

REVISION RECORD FOR THE STATE OF CALIFORNIA

ERRATA

January 1, 2015

2013 Title 24, Part 2, Vol. 2, California Building Code

**PLEASE NOTE: The date of this errata is for identification purposes only.
See the History Note Appendix.**

It is suggested that the section number as well as the page number be checked when inserting this material and removing the superseded material. In case of doubt, rely on the section numbers rather than the page numbers because the section numbers must run consecutively.

It is further suggested that the superseded material be retained with this revision record sheet so that the prior wording of any section can be easily ascertained.

Please keep the removed pages with this revision page for future reference.

Note

Due to the fact that the application date for a building permit establishes the California Building Standards Code provisions that are effective at the local level, which apply to the plans, specifications, and construction for that permit, it is strongly recommended that the removed pages be retained for historical reference.

Part 2, Vol. 2

Remove Existing Pages

631 through 644

Insert Buff Pages

631 through 644

FM

Factory Mutual Global Research
Standards Laboratories Department
1301 Atwood Avenue, P.O. Box 7500
Johnston, RI 02919

Standard reference number	Title	Referenced in code section number
<i>FM 1950—10</i>	<i>Approval Standard for Seismic Sway Braces for Automatic Sprinkler Systems</i>	<i>1705A.12.3</i>
<i>3260—00</i>	<i>Radiant Energy-Sensing Fire Detectors for Automatic Fire Alarm Signaling.</i>	
<i>3011—99</i>	<i>Approval Standard for Central Station Service for Fire Alarm and Protective Equipment Supervision</i>	
<i>FM 4430—12</i>	<i>Approved Standard for Smoke and Heat Vents</i>	<i>910.3.2</i>
<i>4430—80</i>	<i>Acceptance Criteria for Smoke and Heat Vents</i>	<i>910.3.1</i>
<i>4450 (1989)</i>	<i>Approval Standard for Class 1 Insulated Steel Deck Roofs—</i> <i>with Supplements through July 1992</i>	<i>1508.1, 2603.3, 2603.4.1.5</i>
<i>4470 (1992)</i>	<i>Approval Standard for Class 1 Roof Covers</i>	<i>1504.7</i>
<i>4474 (04)</i>	<i>Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies</i> <i>Using Static Positive and/or Negative Differential Pressures</i>	<i>1504.3.1</i>
<i>4880 (2005)</i>	<i>American National Standard for Evaluating Insulated Wall or Wall and Roof/</i> <i>Ceiling Assemblies, Plastic Interior Finish Materials, Plastic Exterior Building Panels,</i> <i>Wall/Ceiling Coating Systems, Interior and Exterior Finish Systems.</i>	<i>2603.4, 2603.9</i>

GA

Gypsum Association
810 First Street N.E. #510
Washington, DC 20002-4268

Standard reference number	Title	Referenced in code section number
<i>GA 216—07</i>	<i>Application and Finishing of Gypsum Panel Products</i>	<i>Table 2508.1, 2509.2</i>
<i>GA 600—06</i>	<i>Fire-resistance Design Manual, 18th Edition.</i>	<i>Table 720.1(1), Table 720.1(2), Table 720.1(3)</i>

HPVA

Hardwood Plywood Veneer Association
1825 Michael Faraday Drive
Reston, VA 20190

Standard reference number	Title	Referenced in code section number
<i>HP-1—2004</i>	<i>Standard for Hardwood and Decorative Plywood</i>	<i>2303.3, 2304.6.2</i>

HUD

U.S. Department of Housing and Urban Development
451 7th Street, SW
Washington, DC 20410

Standard reference number	Title	Referenced in code section number
<i>HUD 24</i> <i>CFR Part 3280 (1994)</i>	<i>Manufactured Home Construction and Safety Standards.</i>	<i>G201</i>

ICC

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

Standard reference number	Title	Referenced in code section number
<i>ICC 300—12</i>	<i>ICC Standard on Bleachers, Folding and Telescopic Seating and Grandstands</i>	<i>1028.1.1, Table 1607.1, 3401.1</i>
<i>ICC 400—12</i>	<i>Standard on Design and Construction of Log Structures</i>	<i>2301.2</i>
<i>ICC 500—08</i>	<i>ICC/NSSA Standard on the Design and Construction of Storm Shelters</i>	<i>202, 423.1, 423.2</i>
<i>ICC 600—08</i>	<i>Standard for Residential Construction in High Wind Regions.</i>	<i>1609.1.1, 1609.1.1.1, 2308.2.1</i>
<i>ICC-ES AC 01—12*</i>	<i>Acceptance Criteria for Expansion Anchors in Masonry Elements</i>	<i>1616A.1.19</i>
<i>ICC-ES AC 58—12*</i>	<i>Acceptance Criteria for Adhesive Anchors in Masonry Elements</i>	<i>1616A.1.19</i>
<i>ICC-ES AC 70—12*</i>	<i>Acceptance Criteria for Fasteners Power-Driven into Concrete, Steel and Masonry Elements</i>	<i>908A.1.1</i>
<i>ICC ES AC 77</i>	<i>Acceptance Criteria for Smoke Containment Systems Used with Fire-resistance-rated</i> <i>Elevator Hoistway Doors and Frames</i>	<i>707.14.1</i>

REFERENCED STANDARDS

ICC—continued

ICC-ES AC 106—12*	Acceptance Criteria for Predrilled Fasteners (Screw Anchors) in Masonry	1616A.1.19
ICC-ES AC 125—12*	Acceptance Criteria for Concrete, and Reinforced and Unreinforced Masonry Strengthening Using Externally Bonded Fiber-Reinforced Polymer (FRP) Composite Systems	1914.3
ICC-ES AC 156—12	Acceptance Criteria for Seismic Certification by Shake-Table Testing of Nonstructural Components	1705A.12.4
ICC-ES AC 178—12*	Acceptance Criteria for Inspection and Verification of Concrete, and Reinforced and Unreinforced Masonry Strengthening Using Fiber-Reinforced Polymer (FRP) Composite Systems	1914A.3
ICC-ES AC 193—12*	Acceptance Criteria for Mechanical Anchors in Concrete Elements	1616A.1.19, 1909A.11
ICC-ES AC 308—12	Acceptance Criteria for Post-Installed Adhesive Anchors in Concrete Elements.	1616A.1.19
ICC ES AC 331	Acceptance Criteria for Smoke and Heat Vents.	910.3.1
ICC-ES AC 358—12	Acceptance Criteria for Helical Foundation Systems and Devices.	1810A.3.1.5.1
SBCCI SSTT 11—97	Test Standard for Determining Wind Resistance of Concrete or Clay Roof Tiles	1716.2.1, 1716.2.2

* Refers to International Building Code, 2012 as a reference standard.

ISO

International Organization for Standardization
ISO Central Secretariat
1 ch, de la Voie-Creuse, Case Postale 56
CH-1211 Geneva 20, Switzerland

Standard reference number	Title	Referenced in code section number
ISO 8115—86	Cotton Bales—Dimensions and Density	Table 415.8.2.1.1
ISO 9001—08	Quality Management Systems - Requirements	1705A.12.4
ISO 17025—05	General Requirement for Competence of Testing and Calibration Laboratories.	1705A.12.4

NAAMM

National Association of Architectural Metal Manufacturers
800 Roosevelt Road, Bldg. C, Suite 312
Glen Ellyn, IL 60137

Standard reference number	Title	Referenced in code section number
FP 1001—07	Guide Specifications for Design of Metal Flag Poles	1609.1.1

NCMA

National Concrete Masonry Association
13750 Sunrise Valley
Herndon, VA 22071-4662

Standard reference number	Title	Referenced in code section number
TEK 5-84 (1996)	Details for Concrete Masonry Fire Walls	Table 720.1(2)

NFPA

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471

Standard reference number	Title	Referenced in code section number
11—10	Low-, Medium- and High-Expansion Foam	904.7
12—05	Carbon Dioxide Extinguishing Systems	904.8, 904.11
12A—04 Halon 1301	Halon 1301 Fire Extinguishing Systems	904.9
13—13	Installation of Sprinkler Systems, as amended*	708.2, 903.3.1.1, 903.3.2, 903.3.5.1.1, 903.3.5.2, 904.11, 905.3.4, 907.6.3, 1613.6.3, 1616.9.5, 1616.10.17

*NFPA 13, Amended Sections as follows:

Revise Section 2.2 and add publications as follows:
2.2 NFPA Publications.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2013 California edition.

NFPA—continued

Revise Section 8.15.1.2.15 as follows:

8.15.1.2.15 Exterior columns under 10 ft² (0.93m²) in total area, formed by studs or wood joist, with no sources of ignition within the column, supporting exterior canopies that are fully protected with a sprinkler system, shall not require sprinkler protection.

Revise Section 8.15.5.7 as follows:

8.15.5.7 The sprinkler required at the top and bottom of the elevator hoistway by 8.15.5.6 shall not be required where permitted by Chapter 30 of the California Building Code.

Revise Section 8.15.7.1* as follows:

8.15.7.1* Unless the requirements of 8.15.7.2 or 8.15.7.3 are met, sprinklers shall be installed under exterior roofs, canopies, porte-cochere, balconies, decks, or similar projections exceeding 4 ft (1.2 m) in width.

Revise Section 8.15.7.2* as follows:

8.15.7.2* Sprinklers shall be permitted to be omitted where the canopies, roofs, balconies, decks, or similar projections are constructed with materials that are noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*.

Delete Section A.8.15.7.2 of Annex

Revise Section 8.15.7.3

8.15.7.3 Sprinklers shall be permitted to be omitted from below the canopies, roofs, balconies, decks, or similar projections are combustible construction, provided the exposed finish material on the roof, or canopy is noncombustible, limited-combustible, or fire retardant treated wood as defined in NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, and the roofs, or canopies contains only sprinklered concealed spaces or any of the following unsprinklered combustible concealed spaces:

- (1) Combustible concealed spaces filled entirely with noncombustible insulation.
- (2) Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists so as to create enclosed joist spaces 160 ft³ (4.5 m³) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered attic [See 11.2.3.1.4(4)(d)].
- (3) Concealed spaces over isolated small roofs, or canopies not exceeding 55 ft² (5.1 m²).

Delete language to section 8.15.7.4 and reserve section number.

8.15.7.4.

Revise Annex Section A.8.15.7.5 as follows:

A. 8.15.7.5 The presence of planters, newspaper machines and similar items, should not be considered storage.

Add Section 8.15.7.6 as follows:

8.15.7.6 Sprinklers may be omitted for following structures:

- (1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.
- (2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

Add new Sections 8.16.1.1.1.4 and 8.16.1.1.1.5 as follows:

8.16.1.1.1.4 Where a system includes floor control valves, a hydraulic design information sign containing information for the floor shall be provided at each floor control valve. A hydraulic design information sign shall be provided for each area calculated. The installing contractor shall identify a hydraulically designed sprinkler system with a permanently marked weatherproof metal or rigid plastic sign secured with corrosion resistant wire, chain, or other approved means. Such signs shall be placed at the alarm valve, dry pipe valve, preaction valve, or deluge valve supplying the corresponding hydraulically designed area.

8.16.1.1.1.5 Control valves, check valves, drain valves, antifreeze valves shall be readily accessible for inspection, testing, and maintenance. Valves located more than 7 feet above the finished floor shall be provided with a means of opening and closing the valve from the floor level.

NFPA—continued

Add new Sections 8.16.1.7, 8.16.1.7.1, 8.16.1.7.1.1, 8.16.1.7.1.2, 8.16.1.7.1.3 and 8.16.1.7.2, as follows:

8.16.1.7 Sectional Valves.

8.16.1.7.1 Private fire service main systems shall have sectional control valves at appropriate points in order to permit sectionalizing the system in the event of a break or for the making of repairs or extensions.

8.16.1.7.1.1 *Sectional control valves are not required when the fire service main system serves less than six fire appurtenances.*

8.16.1.7.1.2 *Sectional control valves shall be indicating valves in accordance with Section 6.7.1.3.*

8.16.1.7.1.3 *Sectional control valves shall be located so that no more than five fire appurtenances are affected by shut-down of any single portion of the fire service main. Each fire hydrant, fire sprinkler system riser, and standpipe riser shall be considered a separate fire appurtenance. In-rack sprinkler systems shall not be considered as a separate appurtenance.*

8.16.1.7.1.4 The number of fire appurtenances between sectional control valves is allowed to be modified by the authority having jurisdiction.

8.16.1.7.2 A valve shall be provided on each bank where a main crosses a *body* of water or outside the building foundation(s) where the main or section of main runs under a building.

Add new Section 9.1.3.9.1.1 as follows:

9.1.3.9.1.1 *Powder-driven studs used for attaching hangers to the building structure are prohibited in Seismic design Categories C, D, E and F*

Revise Section 9.3.5.11.4 as follows:

9.3.5.11.4 *Where threaded pipe is used for sway bracing, it shall have a wall thickness of not less than Schedule 40.*

Replace Section 9.3.5.12.4 as follows:

Lag screws or power-driven fasteners shall not be used to attach braces to the building structure.

Add language to the beginning of Section 9.3.5.12.6 as follows:

9.3.5.12.6 *Fastening methods other than those identified in 9.3.5.12 shall not apply to other fastening methods, which shall be acceptable for use if certified by a registered professional engineer to support the loads determined in accordance with the criteria in 9.3.5.9. Calculations shall be submitted to the authority having jurisdiction.*

Revise Section 9.3.5.12.7.2 as follows:

9.3.5.12.7.2 Concrete anchors other than those shown in Figure 9.3.5.12.1 *and identified in 9.3.5.11.11* shall be acceptable for use where designed in accordance with the requirements of the building code and certified by a registered professional engineer.

Revise Section 9.3.6.1(3) as follows:

9.3.6.1*(3) *No. 12, 440 lb (200 Kg) wire installed at least 45 degrees from the vertical plane and anchored on both sides of the pipe. Powder-driven fasteners for attaching restraint is allowed to be used provided that the restraint component does not support the dead load.*

Revise Section 10.6.4 as follows:

10.6.4 Pipe joints shall not be located under foundation footings. *The pipe under the building or building foundation shall not contain mechanical joints.*

Exceptions:

1. *Where allowed in accordance with 10.6.2.*
2. *Alternate designs may be utilized where designed by a registered professional engineer and approved by the enforcing agency.*

Revise Section 11.2.3.1.4(4)(i) as follows:

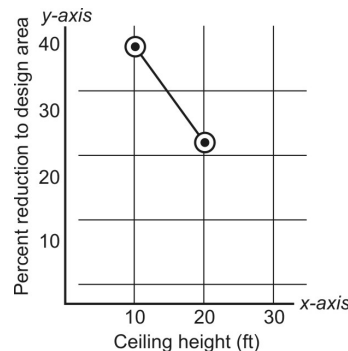
11.2.3.1.4(4)(i) *Exterior columns under 10 ft² (0.93m²) in total area, formed by studs or wood joist, with no sources of ignition within the column, supporting exterior canopies that are fully protected with a sprinkler system.*

NFPA—continued

Revise Section 11.2.3.2.3.1 as follows:

11.2.3.2.3.1 Where listed quick-response sprinklers, excluding extended coverage quick-response sprinklers, are used throughout a system or portion of a system having the same hydraulic design basis, the system area of operation shall be permitted to be reduced without revising the density as indicated in Figure 11.2.3.2.3.1 when all of the following conditions are satisfied:

- (1) Wet pipe system.
- (2) Light hazard occupancy.
- (3) 20 ft (6.1 m) maximum ceiling height.
- (4) There are no unprotected ceiling pockets as allowed by 8.6.7 and 8.8.7 exceeding 32 ft² (3 m²).



Note: $y = \frac{-3x}{2} + 55$

For ceiling height ≥ 10 ft and ≤ 20 ft, $y = \frac{-3x}{2} + 55$

For ceiling height < 10 ft, $y = 40$

For ceiling height > 20 ft, $y = 0$

For SI units, 1 ft = 0.31 m.

FIGURE 11.2.3.2.3.1 Design Area Reduction for Quick-Response Sprinklers.

Revise Section 11.2.3.2.3.2 as follows:

11.2.3.2.3.2 The number of sprinklers in the design area shall never be less than *seven*.

Revise Section 12.1.1.2 as follows:

12.1.1.2 Early suppression fast-response (ESFR) sprinklers shall not be used in buildings with automatic heat or smoke vents unless the vents use a standard-response operating mechanism *with a minimum temperature rating of 360°F (182°C) or 100°F (56°C) above the operating temperature of the sprinklers, whichever is higher.*

Add Section 25.1(5)

25.1 Approval of Sprinkler Systems and Private Fire Service Mains.

The installing contractor shall do the following:

- (1) Notify the authority having jurisdiction and the property owner or property owner's authorized representative of the time and date testing will be performed.
- (2) Perform all required testing (*see Section 24.2*).
- (3) Complete and sign the appropriate contractor's material and test certificate(s) (*see Figure 24.1*).
- (4) Remove all caps and straps prior to placing the sprinkler system in service.
- (5) *Upon system acceptance by the authority having jurisdiction a label prescribed by Title 19 California Code of Regulations, Chapter 5 shall be affixed to each system riser.*

Revise Section 25.4(2) and Add Section 25.4(3) as follows:

25.4 Instructions.

The installing contractor shall provide the property owner or the property owner's authorized representative with the following:

- (1) All literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed.

NFPA—continued

(2) NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2013 California Edition.

(3) Title 19, *California Code of Regulations*, Chapter 5, “Fire Extinguishing Systems.”

Add sentence at the end of Section 25.5.1 as follows:

25.5.1 “Pipe schedule systems shall be provided with a sign indicating that the system was designed and installed as a pipe schedule system and the hazard classification(s) included in the design.”

Revise Section 25.5.2(3) and Add Sections 25.5.2(7) to (14) as follows:

25.5.2 The sign shall include the following information:

- (3) Required flow and pressure of the system at the base of the riser.
- (7) Required flow and pressure of the system at the water supply source.
- (8) Required flow and pressure of the system at the discharge side of the fire pump where a fire pump is installed.
- (9) Type or types and number of sprinklers or nozzles installed including the orifice size, temperature rating, orientation, K-Factor, sprinkler identification number (SIN) for sprinkler heads when applicable, and response type.
- (10) The minimum discharge flow rate and pressure required from the hydraulically most demanding sprinkler.
- (11) The required pressure settings for pressure reducing valves.
- (12) For deluge sprinkler systems, the required flow and pressure at the hydraulically most demanding sprinkler or nozzle.
- (13) The protection area per sprinkler based on the hydraulic calculations.
- (14) The edition of NFPA 13 to which the system was designed and installed.

Revise Section 25.6.1 as follows:

25.6.1 California Edition NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*.

13D—13

Standard for the Installation of Sprinkler Systems in One-and Two-Family Dwellings and Manufactured Homes as amended* 903.3.1.3, 903.3.5.1.1

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

Revise 6.2.2, 6.2.2.1, 6.2.4 to read as follows:

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.

8.3.4* Sprinklers shall not be required in detached garages, open attached porches, carports with no habitable space above, and similar structures.

NFPA—continued

Add Section 8.4 as follows:

8.4 Sprinklers shall be permitted to be omitted for following structures:

- (1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.
- (2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

13R—13

Installation of Sprinkler Systems in Residential Occupancies

up to and Including Four Stories in Height as amended 903.3.1.2, 903.3.5.1.1, 903.3.5.1.2, 903.4

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

Revise Section 2.2 and add publications as follows:

2.2 NFPA Publications.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2013 California edition.

Add new Section 6.6.9, as follows:

6.6.9 Sprinklers shall be permitted to be omitted for following structures:

- (1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.
- (2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

Revise Section 11.4:

11.4 Instructions.

The installing contractor shall provide the property owner or the property owner's authorized representative with the following:

- (1) All literature and instructions provided by the manufacturer describing proper operation and maintenance of any equipment and devices installed.
- (2) NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems* 2013 California Edition and Title 19, California Code of Regulations, Chapter 5.
- (3) Once the system is accepted by the authority having jurisdiction a label as prescribed by Title 19, California Code of Regulations, Chapter 5, shall be affixed to each system riser.

14—13

Installation of Standpipe and Hose System, as amended* 905.2, 905.3.4, 905.4.2, 905.6.2, 905.8

NFPA 14, Amended Sections as follows: Replace Section 6.3.7.1

6.3.7.1 System water supply valves, isolation control valves, and other valves in fire mains shall be supervised in an approved manner in the open position by one of the following methods:

- (1) Where a building has a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:
 - (a) a central station, proprietary, or remote supervising station, or
 - (b) a local signaling service that initiates an audible signal at a constantly attended location.
- (2) Where a building does not have a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:
 - (a) Locking the valves in the open position, or
 - (b) Sealing of valves and a approved weekly recorded inspection where valves are located within fenced enclosures under the control of the owner.

15—12

Water Spray Fixed Systems for Fire Protection

16—07

Installation of Foam-water Sprinkler and Foam-water Spray Systems 904.7, 904.11

17—13

Dry Chemical Extinguishing Systems 904.6, 904.11

17A—13

Wet Chemical Extinguishing Systems 904.5, 904.11

20—13

Installation of Stationary Pumps for Fire Protection 913.1, 913.2.1, 913.5

22—13

Water Tanks for Private Fire Protection

24—13

*Installation of Private Fire Service Mains and Their Appurtenances, as amended**

NFPA—continued

NFPA 24, Amended Sections as follows: Amend Section 4.2.1

Section 4.2.1. Installation work shall be done by fully experienced and responsible contractors. Contractors shall be appropriately licensed in the State of California to install private fire service mains and their appurtenances.

Revise Section 4.2.2 as follows:

4.2.2 Installation or modification of private fire service mains shall not begin until plans are approved and appropriate permits secured from the authority having jurisdiction.

Add Section 4.2.2.1 as follows:

4.2.2.1 As approved by the authority having jurisdiction, emergency repair of existing system may start immediately, with plans being submitted to the authority having jurisdiction within 96 hours from the start of the repair work.

Revise Section 5.9.1.2 as follows:

Section 5.9.1.2 Fire department connections shall be properly supported and protected from mechanical damage.

Revise Section 5.9.5.1 as follows:

5.9.5.1 Fire department connections shall be on the street side of buildings and as approved by the authority having jurisdiction.

Revise Section 6.5.1 as follows:

6.5.1 Private fire service main systems shall have sectional control valves at appropriate points in order to permit sectionalizing the system in the event of a break or for the making of repairs or extensions.

Add Sections 6.5.2.1 – 6.5.2.3

6.5.2.1 Sectional control valves are not required when the fire service main system serves less than six fire appurtenances.

6.5.2.2 Sectional control valves shall be indicating valves in accordance with Section 6.7.1.3.

6.5.2.3 Sectional control valves shall be located so that no more than five fire appurtenances are affected by shut-down of any single portion of the fire service main. Each fire hydrant, fire sprinkler system riser, and standpipe riser shall be considered a separate fire appurtenance. In-rack sprinkler systems shall not be considered as a separate appurtenance.

6.5.2.4 The number of fire appurtenances between sectional control valves is allowed to be modified by the authority having jurisdiction.

Revise Section 6.6.2 as follows:

6.6.2 A sectional valve shall be provided at the following locations: (1) On each bank where a main crosses a body of water

(2) Outside the building foundation(s) where a main or a section of a main runs under a building

Revise Section 10.6.5 as follows:

10.6.5 Pipe joints shall not be located under foundation footings. The pipe under the building or building foundation shall not contain mechanical joints.

Exceptions:

1. Where allowed in accordance with Section 10.6.2

2. Alternate designs may be utilized where designed by a registered professional engineer and approved by the enforcing agency.

Revise Section 10.9.1 as follows:

10.9.1 Backfill shall be well tamped in layers or puddle under and around pipes to prevent settlement or lateral movement.

Backfill shall consist of clean fill sand or pea gravel to a minimum 6" below and to a minimum of 12" above the pipe and shall contain no ashes, cinders, refuse, organic matter, or other corrosive materials. Other backfill materials and methods are permitted where designed by a registered professional engineer and approved by the enforcing agency.

30—08	Flammable and Combustible Liquids Code	415.3
31—11	Installation of Oil-burning Equipment	2113.15
32—07	Dry Cleaning Plants	415.6.4
37—10	Installation and Use of Stationary Combustion Engines and Gas Turbines	
40—07	Storage and Handling of Cellulose Nitrate Film	409.1
52—13	Compressed Natural Gas (CNG) Vehicular Gaseous Fuel Systems Code	
54—12	National Fuel Gas Code	
58—08	Liquefied Petroleum Gas Code	415.6.3
61—13	Prevention of Fires and Dust Explosions in Agricultural and Food Product Facilities.	415.6.1
70—08	National Electrical Code	108.3, 415.8.2.8.2, 904.3.1, 907.6.1, 909.12.1, 909.16.3, 1205.4.1, 2701.1, 3401.3, H106.1, H106.2, K101, K111.1

NFPA—continued

72—13

National Fire Alarm and Signaling Code, as amended* 901.6, 903.4.1, 904.3.5, 907.2, 907.2.5, 907.2.11, 907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2, 907.5.2.2, 907.6, 907.6.1, 907.6.5, 907.7, 907.7.1, 907.7.2, 911.1.5, 3006.5, 3007.6

**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.

10.7.1 *Where approved by the authority having jurisdiction*, ECS priority signals when evaluated by stakeholders through risk analysis in accordance with 24.3.1.1 shall be permitted to take precedence over all other signals.

14.4.6.1 Testing. Household fire alarm systems shall be tested *in accordance with the manufacturer's published instructions* according to the methods of Table 14.4.3.2.

17.15 Fire Extinguisher Electronic Monitoring Device. A fire extinguisher electronic 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.

21.3.6 Smoke detectors shall not be installed in unsprinklered elevator hoistways unless they are installed to activate the elevator hoistway smoke relief equipment *or where required by Chapter 30 of the California Building Code*.

12.3.7 (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 *as permitted in section 21.3 of NFPA 72*.

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 10.7 through 10.16, 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 Sections 10.7 through 10.16, 23.8.1.1, or 21.2.1 without additional delay.
- (4) The current status of the alarm verification feature is shown on the record of completion (*see Figure 7.8.2(a), item 4.3*).
- (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 and listed by the *California State Fire Marshal* for the purposes for which they are intended.

29.5.2.1.1* Smoke and Heat Alarms. Unless exempted by applicable laws, codes, or standards, smoke or heat alarms used to provide a fire-warning function, and when two or more alarms are installed within a dwelling unit, suite of rooms, or similar area, shall be arranged so that the operation of any smoke or heat alarm causes all alarms within these locations to sound.

Exception to 29.5.2.1.1 not adopted by the SFM.

29.7.2.1 *The alarm verification feature shall not be used for household fire warning equipment.*

29.7.6.7.1 *The alarm verification feature shall not be used for household fire warning equipment.*

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 40°F (4°C) or exceed 100°F (38°C).

NFPA—continued

(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 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 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.

80—13	Fire Doors and Other Opening Protectives	410.3.5, 508.2.5.2, 715.4, 715.4.5, 715.4.6, 715.4.7.1, 715.4.8.2, 715.5, 715.5.5, 1008.1.4.3
85—07	Boiler and Combustion System Hazards Code	415.6.1
	(Note: NFPA 8503 has been incorporated into NFPA 85)	
92—12	Standard for Smoke Control Systems	909.8
99—12	Health Care Facilities Code	407.10
101—12	Life Safety Code	807.4.3.2, 1028.6.2
105—13	Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives	405.4.2, 715.4.3.1, 909.20.4.1
110—13	Emergency and Standby Power Systems	2702.1
111—13	Stored Electrical Energy Emergency and Standby Power Systems	2702.1
120—10	Fire Prevention and Control in Coal Mines	415.6.1
170—09	Standard for Fire Safety and Emergency Symbols	907.1.2
211—13	Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	2112.5
252—03	Standard Methods of Fire Tests of Door Assemblies	715.3, 715.4.1, 715.4.2, 715.4.3, 715.4.7.3.1
253—06	Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	402.12.1, 406.6.4, 804.2, 804.3
257—07	Standard for Fire Test for Window and Glass Block Assemblies	715.3, 715.4.3.2, 715.5, 715.5.1, 715.5.2, 715.5.9.1
259—13	Test Method for Potential Heat of Building Materials	2603.4.1.10, 2603.5.3
265—07	Method of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings on Full Height Panels and Walls	803.1.3, 803.1.3.1
268—07	Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source	1406.2.1, 1406.2.1.1, 1406.2.1.2, 2603.5.7, D105.1
275—13	Standard Method of Fire Tests for the Evaluation of Thermal Barriers Used Over Foam Plastic Insulation	
285—06	Standard Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components	1407.10.4, 2603.5.5
286—06	Standard Method of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	402.16.4, 803.1.2, 803.1.2.1, 803.9, 2603.4, 2603.9
288—12	Standard Method of Fire Tests of Horizontal Fire Door Assemblies Installed in Horizontal Fire-resistance-rated Assemblies	712.8
289—13	Standard Method of Fire Test for Individual Fuel Packages	
409—11	Aircraft Hangars	412.4.6, Table 412.4.6, 412.4.6.1, 412.6.5

NFPA—continued

418—06	Standard for Heliports	412.7.4
484—06	Combustible Metals	415.6.1
502—14	<i>Standard for Road Tunnels, Bridges, and Other Limited Access Highways</i>	429
654—13	Prevention of Fire & Dust Explosions from the Manufacturing, Processing and Handling of Combustible Particulate Solids	415.6.1
655—07	Prevention of Sulfur Fires and Explosions	415.6.1
664—07	Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities	415.6.1
701—04	Standard Methods of Fire Tests for Flame-propagation of Textiles and Films	402.12.1, 410.3.6, 801.1.4, 806.1, 806.1.2, 806.2, 3102.3, 3102.3.1, 3102.6.1.1, 3105.4, D102.2.8, H106.1.1
704—07	Standard System for the Identification of the Hazards of Materials for Emergency Response	414.7.2, 415.2
720—12	<i>Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment</i>	420.6
1124—13	Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles	415.3.1
2001—12	Clean Agent Fire Extinguishing Systems, as amended*	Table 901.6.1, 904.10

*NFPA 2001, Amended Sections as follows:

4.3.5.1.1 Alarms signals from the fire extinguishing system shall not interfere with the building fire alarm signal.

4.3.5.2.1 The lens on visual appliances shall be “red” in color.

Exception: Other lens colors are permitted where approved by the enforcing agency.

PCI

Precast Prestressed Concrete Institute
209 W. Jackson Boulevard, Suite 500
Chicago, IL 60606-6938

Standard reference number	Title	Referenced in code section number
MNL 124—89	Design for Fire Resistance of Precast Prestressed Concrete	721.2.3.1
MNL 128—01	Recommended Practice for Glass Fiber Reinforced Concrete Panels.	1913.2.1
PCI 120—10	<i>PCI Design Handbook 7th Edition</i>	1905A.1

PTI

Post-Tensioning Institute
8601 North Black Canyon Highway, Suite 103
Phoenix, AZ 85021

Standard reference number	Title	Referenced in code section number
PTI—2004	<i>Recommendations for Prestressed Rock and Soil Anchors (4th Edition)</i>	1811A.2, 1810A.3.10.4, J106.2.4, J106.2.5
PTI—2007	Standard Requirements for Analysis of Shallow Concrete Foundations on Expansive Soils, Third Edition.	1808.6.2
PTI—2007	Standard Requirements for Design of Shallow Post-tensioned Concrete Foundation on Expansive Soils, Second Edition	1808.6.2

REFERENCED STANDARDS

SFM

State of California
Department of Forestry and Fire Protection
Office of the State Fire Marshal
P.O. Box 944246
Sacramento, CA 94246-2460

Standard reference number	Title	Referenced in code section number
12-3	<i>Releasing Systems for Security Bars in Dwellings</i>	1029.4
12-7-3	<i>Fire-testing Furnaces</i>	NA
12-7A-1	<i>Exterior Wall Siding and Sheathing</i>	703A.7, 707A.2
12-7A-2	<i>Exterior Window</i>	703A.7, 708A.2.1
12-7A-3	<i>Under Eave</i>	703A.7, 707A.8
12-7A-4	<i>Decking</i>	703A.7, 709A.3
SFM 12-7A-4A	<i>Decking Alternate Method A</i>	703A.7, 709A.3
SFM 12-7A-5	<i>Ignition Resistant Building Material</i>	703A.7, 709A.3
12-8-100	<i>Room Fire Tests for Wall and Ceiling Materials</i>	NA
12-10-1	<i>Power Operated Exit Doors</i>	NA
12-10-2	<i>Single Point Latching or Locking Devices</i>	NA
12-10-3	<i>Emergency Exit and Panic Hardware</i>	NA

(The Office of the State Fire Marshal standards referred to above are found in the California Code of Regulations, Title 24, Part 12.)

RMI

Rack Manufacturers Institute
8720 Red Oak Boulevard, Suite 201
Charlotte, NC 28217

Standard reference number	Title	Referenced in code section number
ANSI/MH16.1—08	Specification for Design, Testing and Utilization of Industrial Steel Storage Racks.	2208.1

SDI

Steel Deck Institute
P. O. Box 25
Fox River Grove, IL 60021

Standard reference number	Title	Referenced in code section number
ANSI/NC1.0—06	Standard for Noncomposite Steel Floor Deck	2209.2.2, 2209.2.2.1
ANSI/RD1.0—06	Standard for Steel Roof Deck	2209.2.3
ANSI/SDI-C-2012	Standard for Composite Steel Floor Deck Slabs.	2210A.1.1.3

SJI

Steel Joist Institute
1173B London Links Drive
Forest, VA 24551

Standard reference number	Title	Referenced in code section number
CJ-1.0—06	Standard Specification for Composite Steel Joists, CJ-series.	1604.3.3, 2203.2, 2206.1
JG-1.1—05	Standard Specification for Joist Girders	1604.3.3, 2203.2, 2206.1
K-1.1—05	Standard Specification for Open Web Steel Joists, K-series.	1604.3.3, 2203.2, 2206.1
LH/DLH-1.1—05	Standard Specification for Longspan Steel Joists, LH-series and Deep Longspan Steel Joists, DLH-series	1604.3.3, 2203.2, 2206.1

SPRI

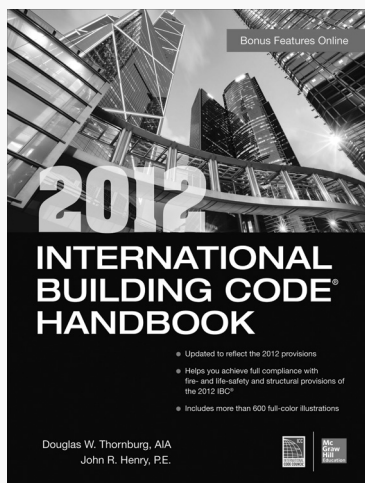
Single-Ply Roofing Institute
411 Waverly Oaks Road, Suite 331B
Waltham, MA 02452

Standard reference number	Title	Referenced in code section number
SPRI/ANSI/ES-1—03	Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.	1504.5
RP-4—02	Wind Design Guide for Ballasted Single-ply Roofing Systems	1504.4

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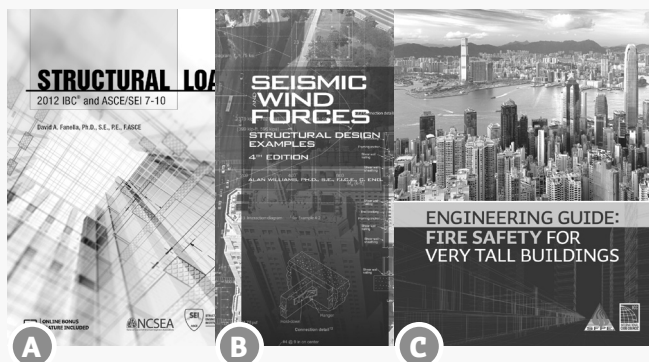
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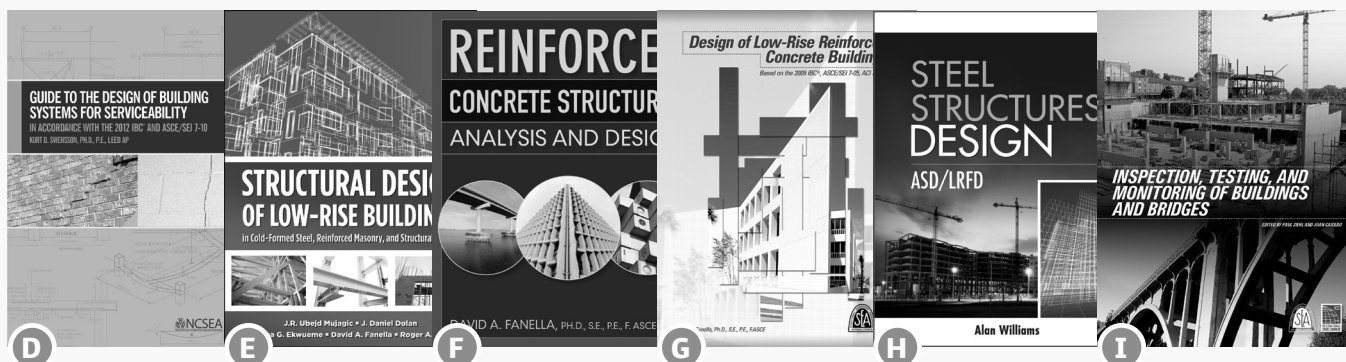
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