

**EXPRESS TERMS
FOR
PROPOSED BUILDING STANDARDS
OF THE
OFFICE OF THE STATE FIRE MARSHAL
REGARDING THE 2010 CALIFORNIA ELECTRICAL CODE
CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 3
2010 ANNUAL RULEMAKING CYCLE**

The Office of the State Fire Marshal (SFM) proposes to make necessary changes to the 2010 edition of the California Electrical Code (CEC), based on the 2008 National Electrical Code (NEC). The SFM further proposes to:

- Adopt necessary amendments to the model code;
 - Repeal amendments to the model code that are no longer necessary.
-

Legend for Express Terms:

1. **Existing California regulation or amendment brought forward without modification:** *All such language appears in Italics.*
 2. **Existing California regulation or amendment brought forward with modification:** *All such language appears in Italics, modified language is underlined.*
 3. **NEC language with new California amendment:** California amendments to NEC text appear underlined and in italics.
 4. **New California regulation or amendment:** California language appears underlined and in Italics.
 5. **Repealed text:** Shown as ~~Strikeout~~.
 6. **New California amendments that remove text:** Shown as ~~Strikeout~~.
 7. **Notation:** Authority and Reference citations are provided at the end of each chapter.
-

[Item No. 1. Editorial modification correcting references to the appropriate adopted reference edition of NFPA 72 as referenced in other Parts of Title 24 – 2010 California Building, Fire and Residential Codes.]

Chapter 2 Wiring and Protection

210.12 Arc-Fault Circuit-Interrupter Protection.

(B) Dwelling Units. All 120-volt, single phase, 15- and 20-ampere branch circuits supplying outlets installed in dwelling unit family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, or similar rooms or areas shall be protected by a listed arc-fault circuit interrupter, combination-type, installed to provide protection of the branch circuit.

FPN No. 1: For information on types of arc-fault circuit interrupters, see UL 1699-1999, *Standard for Arc-Fault Circuit Interrupters*.

FPN No. 2: See ~~41.6.3(5)~~29.6.3(5) of *NFPA 72~~®-2007~~2010, National Fire Alarm Code[®]*, for information related to secondary power supply requirements for smoke alarms installed in dwelling units.

FPN No. 3: See 760.41(B) and 760.121(B) for powersupply requirements for fire alarm systems.

Exception No. 1: Where RMC, IMC, EMT or steel armored cable, Type AC, meeting the requirements of 250.118 using metal outlet and junction boxes is installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a combination AFCI at the first outlet to provide protection for the remaining portion of the branch circuit.

Exception No. 2: Where a branch circuit to a fire alarm system installed in accordance with 760.41(B) and 760.121(B) is installed in RMC, IMC, EMT, or steel armored cable, Type AC, meeting the requirements of 250.118, with metal outlet and junction boxes, AFCI protection shall be permitted to be omitted.

Chapter 6 Special Equipment

640.3 Locations and Other Articles.

(J) Combination Systems. Where the authority having jurisdiction permits audio systems for paging or music, or both, to be combined with fire alarm systems, the wiring shall comply with Article 760.

FPN: For installation requirements for such combination systems, refer to *NFPA 72~~®-2007~~2010, National Fire Alarm Code[®]*, and *NFPA 101~~®-2006~~, Life Safety Code[®]*.

640.9 Wiring Methods.

(B) Auxiliary Power Supply Wiring. Equipment that has a separate input for an auxiliary power supply shall be wired in compliance with Article 725. Battery installation shall be in accordance with Article 480.

FPN No. 1: This section does not apply to the use of uninterruptible power supply (UPS) equipment, or other sources of supply, that are intended to act as a direct replacement for the primary circuit power source and are connected to the primary circuit input.

FPN No. 2: Refer to *NFPA 72-~~2007~~2010, National Fire Alarm Code*, where equipment is used for a fire alarm system.

(C) Output Wiring and Listing of Amplifiers. Amplifiers with output circuits carrying audio program signals shall be permitted to employ Class 1, Class 2, or Class 3 wiring where the amplifier is listed and marked for use with the specific class of wiring method. Such listing shall ensure the energy output is equivalent to the shock and fire risk of the same class as stated in Article 725. Overcurrent protection shall be provided and shall be permitted to be inherent in the amplifier.

Audio amplifier output circuits wired using Class 1 wiring methods shall be considered equivalent to Class 1 circuits and shall be installed in accordance with 725.46, where applicable.

Audio amplifier output circuits wired using Class 2 or Class 3 wiring methods shall be considered equivalent to Class 2 or Class 3 circuits, respectively. They shall use conductors insulated at not less than the requirements of 725.179 and shall be installed in accordance with 725.133 and 725.154.

FPN No. 1: ANSI/UL 1711-1994, *Amplifiers for Fire Protective Signaling Systems*, contains requirements for the listing of amplifiers used for fire alarm systems in compliance with *NFPA 72-~~2007~~2010, National Fire Alarm Code*.

FPN No. 2: Examples of requirements for listing amplifiers used in residential, commercial, and professional use are found in ANSI/UL 813-1996, *Commercial Audio Equipment*; ANSI/UL 1419-1997, *Professional Video and Audio Equipment*; ANSI/UL 1492-1996, *Audio-Video Products and Accessories*; and ANSI/UL 6500-1996, *Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar Use*.

Chapter 7 Special Conditions

760.1 Scope. This article covers the installation of wiring and equipment of fire alarm systems including all circuits controlled and powered by the fire alarm system.

FPN No. 1: Fire alarm systems include fire detection and alarm notification, guard's tour, sprinkler waterflow, and sprinkler supervisory systems. Circuits controlled and powered by the fire alarm system include circuits for the control of building systems safety functions, elevator capture, elevator shutdown, door release, smoke doors and damper control, fire doors and damper control and fan shutdown, but only where these circuits are powered by and controlled by the fire alarm system. For further information on the installation and monitoring for integrity requirements for fire alarm systems, refer to the *NFPA 72* ~~2007~~2010, *National Fire Alarm Code*.

FPN No. 2: Class 1, 2, and 3 circuits are defined in Article 725.

760.1.1 Equipment and Systems. [SFM] Fire alarm equipment and systems required to be installed in any occupancy within the scope of these regulations shall conform to the applicable performance and construction standards specified in *NFPA 72* ~~2007~~2010.

760.176 Listing and Marking of NPLFA Cables.

(F) Fire Alarm Circuit Integrity (CI) Cable or Electrical Circuit Protective System. Cables used for survivability of critical circuits shall be listed as circuit integrity (CI) cable. Cables specified in 760.176(C), (D), and (E), and used for circuit integrity shall have the additional classification using the suffix "-CI." Cables that are part of a listed electrical circuit protective system shall be considered to meet the requirements of survivability.

FPN No. 1: Fire alarm circuit integrity (CI) cable and electrical circuit protective systems may be used for fire alarm circuits to comply with the survivability requirements of *NFPA 72* ~~2007~~2010, *National Fire Alarm Code*, ~~6.9.4.3~~24.4.1.8.4.3 and ~~6.9.4.6~~24.4.1.8.4.4, that the circuit maintain its electrical function during fire conditions for a defined period of time.

FPN No. 2: One method of defining circuit integrity (CI) cable is by establishing a minimum 2-hour fire resistance rating for the cable when tested in accordance with UL 2196-1995, *Standard for Tests of Fire Resistive Cables*.

760.179 Listing and Marking of PLFA Cables and Insulated Continuous Line-Type Fire Detectors.

(G) Fire Alarm Circuit Integrity (CI) Cable or Electrical Circuit Protective System. Cables used for survivability of critical circuits shall be listed as circuit integrity (CI) specified in 760.179(D), (E), (F), and (H) and used for circuit integrity shall have the additional classification using the suffix "-CI." that are part of a listed electrical circuit protective system shall be considered to meet the requirements of survivability.

FPN No. 1: Fire alarm circuit integrity (CI) cable and electrical circuit protective systems may be used for fire alarm circuits to comply with the survivability requirements of *NFPA 72* ~~2007~~2010, *National Fire Alarm Code*, ~~6.9.4.3~~24.4.1.8.4.3 and ~~6.9.4.6~~24.4.1.8.4.4, that the circuit maintain its electrical function during fire conditions for a defined period of time.

FPN No. 2: One method of defining circuit integrity (CI) cable is by establishing a minimum 2-hour fire resistance rating for the cable when tested in accordance with UL 2196-1995, *Standard for Tests of Fire Resistive Cables*.

Annex G Supervisory Control and Data Acquisition (SCADA)

(C) Security Against Hazards.

(5) The SCADA system shall be provided with dry agent fire protection systems or double interlocked preaction sprinkler systems using cross-zoned detection, to minimize the threat of accidental water discharge into unprotected equipment. The fire protection systems shall be monitored by the fire alarm system in accordance with *NFPA 72* ~~2007~~2010, *National Fire Alarm Code*.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502,

1597.44, 1597.65, 13108, 13143, 17921, 18949.2
 References: Health and Safety Code Sections 13143, 18949.2

CALIFORNIA ELECTRICAL CODE – MATRIX ADOPTION TABLES

**ARTICLE 210
 BRANCH CIRCUITS**

Adopting Agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SL C
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt Entire Article		X																	
Adopt Entire Article as amended (amended sections listed below)		X																	
Adopt only those sections that are listed below																			
Article / Section																			
<u>210.12</u>		X																	

**ARTICLE 640
 AUDIO SIGNAL PROCESSING, AMPLIFICATION, AND REPRODUCTION EQUIPMENT**

Adopting Agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SL C
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt Entire Article		X																	
Adopt Entire Article as amended (amended sections listed below)		X																	
Adopt only those sections that are listed below																			
Article / Section																			
<u>640.3</u>		X																	
<u>640.9</u>		X																	

**ARTICLE 760
 FIRE ALARM SYSTEMS**

Adopting Agency	BSC	SFM	HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SL C
			1	2	1/AC	AC	SS	1	2	3	4								
Adopt Entire Article																			
Adopt Entire Article as amended (amended sections listed below)		X																	
Adopt only those sections that are listed below																			
Article / Section																			
<u>760.1</u>		X																	
<u>760.1.1</u>		X																	
<u>760.176</u>		X																	
<u>760.179</u>		X																	