**INITIAL EXPRESS TERMS**

**FOR**

**PROPOSED BUILDING STANDARDS**

**OF THE**

**OFFICE OF THE STATE FIRE MARSHAL**

**REGARDING THE ADOPTION BY REFERENCE OF THE**

**2012 EDITION OF THE INTERNATIONAL RESIDENTIAL CODE**

**WITH AMENDMENTS INTO THE 2013 CALIFORNIA RESIDENTIAL CODE**

**CALIFORNIA CODE OF REGULATIONS TITLE 24, PART 2.5**

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The Office of the State Fire Marshal (SFM) proposes to adopt the 2012 edition of the International Residential Code (IRC) into the 2013 edition of the California Residential Code (CRC). SFM further proposes to:

- Repeal the adoption by reference of the 2009 International Residential Code and incorporate and adopt by reference in its place the 2012 International Residential Code for application and effectiveness in the 2013 California Residential Code.
- Repeal certain amendments to the 2009 International Residential Code and/or California Building Standards not addressed by the model code that are no longer necessary.
- Adopt new building standards or necessary amendments to the 2012 International Residential Code that address inadequacies of the 2012 International Residential Code as they pertain to California laws.
- Bring forward previously existing California building standards or amendments, which represent no change in their effect from the 2010 California Residential Code.
- Codify non-substantive editorial and formatting amendments from the format based upon the 2009 International Residential Code to the format of the 2012 International Residential Code.

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**Legend for Express Terms:**

1. **Existing California regulations or amendments brought forward without modification***: All such text appears in italic font.*

2. **Model code language with new California amendment:** Model code text is shown in normal Arial 9-point font. California amendments to model code text appear *underlined and in italics.*

3. **New California regulation or modification to existing California regulation:** New California regulation or modification appear *underlined and in italics.*

4. **Repealed text:** Shown as ~~*strikeout*~~.

5. **California amendments that remove model code language:** Shown as ~~strikeout~~.

6. **Notation**: Authority and Reference citations are provided at the end of each chapter.

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**NOTE OF EXPLANATION:**

For the **2012 Triennial Code Adoption Cycle**, the Express Terms are displayed as follows:

****PART 1**** Includes the California Amendments SFM proposes to bring forward from the 2010 California Residential Code **with changes** as shown, and also identifies the model code standards from the 2012 International Residential Code SFM proposes for adoption into the 2013 California Residential Code.

****PART 2**** Displays the standards SFM proposes to bring forward from the 2010 California Residential Code **without change**, except for nonsubstantive editorial corrections, for adoption into the 2013 California Residential Code; the text is provided for context and the convenience of the code user.

## SUMMARY OF REGULATORY ACTION

**SFM PROPOSES TO:**

### **PART 1**

1. Bring forward existing California Amendments from the 2010 California Residential Code for adoption into the 2013 California Residential Code **with amendment**.

2. Adopt standards from the 2012 International Residential Code into the 2013 California Residential Code **without amendment**.

3. Adopt standards from the 2012 International Residential Code into the 2013 California Residential Code **with amendment**.

4. Repeal 2010 California Amendments, which are **not** brought forward into the 2013 Residential Code.

### **PART 2**

1. Bring forward existing California Amendments from the 2010 California Residential Code for adoption into the 2013 California Residential Code **without amendment**, except for editorial corrections.

# **PART 1**

**[1. The SFM is proposing to maintain the adoption of those existing California provisions contained Sections 1.1.1 with modification.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

***Part I — Administrative***

**CHAPTER 1**

**SCOPE AND APPLICATION**
**DIVISION I**
**CALIFORNIA ADMINISTRATION**

***1.1.1 Title.*** *These regulations shall be known as the California Residential Code, may be cited as such and will be referred to herein as "this code." The California Residential Code is Part 2.5 of twelve parts of the official compilation and publication of the adoption, amendment and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2009~~2012 International Residential Code of the International Code Council with necessary California amendments.*

***1.1.3 Scope.*** *The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every detached one-and two-family dwelling, efficiency dwelling unit, and townhouse not more than three stories above grade plane in height with a separate means of egress and structures accessory thereto throughout the State of California.*

***Exceptions:***
*1. Live/work units complying with the requirements of Section 419 of the California Building Code shall be permitted to be built as one- and two-family dwellings or townhouses. Fire suppression required by Section 419.5 of the California Building Code when constructed under the California Residential Code for one- and two-family dwellings shall conform to Section 903.3.1.3 of the California Building Code.*
*2. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the California Residential Code for One- and Two-family Dwellings when equipped with a fire sprinkler system in accordance with Section R313.*

***1.1.11 Format.*** *This part fundamentally adopts the International Residential Code by reference on a chapter-by-chapter basis. ~~Such adoption is reflected in the Matrix Adoption Table of each chapter of this part. When the Matrix Adoption Tables make no reference to a specific chapter of the International Residential Code such chapter of the International Residential Code is not adopted as a portion of this code.~~*
*When a specific chapter of the International Residential Code is not printed in the code and is marked "Reserved" such chapter of the International Residential Code is not adopted as a portion of this code. When a specific chapter of the International Residential Code is marked "Not adopted by the State of California" but appears in the code, it may be available for adoption by local ordinance.*

***Note:*** *Matrix Adoption Tables at the front of each chapter may aid the code user in determining which chapter or sections within a chapter are applicable to buildings under the authority of a specific state agency, but they are not to be considered regulatory.*

**Notation:**
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

**[2. The SFM proposes to only adopt Sections R104.2 – R104.4, R104.9 – R104.9.1, R105.1 , R105.2.1 - R105.2.2, R105.3 - R105.3.1, R105.4, R105.6, R105.7, R106 – R106.5, R107 – R107.4, R109.1, R109.1.4 - R109.1.6, R109.3.8 – R109.3.10, R109.2 - R109.4, R110 – R110.5, R111 – R111.3, R113 – R113.2 and R114 – R114.3 contained in Chapter 1.]**
(IRC Chapter 1 Administrative provisions - Sections R101 through R114 relocated to Division II of Chapter 1.)
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**CHAPTER 1**
***DIVISION II***

***Division II is not adopted by the Department of Housing and Community Development or the State Fire Marshal except where specifically ~~identified~~indicated in the Matrix Adoption Table.***

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[3. The SFM proposes to only adopt Sections R201 – R201.4 and specific definitions shown below contained in Chapter 2.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

***Part II—Definitions***

**CHAPTER 2**
**DEFINITIONS**

**Section R202**

**ACCESSORY STRUCTURE**
**ADDITION**
**ALTERATION**
**APPROVED**
**ATTIC**
**ATTIC, HABITABLE**
**BASEMENT**
**BUILDING**
**BUILDING OFFICIAL**
**BUILT-UP ROOF COVERING**
**CEILING HEIGHT**
**CLOSET**
**COMBUSTIBLE MATERIAL**
**CONSTRUCTION DOCUMENTS**
**DESIGN PROFESSIONAL**
**DRAFT STOP**
**DWELLING**
**DWELLING UNIT**
**EMERGENCY ESCAPE AND RESCUE OPENING**
**EXTERIOR WALL**
**FIREBLOCKING**
**FIRE-RETARDANT-TREATED WOOD**
**FIRE SEPARATION DISTANCE**
**FLAME SPREAD**
**FLAME SPREAD INDEX**
**GRADE**
**GRADE FLOOR OPENING**
**GRADE PLANE**
**HABITABLE SPACE**
**HANDRAIL**

**HAZARDOUS LOCATION**
**HEIGHT, BUILDING**
**HEIGHT, STORY**
**IGNITION SOURCE**
**LABEL**
**LABELED**
**LISTED**
**LIVING SPACE**
**LOT**
**LOT LINE**
**MARK**
**METAL ROOF PANEL**
**METAL ROOF SHINGLE**
**MEZZANINE, LOFT**
**MULTIPLE STATION SMOKE ALARM**
**OCCUPIED SPACE.**
**OWNER**
**PUBLIC WAY**
**RAMP**
**REPAIR**
**REROOFING**
**ROOF ASSEMBLY**
**ROOF COVERING**
**ROOF COVERING SYSTEM**
**ROOF DECK**
**ROOF RECOVER**
**ROOF REPAIR**
**ROOFTOP STRUCTURE**
**SHALL**
**SINGLE STATION SMOKE ALARM**
**SMOKE-DEVELOPED INDEX**
**STAIR**
**STAIRWAY**
**STORY**
**STORY ABOVE GRADE PLANE**
**STRUCTURE**
**TOWNHOUSE**

**Notation:**
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[4. The SFM proposes to only adopt Sections R302.1 – R302.13, R303.6 – R306.1, R308.3 – R308.4, R309.5, R310 – R310.4, R311 – R311.8.3.3, R312 – R312.4, R313 – R313.3.8.2, R314 – R314.6.3, R316, R319, R321, R325 – R325.9, R326 – R326.8, R327 – R327.10.2, and R328 – R328.4 contained in Chapter 3.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

***Part III—Building Planning and Construction***

**CHAPTER 3**
**BUILDING PLANNING**

**Notation:**

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[5. The SFM proposes to adopt Section R302.1, Table R302.1(2) and Section 309.5 contained in Chapter 3 and maintain the following existing amendments and California regulations with modification.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

~~**R302.1 Exterior walls.** Construction, projections, openings and penetrations of *exterior walls* of *dwellings* and accessory buildings shall comply with Table R302.1*(1); or for dwellings and accessory buildings equipped throughout with an automatic residential fire sprinkler system installed in accordance with Section R313 shall comply with Table R302.1(2).*~~
**R302.1 Exterior walls.** Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1(1); or dwellings *and accessory buildings* equipped throughout with an automatic sprinkler system installed in accordance with Section ~~P2904~~*R313* shall comply with Table R302.1(2).

**Exceptions:**
1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the *fire separation distance*.
2. Walls of *dwellings* and *accessory structures* located on the same *lot*.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the *lot*. Projections beyond the *exterior wall* shall not extend over the *lot line*.
4. Detached garages accessory to a *dwelling* located within 2 feet (610 mm) of a *lot line* are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.

~~***TABLE R302.1(2)***~~
~~***EXTERIOR WALLS – DWELLINGS AND ACCESSORY BUILDINGS***~~
~~***WITH AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION***~~

| ~~***Exterior Wall Element***~~ | | ~~***Minimum Fire-Resistance Rating***~~ | ~~***Minimum Fire Separation Distance***~~ |
|---|---|---|---|
| ~~*Walls*~~ | ~~*Fire-resistance rated*~~ | ~~*1 hour tested in accordance with ASTM E 119 or UL 263 with exposure form both sides*~~ | ~~*<3 feet*~~ |
| | ~~*Not fire-resistance rated*~~ | ~~*0 hours*~~ | ~~*≥3 feet*~~ |
| ~~*Projections*~~ | ~~*Fire-resistance rated*~~ | ~~*1 hour on the underside*~~ | ~~*≥ 2 feet to 3 feet*~~ |
| | ~~*Not fire-resistance rated*~~ | ~~*0*~~ | ~~*3 feet*~~ |
| ~~*Openings in walls*~~ | ~~*Not allowed*~~ | ~~*N/A*~~ | ~~*< 3 feet*~~ |
| | ~~*Unlimited*~~ | ~~*0 hours*~~ | ~~*3 feet*~~ |
| ~~*Penetrations*~~ | ~~*All*~~ | ~~*Comply with Section R302.4*~~ | ~~*< 3 feet*~~ |
| | | ~~*None required*~~ | ~~*3 feet*~~ |

~~*For SI: 1 foot = 304.8 mm.*~~
~~*N/A = Not Applicable*~~

**TABLE R302.1(2)**
**EXTERIOR WALLS—DWELLINGS ~~WITH FIRE SPRINKLERS~~ *AND ACCESSORY BUILDINGS WITH AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION***

| EXTERIOR WALL ELEMENT | MINIMUM FIRE-RESISTANCE RATING | MINIMUM FIRE SEPARATION |
|---|---|---|

| | | | DISTANCE |
|---|---|---|---|
| Walls | Fire-resistance rated | 1 hour—tested in accordance with ASTM E 119 or UL 263 with exposure from the outside | 0 feet |
| | Not fire-resistance rated | 0 hours | 3 feet[a] |
| Projections | Fire-resistance rated | 1 hour on the underside | 2 feet[a] |
| | Not fire-resistance rated | 0 hours | 3 feet |
| Openings in walls | Not allowed | N/A | < 3 feet |
| | Unlimited | 0 hours | 3 feet[a] |
| Penetrations | All | Comply with Section R302.4 | < 3 feet |
| | | None required | 3 feet[a] |

For SI: 1 foot = 304.8 mm.
N/A = Not Applicable
a. For residential subdivisions where all dwellings *and accessory buildings* are equipped throughout with an automatic sprinkler systems installed in accordance with Section ~~P2904~~*R313*, the fire separation distance for nonrated exterior walls and rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining lot provides an open setback yard that is 6 feet or more in width on the opposite side of the property line.

**Pull**
**R302.5.2 Duct penetration.** Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved materials and shall have no openings into the garage. *Fire dampers, installed pursuant to the California Building Code, Section 717, may be used with other types of materials when approved by the enforcing agency.*

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[6. The SFM proposes to adopt Sections R302.5.1, R302.9.4, R309.5 and R309.6 contained in Chapter 3 and maintain the following existing amendments and California regulations with modification.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**R302.5.1 Opening protection.** Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 13/8 inches (35 mm) in thickness, solid or honeycomb core steel doors not less than 13/8 inches (35 mm) thick, or 20-minute fire-rated doors, equipped with self-closing *and self-latching* devices. ~~*Doors shall be self-closing and self-latching.*~~

***Exception:*** *Where the residence and the private garage are protected by an automatic residential fire sprinkler system in accordance with Sections R309.6 and R313, other door openings between the private garage and the residence need only be self-closing and self-latching. This exception shall not apply to rooms used for sleeping purposes.*

**R302.9.4 Alternate test method.** As an alternate to having a flame-spread index of not greater than 200 and a smoke developed index of not greater than 450 when tested in accordance with ASTM E 84 or UL 723, wall and ceiling finishes, other than textiles, shall be permitted to be tested in accordance with NFPA 286. Materials tested in accordance with NFPA 286 shall meet the following criteria:

The interior finish shall comply with the following:

1. During the 40 kW exposure, flames shall not spread to the ceiling.

2. The flame shall not spread to the outer extremity of the sample on any wall or ceiling.
3. Flashover, as defined in NFPA 286, shall not occur.
~~*4. The peak rate of heat release throughout the NFPA 286 test shall not exceed 800 kW.*~~
4. The peak heat release rate throughout the test shall not exceed 800 kW.
5. The total smoke released throughout the test shall not exceed 1,000 m2.

**R309.5 Fire sprinklers *location on property*.** Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table R302.1(2), Footnote a. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with Section ~~P290~~ *R313*. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft2. Garage doors shall not be considered obstructions with respect to sprinkler placement.

***R309.6 Fire sprinklers.*** ~~*Carports with habitable space above and attached garages shall be protected by residential fire sprinkler system in accordance with this section. Residential fire sprinklers shall be connected to, and installed in accordance with, a fire sprinkler system that complies with Section R313 or NFPA 13D. Fire sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a minimum density of 0.05 gpm/ft2 (2.04 mm/min) over the area of the garage and/or carport, but not to exceed two sprinklers for hydraulic calculation purposes. Garage doors shall not be considered obstructions with respect to sprinkler placement.*~~

~~***Exception:*** *An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing carports and/or garages that do not have an automatic residential fire sprinkler system installed in accordance with this section.*~~

***R309.6 Fire Sprinklers Attached garages, and carports with habitable space above.*** *Attached garages, and carports with habitable space above shall be protected by fire sprinklers in accordance with this Section and Section R313. Protection shall be provided in accordance with one of the following:*

*1. Residential Sprinklers installed in accordance with their listing.*
*2. Extended Coverage sprinklers discharging water not less than their listed flow rate for Light Hazard in accordance with NFPA 13.*
*3. Quick-Response spray sprinklers at light hazard spacing in accordance with NFPA 13 designed to discharge at 0.05 gpm/ft2 density (minimum).*

*The system demand shall be permitted to be limited to the number of sprinklers in the compartment but shall not exceed two sprinklers for hydraulic calculation purposes. Garage doors shall not be considered obstructions and shall be permitted to be ignored for placement and calculation of sprinklers.*

***Exception:*** *An automatic residential fire sprinkler system shall not be required when additions or alterations are made to existing carports and/or garages that do not have an automatic residential fire sprinkler system installed in accordance with this Section.*

~~**P2902.5.4**~~ ***R313.3.5.3 Connections to automatic fire sprinkler systems.*** *The potable water supply to automatic fire sprinkler shall be protected against backflow by a double check backflow prevention assembly, a double check fire protection backflow prevention assembly, a reduced pressure principle backflow prevention assembly or a reduced pressure principle fire protection backflow prevention assembly.*

***Exception:*** *Where systems are installed as a portion of the water distribution system in accordance with the requirements of this code and are not provided with a fire department connection, backflow protection for the water supply system shall not be required.*

~~**P2902.5.4.1**~~ ***R313.3.5.3.1 Additives or nonpotable source.*** *Where systems contain chemical additives or antifreeze, or where systems are connected to a nonpotable secondary water supply, the potable water supply shall be protected against backflow by a reduced pressure principle backflow prevention assembly or a reduced pressure principle fire protection backflow prevention assembly. Where chemical additives or antifreeze is added to only a portion of an automatic fire sprinkler or standpipe system, the reduced pressure principle fire protection backflow preventer shall be permitted to be located so as to isolate that portion of the system.*

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

**[7. The SFM proposes to adopt Sections R314.3 contained in Chapter 3 with the following amendments and California regulations.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**R314.3 Location.** Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

*See Section 907.2.11.5 for specific location requirements.*

***R314.3.2 Smoke alarms.*** *Smoke alarms shall be tested and maintained in accordance with the manufacturer's instructions. Smoke alarms that no longer function shall be replaced. Smoke alarms installed in one- and two-family dwellings shall be replaced after 10 years from the date of manufacture marked on the unit, or if the date of manufacture cannot be determined.*

***R314.3.3 Conventional ionization smoke alarms.*** *Conventional ionization smoke alarms that are solely battery powered shall be of the equipped with a ten year battery and have a silence feature.*

***R314.3.6 Specific location requirements.***
*Extract from NFPA 72 Section 29.8.3.4 Specific Location Requirements*.*
*This extract has been provided by NFPA as amended by the Office of the State Fire Marshal and adopted by reference as follows:*

**29.8.3.4 Specific Location Requirements.** The installation of smoke alarms and smoke detectors shall comply with the following requirements:

(1) Smoke alarms and smoke detectors shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.
(2) Smoke alarms and smoke detectors shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40ºF (4ºC) or exceed 100ºF (38ºC).
(3) Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, smoke alarms and smoke detectors shall be mounted on an inside wall.
~~(4) Smoke alarms and smoke detectors shall not be installed within an area of exclusion determined by a 10 ft (3.0 m) radial distance along a horizontal flow path from a stationary or fixed cooking appliance, unless listed for installation in close proximity to cooking appliances. Smoke alarms and smoke detectors installed between 10 ft (3.0 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be equipped with an alarm-silencing means or use photoelectric detection.~~

~~Exception: Smoke alarms or smoke detectors that use photoelectric detection shall be permitted for installation at a radial distance greater than 6 ft (1.8 m) from any stationary or fixed cooking appliance when the following conditions are met:~~

~~(a) The kitchen or cooking area and adjacent spaces have no clear interior partitions or headers and~~
~~(b) The 10 ft (3.0 m) area of exclusion would prohibit the placement of a smoke alarm or smoke detector required by other sections of this code.~~
~~(5) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from a door to a bathroom containing a shower or tub.~~
*(4) Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.*
***Exception:***
*Ionization smoke alarms with an alarm-silencing switch or Photoelectric smoke alarms shall be permitted to be shall be installed 10 feet (3 m) or greater from a permanently installed cooking appliance.*

*Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet (1.8 m) from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 ft distances would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance.*
*(5) Installation near bathrooms. Smoke alarms shall be installed not less than a 3 foot (0.91 m) horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by other sections of the code.*
(6) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.
(7) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.
(8) Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.
(9) For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs.
(10) For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point.
(11) Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4.
(12) Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3.

***For additional requirements or clarification see NFPA 72.***

**Notation:**
Authority: Health and Safety Code Sections 13108, 13113.7, 13113.8, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13113.7, 13113.8, 13143, 17921, 18949.2

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**[8. The SFM proposes to amend, modify or adopt new building standards relating to solar photovoltaic panel(s) or systems into new Section R331.]**

***SECTION R331***
***SOLAR PHOTOVOLTAIC PANELS/MODULES***

**(IFC 605.11 reproduced)**
***R331.1 Solar photovoltaic power systems.*** *Solar photovoltaic power systems shall be installed in accordance with Sections R331.2 through R331.5 and the California Electrical Code.*

***Exception:*** *Detached, nonhabitable Group U structures including, but not limited to, parking shade structures, carports, solar trellises and similar structures shall not be subject to the requirements of this section.*

***R331.2 Marking.*** *Marking is required on interior and exterior direct-current (DC) conduit, enclosures, raceways, cable assemblies, junction boxes, combiner boxes and disconnects.*

***R331.2.1 Materials.*** *The materials used for marking shall be reflective, weather resistant and suitable for the environment. Marking as required in Sections R331.2.2 through R331.2.4 shall have all letters capitalized with a minimum height of 3/8 inch (9.5 mm) white on red background.*

***R331.2.2 Marking content.*** *The marking shall contain the words "*WARNING: PHOTOVOLTAIC POWER SOURCE.*"*

***R331.2.3 Main service disconnect.*** *The marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the disconnect is operated.*

***R331.2.4 Location of marking.*** *Marking shall be placed on interior and exterior DC conduit, raceways, enclosures and cable assemblies every 10 feet (3048 mm), within 1 foot (305 mm) of turns or bends and within 1 foot (305 mm) above and below penetrations of roof/ceiling assemblies, walls or barriers.*

***R331.3 Locations of DC conductors.*** *Conduit, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities. Conduit runs between sub arrays and to DC combiner boxes shall be installed in a manner that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes shall be located such that conduit runs are minimized in the pathways between arrays. DC wiring shall be installed in metallic conduit or raceways when located within enclosed spaces in a building. Conduit shall run along the bottom of load bearing members.*

***R331.4 Access and pathways.*** *Roof access, pathways, and spacing requirements shall be provided in accordance with Sections R331.4.1 through R331.4.3.3.*

***Exceptions:***
*1. Residential structures shall be designed so that each photovoltaic array is no greater than 150 feet (45 720 mm) by 150 feet (45 720 mm) in*
*either axis.*
*2. Panels/modules shall be permitted to be located up to the roof ridge where an alternative ventilation method approved by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be*
*employed.*

***R331.4.1 Roof access points.*** *Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.*

***R331.4.2 Residential systems for one- and two-family dwellings.*** *Access to residential systems for one- and two-family dwellings shall be provided in accordance with Sections R331.4.2.1 through R331.4.2.4.*

***R331.4.2.1 Residential buildings with hip roof layouts.*** *Panels/modules installed on residential buildings with hip roof layouts shall be located in a manner that provides a 3-foot-wide (914 mm) clear access pathway from the eave to the ridge on each roof slope where panels/modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.*

***Exception:*** *These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.*

***R331.4.2.2 Residential buildings with a single ridge.*** *Panels/modules installed on residential buildings with a single ridge shall be located in a manner that provides two, 3-foot-wide (914 mm) access pathways from the eave to the ridge on each roof slope where panels/modules are located.*

***Exception:*** *This requirement shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.*

***R331.4.2.3 Residential buildings with roof hips and valleys.*** *Panels/modules installed on residential buildings with roof hips and valleys shall be located no closer than 18 inches (457 mm) to a hip or a valley where panels/modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.*

***Exception:*** *These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.*

***R331.4.2.4 Residential building smoke ventilation.*** *Panels/modules installed on residential buildings shall be located no higher than 3 feet (914 mm) below the ridge in order to allow for fire department smoke ventilation operations.*

**(IFC 605.11.3.3 through 605.11.3.3.3 are not reproduced)**

***R331.5 Ground-mounted photovoltaic arrays.*** *Ground-mounted photovoltaic arrays shall comply with Sections R331.1 through R331.3 and this section. Setback requirements shall not apply to ground-mounted, free-standing photovoltaic arrays. A clear, brush-free area of 10 feet (3048 mm) shall be required for ground-mounted photovoltaic arrays.*

**Notation:**
Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[59. The SFM proposes to not adopt Chapter 4.]**

## CHAPTER 4
## FOUNDATIONS

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[10. The SFM proposes to only adopt Section R501.3 contained in Chapter 5 with editorial modification.]**

## CHAPTER 5
## FLOORS

**R501.3. Fire protection of floors.** Floor assemblies, not required elsewhere in this code to be fire resistance rated, shall be provided with a ½-inch gypsum wallboard membrane, 5/8-inch wood structural panel membrane, or equivalent on the underside of the framing member.

**Exceptions:**

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section ~~P2904~~*R313*, NFPA13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or fuel-fired appliances.
3. Portions of floor assemblies can be unprotected when complying with the following:

3.1. The aggregate area of the unprotected portions shall not exceed 80 square feet per story.
3.2. Fire blocking in accordance with Section R302.11.1 shall be installed along the perimeter of the unprotected portion to separate the unprotected portion from the remainder of the floor assembly.

4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

**Notation:**
Authority: Health and Safety Code Sections 13108, 13113.5, 13113.7, 13113.8, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[11. The SFM proposes to not adopt Chapters 6 and 7.]**

**CHAPTER 6**
**WALL CONSTRUCTION**

**CHAPTER 7**
**WALL COVERING**

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[12. The SFM proposes to only adopt Sections R802.1.3 – R802.1.3.8 contained in Chapter 8.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**CHAPTER 8**
**ROOF-CEILING CONSTRUCTION**

**Notation:**
Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[13. The SFM proposes to only adopt Sections R901.1, R902.1 – R902.2 and R904.1 – R904..4, R908 and new Section R908 contained in Chapter 9 with the following amendments and building standards.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**CHAPTER 9**
**ROOF ASSEMBLIES**

**R902.1 Roofing covering materials.** Roofs shall be covered with materials as set forth in Sections R904 and R905. *A minimum Class A, B or C roofing shall be installed in areas designated by this section.* Classes A, B and C roofing required by this section to be listed shall be tested in accordance with UL 790 or ASTM E 108.

**Exceptions:**
1. Class A roof assemblies include those with coverings of brick, masonry and exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible decks.
3. Class A roof assemblies include minimum 16 oz/ft2 copper sheets installed over combustible decks.
*4.* **(Derived from S19–12 for IBC 1505.1)** *Rooftop mounted photovoltaic panel systems shall be listed and labeled in accordance with UL 1703 for fire classification. The minimum photovoltaic panel system fire classification listing shall be as required by this section or as otherwise required by this code.*

***R902.3*** **(Derived from S19–12 for IBC 1505.8)** ***Building integrated photovoltaic systems.*** *Rooftop installed building integrated photovoltaic systems that serve as the roof covering shall be listed and labeled for fire classification in accordance with Section R902.1 through R902.1.4.*

***SECTION R908***
***SOLAR PHOTOVOLTAIC PANELS/MODULES***

***R908.1*** **(IBC/CBC 1509.7)** ***Photovoltaic systems.*** *Rooftop mounted photovoltaic systems shall be designed in accordance with this section.*

***R908.1.2*** **(IBC/CBC 1509.7.1 Not an SFM item)** ***Wind resistance.*** *Rooftop mounted photovoltaic systems shall be designed for wind loads for component and cladding in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.*

***R908.1.3*** **(IBC/CBC 1509.7.2)** ***Fire classification.*** **(S19–12)** *Rooftop mounted photovoltaic panel systems shall have a fire classification as required by Section R902.1 through R902.1.4.*

***Exceptions:***
*1.* **(S55–12)** *Photovoltaic panels and modules having a minimum Class C fire classification are permitted where listed and labeled in accordance with UL 1703 and where installed in direct contact with the roof surface.*
*2.* **(S57–12)** *Photovoltaic panels having a minimum Class C fire classification are permitted where listed and labeled in accordance with UL 1703 and where installed at least 12 inches (305mm) above the roof surface.*
*3.* **(S57–12)** *Photovoltaic panels and modules arranged in arrays are permitted where the following conditions are met:*

*3.1. Photovoltaic panels and modules have a minimum Class C fire classification where listed and labeled in accordance with UL 1703;*
*3.2. The entire perimeter of the array is provided with a 0.0187-inch (0.4712 mm) (No. 26 gage) corrosion resistant steel or equivalent approved barrier extending from the array to the roof and;*
*3.3. Where any openings between the individual panels and modules on the upper face are provided with screens, flashing or otherwise protected to prevent entry of vegetative debris.*

***R908.1.4*** **(IBC/CBC 1509.7.3)** ***Installation.*** *Rooftop mounted photovoltaic systems shall be installed in accordance with the manufacturer's installation instructions.*

***R908.1.5*** **(IBC/CBC 1509.7.4)** ***Photovoltaic panels and modules.*** *Photovoltaic panels and modules mounted on top of a roof shall be listed and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer's installation instructions.*

***R908.1.6*** **(IBC/CBC 1511.1)** ***Fire safety provisions for photovoltaic panels/modules.*** *Solar photovoltaic panels/modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of this code (see Section R331) and the California Fire Code.*

**Notation:**
Authority: Health and Safety Code Sections 13108, 13108.5, 13132.7, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[14. The SFM proposes to only adopt Section R1003.9.1 contained in Chapter 10.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

**CHAPTER 10**
**CHIMNEYS AND FIREPLACES**

**Notation:**
Authority: Health and Safety Code Sections 13108, 13108.5, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[15. The SFM proposes to not adopt Chapters 11 through 43.]**

*Part IV—Energy Conservation*

**CHAPTER 11**
**ENERGY EFFICIENCY**

*Part V—Mechanical*

**CHAPTER 12**
**MECHANICAL ADMINISTRATION**

**CHAPTER 13**
**GENERAL MECHANICAL SYSTEM REQUIREMENTS**

**CHAPTER 14**
**HEATING AND COOLING EQUIPMENT**

**CHAPTER 15**
**EXHAUST SYSTEMS**

**CHAPTER 16**
**DUCT SYSTEMS**

**CHAPTER 17**
**COMBUSTION AIR**

**CHAPTER 18**
**CHIMNEYS AND VENTS**

**CHAPTER 19**
**SPECIAL FUEL-BURNING EQUIPMENT**

**CHAPTER 20**
**BOILERS ANDWATER HEATERS**

**CHAPTER 21**
**HYDRONIC PIPING**

**CHAPTER 22**
**SPECIAL PIPING AND STORAGE SYSTEMS**

**CHAPTER 23**
**SOLAR SYSTEMS**

*Part VI—Fuel Gas*

**CHAPTER 24 FUEL GAS**

*Part VII—Plumbing*

**CHAPTER 25**
**PLUMBING ADMINISTRATION**

**CHAPTER 26**
**GENERAL PLUMBING REQUIREMENTS**

**CHAPTER 27**
**PLUMBING FIXTURES**

**CHAPTER 28**
**WATER HEATERS**

**CHAPTER 29**
**WATER SUPPLY AND DISTRIBUTION**

**The provisions of Section P2904 relocated to Section R313.3.**

**CHAPTER 30**
**SANITARY DRAINAGE**

**CHAPTER 31**
**VENTS**

**CHAPTER 32**
**TRAPS**

**CHAPTER 33**
**STORM DRAINAGE**

***Part VIII—Electrical***

**CHAPTER 34**
**GENERAL REQUIREMENTS**

**CHAPTER 35**
**ELECTRICAL DEFINITIONS**

**CHAPTER 36**
**SERVICES**

**CHAPTER 37**
**BRANCH CIRCUIT AND FEEDER REQUIREMENTS**

**CHAPTER 38**
**WIRING METHODS**

**CHAPTER 39**
**POWER AND LIGHTING DISTRIBUTION**

**CHAPTER 40**
**DEVICES AND LUMINAIRES**

**CHAPTER 41**
**APPLIANCE INSTALLATION**

**CHAPTER 42**
**SWIMMING POOLS**

**CHAPTER 43**
**CLASS 2 REMOTE-CONTROL, SIGNALING AND POWER-LIMITED CIRCUITS**

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[16. The SFM proposes to adopt Chapter 44.]**
(See item 19 for existing SFM amendments and California regulations that are brought forward without modification.)

*Part IX—Referenced Standards*

**CHAPTER 44**
**REFERENCED STANDARDS**

**Revise the NFPA referenced standards as follow:**

**NFPA**

| | |
|---|---|
| 13—~~10~~ *13* | Installation of Sprinkler Systems |
| 13D—~~10~~ *13* | Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes |
| 72—~~11~~ *13* | National Fire Alarm *and Signaling* Code |
| 211—~~10~~ *13* | Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances |
| 259—~~08~~ *13* | Test Method for Potential Heat of Building Materials |
| 275—~~09~~ *13* | Standard Method of Fire Tests for the Evaluation of Thermal Barriers Used Over Foam Plastic Insulation |
| 286—11 | Standard Method of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth |
| 501—~~10~~ *13* | Standard on Manufactured Housing |
| 720—~~09~~ *12* | Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment |

**Notation:**
Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13113.5, 13113.7, 13113.8, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189
References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204

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**[17. The SFM proposes to not adopt Appendices A through L.]**

**APPENDIX A**
**SIZING AND CAPACITIES OF GAS PIPING**

**APPENDIX B**
**SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS**

**APPENDIX C**
**EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT VENT VENTING SYSTEMS**

**APPENDIX D**
**RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION**

**APPENDIX E**
**MANUFACTURED HOUSING USED AS DWELLINGS**

**APPENDIX F**
**RADON CONTROL METHODS**

**APPENDIX G**
**SWIMMING POOLS, SPAS AND HOT TUBS**

**APPENDIX H**
**PATIO COVERS**

**APPENDIX I**
**PRIVATE SEWAGE DISPOSAL**

**APPENDIX J**
**EXISTING BUILDINGS AND STRUCTURES**

**APPENDIX K**
**SOUND TRANSMISSION**

**APPENDIX L**
**PERMIT FEES**

**Notation:**
Authority: Health and Safety Code Sections 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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**[18. The SFM proposes to not adopt Appendices M and remove the following text.]**

**APPENDIX M**

***This Appendix is not applicable in California See Health and Safety Code Sections 1597.45, 1597.46, 1597.54 and 13143 regarding small family day care homes and large family day care homes. Provisions for day care facilities shall be in accordance with Section 1.1.3.1 for classification, R326 for large family day care, R325 for Group R-3.1 or the California Building Code.***

**Notation:**
Authority: Health and Safety Code Sections 1597.40, 1597.44, 1597.45, 1597.46, 1597.54, 13108, 13143, 17921, 18949.2
References: Health and Safety Code Sections 13143, 18949.2

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# **PART 2**

**[19. The SFM proposes to bring forward previously existing California building standards or amendments, which represent no change in their effect from the 2010 California Residential Code. Furthermore, the SFM proposes to codify non-substantive editorial and formatting amendments from the format based upon the 2009 International Residential Code to the format of the 2012 International Residential Code.]**

## CHAPTER 1

## SCOPE AND APPLICATION
## DIVISION I
## CALIFORNIA ADMINISTRATION

### SECTION 1.1
### GENERAL

***1.1.2 Purpose.*** *The purpose of this code is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, access to persons with disabilities, sanitation, adequate lighting and ventilation, and energy conservation; safety to life and property from fire and other hazards attributed to the built environment; and to provide safety to fire fighters and emergency responders during emergency operations.*

***1.1.3.1 Classification.*** *Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508 of the California Building Code. Where a structure is proposed for a purpose that is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved in accordance with this code or the California Building Code.*

***1.1.3.1.1 Residential Group R.*** *Residential Group R includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I. Residential occupancies shall include the following:*

*R-3 Residential occupancies where the occupants are primarily permanent in nature and not classified as Group R-1, R-2, R-2.1, R-3.1, R-4 or I, including:*
*Buildings that do not contain more than two dwelling units.*
*Townhouses not more than three stories above grade in height with a separate means of egress.*
*Adult facilities that provide accommodations for six or fewer persons of any age for less than 24-hours. Licensing categories that may use this classification include, but are not limited to:*
*Adult Day Programs.*
*Child care facilities that provide accommodations for six or fewer persons of any age for less than 24-hours.*
*Licensing categories that may use this classification include, but are not limited to:*
*Day-care Center for Mildly Ill Children,*
*Infant Care Center and School Age Child Day-care Center.*
*Family Day-care Homes that provide accommodations for 14 or fewer children, in the provider's own home for less than 24-hours.*
*Congregate living facilities or congregate residences with 16 or fewer persons.*

*R-3.1 This occupancy group may include facilities licensed by a governmental agency for a residentially based 24-hour care facility providing accommodations for six or fewer clients of any age. Clients may be classified as ambulatory, nonambulatory or bedridden. A Group R-3.1 occupancy shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in Section R325 Special Provisions For Licensed 24-Hour Care Facilities in a Group R-3.1 Occupancy. This group may include:*

*Adult Residential Facilities*
*Congregate Living Health Facilities*
*Foster Family Homes*
*Group Homes*
*Intermediate Care Facilities for the developmentally disabled habilitative*

*Intermediate Care Facilities for the Developmentally disabled nursing*
*Nurseries for the full-time care of children under the age of six, but not including "infants" as defined in Section 202*
*Residential Care Facilities for the Elderly*
*Small Family Homes and Residential Care*
*Facilities for the chronically ill*

***Exception:*** *Foster Family Homes or Group Homes licensed by the Department of Social Services which provide nonmedical board, room and care for six or fewer ambulatory children or children two years of age or younger, and which do not have any nonambulatory clients shall not be subject to regulations found in Section R325.*

*Pursuant to Health and Safety Code Section 13143 with respect to these exempted facilities, no city, county or public district shall adopt or enforce any requirement for the prevention of fire or for the protection of life and property against fire and panic unless the requirement would be applicable to a structure regardless of the special occupancy. Nothing shall restrict the application of state or local housing standards to such facilities if the standards are applicable to residential occupancies and are not based on the use of the structure as a facility for ambulatory children. For the purpose of this exception, ambulatory children does not include relatives of the licensee or the licensee's spouse.*

*Large Family Day-Care Homes. See Section R326.*

***1.1.3.1.2 Utility and Miscellaneous Group U.*** *Buildings and structures of an accessory character and miscellaneous structures not classified in any specific occupancy shall be constructed, equipped and maintained to conform to the requirements of this code commensurate with the fire and life hazard incidental to their occupancy. Group U shall include, but not be limited to, the following:*

*Agricultural buildings*
*Aircraft hangars, accessory to a one- or two-family residence (see Section 412.5 of the California Building Code)*
*Barns*
*Carports*
*Fences more than 6 feet (1829 mm) high*
*Grain silos, accessory to a residential occupancy*
*Greenhouses*
*Livestock shelters*
*Private garages*
*Retaining walls*
*Sheds*
*Stables*
*Tanks*
*Towers*

***1.1.3.2 Regulated buildings, structures and applications.*** *The model code, state amendments to the model code, and/or state amendments where there are no relevant model code provisions shall apply to detached one- and two-family dwellings, townhouses and structures accessory thereto. State agencies with regulatory authority are referenced in the Matrix Adoption Table and as specified in Sections 1.2 through 1.14, except where modified by local ordinance pursuant to Section 1.1.8. When adopted by a state agency, the provisions of this code shall be enforced by the appropriate enforcing agency, but only to the extent of authority granted to such agency by the state legislature.*

***Note:*** *See Preface to distinguish the model code provisions from the California provisions.*

*1. One- and two-family dwellings, townhouses, employee housing, factory-built housing and other types of dwellings containing sleeping accommodations with common toilets or cooking facilities. See Section 1.2.1.1.1.*
*2. Permanent buildings and permanent accessory buildings or structures constructed within mobilehome parks and special occupancy parks regulated by the Department of Housing and Community Development. See Section 1.2.1.1.3.*
*3. Applications regulated by the Office of the State Fire Marshal include, but are not limited to, the following in accordance with Section 1.11:*

*3.1. Buildings or structures used or intended for use as a/an:*
*1. Home for the elderly, children's nursery, children's home or institution, school or any similar occupancy of any capacity*

*2. Small family day-care homes, large family day-care homes, residential facilities and residential facilities for the elderly, residential care facilities*
*3. State institutions or other state-owned or state-occupied buildings*
*4. Residential structures*
*5. Tents, awnings or other fabric enclosures used in connection with any occupancy*
*6. Fire alarm devices, equipment and systems in connection with any occupancy*
*7. Wildland-urban interface fire areas*

***1.1.4 Appendices.*** *Provisions contained in the appendices of this code shall not apply unless specifically adopted by a state agency or adopted by a local enforcing agency in compliance with Health and Safety Code Section 18901 et seq. for Building Standards Law, Health and Safety Code Section 17950 for State Housing Law and Health and Safety Code Section 13869.7 for Fire Protection Districts. See Section 1.1.8 of this code.*

***1.1.5 Referenced codes.*** *The codes, standards and publications adopted and set forth in this code, including other codes, standards and publications referred to therein are, by title and date of publication, hereby adopted as standard reference documents of this code. When this code does not specifically cover any subject related to building design and construction, recognized architectural or engineering practices shall be employed. The National Fire Codes, standards and the Fire Protection Handbook of the National Fire Protection Association are permitted to be used as authoritative guides in determining recognized fire prevention engineering practices.*

***1.1.6 Nonbuilding standards, orders and regulations.*** *Requirements contained in the International Residential Code, or in any other referenced standard, code or document, which are not building standards as defined in Health and Safety Code Section 18909, shall not be construed as part of the provisions of this code. For nonbuilding standards, orders and regulations, see other titles of the California Code of Regulations.*

***1.1.7 Order of precedence and use.***

***1.1.7.1 Differences.*** *In the event of any differences between these building standards and the standard reference documents, the text of these building standards shall govern.*

***1.1.7.2 Specific provisions.*** *Where a specific provision varies from a general provision, the specific provision shall apply.*

***1.1.7.3 Conflicts.*** *When the requirements of this code conflict with the requirements of any other part of the California Building Standards Code, Title 24, the most restrictive requirements shall prevail.*

***1.1.7.3.1 Detached one- and two-family dwellings.*** *Detached one-and two-family dwellings and townhouses not more than three stories above grade plane with a separate means of egress and their accessory structures shall not be required to comply with the more restrictive requirements contained in Title 24, Part 2, the California Building Code, unless the proposed structure(s) exceed the design limitations established in the California Residential Code and the code user is specifically directed to use the California Building Code.*

***1.1.8 City, county, or city and county amendments, additions or deletions.*** *The provisions of this code do not limit the authority of city, county, or city and county governments to establish more restrictive and reasonably necessary differences to the provisions contained in this code pursuant to complying with Section 1.1.8.1. The effective date of amendments, additions or deletions to this code by city, county, or city and county filed pursuant to Section 1.1.8.1 shall be the date filed. However, in no case shall the amendments, additions or deletions to this code be effective any sooner than the effective date of this code. Local modifications shall comply with Health and Safety Code Section 18941.5 for Building Standards Law, Health and Safety Code Section 17958 for State Housing Law or Health and Safety Code Section 13869.7 for Fire Protection Districts.*

***1.1.8.1 Findings and filings.***

*1. The city, county, or city and county shall make express findings for each amendment, addition or deletion based upon climatic, topographical or geological conditions.*

***Exception:*** *Hazardous building ordinances and programs mitigating unreinforced masonry buildings.*

*2. The city, county, or city and county shall file the amendments, additions or deletions expressly marked and identified as to the applicable findings. Cities, counties, cities and counties, and fire departments shall file the*

*amendments, additions or deletions, and the findings with the California Building Standards Commission at 2525 Natomas Park Drive, Suite 130, Sacramento, CA 95833.*

*3. Findings prepared by fire protection districts shall be ratified by the local city, county, or city and county and filed with the California Department of Housing and Community Development, Division of Codes and Standards, P.O. Box 1407, Sacramento, CA 95812-1407 or 1800 3rd Street, Room 260, Sacramento, CA 95811.*

***1.1.9 Effective date of this code.*** *Only those standards approved by the California Building Standards Commission that are effective at the time an application for building permit is submitted shall apply to the plans and specifications for, and to the construction performed under, that permit. For the effective dates of the provisions contained in this code, see the History Note page of this code.*

***1.1.10 Availability of codes.*** *At least one complete copy each of Titles 8, 19, 20, 24 and 25 with all revisions shall be maintained in the office of the building official responsible for the administration and enforcement of this code. Each state department concerned and each city, county, or city and county shall have an up-to-date copy of the code available for public inspection. See Health and Safety Code Section 18942(d) (1) and (2).*

***1.1.11 Format.*** *This part fundamentally adopts the International Residential Code by reference on a chapter-by-chapter basis. Such adoption is reflected in the Matrix Adoption Table of each chapter of this part. When the Matrix Adoption Table makes no reference to a specific chapter of the International Residential Code, such chapter of the International Residential Code is not adopted as a portion of this code.*

***1.1.12 Validity.*** *If any chapter, section, subsection, sentence, clause or phrase of this code is for any reason held to be unconstitutional, contrary to statute, exceeding the authority of the state as stipulated by statutes or otherwise inoperative, such decision shall not affect the validity of the remaining portion of this code.*

**SECTION 1.2**
**Reserved**

**SECTION 1.3**
**Reserved**

**SECTION 1.4**
**Reserved**

**SECTION 1.5**
**Reserved**

**SECTION 1.6**
**Reserved**

**SECTION 1.7**
**Reserved**

**SECTION 1.8**
**DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT (HCD)**

**SECTION 1.9**
**Reserved**

**SECTION 1.10**
**Reserved**

**SECTION 1.11**
**OFFICE OF THE STATE FIRE MARSHAL**

***1.11.1 SFM—Office of the State Fire Marshal.*** *Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.*

***Application:***
*Institutional, educational or any similar occupancy. Any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for the aged, children's nursery, children's home, school or any similar occupancy of any capacity.*

***Authority cited****—Health and Safety Code Section 13143.*
***Reference****—Health and Safety Code Section 13143.*

***Assembly or similar place of assemblage.*** *Any theater, dancehall, skating rink, auditorium, assembly hall, meeting hall, nightclub, fair building or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education.*

***Authority cited****—Health and Safety Code Section 13143.*
***Reference****—Health and Safety Code Section 13143.*

***Small family day-care homes.***

***Authority cited****—Health and Safety Code Sections 1597.45, 1597.54, 13143 and 17921.*
***Reference****—Health and Safety Code Section 13143.*

***Large family day-care homes.***

***Authority cited****—Health and Safety Code Sections 1597.46, 1597.54 and 17921.*
***Reference****—Health and Safety Code Section 13143.*

***Residential facilities and residential facilities for the elderly.***

***Authority cited****—Health and Safety Code Section 13133.*
***Reference****—Health and Safety Code Section 13143.*

***Any state institution or other state-owned or state-occupied building.***

***Authority cited****—Health and Safety Code Section 13108.*
***Reference****—Health and Safety Code Section 13143.*

***High-rise structures.***

***Authority cited****—Health and Safety Code Section 13211.*
***Reference****—Health and Safety Code Section 13143.*

***Motion picture production studios.***

***Authority cited****—Health and Safety Code Section 13143.1.*
***Reference****—Health and Safety Code Section 13143.*

***Organized camps.***

***Authority cited****—Health and Safety Code Section 18897.3.*
***Reference****—Health and Safety Code Section 13143.*

***Residential.*** *All hotels, motels, lodging houses, apartment houses and dwellings, including congregate residences and buildings and structures accessory thereto. Multiple-story structures existing on January 1, 1975, let for human habitation, including and limited to, hotels, motels and apartment houses, less than 75 feet (22 860 mm) above the lowest floor level having building access, wherein rooms used for sleeping are let above the ground floor.*

***Authority cited****—Health and Safety Code Sections 13143.2 and 17921.*
***Reference****—Health and Safety Code Section 13143.*

***Residential care facilities.*** *Certified family care homes, out-of-home placement facilities, halfway houses, drug and/or alcohol rehabilitation facilities and any building or structure used or intended for use as a home or institution*

*for the housing of any person of any age when such person is referred to or placed within such home or institution for protective social care and supervision services by any governmental agency.*

***Authority cited**—Health and Safety Code Section 13143.6.*
***Reference**—Health and Safety Code Section 13143.*

***Tents, awnings** or other fabric enclosures used in connection with any occupancy.*

***Authority cited**—Health and Safety Code Section 13116.*
***Reference**—Health and Safety Code Section 13143.*

***Fire alarm devices, equipment and systems** in connection with any occupancy.*

***Authority cited**—Health and Safety Code Section 13114.*
***Reference**—Health and Safety Code Section 13143.*

***Hazardous materials.***

***Authority cited**—Health and Safety Code Section 13143.9.*
***Reference**—Health and Safety Code Section 13143.*

***Flammable and combustible liquids.***

***Authority cited**—Health and Safety Code Section 13143.6.*
***Reference**—Health and Safety Code Section 13143.*

***Public school automatic fire detection, alarm and sprinkler systems.***

***Authority cited**—Health and Safety Code Section 13143 and California Education Code Article 7.5, Sections 17074.50, 17074.52 and 17074.54.*
***Reference**—Government Code Section 11152.5, Health and Safety Code Section 13143 and California Education Code Chapter 12.5, Leroy F. Greene School Facilities Act of 1998, Article 1.*

***Wildland-Urban interface fire area.***

***Authority cited**—Health and Safety Code Sections 13143, 13108.5(a) and 18949.2(b) and (c) and Government Code Section 51189.*
***Reference**—Health and Safety Code Sections 13143, Government Code Sections 51176, 51177, 51178 and 51179 and Public Resources Code Sections 4201 through 4204.*

***1.11.2 Duties and powers of the enforcing agency.***

***1.11.2.1 Enforcement.***

***1.11.2.1.1** The responsibility for enforcement of building standards adopted by the State Fire Marshal and published in the California Building Standards Code relating to fire and panic safety and other regulations of the State Fire Marshal shall except as provided in Section 1.11.2.1.2 be as follows:*

*1. The city, county, or city and county with jurisdiction in the area affected by the standard or regulation shall delegate the enforcement of the building standards relating to fire and panic safety and other regulations of the State Fire Marshal as they relate to Group R-3 occupancies, as described in Section 1.1.3.1 or CCR, Part 2 California Building Code,, Section 310.1, to either of the following:*

*1.1. The chief of the fire authority of the city, county or city and county, or an authorized representative.*
*1.2. The chief building official of the city, county or city and county, or an authorized representative.*

*2. The chief of any city or county fire department or of any fire protection district, and authorized representatives, shall enforce within the jurisdiction the building standards and other regulations of the State Fire Marshal, except those described in Item 1 or 4.*
*3. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in areas outside of corporate cities and districts providing fire protection services.*

*4. The State Fire Marshal shall have authority to enforce the building standards and other regulations of the State Fire Marshal in corporate cities and districts providing fire protection services on request of the chief fire official or the governing body.*
*5. Any fee charged pursuant to the enforcement authority of this section shall not exceed the estimated reasonable cost of providing the service for which the fee is charged pursuant to Section 66014 of the Government Code.*

***1.11.2.1.2*** *Pursuant to Health and Safety Code Section 13108, and except as otherwise provided in this section, building standards adopted by the State Fire Marshal published in the California Building Standards Code relating to fire and panic safety shall be enforced by the State Fire Marshal in all state-owned buildings, state-occupied buildings and state institutions throughout the state. Upon the written request of the chief fire official of any city, county, or fire protection district, the State Fire Marshal may authorize such chief fire official and his or her authorized representatives, in their geographical area of responsibility, to make fire prevention inspections of state-owned or state-occupied buildings, other than state institutions, for the purpose of enforcing the regulations relating to fire and panic safety adopted by the State Fire Marshal pursuant to this section and building standards relating to fire and panic safety published in the California Building Standards Code. Authorization from the State Fire Marshal shall be limited to those fire departments or fire districts which maintain a fire prevention bureau staffed by paid personnel.*

*Pursuant to Health and Safety Code Section 13108, any requirement or order made by any chief fire official who is authorized by the State Fire Marshal to make fire prevention inspections of state-owned or state-occupied buildings, other than state institutions, may be appealed to the State Fire Marshal. The State Fire Marshal shall, upon receiving an appeal and subject to the provisions of Chapter 5 (commencing with Section 18945) of Part 2.5 of Division 13 of the Health and Safety Code, determine if the requirement or order made is reasonably consistent with the fire and panic safety regulations adopted by the State Fire Marshal and building standards relating to fire and panic safety published in the California Building Code.*

*Any person may request a code interpretation from the State Fire Marshal relative to the intent of any regulation or provision adopted by the State Fire Marshal. When the request relates to a specific project, occupancy or building, the State Fire Marshal shall review the issue with the appropriate local enforcing agency prior to rendering such code interpretation.*

***1.11.2.1.3*** *Pursuant to Health and Safety Code Section 13112, any person who violates any order, rule or regulation of the State Fire Marshal is guilty of a misdemeanor punishable by a fine of not less than $100.00 or more than $500.00, or by imprisonment for not less than six months, or by both. A person is guilty of a separate offense each day during which he or she commits, continues or permits a violation of any provision of, or any order, rule or regulation of, the State Fire Marshal as contained in this code.*

*Any inspection authority who, in the exercise of his or her authority as a deputy State Fire Marshal, causes any legal complaints to be filed or any arrest to be made shall notify the State Fire Marshal immediately following such action.*
***1.11.2.2 Right of entry.*** *The fire chief of any city, county or fire protection district, or such person's authorized representative, may enter any state institution or any other state-owned or state-occupied building for the purpose of preparing a fire suppression preplanning program or for the purpose of investigating any fire in a state-occupied building.*

*The State Fire Marshal, his or her deputies or salaried assistants, the chief of any city or county fire department or fire protection district and his or her authorized representatives may enter any building or premises not used for dwelling purposes at any reasonable hour for the purpose of enforcing this chapter. The owner, lessee, manager or operator of any such building or premises shall permit the State Fire Marshal, his or her deputies or salaried assistants and the chief of any city or county fire department or fire protection district and his or her authorized representatives to enter and inspect them at the time and for the purpose stated in this section.*

***1.11.2.3 More restrictive fire and panic safety building standards.***

***1.11.2.3.1*** *Any fire protection district organized pursuant to Health and Safety Code Part 2.7 (commencing with Section 13800) of Division 12 may adopt building standards relating to fire and panic safety that are more stringent than those building standards adopted by the State Fire Marshal and contained in the California Building Standards Code. For these purposes, the district board shall be deemed a legislative body and the district shall be deemed a local agency. Any changes or modifications that are more stringent than the requirements published in the California Building Standards Code relating to fire and panic safety shall be subject to Section 1.1.8.1.*

***1.11.2.3.2*** *Any fire protection district that proposes to adopt an ordinance pursuant to this section shall, not less than 30 days prior to noticing a proposed ordinance for public hearing, provide a copy of that ordinance, together with the*

*adopted findings made pursuant to Section 1.11.2.3.1, to the city, county, or city and county where the ordinance will apply. The city, county, or city and county may provide the district with written comments, which shall become part of the fire protection district's public hearing record.*

***1.11.2.3.3*** *The fire protection district shall transmit the adopted ordinance to the city, county, or city and county where the ordinance will apply. The legislative body of the city, county, or city and county may ratify, modify or deny an adopted ordinance and transmit its determination to the district within 15 days of the determination. Any modification or denial of an adopted ordinance shall include a written statement describing the reasons for any modifications or denial. No ordinance adopted by the district shall be effective until ratification by the city, county, or city and county where the ordinance will apply. Upon ratification of an adopted ordinance, the city, county, or city and county shall file a copy of the findings of the district, and any findings of the city, county, or city and county, together with the adopted ordinance expressly marked and identified to which each finding refers, in accordance with Section 1.1.8.1:3.*

***1.11.2.4 Request for alternate means of protection.*** *Requests for approval to use an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment or means of protection shall be made in writing to the enforcing agency by the owner or the owner's authorized representative and shall be accompanied by a full statement of the conditions. Sufficient evidence or proof shall be submitted to substantiate any claim that may be made regarding its conformance. The enforcing agency may require tests and the submission of a test report from an approved testing organization as set forth in Title 19, California Code of Regulation, to substantiate the equivalency of the proposed alternative means of protection.*

*When a request for alternate means of protection involves hazardous materials, the authority having jurisdiction may consider implementation of the findings and recommendations identified in a Risk Management Plan (RMP) developed in accordance with Title 19, Division 2, Chapter 4.5, Article 3.*

*Approval of a request for use of an alternative material, assembly of materials, equipment, method of construction, method of installation of equipment or means of protection made pursuant to these provisions shall be limited to the particular case covered by request and shall not be construed as establishing any precedent for any future request.*

***1.11.2.5 Appeals.*** *When a request for an alternate means of protection has been denied by the enforcing agency, the applicant may file a written appeal to the State Fire Marshal for consideration of the applicant's proposal. In considering such appeal, the State Fire Marshal may seek the advice of the State Board of Fire Services. The State Fire Marshal shall, after considering all of the facts presented, including any recommendations of the State Board of Fire Services, determine if the proposal is for the purposes intended, at least equivalent to that specified in these regulations in quality, strength, effectiveness, fire resistance, durability and safety, and shall transmit such findings and any recommendations to the applicant and to the enforcing agency.*

***1.11.3 Construction documents.***

***1.11.3.1 Public schools.*** *Plans and specifications for the construction, alteration or addition to any building owned, leased or rented by any public school district shall be submitted to the Division of the State Architect.*

***1.11.3.2 Movable walls and partitions.*** *Plans or diagrams shall be submitted to the enforcing agency for approval before the installation of, or rearrangement of, any movable wall or partition in any occupancy. Approval shall be granted only if there is no increase in the fire hazard.*

***1.11.3.3 New construction high-rise buildings.***

*1. Complete plans or specifications, or both, shall be prepared covering all work required to comply with new construction high-rise buildings. Such plans and specifications shall be submitted to the enforcing agency having jurisdiction.*
*2. All plans and specifications shall be prepared under the responsible charge of an architect or a civil or structural engineer authorized by law to develop construction plans and specifications, or by both such architect and engineer. Plans and specifications shall be prepared by an engineer duly qualified in that branch of engineering necessary to perform such services. Administration of the work of construction shall be under the charge of the responsible architect or engineer except that where plans and specifications involve alterations or repairs, such work of construction may be administered by an engineer duly qualified to perform such services and holding a valid certificate under Chapter 7 (commencing with Section 65700) of Division 3 of the Business and Professions Code for performance of services in that branch of engineering in which said plans, specifications and estimates and work of construction are applicable.*

*This section shall not be construed as preventing the design of fire-extinguishing systems by persons holding a C-16 license issued pursuant to Division 3, Chapter 9, Business and Professions Code. In such instances, however, the responsibility charge of this section shall prevail.*

***1.11.3.4 Existing high-rise buildings.***

*1. Complete plans or specifications, or both, shall be prepared covering all work required by Section 3412 for existing high-rise buildings. Such plans or specifications shall be submitted to the enforcing agency having jurisdiction.*
*2. When new construction is required to conform with the provisions of these regulations, complete plans or specifications, or both, shall be prepared in accordance with the provisions of this subsection. As used in this section, "new construction" is not intended to include repairs, replacements or minor alterations which do not disrupt or appreciably add to or affect the structural aspects of the building.*

***1.11.3.5 Retention of plans.*** *Refer to Building Standards Law, Health and Safety Code Sections 19850 and 19851 for permanent retention of plans.*

***1.11.4 Fees. 1.11.4.1 Other fees.*** *Pursuant to Health and Safety Code Section 13146.2, a city, county or district which inspects a hotel, motel, lodging house or apartment house may charge and collect a fee for the inspection from the owner of the structure in an amount, as determined by the city, county or district, sufficient to pay its costs of that inspection.*

***1.11.4.2 Large family day-care.*** *Pursuant to Health and Safety Code Section 1597.46, Large Family Day-Care Homes, the local government shall process any required permit as economically as possible, and fees charged for review shall not exceed the costs of the review and permit process.*

***1.11.4.3 High-rise.*** *Pursuant to Health and Safety Code Section 13217, High-rise Structure Inspection: Fees and costs, a local agency which inspects a high-rise structure pursuant to Health and Safety Code Section 13217 may charge and collect a fee for the inspection from the owner of the high-rise structure in an amount, as determined by the local agency, sufficient to pay its costs of that inspection.*

***1.11.4.4 Fire clearance preinspection.*** *Pursuant to Health and Safety Code Section 13235, Fire Clearance Preinspection, fee, upon receipt of a request from a prospective licensee of a community care facility, as defined in Section 1502, of a residential care facility for the elderly, as defined in Section 1569.2, or of a child day-care facility, as defined in Section 1596.750, the local fire enforcing agency, as defined in Section 13244, or State Fire Marshal, whichever has primary jurisdiction, shall conduct a preinspection of the facility prior to the final fire clearance approval. At the time of the preinspection, the primary fire enforcing agency shall price consultation and interpretation of the fire safety regulations and shall notify the prospective licensee of the facility in writing of the specific fire safety regulations which shall be enforced in order to obtain fire clearance approval. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for the preinspection of a facility with a capacity to serve 25 or fewer persons. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a preinspection of a facility with a capacity to serve 26 or more persons.*

***1.11.4.5 Care facilities.*** *The primary fire enforcing agency shall complete the final fire clearance inspection for a community care facility, residential care facility for the elderly, or child day-care facility within 30 days of receipt of the request for the final inspection, or as of the date the prospective facility requests the final prelicensure inspection by the State Department of Social Services, whichever is later.*

*Pursuant to Health and Safety Code Section 13235, a preinspection fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a facility with a capacity to serve 25 or less clients. A fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for a preinspection of a facility with a capacity to serve 26 or more clients.*

*Pursuant to Health and Safety Code Section 13131.5, a reasonable final inspection fee, not to exceed the actual cost of inspection services necessary to complete a final inspection may be charged for occupancies classified as residential care facilities for the elderly (RCFE).*

*Pursuant to Health and Safety Code Section 1569.84, neither the State Fire Marshal nor any local public entity shall charge any fee for enforcing fire inspection regulations pursuant to state law or regulation or local ordinance, with respect to residential care facilities for the elderly (RCFE) which service six or fewer persons.*

***1.11.4.6 Requests of the Office of the State Fire Marshal.*** *Whenever a local authority having jurisdiction requests that the State Fire Marshal perform plan review and/or inspection services related to a building permit, the applicable fees for such shall be payable to the Office of the State Fire Marshal.*

***1.11.5 Inspections.*** *Work performed subject to the provisions of this code shall comply with the inspection requirements of Sections R109.1 through R109.1.6.*

***1.11.5.1 Existing Group I -1 or R occupancies.*** *Licensed 24-hour care in a Group I-1 or R occupancy in existence and originally classified under previously adopted state codes shall be preinspected under the appropriate previous code, provided there is no change in the use or character which would place the facility in a different occupancy group.*

***1.11.6 Certificate of occupancy.*** *A Certificate of Occupancy shall be issued as specified in Section R110.*

***1.11.7 Temporary structures and uses.*** *See Section R107.*

***1.11.8 Service utilities.*** *See Section R111.*

***1.11.9 Stop work order.*** *See Section R114.*

***1.11.10 Unsafe buildings, structures and equipment.*** *See Title 24, Part 2, California Building Code, Section 115.*

**SECTION 1.12**
**Reserved**

**SECTION 1.13**
**Reserved**

**SECTION 1.14**
**Reserved**

**DIVISION II**
**ADMINISTRATION**

***Division II is not adopted by the Department of Housing and Community Development or the State Fire Marshal except where specifically ~~identified~~indicated in the Matrix Adoption Table.***

**R101.2 Scope.** The provisions of the *California Residential Code for One- and Two-family Dwellings* shall apply to the construction, *alteration*, movement, enlargement, replacement, repair, equipment, use and occupancy, location, removal and demolition of detached one- and two-family dwellings and townhouses not more than three stories above *grade plane* in height with a separate means of egress and their *accessory structures*.

**Exceptions:**
1. Live/work units complying with the requirements of Section 419 of the *California Building Code* shall be permitted to be built as one- and two-family *dwellings* or townhouses. Fire suppression required by Section 419.5 of the *California Building Code* when constructed under the *California Residential Code for One- and Two-family Dwellings* shall conform to Section ~~P2904~~*R313*.
2. Owner-occupied lodging houses with five or fewer guestrooms shall be permitted to be constructed in accordance with the ~~*International*~~*California Residential Code for One- and Two-family Dwellings* when equipped with a fire sprinkler system in accordance with Section ~~P2904~~*R313*.

**R102.7 Existing structures.** The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically covered in this code, the *International Property Maintenance Code* or the *California Fire Code*, or as is deemed necessary by the *building official* for the general safety and welfare of the occupants and the public.

**R104.11 Alternative materials, design and methods of construction and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been *approved*. An alternative material, design or method of construction shall be *approved* where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered

is, for the purpose intended, at least the equivalent of that prescribed in this code. Compliance with the specific performance-based provisions of the International Codes in lieu of specific requirements of this code shall also be permitted as an alternate.

**R110.2 Change in use.** Changes in the character or use of an existing structure shall not be made except as specified in Sections 3406 and 3407 of the *California Building Code*.

## CHAPTER 2
## DEFINITIONS

**R201.3 Terms defined in other codes.** Where terms are not defined in this code such terms shall have meanings ascribed to them as in ~~other code publications of the International Code Council~~ *the California Building Standards Code, Title 24, California Code of Regulations.*

**R201.4 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

*For applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. Webster's Third New ~~California~~International Dictionary of the English Language, Unabridged, shall be considered as providing ordinarily accepted meanings.*

***AGED HOME OR INSTITUTION.*** *A facility used for the housing of persons 65 years of age or older in need of care and supervision. (See definition of "care and supervision")*

**APPROVED AGENCY.** An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved* by the *building official*. *"Approved agency" shall mean "Listing agency" and "Testing agency."*

***APPROVED LISTING AGENCY.*** *Any agency approved by the enforcing agency, unless otherwise provided by statute, which is in the business of listing and labeling and which makes available at least an annual published report of such listings in which specific information is included that the product has been tested to recognized standards and found to comply.*

***APPROVED TESTING AGENCY.*** *Any agency which is determined by the enforcing agency, except as otherwise provided by statute, to have adequate personnel and expertise to carry out the testing of systems, materials, and construction fixtures or appliances.*

***BEDRIDDEN PERSON.*** *A person, requiring assistance in turning and repositioning in bed, or being unable to independently transfer to and from bed, except in facilities with appropriate and sufficient care staff, mechanical devices if necessary, and safety precautions as determined in Title 22 regulations, by the Director of Social Services or his or her designated representative. Persons who are unable to independently transfer to and from bed, but who do not need assistance to turn or reposition in bed, shall be considered nonambulatory.*

*The Director of Social Services or his or her designated representative shall make the determination of the bedridden status of persons with developmental disabilities, in consultation with the Director of Developmental Services or his or her designated representative.*

*The Director of Social Services or his or her designated representative shall make the determination of the bedridden status of all other persons with disabilities who are not developmentally disabled.*

**BUILDING.** Building shall mean any one- and two-family dwelling or portion thereof, including *townhouses*, that is used, or designed or intended to be used for human habitation, for living, sleeping, cooking or eating purposes, or any combination thereof, and shall include accessory structures thereto.

***Exceptions:*** *For applications listed in Section 1.8.1 regulated by the Department of Housing and Community Development, "Building" shall not include the following:*

*1. Any mobilehome as defined in Health and Safety Code Section 18008.*
*2. Any manufactured home as defined in Health and Safety Code Section 18007.*

*3. Any commercial modular as defined in Health and Safety Code Section 18001.8 or any special purpose commercial modular as defined in Section 18012.5.*
*4. Any recreational vehicle as defined in Health and Safety Code Section 18010.*
*5. Any multifamily manufactured home as defined in Health and Safety Code Section 18008.7.*

*For additional information, see Health and Safety Code Section 18908.*

***Note:*** *Building shall have the same meaning as defined in Health and Safety Code Sections 17920 and 18908 for the applications specified in Section 1.11.*

***CARE AND SUPERVISION.*** *Any one or more of the following activities provided by a person or facility to meet the needs of the clients:*

*Assistance in dressing, grooming, bathing and other personal hygiene*
*Assistance with taking medication*
*Central storing and/or distribution of medications*
*Arrangement of and assistance with medical and dental care*
*Maintenance of house rules for the protection of clients*
*Supervision of client schedules and activities*
*Maintenance and/or supervision of client cash resources or property*
*Monitoring food intake or special diets*
*Providing basic services required by applicable law and regulation to be provided by the licensee in order to obtain and maintain a community-care facility license*

***CATASTROPHICALLY INJURED,*** *A person whose origin of disability was acquired through trauma or nondegenerative neurologic illness, for whom it has been determined by the Department of Health Services Certification and Licensing that active rehabilitation would be beneficial.*

***CHILD-CARE CENTER.*** *Any facility of any capacity other than a large or small family day-care home as defined in these regulations in which less than 24-hour-per-day nonmedical supervision is provided for children in a group setting.*

***CHILD OR CHILDREN.*** *A person or persons under the age of 18 years.*

***CHRONICALLY ILL.*** *See "TERMINALLY ILL."*

***CONGREGATE LIVING HEALTH FACILITY (CLHF),*** *A residential home with a capacity of no more than six beds, which provides inpatient care, including the following basic services: medical supervision, 24-hour skilled nursing and supportive care, pharmacy, dietary, social recreational, and at least provides services for persons who are diagnosed with a terminal illness or who are catastrophically and severely disabled.*

***CONGREGATE RESIDENCE.*** *Any building or portion thereof that contains facilities for living, sleeping and sanitation, as required by this code, and may include facilities for eating and cooking, for occupancy by other than a family. A congregate residence may be a shelter, convent, monastery, dormitory, fraternity or sorority house, but does not include jails, hospitals, nursing homes, hotels or lodging houses.*

***DAY-CARE*** *shall, for the purposes of these regulations, mean the care of persons during any period of a 24-hour day where permanent sleeping accommodations are not provided.*

***Note:*** *"Day-care" shall not be construed to preclude the use of cots or mats for napping purposes, provided all employees, attendants and staff personnel are awake and on duty in the area where napping occurs.*

***DAY-CARE HOME, FAMILY.*** *A home that regularly provides care, protection and supervision for 14 or fewer children, in the provider's own home, for periods of less than 24 hours per day, while the parents or guardians are away, and is either a large family day-care home or a small family day-care home.*

***DAY-CARE HOME, LARGE FAMILY.*** *A provider's own home which is licensed to provide day care for periods less than 24 hours per day for nine to 14 persons, including children under the age of 10 years who reside at the home.*

***DAY-CARE HOME, SMALL FAMILY.*** *A home which provides family day-care to eight or fewer children, including children under the age of 10 years who reside at the home, in the provider's own home, for periods of less than 24 hours per day. Small family day-care homes are exempted from state fire and life safety regulations other than those state and local standards applicable to Group R-3 Occupancies. [See Health and Safety Code, Section 13143 (b).]*

***ENFORCING AGENCY.*** *The designated department or agency as specified by statute or regulation.*

***FULL-TIME CARE*** *shall mean the establishment and routine care of persons on an hourly, daily, weekly, monthly, yearly or permanent basis, whether for 24-hours per day or less, and where sleeping accommodations are provided.*

***INFANT,*** *for the purpose of these regulations, shall mean any child who because of age only, is unable to walk and requires the aid of another person to evacuate the building. In no case shall the term "infant" mean a child 2 years of age or older.*

**LABELED. ~~[SFM]~~** *Equipment*, materials or products to which have been affixed a *label*, seal, symbol or other identifying *mark* of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of the production of the above-*labeled* items and whose labeling indicates either that the *equipment*, material or product meets identified standards or has been tested and found suitable for a specified purpose.

**LISTED. [SFM]** *Equipment*, materials, products or services included in a list published by an organization acceptable to the code official and concerned with evaluation of products or services that maintains periodic inspection of production of *listed equipment* or materials or periodic evaluation of services and whose listing states either that the *equipment*, material, product or service meets identified standards or has been tested and found suitable for a specified purpose. *For applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, "listed" shall also mean equipment or materials accepted by the state fire marshal as conforming to the provisions of the State Fire Marshal's regulations and which are included in a list published by the State Fire Marshal.*

***MENTALLY RETARDED PERSONS, PROFOUNDLY OR SEVERELY,*** *shall mean any retarded person who is unable to evacuate a building unassisted during emergency conditions.*

***Note:*** *The determination as to such incapacity shall be made by the Director of the State Department of Public Health or his or her designated representative pursuant to Health and Safety Code Section 13131.3.*

***NONAMBULATORY PERSONS*** *are persons unable to leave a building unassisted under emergency conditions. It includes, but is not limited to, persons who depend on mechanical aids such as crutches, walkers and wheelchairs and any person who is unable to physically and mentally respond to a sensory signal approved by the state fire marshal or an oral instruction relating to fire danger.*

*The determination of ambulatory or nonambulatory status of persons with developmental disabilities shall be made by the Director of Social Services or his or her designated representative, in consultation with the director of Developmental Services or his or her designated representative. The determination of ambulatory or nonambulatory status of all other disabled persons placed after January 1, 1984, who are not developmentally disabled shall be made by the Director of Social Services or his or her designated representative.*

**NONCOMBUSTIBLE MATERIAL**. ~~Materials that pass the test procedure for defining noncombustibility of elementary materials set forth in ASTM E 136~~. *Noncombustible as applied to building construction material means a material which, in the form in which it is used, is either one of the following:*

*1. Material of which no part will ignite and burn when subjected to fire. Any material passing ASTM E 136 shall be considered noncombustible.*
*2. Material having a structural base of noncombustible material as defined in Item 1 above, with a surfacing material not over 1/8 inch (3.2 mm) thick which has a flame-spread index of 50 or less.*

*"Noncombustible" does not apply to surface finish materials. Material required to be noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classed as noncombustible which is subject to increase in combustibility or flame-spread index, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition.*

***PROTECTIVE SOCIAL CARE FACILITY.*** *A facility housing persons, who are referred, placed or caused to be placed in the facility, by any governmental agency and for whom the services, or a portion thereof, are paid for by any*

*governmental agency. These occupancies shall include, but are not limited to, those commonly referred to as "assisted living facilities," "social rehabilitation facilities," "certified family care homes," "out-of-home placement facilities" and "halfway houses."*

***RESIDENTIAL CARE FACILITY FOR THE CHRONICALLY ILL (RCF/CI),*** *as termed, means a housing arrangement with a maximum capacity of 25 residents that provides a range of services to residents who have chronic, life-threatening illnesses.*

***RESIDENTIAL CARE FACILITY FOR THE ELDERLY (RCFE),*** *as defined in Health and Safety Code Section 1569.2, shall mean a facility with a housing arrangement chosen voluntarily by persons 60 years of age or over, or their authorized representative, where varying levels and intensities of care and supervision, protective supervision or personal care are provided, based on their varying needs, as determined in order to be admitted and to remain in the facility. Persons under 60 years of age with compatible needs, as determined by the Department of Social Services in regulations, may be allowed to be admitted or retained in a residential-care facility for the elderly. Pursuant to Health and Safety Code Section 13133, regulations of the State Fire Marshal pertaining to Group R, Division 2 Occupancies classified as Residential Facilities (RF) and Residential-care Facilities for the Elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is in consistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the State Fire Marshal that are reasonably necessary to accommodate local climate, geological or topographical conditions relating to roof coverings for Residential-care Facilities for the Elderly.*

***RESIDENTIAL FACILITY (RF),*** *as defined in Section 1502 of the Health and Safety Code, shall mean any family home, group care facility or similar facility determined by the director of Social Services, for 24-hour nonmedical care of persons in need of personal services, supervision, or assistance essential for sustaining the activities of daily living or for the protection of the individual. Such facilities include small family homes and social rehabilitation facilities. Pursuant to Health and Safety Code Section 13133, regulations of the State Fire Marshal pertaining to Group R Occupancies classified as Residential Facilities (RF) and Residential-care Facilities for the Elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is in consistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the State Fire Marshal that are reasonably necessary to accommodate local climate, geological or topographical conditions relating to roof coverings for Residential-care Facilities for the Elderly.*

***RESTRAINT.*** *The physical retention of a person within a room, cell or cell block by any means, or within the exterior walls of a building by means of locked doors inoperable by the person restrained. Restraint shall also mean the physical binding, strapping or similar restriction of any person in a chair, walker, bed or other contrivance for the purpose of deliberately restricting the free movement of ambulatory persons. Restraint shall not be construed to include nonambulatory persons nor shall it include the use of bandage material, strip sheeting or other fabrics or materials (soft ties) used to restrain persons in hospital-type beds or wheelchairs to prevent injury, provided an approved method of quick release is maintained. Facilities employing the use of soft ties, however, shall be classified as a building used to house nonambulatory persons. Restraint shall not be practiced in licensed facilities classified as Group I-1, R-3.1 and R-4 occupancies unless constructed as a Group I-3 occupancy. For Group I-3 Occupancies see Section 308.4 of the California Building Code.*

***STATE-OWNED/LEASED BUILDING.*** *A building or portion of a building that is owned, leased or rented by the state. State-leased buildings shall include all required exits to a public way serving such leased area or space. Portions of state leased buildings that are not leased or rented by the state shall not be included within the scope of this section unless such portions present an exposure hazard to the state-leased area or space.*

***TERMINALLY ILL,*** *as termed for an individual, means the individual has a life expectancy of six months or less as stated in writing by his or her attending physician and surgeon.*

## CHAPTER 3
## BUILDING PLANNING

**R301.1 Application.** Buildings and structures, and all parts thereof, shall be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, wind loads and seismic loads as prescribed by this code. The construction of buildings and structures in accordance with the provisions of this code shall result in a system that provides a complete load path that meets all requirements for the transfer of all loads from their point of origin through the load-resisting elements to the foundation. Buildings and structures constructed as prescribed by this code are deemed to comply with the requirements of this section.

*Existing buildings housing existing protective social care homes or facilities established prior to 1972 (see Section 3413 of the California Building Code).*

**TABLE R302.1(1)**
**EXTERIOR WALLS – *DWELLINGS AND ACCESSORY BUILDINGS WITHOUT AUTOMATIC RESIDENTIAL FIRE SPRINKLER PROTECTION***

| Exterior Wall Element | | Minimum Fire-Resistance Rating | Minimum Fire Separation Distance |
|---|---|---|---|
| Walls | (Fire-resistance rated) | 1 hour-tested in accordance with ASTM E 119 or UL 263 with exposure form both sides | <5 feet |
| | (Not fire-resistance rated) | 0 hours | ≥5 feet |
| Projections | (Fire-resistance rated) | 1 hour on the underside | ≥ 2 feet to 5 feet |
| | (Not fire-resistance rated) | 0 | ≥ 5 feet |
| Openings in walls | Not allowed | N/A | < 3 feet |
| | 25% Maximum of Wall Area | 0 hours | 3 feet |
| | Unlimited | 0 hours | 5 feet |
| Penetrations | All | Comply with Section R302.4 | < 5 feet |
| | | None required | 5 feet |

For SI: 1 foot = 304.8 mm.
N/A = Not Applicable

**R302.2 Townhouses.** Each *townhouse* shall be considered a separate building and shall be separated by fire-resistance-rated wall assemblies meeting the requirements of Section R302.1 for exterior walls.

**Exception:** A common 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263 is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be installed in accordance with ~~Chapters 33 through 42~~ *the California Electrical Code*. Penetrations of electrical outlet boxes shall be in accordance with Section R302.4.

**R302.6 Dwelling/garage *and/or carport* fire separation.** The garage *and/or carport* shall be separated as required by Table R302.6. Openings in garage walls shall comply with Section R302.5. This provision does not apply to garage walls that are perpendicular to the adjacent *dwelling unit* wall. *A separation is not required between the dwelling unit and a carport, provided the carport is entirely open on two or more sides and there are not enclosed areas above.*

**TABLE R302.6**
**DWELLING/GARAGE *AND/OR CARPORT* SEPARATION**

| SEPARATION | MATERIAL |
|---|---|
| From the residence and attics | Not less than 1/2-inch gypsum board or equivalent applied to the garage side |
| From all habitable rooms above the garage *or carport* | Not less than 5/8-inch Type X gypsum board or equivalent |
| Structure(s) supporting floor/ceiling assemblies used for separation required by this section | Not less than 1/2-inch gypsum board or equivalent |

| | |
|---|---|
| Garages located less than 3 feet from a dwelling unit on the same lot | Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

***R302.9.5 Stability.*** *Interior finish materials regulated by this chapter shall be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F (93°C) for not less than 30 minutes.*

**R302.13 Combustible insulation clearance.** Combustible insulation shall be separated a minimum of 3 inches (76 mm) from recessed luminaires, fan motors and other heat-producing devices.

**Exception:** Where heat-producing devices are listed for lesser clearances, combustible insulation complying with the listing requirements shall be separated in accordance with the conditions stipulated in the listing.

Recessed luminaires installed in the *building* ~~thermal~~ *envelope* shall meet *or exceed* the requirements ~~of Section N1102.4.3~~ *specified in the California Energy Code for recessed luminaires installed in insulated ceilings.*

**R310.1.4 Operational constraints.** Emergency escape and rescue openings shall be *maintained free of any obstructions other than those allowed by this section and shall be* operational from the inside of the room without the use of keys, tools or special knowledge.

**R310.4 Bars, grilles, covers and screens.** Bars, grilles, covers, screens or similar devices are permitted to be placed over emergency escape and rescue openings, bulkhead enclosures, or window wells that serve such openings, provided the minimum net clear opening size complies with Sections R310.1.1 to R310.1.3, and such devices shall be releasable or removable from the inside without the use of a key, tool, special knowledge or force greater than that which is required for normal operation of the escape and rescue opening. *The release mechanism shall be maintained operable at all times.*

*Such bars, grills, grates or any similar devices shall be equipped with an approved exterior release device for use by the fire department only when required by the authority having jurisdiction.*

*Where security bars (burglar bars) are installed on emergency egress and rescue windows or doors, on or after July 1, 2000, such devices shall comply with California Building Standards Code, Part 12, Chapter 12-3 and other applicable provisions of this code.*

~~**R310.5 Emergency escape windows under decks and porches.** Emergency escape windows are allowed to be installed under decks and porches provided the location of the deck allows the emergency escape window to be fully opened and provides a path not less than 36 inches (914 mm) in height to a yard or court.~~

**R311.4 Vertical egress.** Egress from habitable levels including habitable attics and *basements* not provided with an egress door in accordance with Section R311.2 shall be by ~~a~~ *one or more ramps* in accordance with Section R311.8 or ~~a~~ *one or more stairways* in accordance with Section R311.7 or both. *For habitable levels or basements located more than one story above or more than one story below an egress door, the maximum travel distance from any occupied point to a stairway or ramp that provides egress from such habitable level or basement, shall not exceed 50 feet (15 240 mm).*

**R312.1.2 Height.** Required *guards* at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than ~~36 inches (914 mm)~~ *42 inches (1067 mm)* high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.

**Exceptions:**
1. *Guards* on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
2. Where the top of the *guard* also serves as a handrail on the open sides of stairs, the top of the *guard* shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

**R313.1 Townhouse automatic fire sprinkler systems.** An automatic residential fire sprinkler system shall be installed in *townhouses*.

**Exception:** An automatic residential fire sprinkler system shall not be required when *additions* or *alterations* are made to existing *townhouses* that do not have an automatic residential fire sprinkler system installed.

**R313.1.1 Design and installation.** Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with Section ~~P2904~~ *R313.3 or NFPA 13D.*

**R313.2 One- and two-family dwellings automatic fire systems.** An automatic residential fire sprinkler system shall be installed in one- and two- family *dwellings*.

**Exception:** An automatic residential fire sprinkler system shall not be required for *additions* or *alterations* to existing buildings that are not already provided with an automatic residential sprinkler system.

**R313.2.1 Design and installation.** Automatic residential fire sprinkler systems shall be designed and installed in accordance with Section ~~P2904~~ *R313.3* or NFPA 13D.

***R313.3* Dwelling unit fire sprinkler systems.**

***R313.3.1* General.** The design and installation of residential fire sprinkler systems shall be in accordance with NFPA 13D or Section *R313.3*, which shall be considered equivalent to NFPA 13D. Partial residential sprinkler systems shall be permitted to be installed only in buildings not required to be equipped with a residential sprinkler system. Section *R313.3* shall apply to stand-alone and multipurpose wet-pipe sprinkler systems that do not include the use of antifreeze. A multipurpose fire sprinkler system shall supply domestic water to both fire sprinklers and plumbing fixtures. A stand-alone sprinkler system shall be separate and independent from the water distribution system. A backflow flow preventer shall not be required to separate a stand-alone sprinkler system from the water distribution system.

***R313.3.1.1* Required sprinkler locations.** Sprinklers shall be installed to protect all areas of a *dwelling unit.*

**Exceptions:**
1. Attics, crawl spaces and normally unoccupied concealed spaces that do not contain fuel-fired appliances do not require sprinklers. In *attics*, crawl spaces and normally unoccupied concealed spaces that contain fuel-fired equipment, a sprinkler shall be installed above the equipment; however, sprinklers shall not be required in the remainder of the space.
2. Clothes closets, linen closets and pantries not exceeding 24 square feet (2.2 m2) in area, with the smallest dimension not greater than 3 feet (915 mm) and having wall and ceiling surfaces of gypsum board.
3. Bathrooms not more than 55 square feet (5.1m2) in area.
*4. Detached* ~~G~~*g*arages; carports *with no habitable space above; open attached* ~~exterior~~ porches; unheated entry areas, such as mud rooms, that are adjacent to an exterior door; and similar areas.

***R313.3.2* Sprinklers.** Sprinklers shall be new listed residential sprinklers and shall be installed in accordance with the sprinkler manufacturer's installation instructions.

***R313.3.2.1* Temperature rating and separation from heat sources.** Except as provided for in Section *R313.3.2.2*, sprinklers shall have a temperature rating of not less than 135°F (57°C) and not more than 170°F (77°C). Sprinklers shall be separated from heat sources as required by the sprinkler manufacturer's installation instructions.

***R313.3.2.2* Intermediate temperature sprinklers.** Sprinklers shall have an intermediate temperature rating not less than 175°F (79°C) and not more than 225°F (107°C) where installed in the following locations: 1. Directly under skylights, where the sprinkler is exposed to direct sunlight. 2. In *attics.* 3. In concealed spaces located directly beneath a roof. 4. Within the distance to a heat source as specified in Table *R313.3.2.2*.

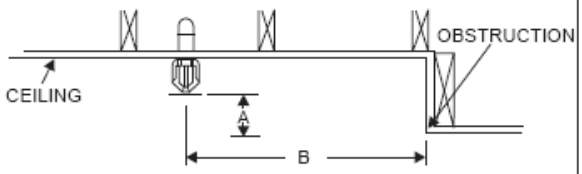
***R313.3.2.3* Freezing areas.** Piping shall be protected from freezing as required by *the California Plumbing Code*. Where sprinklers are required in areas that are subject to freezing, dry-sidewall or dry-pendent sprinklers extending from a nonfreezing area into a freezing area shall be installed. *Where fire sprinkler piping cannot be adequately protected against freezing, the system shall be designed and installed in accordance with NFPA 13D.*

***R313.3.2.4* Sprinkler coverage.** Sprinkler coverage requirements and sprinkler obstruction requirements shall be in accordance with Sections *R313.3.2.4.1* and *R313.3.2.4.2*.

***R313.3.2.4.1* Coverage area limit.** The area of coverage of a single sprinkler shall not exceed 400 square feet (37 m2) and shall be based on the sprinkler listing and the sprinkler manufacturer's installation instructions.

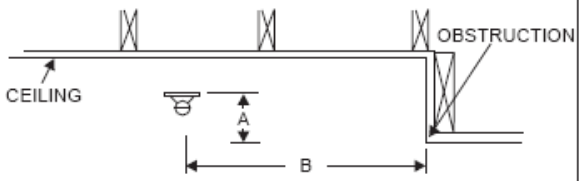
***R313.3.2.4.2*** **Obstructions to coverage.** Sprinkler discharge shall not be blocked by obstructions unless additional sprinklers are installed to protect the obstructed area. Additional sprinklers shall not be required where the sprinkler separation from obstructions complies with either the minimum distance indicated in Figure ~~P2904.2.4.2~~*R313.3.2.4.2* or the minimum distances specified in the sprinkler manufacturer's instructions where the manufacturer's instructions permit a lesser distance.

PENDANT SPRINKLER TO SIDE OBSTRUCTION



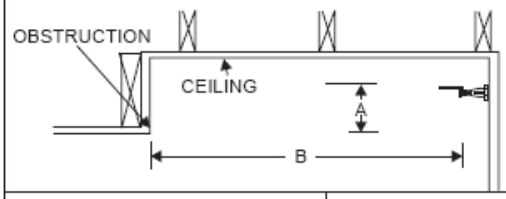

| WHERE A IS LESS THAN OR EQUAL TO: (INCHES) | WHERE A IS LESS THAN OR EQUAL TO: (FEET) |
|---|---|
| 1 | 1½ |
| 3 | 3 |
| 5 | 4 |
| 7 | 4½ |
| 9 | 1½ |
| 11 | 6½ |
| 14 | 7 |

SIDEWALL SPRINKLER TO SIDE OBSTRUCTION




| WHERE A IS LESS THAN OR EQUAL TO: (INCHES) | WHERE A IS LESS THAN OR EQUAL TO: (FEET) |
|---|---|
| 1 | 1½ |
| 3 | 3 |
| 5 | 4 |
| 7 | 4½ |
| 9 | 6 |
| 11 | 6½ |
| 14 | 7 |

SIDEWALL SPRINKLER TO FORWARD OBSTRUCTION




| WHERE A IS LESS THAN OR EQUAL TO: (INCHES) | WHERE A IS LESS THAN OR EQUAL TO: (FEET) |
|---|---|
| 1 | 8 |
| 2 | 10 |
| 3 | 11 |
| 4 | 12 |
| 6 | 13 |
| 7 | 14 |
| 9 | 15 |
| 11 | 16 |
| 14 | 17 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

**FIGURE P~~2904.2.4.2~~*R313.3.2.4.2***
**MINIMUM ALLOWABLE DISTANCE BETWEEN SPRINKLER AND OBSTRUCTION**

***R313.3.2.4.2.1*** **Additional requirements for pendent sprinklers.** Pendent sprinklers within 3 feet (915 mm) of the center of a ceiling fan, surface- mounted ceiling luminaire or similar object shall be considered to be obstructed, and additional sprinklers shall be installed.

***R313.3.2.4.2.2*** **Additional requirements for sidewall sprinklers.** Sidewall sprinklers within 5 feet (1524 mm) of the center of a ceiling fan, surface- mounted ceiling luminaire or similar object shall be considered to be obstructed, and additional sprinklers shall be installed.

***R313.3.2.5*** **Sprinkler installation on systems assembled with solvent cement.** The solvent cementing of threaded adapter fittings shall be completed and threaded adapters for sprinklers shall be verified as being clear of excess cement prior to the installation of sprinklers on systems assembled with solvent cement.

***R313.3.2.6*** **Sprinkler modifications prohibited.** Painting, caulking or modifying of sprinklers shall be prohibited. Sprinklers that have been painted, caulked, modified or damaged shall be replaced with new sprinklers.

**TABLE *R313.3.2.2***
**LOCATIONS WHERE INTERMEDIATE TEMPERATURE SPRINKLERS ARE REQUIRED**

| HEAT SOURCE | RANGE OF DISTANCE FROM HEAT SOURCE WITHIN WHICH INTERMEDIATE TEMPERATURE SPRINKLERS ARE REQUIREDa,b (inches) |
|---|---|
| Fireplace, side of open or recessed fireplace | 12 to 36 |
| Fireplace, front of recessed fireplace | 36 to 60 |
| Coal and wood burning stove | 12 to 42 |
| Kitchen range top | 9 to 18 |
| Oven | 9 to 18 |
| Vent connector or chimney connector | 9 to 18 |
| Heating duct, not insulated | 9 to 18 |
| Hot water pipe, not insulated | 6 to 12 |
| Side of ceiling or wall warm air register | 12 to 24 |
| Front of wall mounted warm air register | 18 to 36 |
| Water heater, furnace or boiler | 3 to 6 |
| Luminaire up to 250 watts | 3 to 6 |
| Luminaire 250 watts up to 499 watts | 6 to 12 |

a. Sprinklers shall not be located at distances less than the minimum table distance unless the sprinkler listing allows a lesser distance.
b. Distances shall be measured in a straight line from the nearest edge of the heat source to the nearest edge of the sprinkler.

***R313.3.3*** **Sprinkler piping system.** Sprinkler piping shall be supported in accordance with the requirements for cold water distribution piping. Sprinkler piping shall comply with all requirements for cold water distribution piping. For multipurpose piping systems, the sprinkler piping shall connect to and be a part of the cold water distribution piping system.

***R313.3.3.1*** **Nonmetallic pipe and tubing.** Nonmetallic pipe and tubing, such as CPVC, PEX, and PE-RT shall be listed for use in residential fire sprinkler systems.

***R313.3.3.1.1*** **Nonmetallic pipe protection.** Nonmetallic pipe and tubing systems shall be protected from exposure to the living space by a layer of not less than 3/8 inch (9.5 mm) thick gypsum wallboard, 1/2 inch thick plywood (13 mm), or other material having a 15 minute fire rating. **Exceptions:**
1. Pipe protection shall not be required in areas that do not require protection with sprinklers as specified in Section *R313.3.1.1*.
2. Pipe protection shall not be required where exposed piping is permitted by the pipe listing.

***R313.3.3.2* Shutoff valves prohibited.** With the exception of shutoff valves for the entire water distribution system, valves shall not be installed in any location where the valve would isolate piping serving one or more sprinklers.

***R313.3.3.3* Single dwelling limit.** Piping beyond the service valve located at the beginning of the water distribution system shall not serve more than one *dwelling*.

***R313.3.3.4* Drain.** A means to drain the sprinkler system shall be provided on the system side of the water distribution shutoff valve.

***R313.3.4* Determining system design flow.** The flow for sizing the sprinkler piping system shall be based on the flow rating of each sprinkler in accordance with Section *R313.3.4.1* and the calculation in accordance with Section *R313.3.4.2*.

***R313.3.4.1* Determining required flow rate for each sprinkler.** The minimum required flow for each sprinkler shall be determined using the sprinkler manufacturer's published data for the specific sprinkler model based on all of the following:
1. The area of coverage.
2. The ceiling configuration.
3. The temperature rating.
4. Any additional conditions specified by the sprinkler manufacturer.

***R313.3.4.2* System design flow rate.** The design flow rate for the system shall be based on the following:
1. The design flow rate for a room having only one sprinkler shall be the flow rate required for that sprinkler, as determined by Section *R313.3.4.1.*
2. The design flow rate for a room having two or more sprinklers a shall be determined by identifying the sprinkler in that room with the highest required flow rate, based on Section *R313.3.4.1*, and multiplying that flow rate by 2.
3. Where the sprinkler manufacturer specifies different criteria for ceiling configurations that are not smooth, flat and horizontal, the required flow rate for that room shall comply with the sprinkler manufacturer's instructions.
4. The design flow rate for the sprinkler system shall be the flow required by the room with the largest flow rate, based on Items 1, 2 and 3.
5. For the purpose of this section, it shall be permissible to reduce the design flow rate for a room by subdividing the space into two or more rooms, where each room is evaluated separately with respect to the required design flow rate. Each room shall be bounded by walls and a ceiling. Openings in walls shall have a lintel not less than 8 inches (203 mm) in depth and each lintel shall form a solid barrier between the ceiling and the top of the opening.

***R313.3.5* Water supply.** The water supply shall provide not less than the required design flow rate for sprinklers in accordance with Section *R313.3.4.2* at a pressure not less than that used to comply with Section *R313.3.6*. *Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min) shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler.*

***R313.3.5.1* Water supply from individual sources.** Where a dwelling unit water supply is from a tank system, a private well system, *a pump*, or a combination of these, the available water supply shall be based on the minimum pressure control setting for the pump.

***R313.3.5.2* Required capacity.** The water supply shall have the capacity to provide the required design flow rate for sprinklers for a period of time as follows:

1. 7 minutes for *dwelling units* one *story in* height and less than 2,000 square feet (186m2) in area. *For the purpose of determining the area of the dwelling unit, the area of attached garages and attached open carports, porches, balconies and patios shall not be included.*
2. 10 minutes for dwelling units two or more stories in height or equal to or greater than 2,000 square feet (186 m2) in area. *For the purpose of determining the area of the dwelling unit, the area of attached garages and attached open carports, porches, balconies, and patios shall not be included.*

Where a well system, a water supply tank system, *a pump*, or a combination thereof, is used, *the water supply shall serve both domestic and fire sprinkler systems*. *A*ny combination of well capacity and tank storage shall be permitted to meet the capacity requirement.

***R313.3.6*** **Pipe sizing.** The piping to sprinklers shall be sized for the flow required by Section *R313.3.4.2*. The flow required to supply the plumbing fixtures shall not be required to be added to the sprinkler design flow.

***R313.3.6.1*** **Method of sizing pipe.** Piping supplying sprinklers shall be sized using the prescriptive method in Section *R313.3.6.2* or by hydraulic calculation in accordance with NFPA 13D. The minimum pipe size from the water supply source to any sprinkler shall be 3/4 inch (19 mm) nominal. Threaded adapter fittings at the point where sprinklers are attached to the piping shall be a minimum of 1/2 inch (13 mm) nominal.

***R313.3.6.2*** **Prescriptive pipe sizing method.** Pipe shall be sized by determining the available pressure to offset friction loss in piping and identifying a piping material, diameter and length using the equation in Section *R313.3.6.2.1* and the procedure in Section *R313.3.6.2.2*.

***R313.3.6.2.1*** **Available pressure equation.** The pressure available to offset friction loss in the interior piping system (*Pt*) shall be determined in accordance with the Equation 29-1.

*Pt = Psup–PLsvc–PLm–PLd–PLe–Psp*

**(Equation 29-1)**

where:

*Pt* = Pressure used in applying Tables *R313.3.6.2(4)* through *R313.3.6.2(9)*.
*Psup* = Pressure available from the water supply source.
*PLsvc*= Pressure loss in the water-service pipe.
*PLm* = Pressure loss in the water meter.
*PLd* = Pressure loss from devices other than the water meter.
*PLe* = Pressure loss associated with changes in elevation.
*Psp* = Maximum pressure required by a sprinkler.

***R313.3.6.2.2*** **Calculation procedure.** Determination of the required size for water distribution piping shall be in accordance with the following procedure:

**Step 1–Determine *Psup***
Obtain the static supply pressure that will be available from the water main from the water purveyor, or for an individual source, the available supply pressure shall be in accordance with Section *R313.3.5.1*.

**Step 2–Determine *PLsvc***
Use Table *R313.3.6.2(1)* to determine the pressure loss in the water service pipe based on the selected size of the water service.

**Step 3–Determine *PLm***
Use Table *R313.3.6.2(2)* to determine the pressure loss from the water meter, based on the selected water meter size.

**Step 4–Determine *PLd***
Determine the pressure loss from devices other than the water meter installed in the piping system supplying sprinklers, such as pressure-reducing valves, backflow preventers, water softeners or water filters. Device pressure losses shall be based on the device manufacturer's specifications. The flow rate used to determine pressure loss shall be the rate from Section *R313.3.4.2*, except that 5 gpm (0.3 L/S) shall be added where the device is installed in a water-service pipe that supplies more than one dwelling. As alternative to deducting pressure loss for a device, an automatic bypass valve shall be installed to divert flow around the device when a sprinkler activates.

**Step 5 – Determine *PLe***
Use Table *R313.3.6.2(3)* to determine the pressure loss associated with changes in elevation. The elevation used in applying the table shall be the difference between the elevation where the water source pressure was measured and the elevation of the highest sprinkler.

**Step 6 – Determine *Psp***
Determine the maximum pressure required by any individual sprinkler based on the flow rate from Section *R313.3.4.1*. The required pressure is provided in the sprinkler manufacturer's published data for the specific sprinkler model based on the selected flow rate.

**Step 7 – Calculate *Pt***
Using Equation 29-1, calculate the pressure available to offset friction loss in water-distribution piping between the service valve and the sprinklers.

**Step 8 –Determine the maximum allowable pipe length**
Use Tables *R313.3.6.2(4)* through *R313.3.6.2(9)* to select a material and size for water distribution piping. The piping material and size shall be acceptable if the *developed length* of pipe between the service valve and the most remote sprinkler does not exceed the maximum allowable length specified by the applicable table. Interpolation of *Pt* between the tabular values shall be permitted.

The maximum allowable length of piping in Tables *R313.3.6.2(4)* through *R313.3.6.2(9)* incorporates an adjustment for pipe fittings, and no additional consideration of friction losses associated with pipe fittings shall be required.

***R313.3.7*** **Instructions and signs.** An owner's manual for the fire sprinkler system shall be provided to the owner. A sign or valve tag shall be installed at the main shutoff valve to the water distribution system stating the following: "Warning, the water system for this home supplies fire sprinklers that require certain flows and pressures to fight a fire. Devices that restrict the flow or decrease the pressure or automatically shut off the water to the fire sprinkler system, such as water softeners, filtration systems and automatic shutoff valves, shall not be added to this system without a review of the fire sprinkler system by a fire protection specialist. Do not remove this sign."

***R313.3.8*** **Inspections.** The water distribution system shall be inspected in accordance with Sections *R313.3.8.1* and *R313.3.8.2*.

***R313.3.8.1*** **Preconcealment inspection.** The following items shall be verified prior to the concealment of any sprinkler system piping:

1. Sprinklers are installed in all areas as required by Section *R313.3.1.1*.
2. Where sprinkler water spray patterns are obstructed by construction features, luminaires or ceiling fans, additional sprinklers are installed as required by Section *R313.3.2.4.2*.
3. Sprinklers are the correct temperature rating and are installed at or beyond the required separation distances from heat sources as required by Sections *R313.3.2.1* and *R313.3.2.2*.
4. The pipe size equals or exceeds the size used in
applying Tables *R313.3.6.2(4)* through *R313.3.6.2(9)* or, if the piping system was hydraulically calculated in accordance with Section *R313.3.6.1*, the size used in the hydraulic calculation.
5. The pipe length does not exceed the length permitted by Tables *R313.3.6.2(4)* through *R313.3.6.2(9)* or, if the piping system was hydraulically calculated in accordance with Section R313.3.6.1, pipe lengths and fittings do not exceed those used in the hydraulic calculation.
6. Nonmetallic piping that conveys water to sprinklers is listed for use with fire sprinklers.
7. Piping is supported in accordance with the pipe manufacturer's and sprinkler manufacturer's installation instructions.
8. The piping system is tested in accordance with *the California Plumbing Code*.

***R313.3.8.2*** **Final inspection.** The following items shall be verified upon completion of the system:

1. Sprinkler are not painted, damaged or otherwise hindered from operation.
2. Where a pump is required to provide water to the system, the pump starts automatically upon system water demand.
3. Pressure-reducing valves, water softeners, water filters or other impairments to water flow that were not part of the original design have not been installed.
4. The sign or valve tag required by Section *R313.3.7* is installed and the owner's manual for the system is present.

**TABLE *R313.3.6.2(1)***
**WATER SERVICE PRESSURE LOSS (PLsvc)a,b**

| FLOW RATEc (gpm) | 3/4 INCH WATER SERVICE PRESSURE LOSS (psi) | | | | 1 INCH WATER SERVICE PRESSURE LOSS (psi) | | | | 11/4 INCH WATER SERVICE PRESSURE LOSS (psi) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Length of water service pipe (feet) | | | | Length of water service pipe (feet) | | | | Length of water service pipe (feet) | | | |
| | 40 or less | 41 to 75 | 76 to 100 | 101 to 150 | 40 or less | 41 to 75 | 76 to 100 | 101 to 150 | 40 or less | 41 to 75 | 76 to 100 | 101 to 150 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 5.1 | 8.7 | 11.8 | 17.4 | 1.5 | 2.5 | 3.4 | 5.1 | 0.6 | 1.0 | 1.3 | 1.9 |
| 10 | 7.7 | 13.1 | 17.8 | 26.3 | 2.3 | 3.8 | 5.2 | 7.7 | 0.8 | 1.4 | 2.0 | 2.9 |
| 12 | 10.8 | 18.4 | 24.9 | NP | 3.2 | 5.4 | 7.3 | 10.7 | 1.2 | 2.0 | 2.7 | 4.0 |
| 14 | 14.4 | 24.5 | NP | NP | 4.2 | 7.1 | 9.6 | 14.3 | 1.6 | 2.7 | 3.6 | 5.4 |
| 16 | 18.4 | NP | NP | NP | 5.4 | 9.1 | 12.4 | 18.3 | 2.0 | 3.4 | 4.7 | 6.9 |
| 18 | 22.9 | NP | NP | NP | 6.7 | 11.4 | 15.4 | 22.7 | 2.5 | 4.3 | 5.8 | 8.6 |
| 20 | 27.8 | NP | NP | NP | 8.1 | 13.8 | 18.7 | 27.6 | 3.1 | 5.2 | 7.0 | 10.4 |
| 22 | NP | NP | NP | NP | 9.7 | 16.5 | 22.3 | NP | 3.7 | 6.2 | 8.4 | 12.4 |
| 24 | NP | NP | NP | NP | 11.4 | 19.3 | 26.2 | NP | 4.3 | 7.3 | 9.9 | 14.6 |
| 26 | NP | NP | NP | NP | 13.2 | 22.4 | NP | NP | 5.0 | 8.5 | 11.4 | 16.9 |
| 28 | NP | NP | NP | NP | 15.1 | 25.7 | NP | NP | 5.7 | 9.7 | 13.1 | 19.4 |
| 30 | NP | NP | NP | NP | 17.2 | NP | NP | NP | 6.5 | 11.0 | 14.9 | 22.0 |
| 32 | NP | NP | NP | NP | 19.4 | NP | NP | NP | 7.3 | 12.4 | 16.8 | 24.8 |
| 34 | NP | NP | NP | NP | 21.7 | NP | NP | NP | 8.2 | 13.9 | 18.8 | NP |
| 36 | NP | NP | NP | NP | 24.1 | NP | NP | NP | 9.1 | 15.4 | 20.9 | NP |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 gallon per minute = 0.063 L/s, 1 pound per square inch = 6.895 kPa.
NP - Not permitted. Pressure loss exceeds reasonable limits.

a. Values are applicable for underground piping materials listed in *the California Plumbing Code* and are based on an SDR of 11 and a Hazen Williams C Factor of 150.

b. Values include the following length allowances for fittings: 25% length increase for actual lengths up to 100 feet and 15% length increase for actual lengths over 100 feet.

c. Flow rate from Section *R313.3.4.2*. Add 5 gpm to the flow rate required by Section *R313.3.4.2* where the water-service pipe supplies more than one dwelling.

**TABLE *R313.3.6.2(2)***
**MINIMUM WATER METER PRESSURE LOSS (PLm)a**

| FLOW RATE (gallons per minute, gpm)b | 5/8 INCH METER PRESSURE LOSS (pounds per square inch, psi) | 3/4 INCH METER PRESSURE LESS (pounds per square inch, psi) | 1 INCH METER PRESSURE LOSS (pounds per square inch, psi) |
|---|---|---|---|
| 8 | 2 | 1 | 1 |
| 10 | 3 | 1 | 1 |
| 12 | 4 | 1 | 1 |
| 14 | 5 | 2 | 1 |
| 16 | 7 | 3 | 1 |
| 18 | 9 | 4 | 1 |
| 20 | 11 | 4 | 2 |
| 22 | NP | 5 | 2 |
| 24 | NP | 5 | 2 |
| 26 | NP | 6 | 2 |
| 28 | NP | 6 | 2 |
| 30 | NP | 7 | 2 |
| 32 | NP | 7 | 3 |
| 34 | NP | 8 | 3 |

| | | | |
|---|---|---|---|
| 36 | NP | 8 | 3 |

For SI: 1 inch = 25.4 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.063 L/s.
NP - Not permitted unless the actual water meter pressure loss is known.
a. Table *R313.3.6.2(2)* establishes conservative values for water meter pressure loss or installations where the water meter loss is unknown. Where the actual water meter pressure loss is known, Pm shall be the actual loss.
b. Flow rate from Section *R313.3.4.2*. Add 5 gpm to the flow rate required by Section *R313.3.4.2* where the water-service pipe supplies more than one dwelling.

**TABLE *R313.3.6.2(3)***
**ELEVATION LOSS (PLe)**

| ELEVATION (feet) | PRESSURE LOSS (psi) |
|---|---|
| 5 | 2.2 |
| 10 | 4.4 |
| 15 | 6.5 |
| 20 | 8.7 |
| 25 | 10.9 |
| 30 | 13 |
| 35 | 15.2 |
| 40 | 17.4 |

For SI: 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa.

**TABLE *R313.3.6.2(4)***
**ALLOWABLE PIPE LENGTH FOR 3/4 INCH TYPE M COPPER WATER TUBING**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 3/4 | 217 | 289 | 361 | 434 | 506 | 578 | 650 | 723 | 795 | 867 |
| 9 | 3/4 | 174 | 232 | 291 | 349 | 407 | 465 | 523 | 581 | 639 | 697 |
| 10 | 3/4 | 143 | 191 | 239 | 287 | 335 | 383 | 430 | 478 | 526 | 574 |
| 11 | 3/4 | 120 | 160 | 200 | 241 | 281 | 321 | 361 | 401 | 441 | 481 |
| 12 | 3/4 | 102 | 137 | 171 | 205 | 239 | 273 | 307 | 341 | 375 | 410 |
| 13 | 3/4 | 88 | 118 | 147 | 177 | 206 | 235 | 265 | 294 | 324 | 353 |
| 14 | 3/4 | 77 | 103 | 128 | 154 | 180 | 205 | 231 | 257 | 282 | 308 |
| 15 | 3/4 | 68 | 90 | 113 | 136 | 158 | 181 | 203 | 226 | 248 | 271 |
| 16 | 3/4 | 60 | 80 | 100 | 120 | 140 | 160 | 180 | 200 | 220 | 241 |
| 17 | 3/4 | 54 | 72 | 90 | 108 | 125 | 143 | 161 | 179 | 197 | 215 |
| 18 | 3/4 | 48 | 64 | 81 | 97 | 113 | 129 | 145 | 161 | 177 | 193 |
| 19 | 3/4 | 44 | 58 | 73 | 88 | 102 | 117 | 131 | 146 | 160 | 175 |
| 20 | 3/4 | 40 | 53 | 66 | 80 | 93 | 106 | 119 | 133 | 146 | 159 |
| 21 | 3/4 | 36 | 48 | 61 | 73 | 85 | 97 | 109 | 121 | 133 | 145 |
| 22 | 3/4 | 33 | 44 | 56 | 67 | 78 | 89 | 100 | 111 | 122 | 133 |
| 23 | 3/4 | 31 | 41 | 51 | 61 | 72 | 82 | 92 | 102 | 113 | 123 |
| 24 | 3/4 | 28 | 38 | 47 | 57 | 66 | 76 | 85 | 95 | 104 | 114 |
| 25 | 3/4 | 26 | 35 | 44 | 53 | 61 | 70 | 79 | 88 | 97 | 105 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 3/4 | 24 | 33 | 41 | 49 | 57 | 65 | 73 | 82 | 90 | 98 |
| 27 | 3/4 | 23 | 30 | 38 | 46 | 53 | 61 | 69 | 76 | 84 | 91 |
| 28 | 3/4 | 21 | 28 | 36 | 43 | 50 | 57 | 64 | 71 | 78 | 85 |
| 29 | 3/4 | 20 | 27 | 33 | 40 | 47 | 53 | 60 | 67 | 73 | 80 |
| 30 | 3/4 | 19 | 25 | 31 | 38 | 44 | 50 | 56 | 63 | 69 | 75 |
| 31 | 3/4 | 18 | 24 | 29 | 35 | 41 | 47 | 53 | 59 | 65 | 71 |
| 32 | 3/4 | 17 | 22 | 28 | 33 | 39 | 44 | 50 | 56 | 61 | 67 |
| 33 | 3/4 | 16 | 21 | 26 | 32 | 37 | 42 | 47 | 53 | 58 | 63 |
| 34 | 3/4 | NP | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 35 | 3/4 | NP | 19 | 24 | 28 | 33 | 38 | 42 | 47 | 52 | 57 |
| 36 | 3/4 | NP | 18 | 22 | 27 | 31 | 36 | 40 | 45 | 49 | 54 |
| 37 | 3/4 | NP | 17 | 21 | 26 | 30 | 34 | 38 | 43 | 47 | 51 |
| 38 | 3/4 | NP | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 45 | 49 |
| 39 | 3/4 | NP | 15 | 19 | 23 | 27 | 31 | 35 | 39 | 42 | 46 |
| 40 | 3/4 | NP | NP | 18 | 22 | 26 | 29 | 33 | 37 | 40 | 44 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.
NP - Not permitted
a. Flow rate from Section *R313.3.4.2*.

**TABLE *R313.3.6.2(5)***
**ALLOWABLE PIPE LENGTH FOR 1 INCH TYPE M COPPER WATER TUBING**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 1 | 806 | 1075 | 1343 | 1612 | 1881 | 2149 | 2418 | 2687 | 2955 | 3224 |
| 9 | 1 | 648 | 864 | 1080 | 1296 | 1512 | 1728 | 1945 | 2161 | 2377 | 2593 |
| 10 | 1 | 533 | 711 | 889 | 1067 | 1245 | 1422 | 1600 | 1778 | 1956 | 2134 |
| 11 | 1 | 447 | 586 | 745 | 894 | 1043 | 1192 | 1341 | 1491 | 1640 | 1789 |
| 12 | 1 | 381 | 508 | 634 | 761 | 888 | 1015 | 1142 | 1269 | 1396 | 1523 |
| 13 | 1 | 328 | 438 | 547 | 657 | 766 | 875 | 985 | 1094 | 1204 | 1313 |
| 14 | 1 | 286 | 382 | 477 | 572 | 668 | 763 | 859 | 954 | 1049 | 1145 |
| 15 | 1 | 252 | 336 | 420 | 504 | 588 | 672 | 756 | 840 | 924 | 1008 |
| 16 | 1 | 224 | 298 | 373 | 447 | 522 | 596 | 671 | 745 | 820 | 894 |
| 17 | 1 | 200 | 266 | 333 | 400 | 466 | 533 | 600 | 666 | 733 | 799 |
| 18 | 1 | 180 | 240 | 300 | 360 | 420 | 479 | 539 | 599 | 659 | 719 |
| 19 | 1 | 163 | 217 | 271 | 325 | 380 | 434 | 488 | 542 | 597 | 651 |
| 20 | 1 | 148 | 197 | 247 | 296 | 345 | 395 | 444 | 493 | 543 | 592 |
| 21 | 1 | 135 | 180 | 225 | 270 | 315 | 360 | 406 | 451 | 496 | 541 |
| 22 | 1 | 124 | 165 | 207 | 248 | 289 | 331 | 372 | 413 | 455 | 496 |
| 23 | 1 | 114 | 152 | 190 | 228 | 267 | 305 | 343 | 381 | 419 | 457 |
| 24 | 1 | 106 | 141 | 176 | 211 | 246 | 282 | 317 | 352 | 387 | 422 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 1 | 98 | 131 | 163 | 196 | 228 | 261 | 294 | 326 | 359 | 392 |
| 26 | 1 | 91 | 121 | 152 | 182 | 212 | 243 | 273 | 304 | 334 | 364 |
| 27 | 1 | 85 | 113 | 142 | 170 | 198 | 226 | 255 | 283 | 311 | 340 |
| 28 | 1 | 79 | 106 | 132 | 159 | 185 | 212 | 238 | 265 | 291 | 318 |
| 29 | 1 | 74 | 99 | 124 | 149 | 174 | 198 | 223 | 248 | 273 | 298 |
| 30 | 1 | 70 | 93 | 116 | 140 | 163 | 186 | 210 | 233 | 256 | 280 |
| 31 | 1 | 66 | 88 | 110 | 132 | 153 | 175 | 197 | 219 | 241 | 263 |
| 32 | 1 | 62 | 83 | 103 | 124 | 145 | 165 | 186 | 207 | 227 | 248 |
| 33 | 1 | 59 | 78 | 98 | 117 | 137 | 156 | 176 | 195 | 215 | 234 |
| 34 | 1 | 55 | 74 | 92 | 111 | 129 | 148 | 166 | 185 | 203 | 222 |
| 35 | 1 | 53 | 70 | 88 | 105 | 123 | 140 | 158 | 175 | 193 | 210 |
| 36 | 1 | 50 | 66 | 83 | 100 | 116 | 133 | 150 | 166 | 183 | 199 |
| 37 | 1 | 47 | 63 | 79 | 95 | 111 | 126 | 142 | 158 | 174 | 190 |
| 38 | 1 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 181 |
| 39 | 1 | 43 | 57 | 72 | 86 | 100 | 115 | 129 | 143 | 158 | 172 |
| 40 | 1 | 41 | 55 | 68 | 82 | 96 | 109 | 123 | 137 | 150 | 164 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.
a. Flow rate from Section *R313.3.4.2*.

**TABLE *R313.3.6.2(6)***
**ALLOWABLE PIPE LENGTH FOR 3/4 INCH CPVC PIPE**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 3/4 | 348 | 465 | 581 | 697 | 813 | 929 | 1045 | 1161 | 1278 | 1394 |
| 9 | 3/4 | 280 | 374 | 467 | 560 | 654 | 747 | 841 | 934 | 1027 | 1121 |
| 10 | 3/4 | 231 | 307 | 384 | 461 | 538 | 615 | 692 | 769 | 845 | 922 |
| 11 | 3/4 | 193 | 258 | 322 | 387 | 451 | 515 | 580 | 644 | 709 | 773 |
| 12 | 3/4 | 165 | 219 | 274 | 329 | 384 | 439 | 494 | 549 | 603 | 658 |
| 13 | 3/4 | 142 | 189 | 237 | 284 | 331 | 378 | 426 | 473 | 520 | 568 |
| 14 | 3/4 | 124 | 165 | 206 | 247 | 289 | 330 | 371 | 412 | 454 | 495 |
| 15 | 3/4 | 109 | 145 | 182 | 218 | 254 | 290 | 327 | 363 | 399 | 436 |
| 16 | 3/4 | 97 | 129 | 161 | 193 | 226 | 258 | 290 | 322 | 354 | 387 |
| 17 | 3/4 | 86 | 115 | 144 | 173 | 202 | 230 | 259 | 288 | 317 | 346 |
| 18 | 3/4 | 78 | 104 | 130 | 155 | 181 | 207 | 233 | 259 | 285 | 311 |
| 19 | 3/4 | 70 | 94 | 117 | 141 | 164 | 188 | 211 | 234 | 258 | 281 |
| 20 | 3/4 | 64 | 85 | 107 | 128 | 149 | 171 | 192 | 213 | 235 | 256 |
| 21 | 3/4 | 58 | 78 | 97 | 117 | 136 | 156 | 175 | 195 | 214 | 234 |
| 22 | 3/4 | 54 | 71 | 89 | 107 | 125 | 143 | 161 | 179 | 197 | 214 |
| 23 | 3/4 | 49 | 66 | 82 | 99 | 115 | 132 | 148 | 165 | 181 | 198 |
| 24 | 3/4 | 46 | 61 | 76 | 91 | 107 | 122 | 137 | 152 | 167 | 183 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 3/4 | 42 | 56 | 71 | 85 | 99 | 113 | 127 | 141 | 155 | 169 |
| 26 | 3/4 | 39 | 52 | 66 | 79 | 92 | 105 | 118 | 131 | 144 | 157 |
| 27 | 3/4 | 37 | 49 | 61 | 73 | 86 | 98 | 110 | 122 | 135 | 147 |
| 28 | 3/4 | 34 | 46 | 57 | 69 | 80 | 92 | 103 | 114 | 126 | 137 |
| 29 | 3/4 | 32 | 43 | 54 | 64 | 75 | 86 | 96 | 107 | 118 | 129 |
| 30 | 3/4 | 30 | 40 | 50 | 60 | 70 | 81 | 91 | 101 | 111 | 121 |
| 31 | 3/4 | 28 | 38 | 47 | 57 | 66 | 76 | 85 | 95 | 104 | 114 |
| 32 | 3/4 | 27 | 36 | 45 | 54 | 63 | 71 | 80 | 89 | 98 | 107 |
| 33 | 3/4 | 25 | 34 | 42 | 51 | 59 | 68 | 76 | 84 | 93 | 101 |
| 34 | 3/4 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 88 | 96 |
| 35 | 3/4 | 23 | 30 | 38 | 45 | 53 | 61 | 68 | 76 | 83 | 91 |
| 36 | 3/4 | 22 | 29 | 36 | 43 | 50 | 57 | 65 | 72 | 79 | 86 |
| 37 | 3/4 | 20 | 27 | 34 | 41 | 48 | 55 | 61 | 68 | 75 | 82 |
| 38 | 3/4 | 20 | 26 | 33 | 39 | 46 | 52 | 59 | 65 | 72 | 78 |
| 39 | 3/4 | 19 | 25 | 31 | 37 | 43 | 50 | 56 | 62 | 68 | 74 |
| 40 | 3/4 | 18 | 24 | 30 | 35 | 41 | 47 | 53 | 59 | 65 | 71 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.
a. Flow rate from Section *R313.3.4.2*.

**TABLE *R313.3.6.2(7)***
**ALLOWABLE PIPE LENGTH FOR 1 INCH CPVC PIPE**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 1 | 1049 | 1398 | 1748 | 2098 | 2447 | 2797 | 3146 | 3496 | 3845 | 4195 |
| 9 | 1 | 843 | 1125 | 1406 | 1687 | 1968 | 2249 | 2530 | 2811 | 3093 | 3374 |
| 10 | 1 | 694 | 925 | 1157 | 1388 | 1619 | 1851 | 2082 | 2314 | 2545 | 2776 |
| 11 | 1 | 582 | 776 | 970 | 1164 | 1358 | 1552 | 1746 | 1940 | 2133 | 2327 |
| 12 | 1 | 495 | 660 | 826 | 991 | 1156 | 1321 | 1486 | 1651 | 1816 | 1981 |
| 13 | 1 | 427 | 570 | 712 | 854 | 997 | 1139 | 1281 | 1424 | 1566 | 1709 |
| 14 | 1 | 372 | 497 | 621 | 745 | 869 | 993 | 1117 | 1241 | 1366 | 1490 |
| 15 | 1 | 328 | 437 | 546 | 656 | 765 | 874 | 983 | 1093 | 1202 | 1311 |
| 16 | 1 | 291 | 388 | 485 | 582 | 679 | 776 | 873 | 970 | 1067 | 1164 |
| 17 | 1 | 260 | 347 | 433 | 520 | 607 | 693 | 780 | 867 | 954 | 1040 |
| 18 | 1 | 234 | 312 | 390 | 468 | 546 | 624 | 702 | 780 | 858 | 936 |
| 19 | 1 | 212 | 282 | 353 | 423 | 494 | 565 | 635 | 706 | 776 | 847 |
| 20 | 1 | 193 | 257 | 321 | 385 | 449 | 513 | 578 | 642 | 706 | 770 |
| 21 | 1 | 176 | 235 | 293 | 352 | 410 | 469 | 528 | 586 | 645 | 704 |
| 22 | 1 | 161 | 215 | 269 | 323 | 377 | 430 | 484 | 538 | 592 | 646 |
| 23 | 1 | 149 | 198 | 248 | 297 | 347 | 396 | 446 | 496 | 545 | 595 |
| 24 | 1 | 137 | 183 | 229 | 275 | 321 | 366 | 412 | 458 | 504 | 550 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 1 | 127 | 170 | 212 | 255 | 297 | 340 | 382 | 425 | 467 | 510 |
| 26 | 1 | 118 | 158 | 197 | 237 | 276 | 316 | 355 | 395 | 434 | 474 |
| 27 | 1 | 111 | 147 | 184 | 221 | 258 | 295 | 332 | 368 | 405 | 442 |
| 28 | 1 | 103 | 138 | 172 | 207 | 241 | 275 | 310 | 344 | 379 | 413 |
| 29 | 1 | 97 | 129 | 161 | 194 | 226 | 258 | 290 | 323 | 355 | 387 |
| 30 | 1 | 91 | 121 | 152 | 182 | 212 | 242 | 273 | 303 | 333 | 364 |
| 31 | 1 | 86 | 114 | 143 | 171 | 200 | 228 | 257 | 285 | 314 | 342 |
| 32 | 1 | 81 | 108 | 134 | 161 | 188 | 215 | 242 | 269 | 296 | 323 |
| 33 | 1 | 76 | 102 | 127 | 152 | 178 | 203 | 229 | 254 | 280 | 305 |
| 34 | 1 | 72 | 96 | 120 | 144 | 168 | 192 | 216 | 240 | 265 | 289 |
| 35 | 1 | 68 | 91 | 114 | 137 | 160 | 182 | 205 | 228 | 251 | 273 |
| 36 | 1 | 65 | 87 | 108 | 130 | 151 | 173 | 195 | 216 | 238 | 260 |
| 37 | 1 | 62 | 82 | 103 | 123 | 144 | 165 | 185 | 206 | 226 | 247 |
| 38 | 1 | 59 | 78 | 98 | 117 | 137 | 157 | 176 | 196 | 215 | 235 |
| 39 | 1 | 56 | 75 | 93 | 112 | 131 | 149 | 168 | 187 | 205 | 224 |
| 40 | 1 | 53 | 71 | 89 | 107 | 125 | 142 | 160 | 178 | 196 | 214 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.

a. Flow rate from Section *R313.3.4.2*.

**TABLE *R313.3.6.2(8)***
**ALLOWABLE PIPE LENGTH FOR 3/4 INCH PEX AND PE-RT TUBING**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 3/4 | 93 | 123 | 154 | 185 | 216 | 247 | 278 | 309 | 339 | 370 |
| 9 | 3/4 | 74 | 99 | 124 | 149 | 174 | 199 | 223 | 248 | 273 | 298 |
| 10 | 3/4 | 61 | 82 | 102 | 123 | 143 | 163 | 184 | 204 | 225 | 245 |
| 11 | 3/4 | 51 | 68 | 86 | 103 | 120 | 137 | 154 | 171 | 188 | 205 |
| 12 | 3/4 | 44 | 58 | 73 | 87 | 102 | 117 | 131 | 146 | 160 | 175 |
| 13 | 3/4 | 38 | 50 | 63 | 75 | 88 | 101 | 113 | 126 | 138 | 151 |
| 14 | 3/4 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 | 132 |
| 15 | 3/4 | 29 | 39 | 48 | 58 | 68 | 77 | 87 | 96 | 106 | 116 |
| 16 | 3/4 | 26 | 34 | 43 | 51 | 60 | 68 | 77 | 86 | 94 | 103 |
| 17 | 3/4 | 23 | 31 | 38 | 46 | 54 | 61 | 69 | 77 | 84 | 92 |
| 18 | 3/4 | 21 | 28 | 34 | 41 | 48 | 55 | 62 | 69 | 76 | 83 |
| 19 | 3/4 | 19 | 25 | 31 | 37 | 44 | 50 | 56 | 62 | 69 | 75 |
| 20 | 3/4 | 17 | 23 | 28 | 34 | 40 | 45 | 51 | 57 | 62 | 68 |
| 21 | 3/4 | 16 | 21 | 26 | 31 | 36 | 41 | 47 | 52 | 57 | 62 |
| 22 | 3/4 | NP | 19 | 24 | 28 | 33 | 38 | 43 | 47 | 52 | 57 |
| 23 | 3/4 | NP | 17 | 22 | 26 | 31 | 35 | 39 | 44 | 48 | 52 |
| 24 | 3/4 | NP | 16 | 20 | 24 | 28 | 32 | 36 | 40 | 44 | 49 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 3/4 | NP | NP | 19 | 22 | 26 | 30 | 34 | 37 | 41 | 45 |
| 26 | 3/4 | NP | NP | 17 | 21 | 24 | 28 | 31 | 35 | 38 | 42 |
| 27 | 3/4 | NP | NP | 16 | 20 | 23 | 26 | 29 | 33 | 36 | 39 |
| 28 | 3/4 | NP | NP | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 |
| 29 | 3/4 | NP | NP | NP | 17 | 20 | 23 | 26 | 28 | 31 | 34 |
| 30 | 3/4 | NP | NP | NP | 16 | 19 | 21 | 24 | 27 | 29 | 32 |
| 31 | 3/4 | NP | NP | NP | 15 | 18 | 20 | 23 | 25 | 28 | 30 |
| 32 | 3/4 | NP | NP | NP | NP | 17 | 19 | 21 | 24 | 26 | 28 |
| 33 | 3/4 | NP | NP | NP | NP | 16 | 18 | 20 | 22 | 25 | 27 |
| 34 | 3/4 | NP | NP | NP | NP | NP | 17 | 19 | 21 | 23 | 25 |
| 35 | 3/4 | NP | NP | NP | NP | NP | 16 | 18 | 20 | 22 | 24 |
| 36 | 3/4 | NP | NP | NP | NP | NP | 15 | 17 | 19 | 21 | 23 |
| 37 | 3/4 | NP | NP | NP | NP | NP | NP | 16 | 18 | 20 | 22 |
| 38 | 3/4 | NP | NP | NP | NP | NP | NP | 16 | 17 | 19 | 21 |
| 39 | 3/4 | NP | NP | NP | NP | NP | NP | NP | 16 | 18 | 20 |
| 40 | 3/4 | NP | NP | NP | NP | NP | NP | NP | 16 | 17 | 19 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.
NP - Not permitted.
a. Flow rate from Section *R313.3.4.2*.

**TABLE *R313.3.6.2(9)***
**ALLOWABLE PIPE LENGTH FOR 1 INCH PEX AND PE-RT TUBING**

| SPRINKLER FLOW RATEa (gpm) | WATER DISTRIBUTION SIZE (inch) | AVAILABLE PRESSURE - Pt (psi) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| | | Allowable length of pipe from service valve to farthest sprinkler (feet) | | | | | | | | | |
| 8 | 1 | 314 | 418 | 523 | 628 | 732 | 837 | 941 | 1046 | 1151 | 1255 |
| 9 | 1 | 252 | 336 | 421 | 505 | 589 | 673 | 757 | 841 | 925 | 1009 |
| 10 | 1 | 208 | 277 | 346 | 415 | 485 | 554 | 623 | 692 | 761 | 831 |
| 11 | 1 | 174 | 232 | 290 | 348 | 406 | 464 | 522 | 580 | 638 | 696 |
| 12 | 1 | 148 | 198 | 247 | 296 | 346 | 395 | 445 | 494 | 543 | 593 |
| 13 | 1 | 128 | 170 | 213 | 256 | 298 | 341 | 383 | 426 | 469 | 511 |
| 14 | 1 | 111 | 149 | 186 | 223 | 260 | 297 | 334 | 371 | 409 | 446 |
| 15 | 1 | 98 | 131 | 163 | 196 | 229 | 262 | 294 | 327 | 360 | 392 |
| 16 | 1 | 87 | 116 | 145 | 174 | 203 | 232 | 261 | 290 | 319 | 348 |
| 17 | 1 | 78 | 104 | 130 | 156 | 182 | 208 | 233 | 259 | 285 | 311 |
| 18 | 1 | 70 | 93 | 117 | 140 | 163 | 187 | 210 | 233 | 257 | 280 |
| 19 | 1 | 63 | 84 | 106 | 127 | 148 | 169 | 190 | 211 | 232 | 253 |
| 20 | 1 | 58 | 77 | 96 | 115 | 134 | 154 | 173 | 192 | 211 | 230 |
| 21 | 1 | 53 | 70 | 88 | 105 | 123 | 140 | 158 | 175 | 193 | 211 |
| 22 | 1 | 48 | 64 | 80 | 97 | 113 | 129 | 145 | 161 | 177 | 193 |
| 23 | 1 | 44 | 59 | 74 | 89 | 104 | 119 | 133 | 148 | 163 | 178 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 1 | 41 | 55 | 69 | 82 | 96 | 110 | 123 | 137 | 151 | 164 |
| 25 | 1 | 38 | 51 | 64 | 76 | 89 | 102 | 114 | 127 | 140 | 152 |
| 26 | 1 | 35 | 47 | 59 | 71 | 83 | 95 | 106 | 118 | 130 | 142 |
| 27 | 1 | 33 | 44 | 55 | 66 | 77 | 88 | 99 | 110 | 121 | 132 |
| 28 | 1 | 31 | 41 | 52 | 62 | 72 | 82 | 93 | 103 | 113 | 124 |
| 29 | 1 | 29 | 39 | 48 | 58 | 68 | 77 | 87 | 97 | 106 | 116 |
| 30 | 1 | 27 | 36 | 45 | 54 | 63 | 73 | 82 | 91 | 100 | 109 |
| 31 | 1 | 26 | 34 | 43 | 51 | 60 | 68 | 77 | 85 | 94 | 102 |
| 32 | 1 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 89 | 97 |
| 33 | 1 | 23 | 30 | 38 | 46 | 53 | 61 | 68 | 76 | 84 | 91 |
| 34 | 1 | 22 | 29 | 36 | 43 | 50 | 58 | 65 | 72 | 79 | 86 |
| 35 | 1 | 20 | 27 | 34 | 41 | 48 | 55 | 61 | 68 | 75 | 82 |
| 36 | 1 | 19 | 26 | 32 | 39 | 45 | 52 | 58 | 65 | 71 | 78 |
| 37 | 1 | 18 | 25 | 31 | 37 | 43 | 49 | 55 | 62 | 68 | 74 |
| 38 | 1 | 18 | 23 | 29 | 35 | 41 | 47 | 53 | 59 | 64 | 70 |
| 39 | 1 | 17 | 22 | 28 | 33 | 39 | 45 | 50 | 56 | 61 | 67 |
| 40 | 1 | 16 | 21 | 27 | 32 | 37 | 43 | 48 | 53 | 59 | 64 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square inch = 6.895 kPa, 1 gallon per minute = 0.963 L/s.
a. Flow rate from Section *R313.3.4.2*.

**R314.1 Smoke detection and notification.** All smoke alarms shall be listed and labeled in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning *equipment* provisions of NFPA 72. *Systems and components shall be California State Fire Marshal listed and approved in accordance with California Code of Regulations, Title 19, Division 1 for the purpose for which they are installed.*

**R314.3.1 Alterations, repairs and additions.** When alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings.

**Exceptions:** ~~1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, or the *addition* or replacement of windows or doors, or the *addition* of a porch or deck, are exempt from the requirements of this section.~~
~~2. Installation, *alteration* or repairs of plumbing or mechanical systems are exempt from the requirements of this section~~ *See Section R314.6.*~~.~~

**R314.4 Power source.** ~~Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source, and when primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.~~

~~**Exceptions:**~~
~~1. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power.~~
~~2. Hard wiring of smoke alarms in existing areas shall not be required where the *alterations* or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available which could provide access for hard wiring without the removal of interior finishes.~~

**R314.4 Power source.** *Smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.*

***Exceptions:***
*1. Smoke alarms are permitted to be solely battery operated in existing buildings where no construction is taking place.*
*2. Smoke alarms are permitted to be solely battery operated in buildings that are not served from a commercial power source.*
*3. Smoke alarms are permitted to be solely battery operated in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for building wiring without the removal of interior finishes.*
*4. Smoke alarms are permitted to be solely battery operated where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.*
*5. Smoke alarms are permitted to be solely battery operated when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.*

~~**R314.5 Interconnection.** Where more than one smoke alarm is required to be installed within an individual dwelling unit in accordance with Section R314.3, the alarm devices shall be interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.~~

~~**Exception:** Interconnection of smoke alarms in existing areas shall not be required where alterations or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes.~~

***R314.5 Interconnection.*** *Where more than one smoke alarm is required to be installed within an individual dwelling or sleeping unit, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.*

***Exceptions:***
*1. Interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind.*
*2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes.*
*3. Smoke alarms are not required to be interconnected where repairs or alterations are limited to the exterior surfaces of dwellings, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck.*
*4. Smoke alarms are not required to be interconnected when work is limited to the installation, alteration or repairs of plumbing or mechanical systems or the installation, alteration or repair of electrical systems which do not result in the removal of interior wall or ceiling finishes exposing the structure.*

***~~R314.6~~R314.7 Existing Group R-3 occupancies.***

***~~R314.6.1~~R314.7.1*** *Existing buildings housing Group R-3 occupancies established prior to the effective date of these regulations may have their use continued if they conform or are made to conform to provisions of these regulations to the extent that reasonable and adequate life safety against the hazards of fire, panic and explosion is substantially provided. Additional means of egress, the installation of automatic sprinkler systems, automatic fire alarm system or other life safety measures, may be required to provide reasonable and adequate safety.*

> ***Note:*** *It is the intent of this section that every existing occupancy need not mandatorily conform with the requirements for new construction. Reasonable judgment in the application of requirements must be exercised by the enforcing agency.*

***~~R314.6.2~~R314.7.2*** *For purposes of clarification, Health and Safety Code Section 13113.7 is repeated.*

> *(a) Except as otherwise provided in this section, a smoke detector, approved and listed by the State Fire Marshal pursuant to Section 13114, shall be installed, in accordance with the manufacturer's instructions in each dwelling intended for human occupancy within the earliest applicable time period as follows:*

*(1) For all dwelling units intended for human occupancy, upon the owner's application on or after January 1, 1985, for a permit for alterations, repairs, or additions, exceeding one thousand dollars ($1,000).*
*(2) For all other dwelling units intended for human occupancy on or after January 1, 1987.*

*However, if any local rule, regulation, or ordinance, adopted prior to the compliance dates specified in paragraphs (1) and (2) requires installation in a dwelling unit intended for human occupancy of smoke detector, which receive their power from the electrical system of the building and requires compliance with the local rule, regulation, or ordinance at a date subsequent to the dates specified in this section, the compliance date specified in the rule, regulation, or ordinance shall, but only with respect to the dwelling units specified in this section, take precedence over the dates specified in this section.*

*The State Fire Marshal may adopt regulations exempting dwellings intended for human occupancy with fire sprinkler systems from the provisions of this section, if he or she determines that a smoke detector is not reasonably necessary for fire safety in the occupancy.*

*Unless prohibited by local rules, regulations, or ordinances, a battery-operated smoke detector which otherwise meets the standards adopted pursuant to Section 13114 for smoke detectors, satisfies the requirements of this section.*

*(b) "Dwelling units intended for human occupancy," as used in this section, includes a duplex, lodging house, apartment complex, hotel, motel, condominium, stock cooperative, time-share project, or dwelling unit of a multiple-unit dwelling complex. For the purpose of this part, "dwelling units intended for human occupancy" does not include manufactured homes as defined in Section 18007, mobile homes as defined in Section 18008, and commercial coaches as defined in Section 18001.8.*

*(c) The owner of each dwelling unit subject to this section shall supply and install smoke detectors required by this section in the locations and in the manner set forth in the manufacturer's instructions, as approved by the State Fire Marshal's regulations. In the case of apartment complexes and other multiple- dwelling complexes, a smoke detector shall be installed in the common stairwells. All fire alarm warning systems supplemental to the smoke detector shall also be listed by the State Fire Marshal.*

*(d) A high-rise structure, as defined in subdivision (b) of Section 13210 and regulated by Chapter 3 (commencing with Section 13210), and which is used for purposes other than as dwelling units intended for human occupancy, is exempt from the requirements of this section.*

*(e) The owner shall be responsible for testing and maintaining detectors in hotels, motels, lodging houses, and common stairwells of apartment complexes and other multiple-dwelling complexes.*

*An owner or the owner's agent may enter any dwelling unit, efficiency dwelling unit, guest room, and suite owned by the owner for the purpose of installing, repairing, testing, and maintaining single station smoke detectors required by this section. Except in cases of emergency, the owner or owner's agent shall give the tenants of each such unit, room, or suite reasonable notice in writing of the intention to enter and shall enter only during normal business hours. Twenty-four hours shall be presumed to be reasonable notice in absence of evidence to the contrary.*

*The smoke detector shall be operable at the time that the tenant takes possession. The apartment complex tenant shall be responsible for notifying the manager or owner if the tenant becomes aware of an inoperable smoke detector within his or her unit. The owner or authorized agent shall correct any reported deficiencies in the smoke detector and shall not be in violation of this section for a deficient smoke detector when he or she has not received notice of the deficiency.*

*(f) A violation of this section is an infraction punishable by a maximum fine of two hundred dollars ($200) for each offense.*

*(g) This section shall not affect any rights which the parties may have under any other provision of law because of the presence or absence of a smoke detector.*

*(h) This section shall not apply to the installation of smoke detectors in single-family dwellings or factory-built housing which is regulated by Section 13113.8, as added by Assembly Bill No. 2285 of the 1983-84 Regular Session.*

***~~R314.6.3~~R314.7.3*** *For purposes of clarification, Health and Safety Code Section 13113.8 is repeated.*

*(a) On and after January 1, 1986, every single- family dwelling and factory-built housing, as defined in Section 19971, which is sold shall have an operable smoke detector. The detector shall be approved and listed by the State Fire Marshal and installed in accordance with the State Fire Marshal's regulations. Unless prohibited by local rules, regulations, or ordinances, a battery-operated smoke detector shall be deemed to satisfy the requirements of this section.*

*(b) On and after January 1, 1986, the transferor of any real property containing a single-family dwelling, as described in subdivision (a), whether the transfer is made by sale, exchange, or real property sales contract, as defined in Section 2985 of the Civil Code, shall deliver to the transferee a written statement indicating that the transferor is in compliance with this section. The disclosure statement shall be either included in the receipt for deposit in a real estate transaction, an addendum attached thereto, or a separate document.*

*(c) The transferor shall deliver the statement referred to in subdivision (b) as soon as practicable before the transfer of title in the case of a sale or exchange, or prior to execution of the contract where the transfer is by a real property sales contract, as defined in Section 2985. For purposes of this subdivision, "delivery" means delivery in person or by mail to the transferee or transferor, or to any person authorized to act for him or her in the transaction, or to additional transferees who have requested delivery from the transferor in writing. Delivery to the spouse of a transferee or transferor shall be deemed delivery to a transferee or transferor, unless the contract states otherwise.*

*(d) This section does not apply to any of the following:*

*(1) Transfers which are required to be preceded by the furnishing to a prospective transferee of a copy of a public report pursuant to Section 11018.1 of the Business and Professions Code.*

*(2) Transfers pursuant to court order, including, but not limited to, transfers ordered by a probate court in the administration of an estate, transfers pursuant to a writ of execution, transfers by a trustee in bankruptcy, transfers by eminent domain, or transfers resulting from a decree for specific performance.*

*(3) Transfers to a mortgagee by a mortgagor in default, transfers to a beneficiary of a deed of trust by a trustor in default, transfers by any foreclosure sale after default, transfers by any foreclosure sale after default in an obligation secured by a mortgage, or transfers by a sale under a power of sale after a default in an obligation secured by a deed of trust or secured by any other instrument containing a power of sale.*

*(4) Transfers by a fiduciary in the course of the administration of a decedent's estate, guardianship, conservatorship, or trust.*

*(5) Transfers from one co-owner to one or more co-owners.*

*(6) Transfers made to a spouse, or to a person or persons in the lineal line of consanguinity of one or more of the transferors.*

*(7) Transfers between spouses resulting from a decree of dissolution of a marriage, from a decree of legal separation, or from a property settlement agreement incidental to either of those decrees.*

*(8) Transfers by the Controller in the course of administering the Unclaimed Property Law provided for in Chapter 7 (commencing with Section 1500) of Title 10 of Part 3 of the Code of Civil Procedure.*

*(9) Transfers under the provisions of Chapter 7 (commencing with Section 3691) or Chapter 8 (commencing with Section 3771) of Part 6 of Division 1 of the Revenue and Taxation Code.*

*(e) No liability shall arise, nor any action be brought or maintained against, any agent of any party to a transfer of title, including any person or entity acting in the capacity of an escrow, for any error, inaccuracy, or omission relating to the disclosure required to be made by a transferor pursuant to this section. However, this subdivision does not apply to a licensee, as defined in Section 10011 of the Business and Professions Code, where the licensee participates in the making of the disclosure required to be made pursuant to this section with actual knowledge of the falsity of the disclosure.*

*(f) Except as otherwise provided in this section, this section shall not be deemed to create or imply a duty upon a licensee, as defined in Section 10011 of the Business and Professions Code, or upon any agent of any party to a transfer of title, including any person or entity acting in the capacity of an escrow, to monitor or ensure compliance with this section.*

*(g) No transfer of title shall be invalidated on the basis of a failure to comply with this section, and the exclusive remedy for the failure to comply with this section is an award of actual damages not to exceed one hundred dollars ($100), exclusive of any court costs and attorney's fees.*

*(h) Local ordinances requiring smoke detectors in single-family dwellings may be enacted or amended. However, the ordinances shall satisfy the minimum requirements of this section.*

*(i) For the purposes of this section, "single-family dwelling" does not include a manufactured home as defined in Section 18007, a mobilehome as defined in Section 18008, or a commercial coach as defined in Section 18001.8.*

*(j) This section shall not apply to the installation of smoke detectors in dwellings intended for human occupancy, as defined in and regulated by Section 13113.7 of the Health and Safety Code, as added by Senate Bill No. 1448 in the 1983-84 Regular Session.*

## *SECTION R325*
## *SPECIAL PROVISIONS FOR LICENSED 24-HOUR CARE FACILITIES IN A GROUP R-3.1*

***R325.1 Scope**. The provisions of this section shall apply to 24-hour care facilities in a Group R-3.1 occupancy licensed by a governmental agency.*

***R325.2 General.** The provisions in this section shall apply in addition to general requirements in this code.*

***R325.2.1** Restraint shall not be practiced in a Group R-3.1 occupancy.*

***Exception:** Occupancies which meet all the requirements for a Group I-3 occupancy.*

***R325.2.2** Pursuant to Health and Safety Code Section 13133, regulations of the state fire marshal pertaining to Occupancies classified as Residential Facilities (RF) and Residential-care Facilities for the Elderly (RCFE) shall apply uniformly throughout the state and no city, county, city and county, including a charter city or charter county, or fire protection district shall adopt or enforce any ordinance or local rule or regulation relating to fire and panic safety which is inconsistent with these regulations. A city, county, city and county, including a charter city or charter county may pursuant to Health and Safety Code Section 13143.5, or a fire protection district may pursuant to Health and Safety Code Section 13869.7, adopt standards more stringent than those adopted by the state fire marshal that are reasonably necessary to accommodate local climate, geological, or topographical conditions relating to roof coverings for Residential-care Facilities for the Elderly.*

***Exception:** Local regulations relating to roof coverings in facilities licensed as a Residential Care Facility for the Elderly (RCFE) per Health and Safety Code Section 13133.*

***R325.3 Building Height and Area Provisions.***

***R325.3.1 Limitations six or less clients.** Group R-3.1 occupancies where nonambulatory clients are housed above the first story, having more than two stories in height or having more than 3,000 square feet (279 m2) of floor area above the first story shall not be of less than one-hour fire-resistance-rated construction throughout.*

*In Group R-3.1 occupancies housing a bedridden client, the client sleeping room shall not be located above or below the first story.*

***Exception:** Clients who become bedridden as a result of a temporary illness as defined in Health and Safety Code Sections 1566.45, 1568.0832, and 1569.72. A temporary illness is an illness, which persists for 14 days or less. A bedridden client may be retained in excess of the 14 days upon approval by the Department of Social Services and may continue to be housed on any story in a Group R-3.1 occupancy classified as a licensed residential facility.*

*Every licensee admitting or retaining a bedridden resident shall, within 48 hours of the resident's admission or retention in the facility, notify the local fire authority with jurisdiction of the estimated length of time the resident will retain his or her bedridden status in the facility.*

***R325.4 Interior Finish Provisions.***

***R325.4.1 Interior wall and ceiling finish.** Group R-3.1 occupancies housing a bedridden client shall comply with Interior Wall and Ceiling Finish requirements specified for Group I-2 occupancies in Table 803.5 of the California Building Code.*

***R325.5 Fire Protection System Provisions.***

***R325.5.1 Automatic sprinkler systems in Group R-3.1 occupancies.*** *An automatic sprinkler system shall be installed where required in Section 313.*

***Exceptions:***

1. *Existing Group R-3 occupancies converted to Group R-3.1 occupancies not housing bedridden clients, not housing nonambulatory clients above the first floor, and not housing clients above the second floor.*
2. *Existing Group R-3 occupancies converted to Group R-3.1 occupancies housing only one bedridden client and complying with Section R325.6.3.3.*
3. *Pursuant to Health and Safety Code Section 13113 existing occupancies housing ambulatory children only, none of whom are mentally ill or mentally retarded, and the buildings or portions thereof in which such children are housed are not more than two stories in height, and buildings or portions thereof housing such children have an automatic fire alarm system activated by approved smoke detectors.*
4. *Pursuant to Health and Safety Code Section 13143.6 existing occupancies licensed for protective social care which house ambulatory clients only, none of whom is a child (under the age of 18 years), or who is elderly (65 years of age or over).*

***R325.5.2 Smoke alarms in Groups R-3.1 occupancies.*** *Smoke alarms shall be installed where required in Section 314. In addition to the provisions set forth in Section R314 the following shall apply:*

1. *Smoke alarms shall be provided throughout the habitable areas of the dwelling unit except kitchens.*
2. *Facilities housing a bedridden client:*

    2.1. *Smoke alarms shall receive their primary power from the building wiring when such wiring is served from a commercial source and shall be equipped with a battery backup.*

    2.2. *Smoke alarms shall be electrically interconnected so as to cause all smoke alarms to sound a distinctive alarm signal upon actuation of any single smoke alarm. Such alarm signal shall be audible throughout the facility at a minimal level of 15 db above ambient noise level. These devices need not be interconnected to any other fire alarm device, have a control panel, or be electrically supervised or provided with emergency power.*

***R325.5.2.1 Audible alarm signal.*** *The audible signal shall be the standard fire alarm evacuation signal, ANSI S3.41 Audible Emergency Evacuation Signal, "three pulse temporal pattern," as described in NFPA 72.*

***R325.5.2.2 Hearing impaired.*** *See Section 907.5.2.3 of the California Building Code.*

***R325.5.2.3 Visible alarms.*** *Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.5 of the California Building Codes.*

***Exceptions:***

1. *Visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.*
2. *Visible alarm notification appliances shall not be required in enclosed exit stairways, exterior exit stairs, and exterior exit ramps.*
3. *Visible alarm notification appliances shall not be required in elevator cars.*

***R325.5.2.4 Group R-3.1*** *Protective social care facilities which house persons who are hearing impaired, shall be provided with notification appliances for the hearing impaired installed in accordance with NFPA 72 and which shall activated upon initiation of the fire alarm system or the smoke alarms.*

***Exception:*** *The use of the existing evacuation signaling scheme shall be permitted where approved by the enforcing agency.*

***R325.6 Means of Egress Provisions.***

***R325.6.1 General.*** *In addition to the general means of egress requirements of Chapter 10 of the California Building Code, this section shall apply to Group R-3.1 occupancies.*

***R325.6.2 Number of exits.***

***R325.6.2.1*** *Group R-3.1 occupancies shall have a minimum of two exits.*

***R325.6.3 Egress arrangements.***

***R325.6.3.1*** *Egress through adjoining dwelling units shall not be permitted.*

***R325.6.3.2 Group R-3.1 occupancies housing nonambulatory clients.*** *In a Group R-3.1 occupancy, bedrooms used by nonambulatory clients shall have access to at least one of the required exits which shall conform to one of the following:*

1. *Egress through a hallway or area into a bedroom in the immediate area which has an exit directly to the exterior and the corridor/hallway is constructed consistent with the dwelling unit interior walls. The hallway shall be separated from common areas by a solid wood door not less than 1⅜ inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 715.4.7 of the California Building Code.*
2. *Egress through a hallway which has an exit directly to the exterior. The hallway shall be separated from the rest of the house by a wall constructed consistent with the dwelling unit interior walls and opening protected by a solid wood door not less than 1⅜ inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 715.4.7 of the California Building Code.*
3. *Direct exit from the bedroom to the exterior, such doors shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed, doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exit way is not less than 32 inches (813 mm).*
4. *Egress through an adjoining bedroom which exits to the exterior.*

***R325.6.3.3 Group R-3.1 occupancies housing only one bedridden client~~s~~.*** *In Group R-3.1 occupancies housing a bedridden client and not provided with an approved automatic fire sprinkler system, all of the following shall apply:*

1. *In Group R-3.1 Occupancies housing a bedridden client, a direct exit to the exterior of the residence shall be provided from the client sleeping room.*
2. *Doors to a bedridden client's sleeping room shall be of a self-closing, positive latching 1-⅜ inch solid wood door. Such doors shall be provided with a gasket so installed as to provide a seal where the door meets the jam on both sides and across the top. Doors shall be maintained self-closing or shall be automatic closing by actuation of a smoke detector in accordance with Section 715.4.7 of the California Building Code.*
3. *Group R-3.1 Occupancies housing a bedridden client, shall not have a night latch, dead bolt, security chain or any similar locking device installed on any interior door leading from a bedridden client's sleeping room to any interior area such as a corridor, hallway and or general use areas of the residence in accordance with Chapter 10 of the California Building Code.*
4. *The exterior exit door to a bedridden client's sleeping room shall be operable from both the interior and exterior of the residence.*
5. *Every required exit doorway from a bedridden client sleeping room shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed in exit doorways, exit doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exit way is not less than 32 inches (813 mm).*

***Note:*** *A sliding glass door can be used as an exterior exit doorway as long as it is operable from the inside and outside and the clear width of the exit way is not less than 32 inches (813mm).*

***R325.6.3.4 Intervening rooms.*** *A means of exit shall not pass through more than one intervening room. A means of egress shall not pass through kitchens, storerooms, closets, garages or spaces used for similar purposes.*

***Exception:*** *Kitchens which do not form separate rooms by construction.*

***R325.6.4 Changes in level.*** *In Group R-3.1 occupancies housing nonambulatory clients interior changes in level up to 0.25 inch (6 mm) may be vertical and without edge treatment. Changes in level between 0.25 inch (6 mm) and 0.5 inch (12.7 mm) shall be beveled with a slope no greater than 1 unit vertical in 2 units horizontal (50% slope). Changes in level greater than 0.5 inch (12.7 mm) shall be accomplished by means of a ramp.*

***R325.6.5 Stairways.*** *Group R-3.1 occupancies may continue to use existing stairways (except for winding and spiral stairways which are not permitted as a required means of egress) provided the stairs have a maximum rise of 8*

*inches (203 mm) with a minimum run of 9 inches (229 mm). The minimum stairway width may be 30 inches (762 mm).*

***R325.6.6 Floor separation.*** *Group R-3.1 occupancies shall be provided with a non-fire resistance constructed floor separation at stairs which will prevent smoke migration between floors. Such floor separation shall have equivalent construction of 0.5 inch (12.7 mm) gypsum wallboard on one side of wall framing.*

***Exceptions:***
*1. Occupancies with at least one exterior exit from floors occupied by clients.*
*2. Occupancies provided with automatic fire sprinkler systems complying with chapter 9.*

***R325.6.6.1 Doors within floor separations.*** *Doors within such floor separations shall be tight fitting solid wood at least 1 ⅜ inches (35 mm) in thickness. Door glazing shall not exceed 1296 square inches (32 918 mm$^2$) with no dimension greater than 54 inches (1372 mm). Such doors shall be positive latching, smoke gasketed and shall be automatic-closing by smoke detection.*

***R325.6.7 Fences and gates.*** *Grounds of a Residential Care for the Elderly facility serving Alzheimer clients may be fenced and gates therein equipped with locks, provided safe dispersal areas are located not less than 50 feet (15 240 mm) from the buildings. Dispersal areas shall be sized to provide an area of not less than 3 square feet (0.28 m$^2$) per occupant. Gates shall not be installed across corridors or passageways leading to such dispersal areas unless they comply with egress requirements.*

***R325.6.8 Basement exits.*** *One exit is required to grade level when the basement is accessible to clients.*

***R325.6.9 Delayed egress locks.*** *See Section 1008.1.8.6 of the California Building Code.*

***R325.7 Request for alternate means of protection for facilities housing bedridden clients****. Request for alternate means of protection shall apply to Sections R325 through R325.7. Request for approval to use an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment, or means of protection shall be made in writing to the local fire authority having jurisdiction by the facility, client or the client's authorized representative. Sufficient evidence shall be submitted to substantiate the need for an alternate means of protection.*

*The facility, client or the client's representative or the local fire authority having jurisdiction may request a written opinion from the State Fire Marshal concerning the interpretation of the regulations promulgated by the State Fire Marshal for a particular factual dispute. The State Fire Marshal shall issue the written opinion within 45 days following the request.*

*Approval of a request for use of an alternative material, assembly or materials, equipment, method of construction, method of installation of equipment, or means of protection made pursuant to this section shall be limited to Group R-3.1 occupancies housing a bedridden client.*

*Approvals made by the local fire authority having jurisdiction and the written opinion by the State Fire Marshal shall be applicable only to the requesting facility and shall not be construed as establishing any precedent for any future request by that facility or any other facility.*

***R325.8 Temporarily bedridden clients.*** *Clients who become temporarily bedridden as defined in Health and Safety Code Section 1569.72, as enforced by the Department of Social Services, may continue to be housed on any story in Group R-3.1 occupancies classified as Residential Care Facilities for the Elderly (RCFE). Every Residential Care Facility for the Elderly (RCFE) admitting or retaining a bedridden resident shall, within 48 hours of the resident's admission or retention in the facility, notify the local fire authority with jurisdiction of the estimated length of time the resident will retain his or her bedridden status in the facility.*

***R325.9 Group R.*** *Buildings housing protective social-care homes or in occupancies housing inmates who are not restrained need not be of one-hour fire- resistive construction when not more than two stories in height. In no case shall individual floor areas exceed 3,000 square feet (279m$^2$). The fire-resistive protection of the exterior walls shall not be less than one hour where such walls are located within 5 feet (1524 mm) of the property line. Openings within such walls are not permitted. Openings in exterior non-rated walls need not be protected.*

## *SECTION R326*
## *LARGE FAMILY DAY CARE HOMES*

***R326.1 Large Family Day-Care Homes.***

***R326.2*** *For purposes of clarification, Health and Safety Code Section 1597.46 is repeated.*

*(a) A city, county, or city and county shall not prohibit large family day care homes on lots zoned for single-family dwellings, but shall do one of the following:*

*(1) Classify these homes as a permitted use of residential property for zoning purposes.*

*(2) Grant a nondiscretionary permit to use a lot zoned for a single-family dwelling to any large family day care home that complies with local ordinances prescribing reasonable standards, restrictions, and requirements concerning spacing and concentration, traffic control, parking, and noise control relating to such homes, and complies with subdivision (d) and any regulations adopted by the State Fire Marshal pursuant to that subdivision. Any noise standards shall be consistent with local noise ordinances implementing the noise element of the general plan and shall take into consideration the noise level generated by children. The permit issued pursuant to this paragraph shall be granted by the zoning administrator, if any, or if there is no zoning administrator by the person or persons designated by the planning agency to grant such permits, upon the certification without a hearing.*

*(3) Require any large family day care home to apply for a permit to use a lot zoned for single-family dwellings. The zoning administrator, if any, or if there is no zoning administrator, the person or persons designated by the planning agency to handle the use permits shall review and decide the applications. The use permit shall be granted if the large family day care home complies with local ordinances, if any, prescribing reasonable standards, restrictions, and requirements concerning spacing and concentration, traffic control, parking, and noise control relating to such homes, and complies with subdivision (d) and any regulations adopted by the State Fire Marshal pursuant to that subdivision.*

*Any noise standards shall be consistent with local noise ordinances implementing the noise element of the general plan and shall take into consideration the noise levels generated by children.*

*The local government shall process any required permit as economically as possible, and fees charged for review shall not exceed the costs of the review and permit process. Not less than 10 days prior to the date on which the decision will be made on the application, the zoning administrator or person designated to handle such use permits shall give notice of the proposed use by mail or delivery to all owners shown on the last equalized assessment roll as owning real property within a 100 foot radius of the exterior boundaries of the proposed large family day care home. No hearing on the application for a permit issued pursuant to this paragraph shall be held before a decision is made unless a hearing is requested by the applicant or other affected person. The applicant or other affected person may appeal the decision. The appellant shall pay the cost, if any of the appeal.*

*(b) A large family day care home shall not be subject to the provisions of Division 13 (commencing with Section 21000) of the Public Resources Code.*

*(c) Use of a single-family dwelling for the purposes of a large family day care home shall not constitute a change of occupancy for purposes of Part 1.5 (commencing with Section 17910) of Division 13 (State Housing Law), or for purposes of local building and fire codes.*

*(d) Large family day care homes shall be considered as single-family residences for the purposes of the State Uniform Building Standards Code and local building and fire codes, except with respect to any additional standards specifically designed to promote the fire and life safety of the children in these homes adopted by the State Fire Marshal pursuant to this subdivision.*

***R326.3 Smoke Alarms.*** *Large family day-care homes shall be equipped with State Fire Marshal approved and listed single station residential type smoke alarms. The number and placement of smoke alarms shall be determined by the enforcement authority.*

***R326.4 Fire Extinguishers.*** *Large and small family day-care homes shall be equipped with a portable fire extinguisher having a minimum 2A10BC rating.*

***R326.5 Fire Alarm Devices.*** *Every large family day-care home shall be provided with at least one manual device at a location approved by the authority having jurisdiction. Such device shall actuate a fire alarm signal, which shall be*

*audible throughout the facility at a minimum level of 15 db above ambient noise level. These devices need not be interconnected to any other fire alarm device, have a control panel or be electrically supervised or provided with emergency power. Such device or devices shall be attached to the structure and may be of any type acceptable to the enforcing agent, provided that such devices are distinctive in tone and are audible throughout the structure.*

***R326.6 Compliance.*** *Every large-family day care home shall comply with the provisions for Group R-3 occupancies and, if appropriate, Section 326.1. For the purposes of Section 326.1, the first story shall be designated as the floor used for residential occupancy nearest to the street level which provides primary access to the building.*

*Enforcement of the provisions shall be in accordance with the Health and Safety Code Sections 13145 and 13146. No city, county, city and county, or district shall adopt or enforce any building ordinance or local rule or regulation relating to the subject of fire and life safety in large-family day-care homes which is inconsistent with those standards adopted by the State Fire Marshal, except to the extent the building ordinance or local rule or regulation applies to single-family residences in which day care is not provided.*

***R326.7 Special Hazards****. Every unenclosed gas-fired water heater or furnace which is within the area used for child care in a large family day-care home shall be protected in such a way as to prevent children from making contact with those appliances.*

***Exception:*** *This does not apply to kitchen stoves or ovens.*

***R326.8 Exiting.*** *Every story or basement of a large family day-care home shall be provided with two exits which are remotely located from each other. Every required exit shall be of a size to permit the installation of a door not less than 32 inches (813mm) in clear width and not less than 6 feet 8 inches (2032 mm) in height. A manually operated horizontal sliding door may be used as one of the two required exits.*

*Where basements are used for day-care purposes, one of the two required exits shall provide access directly to the exterior without entering the first story. The second exit from the basement may either pass through the story above or exit directly to the exterior.*

*Rooms used for day-care purposes shall not be located above the first story.*

***Exception:*** *Buildings equipped with an automatic sprinkler system throughout and which have at least one of the required exits providing access directly to the exterior. NFPA 13R may be used in large family day-care homes. The sprinkler omissions of NFPA 13R shall not apply unless approved by the enforcing agency.*

*Exit doors, including manually operated horizontal sliding doors, shall be openable from the inside without use of a key or any special knowledge or effort.*

## *SECTION R327*
## *MATERIALS AND CONSTRUCTION METHODS FOR EXTERIOR WILDFIRE EXPOSURE*

## *SECTION R327.1*
## *SCOPE, PURPOSE, AND APPLICATION*

***R327.1.1 Scope.*** *This chapter applies to building materials, systems and or assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area as defined in Section R327.2A.*

***R327.1.2 Purpose.*** *The purpose of this Chapter is to establish minimum standards for the protection of life and property by increasing the ability of a building located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area to resist the intrusion of flame or burning embers projected by a vegetation fire and contributes to a systematic reduction in conflagration losses.*

***R327.1.3. Application.*** *New buildings located in any Fire Hazard Severity Zone or any Wildland-Urban Interface Fire Area designated by the enforcing agency constructed after the application date shall comply with the provisions of this chapter.*

***Exceptions****:*

1. *Buildings of an accessory character classified as a Group U occupancy and not exceeding 120 square feet in floor area, when located at least 30 feet from an applicable building.*

*2. Buildings of an accessory character classified as Group U occupancy of any size located least 50 feet from an applicable building.*
*3. Buildings classified as a Group U Agricultural Building, as defined in Section 202 of this code (see also Appendix C – Group U Agricultural Buildings), when located at least 50 feet from an applicable building.*
*4. Additions to and remodels of buildings originally constructed prior to the applicable application date.*

***R327.1.3.1 Application date and where required.*** *New buildings for which an application for a building permit is submitted on or after July 1, 2008 located in any Fire Hazard Severity Zone or Wildland Interface Fire Area shall comply with all sections of this chapter, including all of the following areas:*

*1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as State Responsibility Area (SRA) including:*

*1.1. Moderate Fire Hazard Severity Zones*
*1.2. High Fire Hazard Severity Zones*
*1.3. Very-High Fire Hazard Severity Zones*

*2. Land designated as Very-High Fire Hazard Severity Zone by cities and other local agencies.*
*3. Land designated as Wildland Interface Fire Area by cities and other local agencies.*

***Exceptions****:*
*1. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas, for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter.*
*2. New buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland Interface Fire Area designated by cities and other local agencies for which an application for a building permit is submitted on or after December 1, 2005 but prior to July 1, 2008, shall only comply with the following sections of this chapter:*

*2.1. Section R327.5 – Roofing*
*2.2. Section R327.6 – Vents*

***R327.1.4 Inspection and certification****. Building permit applications and final completion approvals for buildings within the scope and application of this chapter shall comply with the following:*

*1. Building permit issuance The local building official shall, prior to construction, provide the owner or applicant a certification that the building as proposed to be built complies with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this Chapter. Issuance of a building permit by the local building official for the proposed building shall be considered as complying with this section.*
*2. Building permit final. The local building official shall, upon completion of construction, provide the owner or applicant with a copy of the final inspection report that demonstrates the building was constructed in compliance with all applicable state and local building standards, including those for materials and construction methods for wildfire exposure as described in this Chapter. Issuance of a certificate of occupancy by the local building official for the proposed building shall be considered as complying with this section.*

***R327.1.5 Vegetation management compliance.*** *Prior to building permit final approval, the property shall be in compliance with the vegetation management requirements prescribed in California Fire Code section 4906, including California Public Resources Code 4291 or California Government Code Section 51182. Acceptable methods of compliance inspection and documentation shall be determined by the enforcing agency and may include any of the following:*

*1. Local, state, or federal fire authority or designee authorized to enforce vegetation management requirements.*
*2. Enforcing agency.*
*3. Third party inspection and certification authorized to enforce vegetation management requirements.*
*4. Property owner certification authorized by the enforcing agency.*

## *SECTION R327.2*
## *DEFINITIONS*

*For the purposes of this chapter, certain terms are defined below:*

***CDF DIRECTOR*** *means the Director of the California Department of Forestry and Fire Protection.*

***EXTERIOR COVERING****. The exposed siding or cladding material applied to the exterior side of an exterior wall, roof eave soffit, floor projection, or exposed underfloor framing.*

***FIRE PROTECTION PLAN*** *is a document prepared for a specific project or development proposed for a Wildland-Urban Interface Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure.*
*The Fire Protection Plan shall be in accordance with this chapter and the California Fire Code, Chapter 49. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted. Only locally adopted ordinances that have been filed with the California Building Standards Commission or the Department of Housing and Community Development in accordance with Section 1.1.8 shall apply.*

***FIRE HAZARD SEVERITY ZONES*** *are geographical areas designated pursuant to California Public Resources Codes Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas or as Local Agency Very High Fire Hazard Severity Zones designated pursuant to California Government Code Sections 51175 through 51189. See California Fire Code Article 86.*

*The California Code of Regulations, Title 14, Section 1280 entitles the maps of these geographical areas as "Maps of the Fire Hazard Severity Zones in the State Responsibility Area of California."*

***HEAVY TIMBER.*** *A type of construction classification specified in Section 602. For use in this Chapter, Heavy Timber shall be sawn lumber or glue laminated wood with the smallest minimum nominal dimension of 4 inches (102 mm). Heavy Timber walls or floors shall be sawn or glue-laminated planks splined, tongue-and-grove, or set close together and well spiked.*

***IGNITION-RESISTANT MATERIAL*** *A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland-urban interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed in Section 703A and SFM Standard 12-7A-5, Ignition-Resistant Material.*

***LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE*** *means an area designated by a local agency upon the recommendation of the CDF Director pursuant to Government Code Sections 51177(c), 51178 and 5118 that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection.*

***LOG WALL CONSTRUCTION.*** *A type of construction in which exterior walls are constructed of solid wood members and where the smallest horizontal dimension of each solid wood member is at least 6 inches (152 mm).*

***RAFTER TAIL.*** *The portion of roof rafter framing in a sloping roof assembly that projects beyond and overhangs an exterior wall.*

***ROOF EAVE.*** *The lower portion of a sloping roof assembly that projects beyond and overhangs an exterior wall at the lower end of the rafter tails. Roof eaves may be either "open" or "enclosed." Open Roof Eaves have exposed rafter tails and an unenclosed space on the underside of the roof deck. Enclosed Roof Eaves have a boxed-in Roof Eave Soffit with a horizontal underside or sloping rafter tails with an exterior covering applied to the underside of the rafter tails.*

***ROOF EAVE SOFFIT****. An enclosed boxed-in soffit under a roof eave with exterior covering material applied to the soffit framing creating a horizontal surface on the exposed underside..*

***STATE RESPONSIBILITY AREA*** *means lands that are classified by the Board of Forestry pursuant to Public Resources Code Section 4125 where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.*

***WILDFIRE*** *is any uncontrolled fire spreading through vegetative fuels that threatens to destroy life, property, or resources as defined in Public Resources Code Sections 4103 and 4104.*

***WILDFIRE EXPOSURE i****s one or a combination of radiant heat, convective heat, direct flame contact and burning embers being projected by vegetation fire to a structure and its immediate environment.*

***WILDLAND-URBAN INTERFACE FIRE AREA*** *is a geographical area identified by the state as a "Fire Hazard Severity Zone" in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires.*

***SECTION R327.3***
***STANDARDS OF QUALITY***

***R327.3.1 General.*** *Building material, systems, assemblies and methods of construction used in this Chapter shall be in accordance with Section R327.3.*

***R327.3.2 Qualification by testing.*** *Material and material assemblies tested in accordance with the requirements of Section 703A shall be accepted for use when the results and conditions of those tests are met. Product evaluation testing of material and material assemblies shall be approved or listed by the State Fire Marshal, or identified in a current report issued by an approved agency.*

***R327.3.3 Approved agency.*** *Product evaluation testing shall be performed by an approved agency as defined in Section 1702. The scope of accreditation for the approved agency shall include building product compliance with code.*

***R327.3.4 Labeling.*** *Material and material assemblies tested in accordance with the requirements of section R327.3 shall bear an identification label showing the fire test results. That identification label shall be issued by a testing and/or inspecting agency approved by the State Fire Marshal.*

1. *Identification mark of the approved testing and/or inspecting agency.*
2. *Contact and identification information of the manufacturer.*
3. *Model number or identification of the product or material.*
4. *Pre-test weathering specified in this chapter.*
5. *Compliance standard as described under Section R327.3.7.*

***R327.3.5 Weathering and surface treatment protection.***

***R327.3.5.1 General.*** *Material and material assemblies tested in accordance with the requirements of Section 703A shall maintain their fire test performance under conditions of use when installed in accordance with the manufacturers instructions.*

***R327.3.5.2 Weathering.*** *Fire-retardant-treated wood and Fire-retardant-treated wood shingles and shakes shall meet the fire test performance requirements of this Chapter after being subjected to the weathering conditions contained in the following standards, as applicable to the materials and the conditions of use.*

***R327.3.5.2.1 Fire-retardant-treated wood.*** *Fire-retardant-treated wood shall be tested in accordance with ASTM D 2898, "Standard Practice for Accelerated Weathering of Fire-Retardant Treated Wood for Fire Testing (Method A)" and the requirements of section 2303.2.*

***R327.3.5.2.2 Fire-retardant-treated wood shingles and shakes.*** *Fire-retardant-treated wood shingles and shakes shall be approved and listed by the State Fire Marshal in accordance with Section 208(c), Title 19 California Code of Regulations.*

***R327.3.5.3 Surface treatment protection.*** *The use of paints, coatings, stains, or other surface treatments are not an approved method of protection as required in this section.*

***R327.3.6 Alternates for materials, design, tests, and methods of construction.*** *The enforcing agency is permitted to modify the provisions of this chapter for site-specific conditions in accordance with Section 1.11.2.4. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted in accordance with the California Fire Code, Chapter 49.*

***R327.3.7 Standards of quality.*** *The State Fire Marshal standards for exterior wildfire exposure protection listed below and as referenced in this chapter are located in the California Referenced Standards Code, Part 12 and Chapter 35 of this code.*

***SFM Standard 12-7A-1,*** *Exterior Wall Siding and Sheathing. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 10 minutes duration.*

***SFM Standard 12-7A-2,*** *Exterior Windows. A fire resistance test standard consisting of a 150 kW intensity direct flame exposure for a 8 minutes duration.*

***SFM Standard 12-7A-3,*** *. Horizontal Projection Underside A fire resistance test standard consisting of a 300 kW intensity direct flame exposure for a 10 minute duration.*

***SFM Standard 12-7A- 4****, Decking. A two-part test consisting of a heat release rate (Part A) deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3 minute duration, and a (Part B) sustained deck assembly combustion test consisting of a deck upper surface burning ember exposure with a 12 mph wind for 40 minutes using a 2.2 lb (1 kg) burning "Class A" size 12" x 12" x 2.25" (300 mm x 300 mm x 57 mm) roof test brand.*

***SFM Standard 12-7A-4A,*** *Decking Alternate Method A. A heat release rate deck assembly combustion test with an under deck exposure of 80 kW intensity direct flame for a 3 minute duration,*

***SFM Standard 12-7A-5,*** *Ignition-resistant Material. A generic building material surface burning flame spread test standard consisting of an extended 30 minute ASTM E84 or UL 723 test method as is used for Fire-Retardant-Treated wood.*

## *SECTION R327.4*
## *IGNITION RESISTANT CONSTRUCTION*

***R327.4.1 General.*** *The materials prescribed herein for ignition resistance shall conform to the requirements of this chapter.*

***R327.4.2 Ignition-Resistant Material.*** *Ignition-resistant material shall be determined in accordance with the test procedures set forth in SFM Standard 12-7A-5 "Ignition-Resistant Material" or in accordance with this section.*

***R327.4.3 Alternative methods for determining Ignition-resistant material.*** *Any one of the following shall be accepted as meeting the definition of ignition-resistant material:*

1. *Noncombustible material. Material that complies with the definition for noncombustible materials in Section 202*
2. *Fire-retardant-treated wood. Fire-retardant-treated wood identified for exterior use that complies with the requirements of Section 2303.2 of the California Building Code.*
3. *Fire-retardant-treated wood shingles and shakes. Fire-retardant-treated wood shingles and shakes, as defined in Section 1505.6 of the California Building Code and listed by State Fire Marshal for use as "Class B" roof covering, shall be accepted as an Ignition-resistant wall covering material when installed over solid sheathing.*

## *SECTION R327.5*
## *ROOFING*

***R327.5.1 General.*** *Roofs shall comply with the requirements of Section R327 and Section R902. Roofs shall have a roofing assembly installed in accordance with its listing and the manufacturer's installation instructions.*

***R327.5.2 Roof coverings.*** *Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers, be firestopped with approved materials or have one layer of minimum 72 pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D 3909 installed over the combustible decking.*

***R327.5.3 Roof valleys.*** *Where valley flashing is installed, the flashing shall be not less than 0.019-inch (0.48 mm) No. 26 gage galvanized sheet corrosion-resistant metal installed over not less than one layer of minimum 72-pound (32.4 kg) mineral-surfaced nonperforated cap sheet complying with ASTM D 3909, at least 36-inch-wide (914 mm) running the full length of the valley.*

***R327.5.4 Roof Gutters.*** *Roof gutters shall be provided with the means to prevent the accumulation of leaves and debris in the gutter.*

## *SECTION R327.6*
## *VENTS*

***R327.6.1 General.*** *Where provided, ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation shall be in accordance with Section 1203 of the California Building Code and Sections R327.6.1 through R327.6.3 of this Section to resist building ignition from the intrusion of burning embers and flame through the ventilation openings.*

***R327.6.2 Requirements.*** *Ventilation openings for enclosed attics, enclosed eave soffit spaces, enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters, and underfloor ventilation openings shall be fully covered with metal wire mesh, vents, other materials, or other devices that meet the following requirements:*

1. *The dimensions of the openings therein shall be a minimum of 1/16$^{th}$ inch (1.6 mm) and shall not exceed 1/8$^{th}$ inch (3.2 mm).*
2. *The materials used shall be noncombustible.*

   ***Exception:*** *Vents located under the roof covering, along the ridge of roofs, with the exposed surface of the vent covered by noncombustible wire mesh, may be of combustible materials.*

3. *The materials used shall be corrosion resistant.*

***R327.6.3 Ventilation openings on the Underside of Eaves and Cornices****: Vents shall not be installed on the underside of eaves and cornices.*

***Exceptions****:*

1. *The enforcing agency may accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers.*
2. *Vents complying with the requirements of Section R327.6.2 may be installed on the underside of eaves and cornices in accordance with either one of the following conditions:*
   - *2.1. The attic space being ventilated is fully protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 of the California Building Code or,*
   - *2.2. The exterior wall covering and exposed underside of the eave are of noncombustible material, or ignition-resistant-materials as determined in accordance with SFM Standard 12-7A-5 Ignition-Resistant Material and the vent is located more than 12 feet from the ground or walking surface of a deck, porch, patio, or similar surface.*

***SECTION R327.7***
***EXTERIOR COVERING***

***R327.7.1 Scope.*** *The provisions of this section shall govern the materials and construction methods used to resist building ignition and/or safeguard against the intrusion of flames resulting from small ember and short-term direct flame contact exposure.*

***R327.7.2 General.*** *The following exterior covering materials and/or assemblies shall comply with this section:*

1. *Exterior wall covering material.*
2. *Exterior wall assembly.*
3. *Exterior exposed underside of roof eave overhangs,*
4. *Exterior exposed underside of roof eave soffits.*
5. *Exposed underside of exterior porch ceilings.*
6. *Exterior exposed underside of floor projections.*
7. *Exterior underfloor areas.*

***Exceptions:***

1. *Exterior wall architectural trim, embellishments, fascias, and gutters.*
2. *Roof or wall top cornice projections and similar assemblies.*
3. *Roof assembly projections over gable end walls..*
4. *Solid wood rafter tails and solid wood blocking installed between rafters having minimum dimension 2 inch (50.8 mm) nominal.*
5. *Deck walking surfaces shall comply with Section R327.9 only.*

***R327.7.3. Exterior Walls.*** *The exterior wall covering or wall assembly shall comply with one of the following requirements:*

1. *Non-combustible material.*
2. *Ignition-resistant material.*
3. *Heavy timber exterior wall assembly.*

*4. Log wall construction assembly.*
*5. Wall assemblies that meet the performance criteria in accordance with the test procedures for a 10-minute direct flame contact exposure test set forth in SFM Standard 12-7A-1.*

***Exception**: Any of the following shall be deemed to meet the assembly performance criteria and intent of this section:*
*1. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering or cladding on the exterior side of the framing.*
*2. The exterior portion of a 1-hour fire resistive exterior wall assembly designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*

***R327.7.3.1 Extent of exterior wall covering.** Exterior wall coverings shall extend from the top of the foundation to the roof, and terminate at 2 inch (50.8 mm) nominal solid wood blocking between rafters at all roof overhangs, or in the case of enclosed eaves, terminate at the enclosure.*

***R327.7.4 Open roof eaves.** The exposed roof deck on the underside of unenclosed roof eaves shall consist of one of the following:*
*1. Non-combustible material.*
*2. Ignition-resistant material.*
*3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside exterior of the roof deck.*
*4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the roof deck designed for exterior fire exposure including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*

***Exceptions**: The following materials do not require protection:*
*1. Solid wood rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm).*
*2. Solid wood blocking installed between rafter tails on the exposed underside of open roof eaves having a minimum nominal dimension of 2 inch (50.8 mm).*
*3. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails.*
*4. Fascia and other architectural trim boards.*

***R327.7.5 Enclosed roof eaves and roof eave soffits.** The exposed underside of enclosed roof eaves having either a boxed-in roof eave soffit with a horizontal underside, or sloping rafter tails with an exterior covering applied to the underside of the rafter tails, shall be protected by one of the following:*

*1. Non-combustible material.*
*2. Ignition-resistant material.*
*3. One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the rafter tails or soffit..*
*4. The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the rafter tails or soffit including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*
*3. Boxed-in roof eave soffit assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.*

***Exceptions**: The following materials do not require protection:*
*1. Gable end overhangs and roof assembly projections beyond an exterior wall other than at the lower end of the rafter tails.*
*2. Fascia and other architectural trim boards.*

***R327.7.6 Exterior porch ceilings.** The exposed underside of exterior porch ceilings shall be protected by one of the following:*
*1. Non-combustible material.*
*2. Ignition-resistant material.*
*3. One layer of 5/8-inch Type X gypsum sheathing applied behind the exterior covering on the underside of the ceiling.*

4. *The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the ceiling assembly including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*
5. *Porch ceiling assemblies with a horizontal underside that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.*

***Exception**: Architectural trim boards.*

***R327.7.7 Floor Projections.** The exposed underside of a cantilevered floor projection where a floor assembly extends over an exterior wall shall be protected by one of the following:*

1. *Non-combustible material.*
2. *Ignition-resistant material.*
3. *One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection.*
4. *The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor projection including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*
5. *The underside of a floor projection assembly that meet the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.*

***Exception**: Architectural trim boards.*

***R327.7.8. Underfloor Protection.** The underfloor area of elevated or overhanging buildings shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:*

1. *Non-combustible material.*
2. *Ignition-resistant material.*
3. *One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection.*
4. *The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*
5. *The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.*

***Exception**: Heavy timber structural columns and beams do not require protection.*

***R327.7.8 Underside of Appendages**. When required by the enforcing agency the underside of overhanging appendages shall be enclosed to grade in accordance with the requirements of this chapter or the underside of the exposed underfloor shall consist of one of the following:*

1. *Non-combustible material.*
2. *Ignition-resistant material.*
3. *One layer of 5/8-inch Type X gypsum sheathing applied behind an exterior covering on the underside of the floor projection.*
4. *The exterior portion of a 1-hour fire resistive exterior wall assembly applied to the underside of the floor including assemblies using the gypsum panel and sheathing products listed in the Gypsum Association Fire Resistance Design Manual.*
5. *The underside of a floor assembly that meets the performance criteria in accordance with the test procedures set forth in SFM Standard 12-7A-3.*

***Exception**: Heavy timber structural columns and beams do not require protection*

## *SECTION R327.8*
## *EXTERIOR WINDOWS AND DOORS*

***R327.8.1 General***

***R327.8.2 Exterior glazing.** The following exterior glazing materials and/or assemblies shall comply with this section:*

*1. Exterior windows.*
*2. Exterior glazed doors.*
*3. Glazed openings within exterior doors.*
*4. Glazed openings within exterior garage doors.*
*5. Exterior structural glass veneer.*

***R327.8.2.1 Exterior windows and exterior glazed door assembly requirements**. Exterior windows and exterior glazed door assemblies shall comply with one of the following requirements:*

*1. Be constructed of multi-pane glazing with a minimum of one tempered pane meeting the requirements of Section 2406 Safety Glazing, or*
*2. Be constructed of glass block units, or*
*3. Have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 257, or*
*5. Be tested to meet the performance requirements of SFM Standard 12-7A-2.*

***R327.8.2.2 Structural glass veneer.** The wall assembly behind structural glass veneer shall comply with section R327.7.3.*

***R327.8.3 Exterior doors.** Exterior doors shall comply with one of the following:*

*1. The exterior surface or cladding shall be of noncombustible or Ignition-resistant material, or*
*2. Shall be constructed of solid core wood that comply with the following requirements:*

*2.1. Stiles and rails shall not be less than 1 3/8 inches thick*
*2.2. Raised panels shall not be less than 1 1/4 inches thick, except for the exterior perimeter of the raised panel that may taper to a tongue not less than 3/8 inch thick.*

*3. Shall have a fire-resistance rating of not less than 20 minutes when tested according to NFPA 252.*
*4. Shall be tested to meet the performance requirements of SFM Standard 12-7A-1.*

***R327.8.3.1 Exterior door glazing**. Glazing in exterior doors shall comply with Section 708A.2.1.*

## *SECTION R327.9*
## *DECKING*

***R327.9.1 General** The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section.*

***R327.9.2 Where required.** The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this section when any portion of such surface is within 10 feet (3048 mm) of the building.*

***R327.9.3 Decking Surfaces.** The walking surface material of decks, porches, balconies and stairs shall be constructed with one of the following materials:*

*1. Ignition-resistant material that complies with the performance requirements of both SFM Standard 12-7A-4 and SFM Standard 12-7A-5.*
*2. Exterior fire retardant treated wood*
*3. Noncombustible material.*
*4. Any material that complies with the performance requirements of SFM Standard 12-7A-4A when attached exterior wall covering is also either noncombustible or ignition-resistant material.*

***Exception:** Wall material may be of any material that otherwise complies with this chapter when the decking surface material complies with the performance requirements ASTM E-84 with a Class B flame spread rating.*

## *SECTION R327.10*
## *ACCESSORY STRUCTURES*

***R327.10.1 General.** Accessory and miscellaneous structures, other than buildings covered by Section 701A.3, which pose a significant exterior exposure hazard to applicable buildings during wildfires shall be constructed to conform to the ignition resistance requirements of this section.*

***R327.10.2 Applicability.*** *The provisions of this section shall apply to trellises, arbors, patio covers, carports, gazebos, and similar structures of an accessory or miscellaneous character.*

***Exceptions.***
1. *Decks shall comply with the requirements of Section 709A.*
2. *Awnings and canopies shall comply with the requirements of Section 3105.*

***R327.10.3 Where Required.*** *Accessory structures shall comply with the requirements of this section.*

***R327.10.3.1*** *Attached accessory structures shall comply with the requirements of this section.*

***R327.10.3.2*** *When required by the enforcing agency, detached accessory structures within 50 feet of an applicable building shall comply with the requirements of this section.*

***R327.10.4. Requirements.*** *When required by the enforcing agency accessory structures shall be constructed of noncombustible or ignition-resistant materials.*

## *SECTION 328*
## *ELECTRIC VEHICLE*

***R328.1 Electric vehicle.*** *An automotive-type vehicle for highway use, such as passenger automobiles, buses, trucks, vans and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array or other source of electric current. For the purpose of this chapter, electric motorcycles and similar type vehicles and off-road self-propelled electric vehicles such as industrial trucks, hoists, lifts, transports, golf carts, airline ground support equipment, tractors, boats and the like, are not included*

***R328.2 Charging.*** *In any building or interior area used for charging electric vehicles, electrical equipment shall be installed in accordance with the California Electrical Code.*

***R328.3 Ventilation.*** *Mechanical exhaust ventilation, when required by the California Electrical Code shall be provided at a rate as required by Article 625 or as required by Section 1203 of the California Building Code whichever is greater. The ventilation system shall include both the supply and exhaust equipment and shall be permanently installed and located to intake supply air from the outdoors, and vent the exhaust directly to, the outdoors without conducting the exhaust air through other spaces within the building.*

***Exception:*** *Positive pressure ventilation systems shall only be allowed in buildings or areas that have been designed and approved for that application.*

***R328.4 Electrical interface.*** *The electrical supply circuit to electrically powered mechanical ventilation equipment shall be interlocked with the recharging equipment used to supply the vehicle(s) being charged, and shall remain energized during the entire charging cycle. Electric vehicle recharging equipment shall be marked or labeled in accordance with the California Electrical Code.*

***Exceptions:***
1. *Exhaust ventilation shall not be required in areas with an approved engineered ventilation system, which maintains a hydrogen gas concentration at less than 25 percent of the lower flammability limit.*
2. *Mechanical exhaust ventilation for hydrogen shall not be required where the charging equipment utilized is installed and listed for indoor charging of electric vehicles without ventilation.*

## CHAPTER 9
## ROOF ASSEMBLIES

**R902.1 Roofing covering materials.** Roofs shall be covered with materials as set forth in Sections R904 and R905. *A minimum Class A, B or C roofing shall be installed in areas designated by this section.* Classes A, B and C roofing required by this section to be listed shall be tested in accordance with UL 790 or ASTM E 108.

**Exceptions:**
1. Class A roof assemblies include those with coverings of brick, masonry and exposed concrete roof deck.

2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible decks.
3. Class A roof assemblies include minimum 16 oz/ft2 copper sheets installed over combustible decks.

***R902.1.1 Roof coverings within Very-High Fire Hazard Severity Zones.*** *The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class A.*

***Exception:*** *The requirements shall not apply in any jurisdiction that adopts the model ordinance approved by the State Fire Marshal pursuant to Section 51189 of the Government Code or an ordinance that substantially conforms to the model ordinance and transmits a copy to the State Fire Marshal.*

***R902.1.2 Roof coverings within State Responsibility Areas.*** *The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class B.*

***Exception:*** *Areas designated as moderate fire hazard severity zones.*

***R902.1.3 Roof coverings in all other areas.*** *The entire roof covering of every existing structure where more than 50 percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any roof covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class C.*

***R902.1.4 Roofing requirements a Wildland-Urban Interface Fire Area.*** *Roofing requirements for structures located in a Wildland-Urban Interface Fire Area shall also comply with Section R327.5.*

**R902.2 Fire-retardant-treated shingles and shakes.** Fire-retardant-treated wood shakes and shingles *are wood shakes and shingles complying with UBC Standard 15-3 or 15-4 which are impregnated by the full-cell vacuum-pressure process with fire-retardant chemicals, and which have been qualified by UBC Standard 15-2 for use on Class A, B or C roofs. Fire-retardant-treated wood shakes and shingles shall comply with ICC-ES EG107 and with the weathering requirements contained in Health and Safety Code Section 13132.7 (j). Each bundle shall bear labels from an ICBO accredited quality control agency identifying their roof-covering classification and indicating their compliance with ICC-ES EG107 and with the weathering requirements contained in Health and Safety Code Section 13132.7 (j).*

*Health and Safety Code Section 13132.7 (j) No wood roof covering materials shall be sold or applied in this state unless both of the following conditions are met:*

*(1) The materials have been approved and listed by the State Fire Marshal as complying with the requirements of this section.*
*(2) The materials have passed at least five years of the 10-year natural weathering test. The 10-year natural weathering test required by this subdivision shall be conducted in accordance with Standard 15-2 of the 1994 edition of the Uniform Building Code at a testing facility recognized by the State Fire Marshal.*

## CHAPTER 10
## CHIMNEYS AND FIREPLACES

**R1003.9.2 Spark arrestors.** *All chimneys attached to any appliance or fireplace that burns solid fuel shall be equipped with an approved spark arrester.* The spark arrestor shall meet all of the following requirements:

1. The net free area of the arrestor shall not be less than four times the net free area of the outlet of the chimney flue it serves.
2. The arrestor screen shall have heat and corrosion resistance equivalent to *12 gage wire*, 19-gage galvanized steel or 24-gage stainless steel.
3. Openings shall not permit the passage of spheres having a diameter greater than 1/2 inch (13 mm) nor block the passage of spheres having a diameter less than 3/8 inch (10 mm).
4. The spark arrestor shall be accessible for cleaning and the screen or chimney cap shall be removable to allow for cleaning of the chimney flue.

## CHAPTER 44
## REFERENCED STANDARDS

# ANSI

American National Standards Institute
25 West 43rd Street, Fourth Floor
New York, NY 10036

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| *S3.41* | *American National Standard Audible Evacuation Signal*……..……..*R325.5.2.1* | |

# ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| D 2898—04 | Test Methods for Accelerated Weathering of Fire-retardant-treated Wood for Fire Testing……..……R802.1.3.4, R802.1.3.6*, R327.4* | |
| D 3201—07 | Test Method for Hygroscopic Properties of Fire-retardant Wood and Wood-base Products ……..……R802.1.3.7*, R327.4* | |
| D 3909—97b(2004)e01 | Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules……..R905.2.8.2, R905.5.4, Table R905.9.2*, R327.6.1.2, R327.6.1.3* | |
| E 84—07 | Test Method for Surface Burning Characteristics of Building Materials ……..…… R202, R302.9.3, R302.9.4, R302.10.1, R302.10.2, R316.3, R316.5.9, R316.5.11, *R327.9.3.4,* R802.1.3 | |

# ICC

International Code Council, Inc.
500 New Jersey Avenue, NW 6th Floor
Washington, DC 20001

| Standard reference number | Title | Referenced in code section number |
|---|---|---|
| *ICC-ES EG107* | *Evaluation guideline for determination of Volatile Organic Compound (voc) content…..……R902* | |
| *UBC Standard 15-2* | *Test Standard for determining the Fire Retardancy of Roof-covering Materials……..…R902* | |
| *UBC Standard 15-3* | *Wood Shakes……..……..……..…..… R902* | |
| *UBC Standard 15-4* | *Wood Shingles……..…… R902* | |

# NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169

| Standard reference | | Referenced in code |
|---|---|---|

Installation of Sprinkler Systems *as amended**. . . . . R302.3

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*See CCR, Title 24 Part 2 California Building Code, Chapter 35 or CCR, Title 24, Part 9 California Fire Code, Chapter 47 for amendments to NFPA 13.*

Standard for the Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes *as amended**…….. *R313.1.1,* R313.2.1, *R313.3.1, R313.3.2, R313.3.2.3.1, R313.3.2.4.2, R313.3.6.1*

***NFPA 13D, Amended Sections as follows:***

***Add a new definition as 3.3.9.1.1 and related annex note to read as follows:***

**3.3.9.1.1* Premixed Antifreeze Solution.** A mixture of an antifreeze material with water that is prepared and factory-mixed by the manufacturer with a quality control procedure in place that ensures that the antifreeze solution remains homogeneous.

**A.3.3.9.1.1** Where a tank is used as the water supply for the sprinkler system, the tank is not permitted to be filled with antifreeze.

***Revise 4.1.4 and related annex note to read as follows:***

**4.1.4* Antifreeze Systems.**

**A.4.1.4** Sampling from the top and bottom of the system helps to determine if the solution has settled. Antifreeze solutions are heavier than water. If the antifreeze compound is separating from the water due to poor mixing, it will exhibit a higher concentration in the lower portion of the system than in the upper portions of the system. If the concentration is acceptable near the top, but too low near the water connection, it may mean that the system is becoming diluted near the water supply. If the concentration is either too high or too low in both the samples, it may mean that the wrong concentration was added to the system.

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On an annual basis, test samples should be drawn from test valve B as shown in Figure 8.3.3.2.1(1), especially if the water portion of the system has been drained for maintenance or repairs. A small hydrometer can be used so that a small sample is sufficient. Where water appears at valve B, or where the sample indicates that the solution has become weakened, the entire system should be emptied and refilled with acceptable solution as previously described.

Where systems are drained in order to be refilled, it is not typically necessary to drain drops that are less than 36 inches in length. Most systems with drops have insufficient volume to cause a problem, even if slightly higher concentration solutions collect in the drops. For long drops with significant volume, consideration should be given to draining drops if there is evidence that unacceptably high concentrations of antifreeze have collected in these long drops.

When emptying and refilling antifreeze solutions, every attempt should be made to recycle the old solution with the antifreeze manufacturer rather than discarding it.

**4.1.4.1 Annual Antifreeze Solution Test and Replacement Procedure.**

**4.1.4.1.1** Samples of antifreeze solution should be collected by qualified individuals in accordance with 4.1.4.1.1.1 or 4.1.4.1.1.2 on an annual basis.

**4.1.4.1.1.1** The system shall be drained to verify that (a) the solution is in compliance with 8.3.3, and (b) the solution provides the necessary freeze protection. Solution samples shall be taken near the beginning and near the end of the draining process.

**4.1.4.1.1.2*** Solution samples shall be taken at the highest practical elevation and the lowest practical elevation of the system.

**A.4.1.4.1.1.2** If not already present, test connections (valves) for collection of solution samples should be installed at the highest and lowest practical locations of the system or portion of the system containing antifreeze solution.

**4.1.4.1.2** The two samples collected in accordance with the procedures specified in 4.1.4.1.1.1 or 4.1.4.1.1.2 shall be tested to verify that the specific gravity of both samples is similar and that the solution is in compliance with 8.3.3. The specific gravity of each solution shall be checked using a hydrometer with a suitable scale or a refractometer having a scale calibrated for the

antifreeze solution.

**4.1.4.1.3*** If concentrations of the two samples collected in accordance with the procedures above are similar and in compliance with 8.3.3, then (a) the solution drained in accordance with 4.1.4.1.1.1 can be used to refill the system, or (b) the existing undrained solution tested in accordance with 4.1.4.1.1.2 shall be permitted to continue to be used. If the two samples are not similar and not in compliance with 8.3.3, then a solution in compliance with 8.3.3 shall be used to refill the system.

**A.4.1.4.1.3** In the past, for some existing systems subject to extremely low temperatures, antifreeze solutions with concentrations greater than what is now permitted by NFPA 13D were used. Such high concentrations of antifreeze are no longer permitted. In situations where extremely low temperatures are anticipated, refilling the fire sprinkler system with a concentration of antifreeze solution currently permitted by the standard might not provide sufficient freeze protection without additional measures. Such measures might include converting the antifreeze system to another type of sprinkler system.

**4.1.4.1.4** A tag shall be attached to the riser indicating the date the antifreeze solution was tested. The tag shall also indicate the type and concentration of antifreeze solution (by volume) with which the system is filled, the date the antifreeze was replaced (if applicable), the name of the contractor that tested and/or replaced the antifreeze solution, the contractor's license number, a statement indicating if the entire system was drained and replaced with antifreeze, and a warning to test the concentration of the antifreeze solutions at yearly intervals per NFPA 13D.

**6.2* Water Supply Sources.** *When the requirements of 6.2.2 are met, t*he following water supply sources shall be considered to be acceptable by this standard:
(1) A connection to a reliable waterworks system with or without an automatically operated pump
(2) An elevated tank
(3) A pressure tank designed to American Society of Mechanical Engineers (ASME) standards for a pressure vessel with a reliable pressure source
(4) A stored water source with an automatically operated pump
(5) A well with a pump of sufficient capacity and pressure to meet the sprinkler system demand. The stored water requirement of 6.1.2 or 6.1.3 shall be permitted to be a combination of the water in the well (including the refill rate) plus the water in the holding tank if such tank can supply the sprinkler system.

**6.2.2** Where a *well,* pump*,* tank *or combination thereof* is the source of supply for a fire sprinkler system, *the water supply shall serve both domestic and fire sprinkler systems, and* the following shall be met:
(1) A test connection shall be provided downstream of the pump that creates a flow of water equal to the smallest sprinkler on the system. The connection shall return water to the tank.
*(2)* Any disconnecting means for the pump shall be approved.
*(3)* A method for refilling the tank shall be piped to the tank.
*(4)* A method of seeing the water level in the tank shall be provided without having to open the tank.
*(5)* The pump shall not be permitted to sit directly on the floor.

***6.2.2.1*** *Where a fire sprinkler system is supplied by a stored water source with an automatically operated means of pressurizing the system other than an electric pump, the water supply may serve the sprinkler system only.*

***6.2.4*** *Where a water supply serves both domestic and fire sprinkler systems, 5 gpm (19 L/min) shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler.*

***Add an asterisk to 8.3.3 and add a new A.8.3.3 to read as follows:***

**8.3.3* Antifreeze Systems.**

**A.8.3.3** Where protection of pipes from freezing is a concern, options other than antifreeze are available. Such alternatives include running the piping in warm spaces, tenting insulation over pipe, dry-pipe systems, and preaction systems.

***Revise 8.3.3.2.1 to read as follows:***

**8.3.3.2.1*** Unless permitted by 8.3.3.2.1.1, antifreeze solutions shall be limited to premixed antifreeze solutions of glycerine (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 50% by volume, propylene glycol at a maximum concentration of 40% by volume, or other solutions listed specifically for use in fire protection systems.

***Add a new 8.3.3.2.1.1 to read as follows:***

**8.3.3.2.1.1.** For existing systems, antifreeze solutions shall be limited to premixed antifreeze solutions of glycerine (chemically pure or United States Pharmacopoeia 96.5%) at a maximum concentration of 50% by volume, propylene glycol at a maximum concentration of 40% by volume, or other solutions listed specifically for use in fire protection systems.

***Delete 8.3.3.2.2 and 8.3.3.2.3 and related Annex material A.8.3.3.2.3.***

*Move Table 8.3.3.2.3 to the annex and renumber as Table A.8.3.3.2.1 while deleting the rows in the table dealing with glycerine and 40% water, glycerine and 30% water, propylene glycol and 50% water and propylene glycol and 40% water. Add an annex note so that the annex and Table would appear as follows:*

**A.8.3.3.2.1** See Table A.8.3.3.2.1.

**Table A.8.3.3.2.1 Properties of Glycerine and Propylene Glycol**

| Material | Solution (by volume) | Specific Gravity at 60ºF (15.6ºC) | Freezing Point | |
|---|---|---|---|---|
| | | | ºF | ºC |
| Glycerine (C.P. or U.S.P. grade) | 50% water | 1.145 | -20.9 | -29.4 |
| Hydrometer scale 1.000 to 1.200 | | | | |
| Propylene glycol | 60% water | 1.034 | -6 | -21.1 |
| Hydrometer scale 1.000 to 1.200 (subdivisions 0.002) | | | | |

C.P.: Chemically Pure; U.S.P.: United States Pharmacopoeia 96.5%.

***Renumber 8.3.3.2.3.1 to 8.3.3.2.2.***

**8.3.3.2.2** The concentration of antifreeze solutions shall be limited to the minimum necessary for the anticipated minimum temperature.

***Delete 8.3.3.2.4, 8.3.3.2.5 and Table 8.3.3.2.5.***

***Renumber 8.3.3.2.6 as 8.3.3.2.3 and renumber A.8.3.3.2.6 as A.8.3.3.2.3. Also renumber Figure A.8.3.3.2.6 as Figure A.8.3.3.2.3.***

**8.3.3.2.3*** An antifreeze solution with a freezing point below the expected minimum temperature for the locality shall be installed.

**A.8.3.3.2.3** Beyond certain limits, an increased proportion of antifreeze does not lower the freezing point of the solution (*see Figure A.8.3.3.2.3*). Glycerine, diethylene glycol, ethylene glycol, and propylene glycol never should be used without mixing with water in the proper proportions, because these materials tend to thicken near 32°F (0°C).

***Renumber 8.3.3.2.7 as 8.3.3.2.4 and revise to read as follows:***

**8.3.3.2.4** The specific gravity of the antifreeze shall be checked by a hydrometer with a scale having 0.002 subdivisions in accordance with Figure 8.3.3.2.4(a) and 8.3.3.2.4(b).

***Renumber Figure 8.3.3.2.3(a) as Figure 8.3.3.2.4(a) and delete the 50% curve.***

***Renumber Figure 8.3.3.2.3(b) as Figure 8.3.3.2.4(b) and delete the 60% and 70% curves.***

**8.6.4*** Sprinklers shall not be required in *detached* garages, open attached porches, carports *with no habitable space above*, and similar structures.

*13R—10* *See CCR, Title 24 Part 2 California Building Code, Chapter 35 or CCR, Title 24, Part 9 California Fire Code, Chapter 47 for amendments to NFPA 13R.*

*72—10* National Fire Alarm Code *as amended**……..……R313.1, *R325.5.2.1, R235.5.2.4*

****NFPA 72, Amended Sections as follows:***

**10.3.1** Equipment constructed and installed in conformity with this Code shall be listed for the purpose for which it is used. *Fire*

*alarm Systems and components shall be California State Fire Marshal approved and listed in accordance with California Code of Regulations, Title 19, Division 1.*
**10.3.3** All devices and appliances that receive their power from the initiating device circuit or signaling line circuit of a control unit shall be *California State Fire Marshal* listed for use with the control unit.

**10.6.1** *Where approved by the authority having jurisdiction*, ECS priority signals when evaluated by stakeholders through risk analysis in accordance with 24.4.2.2 shall be permitted to take precedence over all other signals.

**14.4.7.1 Testing.** Household fire alarm systems shall be tested in *accordance with the manufacturer's published instructions* according to the methods of Table 14.4.2.2.

**17.15 Fire Extinguisher Monitoring Device.** A fire extinguisher monitoring device shall indicate those conditions for a specific fire extinguisher required by *California Code of Regulations, Title 19, Division 1, Chapter 1, Section 574.2 (c) and California Fire Code to a fire alarm control unit..*

**23.4.2.2** (4) Where the vertically run conductors are contained in a 2-hour rated cable assembly, or enclosed (installed) in a 2-hour rated enclosure or a listed circuit integrity (C.I.) cable, which meets or exceeds a 2-hour fire resistive rating.

**23.8.5.1.2** Where connected to a supervising station, fire alarm systems employing automatic fire detectors or waterflow detection devices shall include a manual fire alarm box to initiate a signal to the supervising station.

**Exception:** Fire alarm systems dedicated to elevator recall control, supervisory service *and fire sprinkler monitoring .*

**23.8.5.4.1** Systems equipped with alarm verification features shall be permitted under the following conditions:
(1) The alarm verification feature is not initially enabled unless conditions or occupant activities that are expected to cause nuisance alarms are anticipated in the area that is protected by the smoke detectors. Enabling of the alarm verification feature shall be protected by password or limited access.
(2) A smoke detector that is continuously subjected to a smoke concentration above alarm threshold does not delay the system functions of Sections 10.6 through 10.13, 23.8.1.1, or 21.2.1 by more than . *30 seconds*.
(3) Actuation of an alarm-initiating device other than a smoke detector causes the system functions of 4.4.3, 6.8.1.1, or 6.16.2.1 without additional delay.
(4) The current status of the alarm verification feature is shown on the record of completion *(see Figure 4.5.2.1, item 10)*.
*(5) Operation of a patient room smoke detector in I-2 and R-2.1 Occupancies shall not include an alarm verification feature.*

**29.3.1** All devices, combinations of devices, and equipment to be installed in conformity with this chapter shall be approved or listed *by the California State Fire Marshal* the for the purposes for which they are intended.

**29.7.2.1** *The alarm verification feature shall not be used for household fire warning equipment.*

***29.7.5.7.1*** *The alarm verification feature shall not be used for household fire warning equipment.*

| | | |
|---|---|---|
| *252—03* | *Standard Methods of Fire Tests of Door Assemblies……..……..R327.6.3.2.3* | |
| *257—07* | *Standard for Fire Test for Window and Glass Block Assemblies……..……..R327.6.3.2.2* | |

***SFM***

*State of California*
*Department of Forestry and Fire Protection*
*Office of the State Fire Marshal*
*P.O. Box 944246*
*Sacramento, CA 944246-2460*

| *Standard reference number* | *Title* | *Referenced in code section number* |
|---|---|---|
| *SFM 12-3* | *Releasing Systems for Security Bars in Dwellings……..…R310* | |
| *SFM 12-7A-1* | *Exterior Wall Siding and Sheathing……R327.5.3, R327.6.3.1, R327.6.3.2.3* | |
| *SFM 12-7A-2* | *Exterior Window……..R327.5.3, R327.6.3.2.2* | |
| *SFM 12-7A-3* | *Under Eave……..R327.5.3, R327.6.2.3* | |
| *SFM 12-7A-4* | *Decking……R327.5.3, R327.6.4.1.1* | |
| *SFM 12-7A-4A* | *Decking Alternate Method A* | *R327..3.7, R327..9.3.4* |

| | | |
|---|---|---|
| *SFM 12-7A-5* | *Ignition Resistant Building Material* | *R327.2, R327.3.7, R327.4.2, R327.6.3.2, R327.9.3.1* |

*(The Office of the State Fire Marshal standards referred to above are found in the California Code of Regulations, Title 24, Part 12.)*

| **UBC** | International Code Council, Inc.<br>500 New Jersey Avenue, NW 6th Floor<br>Washington, DC 20001 | |
|---|---|---|
| Standard reference number | Title | Referenced in code section number |
| *UBC Standard 15-2* | *Test Standard for determining the Fire Retardancy of Roof-covering Materials……..….R902* | |
| *UBC Standard 15-3* | *Wood Shakes……..……..……..…..… R902* | |
| *UBC Standard 15-4* | *Wood Shingles……..……..…… R902* | |

## APPENDIX M

***See Health and Safety Code Sections 1597.45, 1597.46, 1597.54 and 13143 regarding small family day-care homes and large family day-care homes. Provisions for day-care facilities shall be in accordance with Section 1.1.3.1 for classification, R326 for large family day-care, R325 for Group R-3.1 or the California Building Code. This appendix is not applicable in California.***

### ~~HOME DAY CARE—R-3 OCCUPANCY~~

### ~~SECTION AM101~~
### ~~GENERAL~~

~~**M101.1 General.** This appendix shall apply to a home day care operated within a dwelling. It is to include buildings and structures occupied by persons of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians or relatives by blood, marriage, or adoption, and in a place other than the home of the person cared for.~~

### ~~SECTION AM102~~
### ~~DEFINITIONS~~

~~**EXIT ACCESS.** That portion of a means of egress system that leads from any occupied point in a building or structure to an exit.~~

### ~~SECTION AM103~~
### ~~MEANS OF EGRESS~~

~~**AM103.1 Exits required.** If the occupant load of the residence is more than nine, including those who are residents, during the time of operation of the day care, two exits are required from the ground-level story. Two exits are required from a home day care operated in a manufactured home regardless of the occupant load. Exits shall comply with Section R311.~~

~~**AM103.1.1 Exit access prohibited.** An exit access from the area of day-care operation shall not pass through bathrooms, bedrooms, closets, garages, fenced rear yards or similar areas.~~

~~**Exception:** An exit may discharge into a fenced yard if the gate or gates remain unlocked during day-care hours. The gates may be locked if there is an area of refuge located within the fenced yard and more than 50 feet (15 240 mm) from the dwelling. The area of refuge shall be large enough to allow 5 square feet (0.5 m2) per occupant.~~

~~**AM103.1.2 Basements.** If the basement of a dwelling is to be used in the day-care operation, two exits are required from the basement regardless of the occupant load. One of the exits may pass through the dwelling and the other must lead directly to the exterior of the dwelling.~~

~~**Exception:** An emergency and escape window complying with Section R310 and which does not conflict with Section AM103.1.1 may be used as the second means of egress from a basement.~~

~~**AM103.1.3 Yards.** If the yard is to be used as part of the day-care operation it shall be fenced.~~

~~**AM103.1.3.1 Type of fence and hardware.** The fence shall be of durable materials and be at least 6 feet (1529 mm) tall completely enclosing the area used for the day-care operations. Each opening shall be a gate or door equipped with a self-closing and self-latching device to be installed at a minimum of 5 feet (1528 mm) above the ground. **Exception:** The door of any dwelling which forms part of the enclosure need not be equipped with self-closing and self-latching devices.~~

~~**AM103.1.3.2 Construction of fence.** Openings in the fence, wall or enclosure required by this section shall have intermediate rails or an ornamental pattern that do not allow a sphere 4 inches (102 mm) in diameter to pass through. In addition, the following criteria must be met:~~
~~1. The maximum vertical clearance between grade and the bottom of the fence, wall or enclosure shall be 2 inches (51 mm).~~
~~2. Solid walls or enclosures that do not have openings, such as masonry or stone walls, shall not contain indentations or protrusions except for tooled masonry joints.~~
~~3. Maximum mesh size for chain link fences shall be 11/4 inches (32 mm) square unless the fence has slats at the top or bottom which reduce the opening to no more than 13/4 inches (44 mm). The wire shall not be less than 9 gage [(0.148 in.) (3.8 mm)].~~

~~**AM103.1.3.3 Decks.** Decks that are more than 12 inches (305 mm) above grade shall have a guard in compliance with Section R312.~~

~~**AM103.2 Width and height of an exit.** The minimum width of a required exit is 36 inches (914 mm) with a net clear width of 32 inches (813 mm). The minimum height of a required exit is 6 feet 8 inches (2032 mm).~~

~~**AM103.3 Type of lock and latches for exits.** Regardless of the occupant load served, exit doors shall be openable from the inside without the use of a key or any special knowledge or effort. When the occupant load is 10 or less, a night latch, dead bolt or security chain may be used, provided such devices are openable from the inside without the use of a key or tool and mounted at a height not to exceed 48 inches (1219 mm) above the finished floor.~~

~~**AM103.4 Landings.** Landings for stairways and doors shall comply with Section R317.4 except that landings shall be required for the exterior side of a sliding door when a home day-care is being operated in a Group R-3 Occupancy.~~

## ~~SECTION~~
## ~~AM104 SMOKE DETECTION~~

~~**AM104.1 General.** Smoke detectors shall be installed in dwelling units used for home day-care operations. Detectors shall be installed in accordance with the approved manufacturer's instructions. If the current smoke detection system in the dwelling is not in compliance with the currently adopted code for smoke detection, it shall be upgraded to meet the currently adopted code requirements and Section AM103 before daycare operations commence.~~

~~**AM104.2 Power source.** Required smoke detectors shall receive their primary power from the building wiring when that wiring is served from a commercial source and shall be equipped with a battery backup. The detector shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than those required for over-current protection. Required smoke detectors shall be interconnected so if one detector is activated, all detectors are activated.~~

~~**AM104.3 Location.** A detector shall be located in each bedroom and any room that is to be used as a sleeping room and centrally located in the corridor, hallway or area giving access to each separate sleeping area. When the dwelling unit has more than one story, and in dwellings with basements, a detector shall be installed on each story and in the basement. In dwelling units where a story or basement is split into two or more levels, the smoke detector shall be installed on the upper level, except that when the lower level contains a sleeping area, a detector shall be installed on each level. When sleeping rooms are on the upper level, the detector shall be placed at the ceiling of the upper level in close proximity to the stairway. In dwelling units where the ceiling height of a room open to the hallway serving the~~

~~bedrooms or sleeping areas exceeds that of the hallway by 24 inches (610 mm) or more, smoke detectors shall be installed in the hallway and in the adjacent room. Detectors shall sound an alarm audible in all sleeping areas of the dwelling unit in which they are located.~~

**Notation:**

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 17921, 18949.2, Government Code Section 51189

References: Health and Safety Code Sections 13143, 18949.2, Government Code Sections 51176, 51177, 51178, 51179, Public Resources Code Sections 4201 through 4204