future from fires associated with arcing faults is afforded to these homeowners. Panel-2 should give further consideration to the submitter's recommendation to expand this requirement to other occupancies that are similar to dwelling units. See my explanation of negative for proposal 2-106.

WEBER, R.: The value and enhanced safety for occupants as well as the general public by the use and incorporation of AFCI protection techniques in not only dwelling unit type occupancies will provide a safer environment. Given the age and lack of good maintenance to the electrical systems in older type structures this proposal has merit and advantages. See my comment and explanation for the negative vote on Proposal 2-138.

**Comment on Affirmative:**

BROWN, L.: Please see NAHB's Ballot Comment on Proposal 2-142, especially the use of dwelling unit fire data to support the expansion of AFCI protection.

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2-109 Log #2300 NEC-P02 **Final Action: Reject**
**(210.12)**

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**Submitter:** James Shaw, Jim Shaw Electric Co.

**Recommendation:** Subject 210.12

I am told that I am amongst the fifty percent of the country that oppose smoke detectors on arc-fault circuits. I feel that 210.12(B) should be rewritten once again.

210.12(B) Dwelling unit bedrooms. All 120 volt, single phase 15 and 20 ampere branch circuits supplying receptacle outlets installed in dwelling unit bedrooms shall be protected by a listed arc-fault circuit interrupter, combination type installed to provide protection for the branch circuits.

I also believe that the exceptions in this section should be eliminated entirely, and allow AFCI receptacle outlets (similar to GFCI receptacle outlets) to be installed at the first outlet of each bedroom.

**Substantiation:** In the 1999 code, Arc-fault Circuit interrupters, were introduced. I do not have a copy of the 1999 code book, but as I remember it, it stated that in 2002 all receptacle outlets installed in dwelling unit bedrooms shall be protected by a listed arc fault circuit interrupter.