

# REVISION RECORD FOR THE STATE OF CALIFORNIA

## ERRATA

January 1, 2020

### 2019 Title 24, Part 2, Vol. 1, California Building Code

#### General Information:

1. The date of this erratum is for identification purposes only. See the History Note Appendix on the backside or accompanying page.
2. This erratum is issued by the California Building Standards Commission in order to correct nonsubstantive printing errors or omissions in California Code of Regulations, Title 24, Part 2, of the 2019 *California Building Code*. Instructions are provided below.
3. Health and Safety Code Section 18938.5, establishes that only building standards in effect at the time of the application for a building permit may be applied to the project plans and construction. This rule applies to both adoptions of building standards for Title 24 by the California Building Standards Commission, and local adoptions and ordinances imposing building standards. An erratum to Title 24 is a nonregulatory correction because of a printing error or omission that does not differ substantively from the official adoption by the California Building Standards Commission. Accordingly, the corrected code text provided by this erratum may be applied on and after the stated effective date.
4. You may wish to retain the superseded material with this revision record so that the prior wording of any section can be easily ascertained.

#### Title 24, Part 2, Vol. 1

##### Remove Existing Pages

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## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 1 – SCOPE AND ADMINISTRATION

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC	
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4									5
Adopt entire chapter																							
Adopt entire chapter as amended (amended sections listed below)																							
Adopt only those sections that are listed below	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	
Chapter / Section																							
Division I – <i>California Administration</i>																							
1.1	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X	X	X
1.2	X		X																				
1.2.3							X																
1.3			X												X								
1.4			X																	X			
1.5 (Reserved)			X																				
1.6			X															X					
1.7			X														X						
1.8			X	X	X	X																	
1.9			X																				
1.9.1 – 1.9.1.8							X																
1.9.2								X	X														
1.9.2.1								X															
1.9.2.2									X														
1.10			X																				
1.10.1										X	X												
1.10.2												X											
1.10.3													X										
1.10.4														X									
1.10.5 – 1.10.5.3															X								
1.11			X																				
1.12			X																			X	
1.13 (Reserved)																							
1.14																							X
Division II – <i>Scope and Administration</i>																							
101.1 – 101.4.5							X			X	X	X	X	X	X								
101.4.7										X	X	X		X	X								
102.1							X	X	X	X	X	X	X	X	X								
102.2 – 102.4							X	X	X	X	X	X	X	X	X								
102.4.1							X	X															
102.4.3							X	X	X	X	X	X	X	X	X								
102.4.4							X	X	X	X	X	X	X	X	X								
102.5							X	X	X	X	X	X	X	X	X								
102.6 – 104.1										X	X	X	X	X	X								
104.2 – 104.4										X	X	X	X	X	X								
104.5 – 104.8										X	X	X	X	X	X								
104.9								X	X	X	X	X	X	X	X								
104.10								X	X	X	X	X	X	X	X								
104.11							X	X	X	X	X		X	X									
104.11.1 – 104.11.2										X	X	X	X	X	X								

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 1 – SCOPE AND ADMINISTRATION—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHDP					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter																						
Adopt entire chapter as amended (amended sections listed below)																						
Adopt only those sections that are listed below	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Chapter / Section																						
Division II – <i>Scope and Administration</i> -cont'd																						
104.11.3										X	X	X		X	X							
104.11.4										X	X			X	X							
105.1										X	X	X	X	X	X							
105.1.1 – 105.2										X	X	X	X	X	X							
105.2 Building: 1-13				X	X																	
105.2.1 – 105.2.2			X							X	X	X	X	X	X							
105.2.3										X	X	X	X	X	X							
105.3 – 105.3.1			X							X	X	X	X	X	X							
105.3.2										X	X	X		X	X							
105.4			X							X	X	X	X	X	X							
105.5										X	X	X	X	X	X							
105.6 – 105.7			X							X	X	X	X	X	X							
106.1			X					X	X	X	X	X	X	X	X							
106.1.1								X	X	X	X		X	X								
106.2 – 106.3			X							X	X	X	X	X	X							
107.1			X	X	X					X	X	X	X	X	X							
107.2			X							X	X	X	X	X	X							
107.2.1			X	X	X					X	X				X							
107.2.3			X	X	X																	
107.2.4			X	X	X																	
107.2.5			X	X	X			X	X													
107.2.6			X	X	X																	
107.2.6.1				X	X																	
107.2.7			X																			
107.3			X							X	X	X	X	X	X							
107.3.4.1										X	X	X		X	X							
107.4			X																			
107.5			X							X	X	X	X	X	X							
108.1 – 108.4			X							X	X	X	X	X	X							
109										X	X	X	X	X	X							
110.1 – 110.3			X							X	X	X	X	X	X							
110.3.1 – 110.3.3				X	X					X	X	X	X	X	X							
110.3.4 – 110.3.7			X	X	X					X	X	X	X	X	X							
110.3.4.1				X																		
110.3.6								X	X													
110.3.9 – 110.3.11			X	X	X					X	X	X	X	X	X							
110.3.10.1				X	X																	
110.3.10.2				X																		
110.3.11.1				X	X																	
110.3.11.2				X	X																	

(continued)

**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, lodging houses, live/work units, townhouses not more than three stories above grade plane in height with a separate means of egress, and their accessory structures, may be designed and constructed in accordance with this code or the California Residential Code, but not both, unless the proposed structure(s) or element(s) exceed the design limitations established in the California Residential Code, and the code user is specifically directed by the California Residential Code to use this 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 a 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 278180, Sacra-

mento, CA 95827 or 9342 Tech Center Drive, Suite 500, Sacramento, CA 95826.

**1.1.8.2 Locally adopted energy standards—California Energy Code, Part 6.**

In addition to the provisions of Section 1.1.8.1 of this part, the provisions of this section shall apply to a city, county, and cities and counties adopting local energy standards applicable to buildings and structures subject to the California Energy Code, Part 6.

Applicable provisions of Public Resources Code Section 25402.1(h)(2) and applicable provisions of Section 10-106, Chapter 10 of the California Administrative Code, Part 1 apply to locally adopted energy standards amending the California Energy Code, Part 6.

**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.

**Exception: (HCD 1 & HCD 2)** Plans approved by the Department of Housing and Community Development or a Department-approved design approval agency for factory-built housing as defined by Health and Safety Code Section 19971. Approved plans, pursuant to the California Code of Regulations, Title 25, Division 1, Chapter 3, Subchapter 1, Article 3, Section 3048 remain valid for a period of 36 months from the date of plan approval.

**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(e)(1) and (2).

**1.1.11 Format.** This part fundamentally adopts the International Building Code by reference on a chapter-by-chapter basis. When a specific chapter of the International Building Code is not printed in the code and is marked “Reserved”, such chapter of the International Building Code is not adopted as a portion of this code. When a specific chapter of the International Building 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.

**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 BUILDING STANDARDS COMMISSION

**1.2.1 BSC.** 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.

### 1. State buildings for all occupancies.

**Application**—State buildings (all occupancies), including buildings constructed by the Trustees of the California State University (CSU) and the Regents of the University of California (UC) where no state agency has the authority to adopt building standards applicable to such buildings.

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Health and Safety Code Section 18934.5.

**Reference**—Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

### 2. University of California, California State Universities and California Community Colleges.

**Application**—Standards for lighting for parking lots and primary campus walkways at the University of California, California State Universities and California Community Colleges.

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Government Code Section 14617.

**Reference**—Government Code Section 14617.

### 3. Existing state-owned buildings, including those owned by the University of California and by the California State University.

**Application**—Building seismic retrofit standards including abating falling hazards of structural and nonstructural components and strengthening of building structures. See also Division of the State Architect.

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Health and Safety Code Section 16600.

**Reference**—Health and Safety Code Sections 16600 through 16604.

### 4. Unreinforced masonry-bearing wall buildings.

**Application**—Minimum seismic strengthening standards for buildings specified in Appendix Chapter A1 of the California Existing Building Code, except for buildings subject to building standards adopted pursuant to Health and Safety Code (commencing with Section 17910).

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Health and Safety Code Section 18934.7.

**Reference**—Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

**1.2.1.1 State building.** For purposes of this code, a “state building” is a structure for which a state agency or state entity has authority to construct, alter, enlarge, replace, repair or demolish.

**1.2.1.2 Enforcement.** [CSU, UC, Judicial Council and California Department of Corrections and Rehabilitation] State agencies or state entities authorized to construct state buildings may appoint a building official who is responsible to the agency for enforcement of the provisions of the California Building Standards Code.

**Exception:** State buildings regulated by other sections of this code remain the enforcement responsibility of the designated entities.

### 1.2.1.3 Enforcement. Reserved for DGS.

**1.2.1.4 Adopting agency identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym **BSC**.

**1.2.2 BSC-CG.** 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.

### 1. Green buildings standards for nonresidential occupancies.

**Application**—All occupancies where no state agency has the authority to adopt green building standards applicable to those occupancies.

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Health and Safety Code Sections 18930.5(a), 18938, and 18940.5.

**Reference**—Health and Safety Code, Division 13, Part 2.5, commencing with Section 18901.

### 2. Graywater systems for nonresidential occupancies.

**Application**—The construction, installation, and alteration of graywater systems for indoor and outdoor uses in nonresidential occupancies.

**Enforcing agency**—State or local agency specified by the applicable provisions of law.

**Authority cited**—Health and Safety Code Section 18941.8.

**Reference**—Health and Safety Code Section 18941.8.

**1.2.2.1 Adopting agency identification.** The provisions of this code applicable to buildings identified in this section will be identified in the Matrix Adoption Tables under the acronym **BSC-CG**.

**1.2.3 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

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 2 – DEFINITIONS

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X	X						
Chapter / Section																						
201.3			X	X	X	X																
201.4			X																			
202			X	X	X	X																
Access Aisle							X															
Accessibility				X	X	X	X															
Accessibility Function Button							X															
Accessible				X	X	X	X															
Accessible Element							X															
Accessible Means of Egress							X															
Accessible Route				X	X	X	X															
Accessible Space				X	X	X	X															
Accessible Unit				†	†	†																
Active Earthquake Fault								X	X	X				X								
Active Equipment/Component								X	X	X	X	X		X	X							
Adaptable							X															
Adaptable Dwelling Unit						X																
Addition (2nd paragraph only)							X															
Adjusted Construction Cost							X															
Administrative Authority							X															
Adult Changing Facility							X															
Aged Home or Institution			X																			
Aisle (2nd paragraph only)							X															
Alteration							X															
Alternative System									X	X	X		X	X								
Amusement Attraction							X															
Amusement Ride							X															
Amusement Ride Seat							X															
ANSI							X															
Approved (with notes)			X	X	X	X																
Approved (2nd paragraph only) (w/o notes)							X															
Approved Agency				X	X			X	X													
Approved Listing Agency				X	X																	
Approved Testing Agency				X	X		X		X	X	X		X	X								
Area of Refuge							X															
Area of Sport Activity							X															
Assembly Area							X															
Assistive Device						X																
Assistive Listening System (ALS)							X															
Automatic Door				X	X	X	X															
Automatic Teller Machine (ATM)							X															
Auxiliary Area																	X					
Backwash																	X					
Base								X	X	X			X									
Bather																	X					
Bathroom						X	X															
Bedridden Person			X																			
Blended Transition							X															

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X	X						
Chapter / Section																						
<i>Boarding Pier</i>							X															
<i>Boat Launch Ramp</i>							X															
<i>Boat Slip</i>							X															
Building			X																			
Building (with exception)				X	X	X																
Building (w/o notes)							X															
<i>Building Entrance on an Accessible Route</i>						X																
<i>Building, Existing</i>				X	X																	
Building Official							X															
<i>Care and Supervision</i>			X																			
Care Suite			X																			
<i>Carriage Unit</i>						X																
<i>Catastrophically Injured</i>			X																			
<i>Catch Pool</i>							X															
CCR							X															
<i>CDF Director</i>			X																			
Cell			X																			
<i>Cell Complex</i>			X																			
<i>Cell Tiers</i>			X																			
<i>Cellular Concrete</i>				X	X																	
<i>Central Control Building</i>			X																			
<i>Characters</i>				X	X	X	X															
<i>Charter School</i>			X																			
<i>Child-Care Center</i>			X																			
<i>Child or Children</i>			X																			
<i>Children's Use</i>							X															
<i>Chronically Ill</i>			X																			
Circulation Path							X															
<i>Clean Pool Water</i>																	X					
<i>Clear</i>							X															
<i>Clear Floor Space</i>						X	X															
<i>Clear Pool Water</i>																	X					
<i>Clinic, Outpatient</i>			X																			
<i>Closed-Circuit Telephone</i>							X															
Commercial Facilities							X															
Commercial Place of Public Amusement							X															
Common Use				†	†	†	X															
<i>Common Use Areas</i>			†			X																
<i>Community Care Facility</i>			X																			
<i>Community Correctional Reentry Centers</i>			X																			
<i>Comply With</i>							X															

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X	X						
Chapter / Section																						
Concrete, Cellular				X	X	X																
Congregate Living Health Facility (CLHF)			X																			
Congregate Residence			X			X																
Control Room			X																			
Correctional Hospitals			X																			
Correctional Medical or Mental Health Housing Suite			X																			
Correctional Mental Health Facilities			X																			
Correctional Nursing Facilities			X																			
Correctional Treatment Centers			X																			
Corrosion Resistant																						X
Courthouse Holding Facility			X																			
Courtroom Dock			X																			
Covered Multifamily Dwellings						X																
Cross Slope						X	X															
Curb Cut				X	X	X	X															
Curb Ramp				X	X	X	X															
Custody Station			X																			
Day-Care			X																			
Day-Care Home, Family			X																			
Day-Care Home, Large Family			X																			
Day-Care Home, Small Family			X																			
Day Room			X																			
Deck																						X
Department				X	X																	
Designated Public Transportation							X															
Destination-Oriented Elevator							X															
Detached Single-Family Dwelling				X	X																	
Detectable Warning				X	X	X	X															
Detention Elevator			X																			
Detention Program Suite			X																			
Detention Treatment Room			X																			
Detoxification Facilities			X																			
Directional Sign				X	X		X															
Disability							X															
Distance from Active Earthquake Fault								X	X	X				X								
District Agricultural Associations							X															
Dormitory			X				X															
Dormitory			X																			
Drain																						X
Drive-up Electric Vehicle Charging Station							X															
Dwelling Unit						X																
Effective Particle Size																						X
Efficiency Dwelling Unit				X																		

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHDPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X							X		X						
Chapter / Section																						
Electric Vehicle			X																			
Electric Vehicle (EV)							X															
Electric Vehicle (EV) Charger							X															
Electric Vehicle Charging Space (EV Space)							X															
Electric Vehicle Charging Station (EVCS)							X															
Electric Vehicle (EV) Connector							X															
Element							X															
Elevated Play Component							X															
Elevator, Passenger				X	X		X															
Employee Work Area							X															
Enforcement				X	X																	
Enforcement Agent								X	X	X	X			X	X							
Enforcing Agency			X	X	X		X			X	X	X	X	X	X		X					
Entrance				X	X	X	X															
Equipment								X	X	X	X	X		X	X							
Equipment Area																X						
Equivalent Facilitation						X	X															
Existing Building or Facility							X															
Exit							X															
Exterior Covering			X																			
Facility							X															
Family				X																		
Fire Appliance			X																			
Fire Hazard Severity Zones			X																			
Fire Protection Plan			X																			
Fire-Retardant Treated Wood			X																			
Fire-Smoke Barrier			X																			
Fireworks			X																			
Freestanding Acute Psychiatric Building (APB)															X							
Freestanding Skilled Nursing Building (SNB)												X										
Full-Time Care			X																			
Functional Area							X															
Gangway							X															
Gas Detection System			X																			
General Acute Care Building (GAC Building)										X												
Golf Car Passage							X															
Grab Bar						X	X															
Grade (Adjacent Ground Elevation)						X	X															
Grade Break							X															
Ground Floor						X	X															
Ground Level Play Component							X															

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC -CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X							X	X							
Chapter / Section																						
Group Home			X																			
Guard (or Guardrail)				X	X	X	X															
Hall Call Console							X															
Handrail							X															
Handwashing Fixture									X		X	X	X									
Hazardous Substance			X																			
Health Care Provider							X															
High-Rise Building			X																			
High-Rise Building Access			X																			
Historic Buildings							X															
Holding Facility			X																			
Hospitals and Psychiatric Hospitals			X																			
Hotel or Motel				X	X																	
Housing at a Place of Education						X	X															
Housing Pod			X																			
Housing Unit			X																			
HPM			X																			
If, If... Then							X															
Ignition-Resistant Material			X																			
Infant			X																			
Inlet																	X					
Intake and Release Areas			X																			
Intended to be occupied as a Residence				†	†	†																
International Symbol of Accessibility						X	X															
Irregular Structure								X	X	X				X								
Key Station							X															
Kick Plate				X	X	X	X															
Kitchen or Kitchenette							X															
Labeled				X	X																	
Laboratory			X																			
Laboratory Suite			X																			
Ladder																	X					
Lavatory						X	X															
Level Area						X																
Licensing Agency									X	X	X	X	X	X								
Lift, Platform (Wheelchair)						X																
Liquid Tight Floor			X																			
Listed			X	X	X																	
Listing Agency				X	X																	
Live/Work Unit				X																		
Lobby			X	X	X																	

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X							
Chapter / Section																						
Local Agency Very High Fire Hazard Severity Zone			X																			
Lodging House				X		X																
Log Wall Construction			X																			
Mail Boxes							X															
Major Structural Alterations, Additions or Repairs									X				X									
Marked Crossing				X	X	X	X															
May							X															
Medical Pool																X						
Mezzanine							X															
Minor Structural Alteration, Additions or Repairs									X				X									
Monolithic									X	X	X	X	X	X								
Monolithic Ceiling									X	X	X	X	X	X								
Motel				X	X																	
Motion Picture and Television Production Studio Sound Stage, Approved Production Facilities and Production Locations			X																			
Multi-bedroom Housing Unit							X															
Multilevel Assembly Seating				†	†	†																
Multistory Dwelling Unit						X																
Multistory Unit				†	†	†																
Newly Constructed						X																
Next Generation Attenuation West 2 (NGA W2)								X	X	X			X									
NFPA							X															
Non-General Acute Care Building (Non-GAC Building)										X												
Nonambulatory Persons			X																			
Noncombustible			X																			
Nonpatient-care Suite			X																			
Normal				X	X																	
Nosing							X															
NPC 1, NPC 2, NPC 3/NPC 3R, NPC 4 and NPC 5									X													
Nursing Homes			X																			
Occupant Load							X															
Occupiable Space							X															
Open Riser				X	X	X	X															
Operable Part				X	X	X	X															
Organized Camps			X																			
Overflow System																X						

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC-CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X							
Chapter / Section																						
Passage Door						X																
Passenger Elevator				X	X		X															
Passive Solar Energy Collector				X	X																	
Path of Travel							X															
Pedestrian						X	X															
Pedestrian Way				X	X	X	X															
Peer Review									X	X	X		X	X								
Periodic Special Inspection								X	X													
Permanent							X															
Permanent Portable Building			X																			
Permit							X															
Persons with Disabilities						X																
Persons with Intellectual Disabilities, Profoundly or Severely			X																			
Pictogram				X	X	X	X															
Place of Public Accommodation				X	X	X	X															
Platform							X															
Platform (Wheelchair) Lift				X	X	X	X															
Play Area							X															
Play Component							X															
Point-of-Sale Device							X															
Pool																						X
Pool User																						X
Pool Volume																						X
Powder Room				X	X	X	X															
Power-Assisted Door							X															
Primary Entry						X																
Primary-Entry Level						X																
Private Building or Facility							X															
Private Pool																						X
Professional Office of a Health Care Provider							X															
Project Inspector								X	X													
Protective Social Care Facility			X																			
Public Building or Facility							X															
Public Entity						X	X															
Public Entrance							X															
Public Housing						X	X															
Public Pool																						X
Public Use							X															
Public-Use Areas						X	X															
Public Way							X															
Qualified Historic Building or Facility							X															
Quality Assurance (QA)								X	X	X	X	X		X	X							

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X							
Chapter / Section																						
<i>Quality Control (QC)</i>								X	X	X	X	X		X	X							
<i>Raftertail</i>			X																			
<i>Ramp</i>							X															
<i>Reasonable Portion</i>							X															
<i>Recessed Steps</i>																	X					
<i>Recessed Treads</i>																	X					
<i>Recirculation System</i>																	X					
<i>Recommend</i>				X	X		X															
<i>Relocatable Building (Public School)</i>			X																			
<i>Remodeling</i>							X															
<i>Removed from Acute Care Service</i>										X												
<i>Repair</i>							X			X				X								
<i>Residential Care Facility for the Chronically Ill (RCF/CI)</i>			X																			
<i>Residential Care Facility for the Elderly (RCFE)</i>			X																			
<i>Residential Dwelling Unit</i>							X															
<i>Residential Facility (RF)</i>			X																			
<i>Restraint</i>			X																			
<i>Restricted Area</i>										X	X	X	X	X	X							
<i>Restricted Entrance</i>							X															
<i>Retrofit</i>								X	X	X				X								
<i>Riser</i>				X	X	X	X															
<i>Roof Eave</i>			X																			
<i>Roof Eave Soffit</i>			X																			
<i>Rugged Equipment</i>								X	X													
<i>Running Slope</i>				X	X	X	X															
<i>Sanitary Facility</i>				X		X																
<i>Secure Interview Rooms</i>			X																			
<i>Self-Service Storage</i>				†	†	†	X															
<i>Service Entrance</i>							X															
<i>Shall</i>							X															
<i>Shallow Pool</i>																	X					
<i>Shopping Center (or Shopping Mall)</i>							X															
<i>Should</i>				X	X		X															
<i>Sidewalk</i>				X	X	X	X															
<i>Sign</i>						X	X															
<i>Significant Loss of Function</i>								X	X	X				X								
<i>Single-Accommodation Sanitary Facility</i>						X																
<i>Sink</i>						X	X															

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC -CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X	X						
Chapter / Section																						
Site							X															
Site Development						X																
Sleeping Accommodations				X	X	X	X															
Slip Resistant																	X					
Slope						X																
Small Management Yard			X																			
Soft Contained Play Structure							X															
Space				X	X	X	X															
SPC 1, SPC 2, SPC 3, SPC 4D and SPC 5										X												
SPC Building										X	X											
Special Inspection								X	X													
Specified Public Transportation							X															
Stage							X															
Stair							X															
Stairs																	X					
Stairway							X															
State-Owned/Leased Building			X																			
State Responsibility Area			X																			
Step																	X					
Steps, Recessed Steps, Ladders and Recessed Treads																	X					
Story (2nd paragraph only)							X															
Structural Frame							X															
Structure							X															
Sub-Component										X	X	X		X	X							
Surface Mounted Component										X	X	X		X	X							
Tactile				X	X	X	X															
Tactile Sign				X	X	X	X															
Technically Infeasible							X															
Teeing Ground							X															
Temporary							X															
Temporary Holding Cell, Room or Area.			X													X						
Temporary Holding Facility			X																			
Tenable Environment			X																			
Terminally Ill			X																			

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 2 – DEFINITIONS—continued**

Adopting agency	BSC	BSC -CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X																					
Adopt entire chapter as amended (amended sections listed below)			X	X	X	X		X	X	X	X	X		X	X							
Adopt only those sections that are listed below							X						X		X							
<i>Chapter / Section</i>																						
<i>Testing Agency</i>				X	X																	
<i>Text Telephone</i>						X	X															
<i>Torque-Controlled Post-Installed Anchor</i>								X	X	X	X	X		X	X							
<i>Transfer Device</i>							X															
<i>Transient Lodging</i>				X	X	X	X															
<i>Transit Boarding Platform</i>							X															
<i>Transition Plate</i>							X															
<i>Tread</i>				X	X	X																
<i>Treatment of Water</i>																		X				
<i>TTY</i>						X	X															
<i>Turnover Time</i>																		X				
<i>Type A Unit</i>				†	†	†																
<i>Type B Unit</i>				†	†	†																
<i>Uniformity Coefficient</i>																		X				
<i>Unreasonable Hardship</i>				X	X	X	X															
<i>Use Zone</i>							X															
<i>Valuation Threshold</i>							X															
<i>Variable Message Signs (VMS)</i>							X															
<i>Variable Message Sign (VMS) Characters</i>							X															
<i>Vehicular or Pedestrian Arrival Points</i>						X																
<i>Vehicular Way</i>						X	X															
<i>Waiting Room</i>			X																			
<i>Walk</i>						X	X															
<i>Waterline</i>																		X				
<i>Wet Bar</i>							X															
<i>Wheelchair</i>						X	X															
<i>Wheelchair Space</i>							X															
<i>Wildfire</i>			X																			
<i>Wildfire Exposure</i>			X																			
<i>Wildland-Urban Interface Fire Area</i>			X																			
<i>Winery Caves</i>			X																			
<i>Work Area Equipment</i>							X															
<i>Workstation (2nd paragraph only)</i>							X															

The state agency does not adopt sections identified by the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.

**DIRECTIONAL SIGN.** [DSA-AC, HCD 1 & HCD 2] A publicly displayed notice which indicates by use of words or symbols a recommended direction or route of travel.

**DISABILITY.** [DSA-AC] Disability is (1) a physical or mental impairment that limits one or more of the major life activities of an individual, (2) a record of such an impairment, or (3) being regarded as having such an impairment.

**[F] DISPENSING.** The pouring or transferring of any material from a container, tank or similar vessel, whereby vapors, dusts, fumes, mists or gases are liberated to the atmosphere.

**DISTANCE FROM AN ACTIVE EARTHQUAKE FAULT.** [DSA-SS, DSA-SS/CC, OSHPD 1 & 4] Distance measured from the nearest point of the building to the closest edge of an Alquist-Priolo Earthquake fault zone for an active fault, if such a map exists, or to the closest mapped splay of the fault.

**DISTRICT AGRICULTURAL ASSOCIATIONS.** Those associations regulated by the California Food and Agricultural Code, Division 3, Part 3.

**DOOR, BALANCED.** See “Balanced door.”

**DOOR, LOW-ENERGY POWER-OPERATED.** See “Low-energy power-operated door.”

**DOOR, POWER-ASSISTED.** See “Power-assisted door.”

**DOOR, POWER-OPERATED.** See “Power-operated door.”

**DOORWAY, EXIT ACCESS.** See “Exit access doorway.”

**[BG] DORMITORY.** A space in a building where group sleeping accommodations are provided in one room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, as in college dormitories or fraternity houses. [SFM] For Group I-3 occupancies “Dormitory” is an area occupied by no less than three inmates.

**[BF] DRAFTSTOP.** A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, floor/ceiling assemblies, roof/ceiling assemblies and attics.

**DRAG STRUT.** See “Collector.”

**DRAIN.** A fitting or fixture, usually at or near the bottom of a pool, through which water leaves the pool normally to the recirculation pump.

**[BS] DRILLED SHAFT.** A cast-in-place deep foundation element, also referred to as a caisson, drilled pier or bored pile, constructed by drilling a hole (with or without permanent casing or drilling fluid) into soil or rock and filling it with fluid concrete after the drilling equipment is removed.

**Socketed drilled shaft.** A drilled shaft with a permanent pipe or tube casing that extends down to bedrock and an uncased socket drilled into the bedrock.

**DRIVE-UP ELECTRIC VEHICLE CHARGING STATION.** An electric vehicle charging station in which use is limited to 30 minutes maximum and is provided at a location where the electric vehicle approaches in the forward direction, stops in the vehicle space, charges the vehicle, and proceeds forward to depart the vehicle space. The arrangement of a drive-up electric vehicle charger and its associated vehicle space is similar to a gasoline filling station island.

**[F] DRY-CHEMICAL EXTINGUISHING AGENT.** A powder composed of small particles, usually of sodium bicarbonate, potassium bicarbonate, urea-potassium-based bicarbonate, potassium chloride or monoammonium phosphate, with added particulate material supplemented by special treatment to provide resistance to packing, resistance to moisture absorption (caking) and the proper flow capabilities.

**[BS] DRY FLOODPROOFING.** A combination of design modifications that results in a building or structure, including the attendant utilities and equipment and sanitary facilities, being water tight with walls substantially impermeable to the passage of water and with structural components having the capacity to resist loads as identified in ASCE 7.

**[A] DWELLING.** A building that contains one or two dwelling units used, intended or designed to be used, rented, leased, let or hired out to be occupied for living purposes.

**[A] DWELLING UNIT.** A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation. [HCD 1-AC] For the purposes of Chapter 11A, a single unit of residence for a family of one or more persons. Examples of dwelling units covered by Chapter 11A include condominiums, an apartment unit within an apartment building, and other types of dwellings in which sleeping accommodations are provided but toileting or cooking facilities are shared by occupants of more than one room or portion of the dwelling. Examples of the latter include dormitory rooms and sleeping accommodations in shelters intended for occupancy as residences for homeless persons.

**DWELLING UNIT OR SLEEPING UNIT, MULTI-STORY.** See “Multistory unit.”

**EFFECTIVE PARTICLE SIZE.** The theoretical size of a sieve in mm that will pass 10 percent by weight of sand.

**EFFICIENCY DWELLING UNIT.** [HCD 1] A dwelling unit constructed in accordance with Health and Safety Code Section 17958.1 or the California Building Code Section 1207.4.

**[BE] EGRESS COURT.** A court or yard which provides access to a public way for one or more exits.

**ELECTRIC VEHICLE (EV).** [DSA-AC & SFM] An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, 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. Plug-in hybrid electric vehicles (PHEV) are considered electric vehicles. For the purpose of this code, 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.

**ELECTRIC VEHICLE (EV) CHARGER.** Off-board charging equipment used to charge an electric vehicle.

**ELECTRIC VEHICLE CHARGING SPACE (EV Space).** A space intended for charging electric vehicles.

**ELECTRIC VEHICLE CHARGING STATION (EVCS).** One or more electric vehicle charging spaces served by an

## DEFINITIONS

*electric vehicle charger or other charging equipment. Where a multiport electric vehicle charger can simultaneously charge more than one vehicle, the number of electric vehicle charging stations shall be considered equivalent to the number of electric vehicles that can be simultaneously charged.*

**ELECTRIC VEHICLE (EV) CONNECTOR.** *A device that, when electrically coupled (conductive or inductive) to an electric vehicle inlet, establishes an electrical connection to the electric vehicle for the purpose of power transfer and information exchange. This device is part of the electric vehicle coupler.*

**[BF] ELECTRICAL CIRCUIT PROTECTIVE SYSTEM.** *A specific construction of devices, materials, or coatings installed as a fire-resistive barrier system applied to electrical system components, such as cable trays, conduits and other raceways, open run cables and conductors, cables, and conductors.*

**ELEMENT.** *[DSA-AC] An architectural or mechanical component of a building, facility, space or site.*

**ELEVATED PLAY COMPONENT.** *[DSA-AC] A play component that is approached above or below grade and that is part of a composite play structure consisting of two or more play components attached or functionally linked to create an integrated unit providing more than one play activity.*

**[F] ELEVATOR GROUP.** *A grouping of elevators in a building located adjacent or directly across from one another that responds to common hall call buttons.*

**ELEVATOR, PASSENGER.** *[HCD 1 & HCD 2] See “PASSENGER ELEVATOR.” [DSA-AC] An elevator used primarily to carry passengers.*

**[F] EMERGENCY ALARM SYSTEM.** *A system to provide indication and warning of emergency situations involving hazardous materials.*

**[F] EMERGENCY CONTROL STATION.** *An approved location on the premises where signals from emergency equipment are received and which is staffed by trained personnel.*

**[BE] EMERGENCY ESCAPE AND RESCUE OPENING.** *An operable window, door or other similar device that provides for a means of escape and access for rescue in the event of an emergency.*

**[F] EMERGENCY POWER SYSTEM.** *A source of automatic electric power of a required capacity and duration to operate required life safety, fire alarm, detection and ventilation systems in the event of a failure of the primary power. Emergency power systems are required for electrical loads where interruption of the primary power could result in loss of human life or serious injuries.*

**[F] EMERGENCY VOICE/ALARM COMMUNICATIONS.** *Dedicated manual or automatic facilities for originating and distributing voice instructions, as well as alert and evacuation signals pertaining to a fire emergency, to the occupants of a building.*

**[BE] EMPLOYEE WORK AREA.** *All or any portion of a space used only by employees and only for work. Corridors,*

*toilet rooms, kitchenettes and break rooms are not employee work areas.*

**ENFORCEMENT.** *[HCD 1 & HCD 2] The applicable section of the Health and Safety Code is repeated here for clarity and reads as follows:*

*Section 17920. “Enforcement” means diligent effort to secure compliance, including review of plans and permit applications, response to complaints, citation of violations, and other legal process. Except as otherwise provided in this part, “enforcement” may, but need not, include inspections of existing buildings on which no complaint or permit application has been filed, and effort to secure compliance as to these existing buildings.*

**ENFORCEMENT AGENT.** *[DSA-SS, DSA-SS/CC & OSHPD 1, 1R, 2, 4 & 5] That individual within the agency or organization charged with responsibility for agency or organization compliance with the requirements of this Code. Used interchangeably with Building Official and Code Official.*

**ENFORCING AGENCY.** *[DSA-AC, HCD 1 & HCD 2] The designated department or agency as specified by statute or regulation.*

**[BS] ENGINEERED WOOD RIM BOARD.** *A full-depth structural composite lumber, wood structural panel, structural glued laminated timber or prefabricated wood I-joist member designed to transfer horizontal (shear) and vertical (compression) loads, provide attachment for diaphragm sheathing, siding and exterior deck ledgers, and provide lateral support at the ends of floor or roof joists or rafters.*

**ENTRANCE.** *Any access point to a building or portion of a building or facility used for the purpose of entering. An entrance includes the approach walk, the vertical access leading to the entrance platform, the entrance platform itself, vestibule if provided, the entry door or gate, and the hardware of the entry door or gate.*

**ENTRANCE, PUBLIC.** *See “Public entrance.”*

**ENTRANCE, RESTRICTED.** *See “Restricted entrance.”*

**ENTRANCE, SERVICE.** *See “Service entrance.”*

**EQUIPMENT.** *[DSA-SS, DSA-SS/CC, OSHPD 1, 1R, 2, 4 & 5] Equipment as used in this part and all applicable parts of the California Building Standards Code shall be classified as fixed equipment, mobile or movable equipment.*

- (1) **FIXED EQUIPMENT** includes items that are permanently affixed to the building or permanently connected to a service distribution system that is designed and installed for the specific use of the equipment.*
- (2) **MOVABLE EQUIPMENT** means equipment, with or without wheels or rollers, that typically remains in one fixed location during its service life or use, but is required to be periodically moved to facilitate cleaning or maintenance.*
- (3) **MOBILE EQUIPMENT** means equipment, with or without wheels or rollers, that is typically used in a different location than where it is stored and moved*

**Existing high-rise structure.** A high-rise structure, the construction of which is commenced or completed prior to July 1, 1974.

**High-rise structure.** Every building of any type of construction or occupancy having floors used for human occupancy located more than 75 feet above the lowest floor level having building access (see Section 403.1.2), except buildings used as hospitals as defined in Health and Safety Code Section 1250.

**New high-rise building.** A high-rise structure, the construction of which is commenced on or after July 1, 1974. For the purpose of this section, construction shall be deemed to have commenced when plans and specifications are more than 50 percent complete and have been presented to the local jurisdiction prior to July 1, 1974. Unless all provisions of this section have been met, the construction of such buildings shall commence on or before January 1, 1976.

**New high-rise structure.** A high-rise structure, the construction of which is commenced on or after July 1, 1974.

**HIGH-RISE BUILDING ACCESS.** An exterior door opening conforming to all of the following:

1. Suitable and available for fire department use.
2. Located not more than 2 feet (610 mm) above the adjacent ground level.
3. Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.
4. Designed to permit penetration through the use of fire department forcible-entry tools and equipment unless other approved arrangements have been made with the fire authority having jurisdiction.

**[A] HISTORIC BUILDINGS.** Any building or structure that is one or more of the following:

1. Listed or certified as eligible for listing by the State Historic Preservation Officer or the Keeper of the National Register of Historic Places, in the National Register of Historic Places.
2. Designated as historic under an applicable state or local law.
3. Certified as a contributing resource within a National Register, state designated or locally designated historic district.

**[DSA-AC]** See “Qualified historical building or property,” C.C.R., Title 24, Part 8.

**HOLDING FACILITY.** A detention or correctional facility or area where inmates, staff and public are not housed but are restrained.

**[BF] HORIZONTAL ASSEMBLY.** A fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained.

**[BE] HORIZONTAL EXIT.** An exit component consisting of fire-resistance-rated construction and opening protectives intended to compartmentalize portions of a building thereby

creating refuge areas that afford safety from the fire and smoke from the area of fire origin.

**[BG] HOSPITALS AND PSYCHIATRIC HOSPITALS.** Facilities that provide care or treatment for the medical, psychiatric, obstetrical, or surgical treatment of care recipients who are incapable of self-preservation or classified as nonambulatory or bedridden.

**HOTEL OR MOTEL. [HCD 1 & HCD 2]** Any building containing six or more guest rooms intended or designed to be used, or which are used, rented or hired out to be occupied, or which are occupied for sleeping purposes by guests.

**HOUSING AT A PLACE OF EDUCATION.** Housing operated by or on behalf of an elementary, secondary, undergraduate, or postgraduate school, or other place of education, including dormitories, suites, apartments, or other places of residence.

**HOUSING POD.** A section of a housing unit designed to segregate different populations. Housing Pods contain sleeping areas, dayroom space, showers, toilet facilities, and support space.

**HOUSING UNIT.** A building or portion of a building intended to lodge inmates on a 24-hour basis where accommodations are provided for sleeping and other inmate support areas. A Housing Unit may contain one or more housing pods.

**[F] HPM.** See “Hazardous Production Material.”

**[F] HPM ROOM.** A room used in conjunction with or serving a Group H-5 occupancy, where HPM is stored or used and which is classified as a Group H-2, H-3 or H-4 occupancy.

**[BS] HURRICANE-PRONE REGIONS.** Areas vulnerable to hurricanes defined as:

1. The U. S. Atlantic Ocean and Gulf of Mexico coasts where the ultimate design wind speed,  $V$ , for Risk Category II buildings is greater than 115 mph (51.4 m/s);
2. Hawaii, Puerto Rico, Guam, Virgin Islands and American Samoa.

**[F] HYDROGEN FUEL GAS ROOM.** A room or space that is intended exclusively to house a gaseous hydrogen system.

**[BS] ICE-SENSITIVE STRUCTURE.** A structure for which the effect of an atmospheric ice load governs the design of a structure or portion thereof. This includes, but is not limited to, lattice structures, guyed masts, overhead lines, light suspension and cable-stayed bridges, aerial cable systems (e.g., for ski lifts or logging operations), amusement rides, open catwalks and platforms, flagpoles and signs.

**IF, IF . . . THEN. [DSA-AC]** The terms “if” and “if . . . then” denote a specification that applies only when the conditions described are present.

**IGNITION-RESISTANT MATERIAL. [SFM]** (See Chapter 7A, Section 702A for defined term.)

**[F] IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).** The concentration of airborne contaminants which poses a threat of death, immediate or delayed permanent adverse health effects, or effects that could pre-

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vent escape from such an environment. This contaminant concentration level is established by the National Institute of Occupational Safety and Health (NIOSH) based on both toxicity and flammability. It generally is expressed in parts per million by volume (ppmv/v) or milligrams per cubic meter (mg/m<sup>3</sup>). If adequate data do not exist for precise establishment of IDLH concentrations, an independent certified industrial hygienist, industrial toxicologist, appropriate regulatory agency or other source approved by the building official shall make such determination.

**[BS] IMPACT LOAD.** The load resulting from moving machinery, elevators, craneways, vehicles and other similar forces and kinetic loads, pressure and possible surcharge from fixed or moving loads.

**[BG] INCAPABLE OF SELF-PRESERVATION.** Persons who, because of age, physical limitations, mental limitations, chemical dependency or medical treatment, cannot respond as an individual to an emergency situation.

**[F] INCOMPATIBLE MATERIALS.** Materials that, when mixed, have the potential to react in a manner that generates heat, fumes, gases or byproducts which are hazardous to life or property.

**[F] INERT GAS.** A gas that is capable of reacting with other materials only under abnormal conditions such as high temperatures, pressures and similar extrinsic physical forces. Within the context of the code, inert gases do not exhibit either physical or health hazard properties as defined (other than acting as a simple asphyxiant) or hazard properties other than those of a compressed gas. Some of the more common inert gases include argon, helium, krypton, neon, nitrogen and xenon.

**INFANT.** 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.

**[F] INITIATING DEVICE.** A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box or supervisory switch.

**INLET.** A fitting or fixture through which circulation water enters the pool.

**INTAKE AND RELEASE AREAS.** A temporary holding suite where detained and/or incarcerated individuals are received and processed into a facility or are released from the facility. The suite may contain holding cells, sobering and safety cells, medical examination space, interview rooms, property storage, and staff work areas.

**[BE] INTENDED TO BE OCCUPIED AS A RESIDENCE.** This refers to a dwelling unit or sleeping unit that can or will be used all or part of the time as the occupant's place of abode.

**[BE] INTERIOR EXIT RAMP.** An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and provides for a protected path of egress travel to the exit discharge or public way.

**[BE] INTERIOR EXIT STAIRWAY.** An exit component that serves to meet one or more means of egress design requirements, such as required number of exits or exit access travel distance, and provides for a protected path of egress travel to the exit discharge or public way.

**[BF] INTERIOR FINISH.** Interior finish includes interior wall and ceiling finish and interior floor finish.

**[BF] INTERIOR FLOOR FINISH.** The exposed floor surfaces of buildings including coverings applied over a finished floor or stair, including risers.

**[BF] INTERIOR FLOOR-WALL BASE.** Interior floor finish trim used to provide a functional or decorative border at the intersection of walls and floors.

**[BF] INTERIOR SURFACES.** Surfaces other than weather exposed surfaces.

**[BF] INTERIOR WALL AND CEILING FINISH.** The exposed interior surfaces of buildings, including but not limited to: fixed or movable walls and partitions; toilet room privacy partitions; columns; ceilings; and interior wainscoting, paneling or other finish applied structurally or for decoration, acoustical correction, surface insulation, structural fire resistance or similar purposes, but not including trim.

**[BS] INTERLAYMENT.** A layer of felt or nonbituminous saturated felt not less than 18 inches (457 mm) wide, shingled between each course of a wood-shake roof covering.

**INTERNATIONAL SYMBOL OF ACCESSIBILITY.** *The symbol adopted by Rehabilitation International's 11th World Congress for the purpose of indicating that buildings and facilities are accessible to persons with disabilities.*

**[BF] INTUMESCENT FIRE-RESISTANT COATINGS.** Thin film liquid mixture applied to substrates by brush, roller, spray or trowel which expands into a protective foamed layer to provide fire-resistant protection of the substrates when exposed to flame or intense heat.

**IRREGULAR STRUCTURE.** *[DSA-SS, DSA-SS/CC, OSHPD 1 & 4] A structure designed as having one or more plan or vertical irregularities per ASCE 7 Section 12.3.*

**[BS] JOINT.** The opening in or between adjacent assemblies that is created due to building tolerances, or is designed to allow independent movement of the building in any plane caused by thermal, seismic, wind or any other loading.

**[A] JURISDICTION.** The governmental unit that has adopted this code.

**KEY STATION.** *[DSA-AC] Certain rapid and light rail stations, and commuter rail stations, as defined under criteria established by the Department of Transportation in 49 CFR 37.47 and 49 CFR 37.51, respectively.*

**KICK PLATE.** *An abrasion-resistant plate affixed to the bottom portion of a door to prevent a trap condition and protect its surface.*

**KITCHEN OR KITCHENETTE.** *[DSA-AC] A room, space or area with equipment for the preparation and cooking of food.*

**[BF] L RATING.** The air leakage rating of a through penetration firestop system or a fire-resistant joint system when tested in accordance with UL 1479 or UL 2079, respectively.

**[A] LABEL.** An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material and the name and identification of an approved agency, and that indicates that the representative sample of the product or material has been tested and evaluated by an approved agency (see Section 1703.5, “Manufacturer’s designation” and “Mark”).

**[A] LABELED.** Equipment, materials or products to which has been affixed a label, seal, symbol or other identifying mark of a nationally recognized testing laboratory, approved 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. *[HCD 1 & HCD 2] “Labeled” means equipment or materials to which has been attached a label, symbol or other identifying mark of an organization, approved by the Department, that maintains a periodic inspection program of production of labeled products, installations, equipment, or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.*

**LABORATORY.** *[SFM] A room, building or area where the use and storage of hazardous materials are utilized for testing, analysis, instruction, research or developmental activities.*

**LABORATORY SUITE.** *[SFM] A laboratory suite is a Group L Occupancy space within a building or structure, which may include multiple laboratories, offices, storage, equipment rooms or similar support functions, where the aggregate quantities of hazardous materials stored and used do not exceed the quantities set forth in Table 453.7.3.1 (see Section 453).*

**LADDER.** *A series of vertically separate treads or rungs either connected by vertical rail members or independently fastened to an adjacent vertical pool wall.*

**LAVATORY.** *A fixed bowl or basin with running water and drainpipe, as in a toilet or bathing facility, for washing or bathing purposes. (As differentiated from the definition of “Sink”).*

**LEVEL AREA.** *[HCD 1-AC] A specified surface that does not have a slope in any direction exceeding 1/4 inch (6.4 mm) in 1 foot (305 mm) from the horizontal (2.083-percent gradient).*

**LEVEL OF EXIT DISCHARGE.** See “Exit discharge, level of.”

**LICENSING AGENCY.** *[OSHPD 1, 1R, 2, 3, 4 & 5] (See Chapter 12, Section 1224.3 for defined term.)*

**LIFT, PLATFORM (WHEELCHAIR).** *[HCD 1-AC] See “Platform (Wheelchair) Lift”.*

**[BF] LIGHT-DIFFUSING SYSTEM.** Construction consisting in whole or in part of lenses, panels, grids or baffles made

with light-transmitting plastics positioned below independently mounted electrical light sources, skylights or light-transmitting plastic roof panels. Lenses, panels, grids and baffles that are part of an electrical fixture shall not be considered as a light-diffusing system.

**[BS] LIGHT-FRAME CONSTRUCTION.** Construction whose vertical and horizontal structural elements are primarily formed by a system of repetitive wood or cold-formed steel framing members.

**[BF] LIGHT-TRANSMITTING PLASTIC ROOF PANELS.** Structural plastic panels other than skylights that are fastened to structural members, or panels or sheathing and that are used as light-transmitting media in the plane of the roof.

**[BF] LIGHT-TRANSMITTING PLASTIC WALL PANELS.** Plastic materials that are fastened to structural members, or to structural panels or sheathing, and that are used as light-transmitting media in exterior walls.

**[BS] LIMIT OF MODERATE WAVE ACTION.** Line shown on FIRMs to indicate the inland limit of the 1 1/2-foot (457 mm) breaking wave height during the base flood.

**[BS] LIMIT STATE.** A condition beyond which a structure or member becomes unfit for service and is judged to be no longer useful for its intended function (serviceability limit state) or to be unsafe (strength limit state).

**[F] LIQUID.** A material that has a melting point that is equal to or less than 68°F (20°C) and a boiling point that is greater than 68°F (20°C) at 14.7 pounds per square inch absolute (psia) (101 kPa). When not otherwise identified, the term “liquid” includes both flammable and combustible liquids.

**[F] LIQUID STORAGE ROOM.** A room classified as a Group H-3 occupancy used for the storage of flammable or combustible liquids in a closed condition.

**LIQUID TIGHT FLOOR.** *[SFM] A nonpermeable barrier capable of containing hazardous material liquids without degradation.*

**[F] LIQUID USE, DISPENSING AND MIXING ROOM.** A room in which Class I, II and IIIA flammable or combustible liquids are used, dispensed or mixed in open containers.

**[A] LISTED.** Equipment, materials, products or services included in a list published by an organization acceptable to the building 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.

*[HCD 1 & HCD 2] “Listed” means all products that appear in a list published by an approved testing or listing agency. For additional information, see Health and Safety Code Section 17920(h).*

*[SFM] 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 reg-*

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ulations and which are included in a list published by the State Fire Marshal.

**LISTING AGENCY.** [HCD 1 & HCD 2] An agency approved by the department that is in the business of listing and labeling products, materials, equipment and installations tested by an approved testing agency, and that maintains a periodic inspection program on current production of listed products, equipment and installations, and that, at least annually, makes available a published report of these listings. For additional information, see Health and Safety Code Section 17920(i).

**[BG] LIVE/WORK UNIT.** A dwelling unit or sleeping unit in which a significant portion of the space includes a nonresidential use that is operated by the tenant or building owner.

**[BS] LIVE LOAD.** A load produced by the use and occupancy of the building or other structure that does not include construction or environmental loads such as wind load, snow load, rain load, earthquake load, flood load or dead load.

**[BS] LIVE LOAD, ROOF.** A load on a roof produced:

1. During maintenance by workers, equipment and materials;
2. During the life of the structure by movable objects such as planters or other similar small decorative appurtenances that are not occupancy related; or
3. By the use and occupancy of the roof such as for roof gardens or assembly areas.

**[BS] LOAD AND RESISTANCE FACTOR DESIGN (LRFD).** A method of proportioning structural members and their connections using load and resistance factors such that no applicable limit state is reached when the structure is subjected to appropriate load combinations. The term “LRFD” is used in the design of steel and wood structures.

**[BS] LOAD EFFECTS.** Forces and deformations produced in structural members by the applied loads.

**[BS] LOAD FACTOR.** A factor that accounts for deviations of the actual load from the nominal load, for uncertainties in the analysis that transforms the load into a load effect, and for the probability that more than one extreme load will occur simultaneously.

**[BS] LOADS.** Forces or other actions that result from the weight of building materials, occupants and their possessions, environmental effects, differential movement and restrained dimensional changes. Permanent loads are those loads in which variations over time are rare or of small magnitude, such as dead loads. All other loads are variable loads (see “Nominal loads”).

**LOBBY.** [SFM, HCD 1 & HCD 2] An area not defined as a waiting room at the entrance of a building through which persons must pass.

**LOCAL AGENCY VERY HIGH FIRE HAZARD SEVERITY ZONE.** [SFM] (See Chapter 7A, Section 702A for defined term.)

**LODGING HOUSE.** [HCD 1 & HCD 1-AC] Any building or portion thereof containing not more than five guest rooms where rent is paid in money, goods, labor or otherwise, and

that is occupied by the proprietor as the residence of such proprietor.

**LOG WALL CONSTRUCTION.** [SFM] (See Chapter 7A, Section 702A for defined term.)

**[A] LOT.** A portion or parcel of land considered as a unit.

**[A] LOT LINE.** A line dividing one lot from another, or from a street or any public place.

**[BE] LOW-ENERGY POWER-OPERATED DOOR.** A swinging, sliding or folding door that opens automatically upon an action by a pedestrian such as pressing a push plate or waving a hand in front of a sensor. The door closes automatically, and operates with decreased forces and decreased speeds (see “Power-assisted door” and “Power-operated door”).

**[F] LOWER FLAMMABLE LIMIT (LFL).** The minimum concentration of vapor in air at which propagation of flame will occur in the presence of an ignition source. The LFL is sometimes referred to as “LEL” or “lower explosive limit.”

**[BS] LOWEST FLOOR.** The lowest floor of the lowest enclosed area, including basement, but excluding any unfinished or flood-resistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612.

**MAIL BOXES.** [DSA-AC] Receptacles for the receipt of documents, packages or other deliverable matter. Mail boxes include, but are not limited to, post office boxes and receptacles provided by commercial mail-receiving agencies, apartment facilities or schools.

**[BS] MAIN WINDFORCE-RESISTING SYSTEM.** An assemblage of structural elements assigned to provide support and stability for the overall structure. The system generally receives wind loading from more than one surface.

**MAJOR STRUCTURAL ALTERATIONS, ADDITIONS, OR REPAIRS.** [OSHPD 1 & 4] Refer to Chapter 2 of the California Existing Building Code.

**MALL BUILDING, COVERED and MALL BUILDING, OPEN.** See “Covered mall building.”

**[F] MANUAL FIRE ALARM BOX.** A manually operated device used to initiate an alarm signal.

**[A] MANUFACTURER’S DESIGNATION.** An identification applied on a product by the manufacturer indicating that a product or material complies with a specified standard or set of rules (see “Label” and “Mark”).

**[A] MARK.** An identification applied on a product by the manufacturer indicating the name of the manufacturer and the function of a product or material (see “Label” and “Manufacturer’s designation”).

**MARKED CROSSING.** A crosswalk or other identified path intended for pedestrian use in crossing a vehicular way.

**[BG] MARQUEE.** A canopy that has a top surface which is sloped less than 25 degrees from the horizontal and is located less than 10 feet (3048 mm) from operable openings above or adjacent to the level of the marquee.

tal 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. [SFM]** 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 E136 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.

**[BG] NONCOMBUSTIBLE MEMBRANE STRUCTURE.** A membrane structure in which the membrane and all component parts of the structure are noncombustible.

**NONPATIENT-CARE SUITE.** In Group I-2 or I-2.1 occupancies, a group of rooms or spaces within a suite for use as administrative, business and professional offices.

**[BS] NONSTRUCTURAL CONCRETE.** Any element made of plain or reinforced concrete that is not part of a structural system required to transfer either gravity or lateral loads to the ground.

**NORMAL. [HCD 1 & HCD 2]** Conforming to a pattern or standard regarded as usual or typical.

**[F] NORMAL TEMPERATURE AND PRESSURE (NTP).** A temperature of 70°F (21°C) and a pressure of 1 atmosphere [14.7 psia (101 kPa)].

**[BE] NOSING.** The leading edge of treads of stairs and of landings at the top of stairway flights.

**NOTIFICATION ZONE.** See “Zone, notification.”

**NPC 1, NPC 2, NPC 3/NPC 3R, NPC 4, and NPC 5. [OSHPD 1]** Building nonstructural performance categories for Hospital Buildings defined in Table 11.1 of California Administrative Code (Part 1, Title 24 CCR), Chapter 6.

**[F] NUISANCE ALARM.** An alarm caused by mechanical failure, malfunction, improper installation or lack of proper maintenance, or an alarm activated by a cause that cannot be determined.

**[BG] NURSING HOMES.** Facilities that provide care, including both intermediate care facilities and skilled nursing facilities where any of the persons are incapable of self-preservation or classified as nonambulatory or bedridden.

**[BE] OCCUPANT LOAD.** The number of persons for which the means of egress of a building or portion thereof is designed.

**[BG] OCCUPIABLE SPACE.** A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged at labor, and which is equipped with means of egress and light and ventilation facilities meeting the requirements of this code.

**[BG] OPEN PARKING GARAGE.** A structure or portion of a structure with the openings as described in Section 406.5.2 on two or more sides that is used for the parking or storage of private motor vehicles as described in Section 406.5.3.

**OPEN RISER.** The space between two adjacent stair treads not closed by a riser.

**[F] OPEN SYSTEM.** The use of a solid or liquid hazardous material involving a vessel or system that is continuously open to the atmosphere during normal operations and where vapors are liberated, or the product is exposed to the atmosphere during normal operations. Examples of open systems for solids and liquids include dispensing from or into open beakers or containers, dip tank and plating tank operations.

**[BE] OPEN-AIR ASSEMBLY SEATING.** Seating served by means of egress that is not subject to smoke accumulation within or under a structure and is open to the atmosphere.

**[BE] OPEN-ENDED CORRIDOR.** An interior corridor that is open on each end and connects to an exterior stairway or ramp at each end with no intervening doors or separation from the corridor.

**[BF] OPENING PROTECTIVE.** A fire door assembly, fire shutter assembly, fire window assembly or glass-block assembly in a fire-resistance-rated wall or partition.

**OPERABLE PART.** A component of an element used to insert or withdraw objects, or to activate, deactivate, or adjust the element.

**[F] OPERATING BUILDING.** A building occupied in conjunction with the manufacture, transportation or use of explosive materials. Operating buildings are separated from one another with the use of intraplant or intraline distances.

**[BS] ORDINARY PRECAST STRUCTURAL WALL.** See Section 1905.1.1.

**[BS] ORDINARY REINFORCED CONCRETE STRUCTURAL WALL.** See Section 1905.1.1.

**[BS] ORDINARY STRUCTURAL PLAIN CONCRETE WALL.** See Section 1905.1.1.

**[F] ORGANIC PEROXIDE.** An organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms have been replaced by an organic radical. Organic peroxides can pose an explosion hazard (detonation or deflagration) or they can be shock sensitive. They can also decompose into various unstable compounds over an extended period of time.

**Class I.** Those formulations that are capable of deflagration but not detonation.

**Class II.** Those formulations that burn very rapidly and that pose a moderate reactivity hazard.

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**Class III.** Those formulations that burn rapidly and that pose a moderate reactivity hazard.

**Class IV.** Those formulations that burn in the same manner as ordinary combustibles and that pose a minimal reactivity hazard.

**Class V.** Those formulations that burn with less intensity than ordinary combustibles or do not sustain combustion and that pose no reactivity hazard.

**Unclassified detonable.** Organic peroxides that are capable of detonation. These peroxides pose an extremely high explosion hazard through rapid explosive decomposition.

**ORGANIZED CAMPS.** *See Section 450, Group C Occupancy.*

**[BS] ORTHOGONAL.** To be in two horizontal directions, at 90 degrees (1.57 rad) to each other.

**[BS] OTHER STRUCTURES (for Chapters 16-23).** Structures, other than buildings, for which loads are specified in Chapter 16.

**OUTPATIENT CLINIC.** *See* “Clinic, outpatient.”

**OVERFLOW SYSTEM.** *The system which includes perimeter-type overflow gutters, surface skimmers, surge or collector tanks, other surface water collective system components and their interconnecting piping.*

**[A] OWNER.** Any person, agent, operator, entity, firm or corporation having any legal or equitable interest in the property; or recorded in the official records of the state, county or municipality as holding an interest or title to the property; or otherwise having possession or control of the property, including the guardian of the estate of any such person, and the executor or administrator of the estate of such person if ordered to take possession of real property by a court.

**[F] OXIDIZER.** A material that readily yields oxygen or other oxidizing gas, or that readily reacts to promote or initiate combustion of combustible materials and, if heated or contaminated, can result in vigorous self-sustained decomposition.

**Class 4.** An oxidizer that can undergo an explosive reaction due to contamination or exposure to thermal or physical shock and that causes a severe increase in the burning rate of combustible materials with which it comes into contact. Additionally, the oxidizer causes a severe increase in the burning rate and can cause spontaneous ignition of combustibles.

**Class 3.** An oxidizer that causes a severe increase in the burning rate of combustible materials with which it comes in contact.

**Class 2.** An oxidizer that will cause a moderate increase in the burning rate of combustible materials with which it comes in contact.

**Class 1.** An oxidizer that does not moderately increase the burning rate of combustible materials.

**[F] OXIDIZING GAS.** A gas that can support and accelerate combustion of other materials more than air does.

**[BS] PANEL (PART OF A STRUCTURE).** The section of a floor, wall or roof comprised between the supporting frame

of two adjacent rows of columns and girders or column bands of floor or roof construction.

**[BE] PANIC HARDWARE.** A door-latching assembly incorporating a device that releases the latch upon the application of a force in the direction of egress travel. *See* “Fire exit hardware.”

**[BS] PARTICLEBOARD.** A generic term for a panel primarily composed of cellulosic materials (usually wood), generally in the form of discrete pieces or particles, as distinguished from fibers. The cellulosic material is combined with synthetic resin or other suitable bonding system by a process in which the interparticle bond is created by the bonding system under heat and pressure.

**PASSAGE DOOR. [HCD 1-AC]** *A door other than an exit door through which persons may traverse.*

**PASSENGER ELEVATOR. [DSA-AC]** *See* “Elevator, Passenger”

**PASSENGER ELEVATOR. [HCD 1 & HCD 2]** *An elevator used primarily to carry passengers. For additional information, see California Code of Regulations, Title 8, Division 1, Chapter 4.*

**PASSIVE SOLAR ENERGY COLLECTOR. [HCD 1 & HCD 2]** *Uses architectural components, rather than mechanical components, to provide heating or cooling for a building interior.*

**PATH OF TRAVEL. [DSA-AC]** *An identifiable accessible route within an existing site, building or facility by means of which a particular area may be approached, entered and exited, and which connects a particular area with an exterior approach (including sidewalks, streets and parking areas), an entrance to the facility, and other parts of the facility. When alterations, structural repairs or additions are made to existing buildings or facilities, the term “path of travel” also includes the toilet and bathing facilities, telephones, drinking fountains and signs serving the area of work.*

**PEDESTRIAN.** *An individual who moves in walking areas with or without the use of walking assistive devices such as crutches, leg braces, wheelchairs, white cane, service animal, etc.*

**PEDESTRIAN WAY.** *A route by which a pedestrian may pass.*

**PEER REVIEW. [OSHPD 1, 1R, 2, 4 & 5]** *Peer review refers to the procedure contained in California Building Code Section 1617A.1.41.*

**[BF] PENETRATION FIRESTOP.** A through-penetration firestop or a membrane-penetration firestop.

**[BG] PENTHOUSE.** An enclosed, unoccupied rooftop structure used for sheltering mechanical and electrical equipment, tanks, elevators and related machinery, and vertical shaft openings.

**[BS] PERFORMANCE CATEGORY.** A designation of wood structural panels as related to the panel performance used in Chapter 23.

**PERIODIC SPECIAL INSPECTION. [DSA-SS, DSA-SS/CC]** *Special inspection by the special inspector who is intermittently present where the work to be inspected has been or is being performed and at the completion of the work.*

considered as a residential accessory use incidental to the dwelling.

**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-2.1, 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 DWELLING UNIT. [DSA-AC]** A unit intended to be used as a residence that is primarily long-term in nature. Residential dwelling units do not include transient lodging, inpatient medical care, licensed long-term care, and detention or correctional facilities.

**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.

**[BS] RESISTANCE FACTOR.** A factor that accounts for deviations of the actual strength from the nominal strength and the manner and consequences of failure (also called “strength reduction factor”).

**RESTRAINT. [SFM]** The physical retention of a person within a room, cell or cell block, holding cells, temporary holding cell, rooms or area, holding facility, secure interview rooms, courthouse holding facilities, courtroom docks, or similar buildings or portions thereof 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 R-2.1, R-3.1 and R-4 occupancies unless constructed as a Group I-3 occupancy. For Group I-3 Occupancies see Section 408.1.1.

**RESTRICTED AREA. [OSHPD 1, IR, 2, 3, 4 & 5]** (See Chapter 12, Section 1224.3 for defined term.)

**[BE] RESTRICTED ENTRANCE.** An entrance that is made available for common use on a controlled basis, but not public use, and that is not a service entrance.

**[BG] RETRACTABLE AWNING.** A retractable awning is a cover with a frame that retracts against a building or other structure to which it is entirely supported.

**RETROFIT. [DSA-SS, DSA-SS/CC, OSHPD 1 & 4]** The construction of any new element or system, or the alteration of any existing element or system required to bring an existing building, or portion thereof, conforming to earlier code requirements, into conformance with standards of the currently effective California Building Standards Code.

**RISER.** The upright part between two adjacent stair treads, between either an upper or lower landing and an adjacent stair tread, or between two adjacent landings.

**[BS] RISK CATEGORY.** A categorization of buildings and other structures for determination of flood, wind, snow, ice and earthquake loads based on the risk associated with unacceptable performance.

## DEFINITIONS

**[BS] RISK-TARGETED MAXIMUM CONSIDERED EARTHQUAKE ( $MCE_R$ ) GROUND MOTION RESPONSE ACCELERATIONS.** The most severe earthquake effects considered by this code, determined for the orientation that results in the largest maximum response to horizontal ground motions and with adjustment for targeted risk.

**[BS] ROOF ASSEMBLY (For application to Chapter 15 only).** A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly can include an underlayment, a thermal barrier, insulation or a vapor retarder.

**[BS] ROOF COATING.** A fluid-applied, adhered coating used for roof maintenance or roof repair, or as a component of a roof covering system or roof assembly.

**[BS] ROOF COVERING.** The covering applied to the roof deck for weather resistance, fire classification or appearance.

**ROOF COVERING SYSTEM.** See “Roof assembly.”

**[BS] ROOF DECK.** The flat or sloped surface constructed on top of the exterior walls of a building or other supports for the purpose of enclosing the story below, or sheltering an area, to protect it from the elements, not including its supporting members or vertical supports.

**ROOF DRAINAGE, POSITIVE.** See “Positive roof drainage.”

**ROOF EAVE. [SFM]** (See Chapter 7A, Section 702A for defined term.)

**ROOF EAVE SOFFIT. [SFM]** (See Chapter 7A, Section 702A for defined term.)

**[BS] ROOF RECOVER.** The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

**[BS] ROOF REPAIR.** Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

**[BS] ROOF REPLACEMENT.** The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

**[BG] ROOF VENTILATION.** The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, attics, cathedral ceilings or other enclosed spaces over which a roof assembly is installed.

**[BG] ROOFTOP STRUCTURE.** A structure erected on top of the roof deck or on top of any part of a building.

**RUGGED EQUIPMENT. [DSA-SS, DSA-SS/CC]** Rugged equipment refers to an amplexness of construction that gives such equipment the ability to survive earthquake strong motions without significant loss of function.

**[BS] RUNNING BOND.** The placement of masonry units such that head joints in successive courses are horizontally offset at least one-quarter the unit length.

**RUNNING SLOPE.** The slope that is parallel to the direction of travel. (As differentiated from the definition of “Cross Slope.”)

**[BG] SALLYPORT.** A security vestibule with two or more doors or gates where the intended purpose is to prevent continuous and unobstructed passage by allowing the release of only one door or gate at a time.

**SANITARY FACILITY. [HCD 1 & HCD 1-AC]** Any single water closet, urinal, lavatory, bathtub or shower, or a combination thereof, together with the room or space in which they are housed.

**[BE] SCISSOR STAIRWAY.** Two interlocking stairways providing two separate paths of egress located within one exit enclosure.

**[BS] SCUPPER.** An opening in a wall or parapet that allows water to drain from a roof.

**[BG] SECONDARY MEMBERS.** The following structural members shall be considered secondary members and not part of the primary structural frame:

1. Structural members not having direct connections to the columns.
2. Members of the floor construction and roof construction not having direct connections to the columns.
3. Bracing members other than those that are part of the primary structural frame.

**SECURE INTERVIEW ROOMS.** A lockable room used to hold and interview detainees for further processing.

**[BS] SEISMIC DESIGN CATEGORY.** A classification assigned to a structure based on its risk category and the severity of the design earthquake ground motion at the site.

**[BS] SEISMIC FORCE-RESISTING SYSTEM.** That part of the structural system that has been considered in the design to provide the required resistance to the prescribed seismic forces.

**[BF] SELF-CLOSING.** As applied to a fire door or other opening protective, means equipped with an device that will ensure closing after having been opened.

**[BE] SELF-LUMINOUS.** Illuminated by a self-contained power source, other than batteries, and operated independently of external power sources.

**SELF-PRESERVATION, INCAPABLE OF.** See “Incapable of self-preservation.”

**SELF-SERVICE STORAGE. [DSA-AC]** Building or facility designed and used for the purpose of renting or leasing individual storage spaces to customers for the purpose of storing and removing personal property on a self-service basis.

**[F] SERVICE CORRIDOR.** A fully enclosed passage used for transporting HPM and purposes other than required means of egress.

**[BE] SERVICE ENTRANCE.** An entrance intended primarily for delivery of goods or services.

**[BF] SHAFT.** An enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and roof.

**[BF] SHAFT ENCLOSURE.** The walls or construction forming the boundaries of a shaft.

**SHALL. [DSA-AC]** Denotes a mandatory specification or requirement.

**[BS] SHALLOW FOUNDATION.** A shallow foundation is an individual or strip footing, a mat foundation, a slab-on-grade foundation or a similar foundation element.

**SHALLOW POOL.** *A pool that has a maximum depth of less than 6 feet (1829 mm).*

**[BS] SHEAR WALL (for Chapter 23).** A wall designed to resist lateral forces parallel to the plane of a wall.

**Shear wall, perforated.** A wood structural panel sheathed wall with openings, that has not been specifically designed and detailed for force transfer around openings.

**Shear wall segment, perforated.** A section of shear wall with full-height sheathing that meets the height-to-width ratio limits of Section 4.3.4 of AWC SDPWS.

**[BS] SHINGLE FASHION.** A method of installing roof or wall coverings, water-resistive barriers, flashing or other building components such that upper layers of material are placed overlapping lower layers of material to provide for drainage via gravity and moisture control.

**SHOPPING CENTER (OR SHOPPING MALL).** *[DSA-AC] One or more sales or rental establishments or stores. A shopping center may include a series of buildings on a common site, connected by a common pedestrian access route on, above or below the ground floor, that is either under common ownership or common control or developed either as one project or as a series of related projects. For the purposes of this section, “shopping center” or “shopping mall” includes a covered mall building.*

**SHOULD.** *[HCD 1 & HCD 2] See “Recommend.”*

**SIDEWALK.** *A surfaced pedestrian way contiguous to a street used by the public. (As differentiated from the definition of “Walk.”)*

**SIGN.** *(HCD 1-AC, DSA-AC) An element composed of displayed textual, verbal, symbolic, tactile, and/or pictorial information.*

**SIGNIFICANT LOSS OF FUNCTION.** *[DSA-SS, DSA-SS/CC & OSHPD 1 & 4] Significant loss of function for equipment or components means the equipment or component cannot be restored to its original function by competent technicians after a design earthquake because the equipment or component require parts that are not normally stocked by the owner or not readily available.*

**SINGLE-ACCOMMODATION SANITARY FACILITY.** *[HCD 1-AC] A room that has not more than one of each type of sanitary fixture, is intended for use by only one person at a time, has no partition around the toilet, and has a door that can be locked on the inside by the room occupant.*

**[BS] SINGLE-PLY MEMBRANE.** A roofing membrane that is field applied using one layer of membrane material (either homogeneous or composite) rather than multiple layers.

**[F] SINGLE-STATION SMOKE ALARM.** An assembly incorporating the detector, the control equipment and the alarm-sounding device in one unit, operated from a power supply either in the unit or obtained at the point of installation.

**SINK.** *A fixed bowl or basin with running water and drain-pipe, as in a kitchen or laundry, for washing dishes, clothing, etc. (As differentiated from the definition of “Lavatory.”)*

**[BG] SITE.** A parcel of land bounded by a lot line or a designated portion of a public right-of-way.

**[BS] SITE CLASS.** A classification assigned to a site based on the types of soils present and their engineering properties as defined in Section 1613.2.2.

**[BS] SITE COEFFICIENTS.** The values of  $F_a$  and  $F_v$  indicated in Tables 1613.2.3(1) and 1613.2.3(2), respectively.

**SITE DEVELOPMENT.** *[HCD 1-AC] “On-site” and “off-site” work, including, but not limited to, walks, sidewalks, ramps, curbs, curb ramps, parking facilities, stairs, planting areas, pools, promenades, exterior gathering or assembly areas and raised or depressed paved areas.*

**[BG] SITE-FABRICATED STRETCH SYSTEM.** A system, fabricated on site and intended for acoustical, tackable or aesthetic purposes, that is composed of three elements:

1. A frame (constructed of plastic, wood, metal or other material) used to hold fabric in place.
2. A core material (infill, with the correct properties for the application).
3. An outside layer, composed of a textile, fabric or vinyl, that is stretched taut and held in place by tension or mechanical fasteners via the frame.

**[BS] SKYLIGHT, UNIT.** A factory-assembled, glazed fenestration unit, containing one panel of glazing material that allows for natural lighting through an opening in the roof assembly while preserving the weather-resistant barrier of the roof.

**[BS] SKYLIGHTS AND SLOPED GLAZING.** Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Unit skylights, tubular daylighting devices, glazing materials, solariums, sunrooms, roofs and sloped walls are included in this definition.

**SLEEPING ACCOMMODATIONS.** *Rooms intended and designed for sleeping.*

**[A] SLEEPING UNIT.** A single unit that provides rooms or spaces for one or more persons, includes permanent provisions for sleeping and can include provisions for living, eating and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a dwelling unit are not sleeping units.

**SLIP RESISTANT.** *A rough finish that is not abrasive to the bare foot.*

**SLOPE.** *[HCD 1-AC] The relative steepness of the land between two points and is calculated as follows:*

*The horizontal distance and elevation change between the two points (e.g., an entrance and a passenger loading zone). The difference in elevation is divided by the distance and the resulting fraction is multiplied by 100 to obtain the percentage of slope.*

*For example: if a principal entrance is 10 feet (3048 mm) from a passenger loading zone, and the principal entrance is raised 1 foot (305 mm) higher than the passenger loading zone, then the slope is  $1/10 \times 100 = 10$  percent.*

## DEFINITIONS

**SMALL MANAGEMENT YARD.** *An exterior exercise yard within a Group I-3 prison used for inmate exercise for a maximum of 2 hours per day, constructed in accordance with Section 408.15.*

**[F] SMOKE ALARM.** A single- or multiple-station alarm responsive to smoke. See “Multiple-station smoke alarm” and “Single-station smoke alarm.”

**[BF] SMOKE BARRIER.** A continuous membrane, either vertical or horizontal, such as a wall, floor or ceiling assembly, that is designed and constructed to restrict the movement of smoke.

**[BG] SMOKE COMPARTMENT.** A space within a building enclosed by smoke barriers on all sides, including the top and bottom.

**[BF] SMOKE DAMPER.** A listed device installed in ducts and air transfer openings designed to resist the passage of smoke. The device is installed to operate automatically, controlled by a smoke detection system, and where required, is capable of being positioned from a fire command center.

**[F] SMOKE DETECTOR.** A listed device that senses visible or invisible particles of combustion.

**[BF] SMOKE PARTITION.** A wall assembly that extends from the top of the foundation or floor below to the underside of the floor or roof sheathing, deck or slab above or to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke.

**[BF] SMOKE-DEVELOPED INDEX.** A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with ASTM E84.

**[BF] SMOKEPROOF ENCLOSURE.** An exit stairway or ramp designed and constructed so that the movement of the products of combustion produced by a fire occurring in any part of the building into the enclosure is limited.

**[BE] SMOKE-PROTECTED ASSEMBLY SEATING.** Seating served by means of egress that is not subject to smoke accumulation within or under a structure for a specified design time by means of passive design or by mechanical ventilation.

**[BG] SOFT CONTAINED PLAY EQUIPMENT STRUCTURE.** A children’s play structure containing one or more components where the user enters a play environment that utilizes pliable materials.

**SOFT CONTAINED PLAY STRUCTURE.** *[DSA-AC] A play structure made up of one or more play components where the user enters a fully enclosed play environment that utilizes pliable materials, such as plastic, netting or fabric.*

**[F] SOLID.** A material that has a melting point, decomposes or sublimates at a temperature greater than 68°F (20°C).

**SPACE.** *A definable area, such as, a room, toilet room, hall, assembly area, entrance, storage room, alcove, courtyard, or lobby.*

**SPC 1, SPC 2, SPC 3, SPC 4, SPC 4D and SPC 5.** *[OSHPD I] Building structural performance categories for Hospital Buildings defined in Table 2.5.3 of California Administrative Code (Part 1, Title 24 CCR), Chapter 6.*

**SPC BUILDING.** *[OSHPD 1 and 1R] Means a structure with an independent vertical and lateral force-resisting system (LFRS) and a distinct building structural performance category assigned by OSHPD.*

**[BG] SPECIAL AMUSEMENT BUILDING.** A special amusement building is any temporary or permanent building or portion thereof that is occupied for amusement, entertainment or educational purposes and that contains a device or system that conveys passengers or provides a walkway along, around or over a course in any direction so arranged that the means of egress path is not readily apparent due to visual or audio distractions or is intentionally confounded or is not readily available because of the nature of the attraction or mode of conveyance through the building or structure.

**[BS] SPECIAL FLOOD HAZARD AREA.** The land area subject to flood hazards and shown on a *Flood Insurance Rate Map* or other flood hazard map as Zone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE or V1-30.

**[BS] SPECIAL INSPECTION.** Inspection of construction requiring the expertise of an approved special inspector in order to ensure compliance with this code and the approved construction documents.

**Continuous special inspection.** Special inspection by the special inspector who is present continuously when and where the work to be inspected is being performed.

**Periodic special inspection.** *[DSA-SS, DSA-SS/CC] Special inspection by the special inspector who is intermittently present where the work has been or is being performed and at the completion of the work.*

**[BS] SPECIAL INSPECTOR.** A qualified person employed or retained by an approved agency and approved by the building official as having the competence necessary to inspect a particular type of construction requiring special inspection.

**[BS] SPECIAL STRUCTURAL WALL.** See Section 1905.1.1.

**[BS] SPECIFIED COMPRESSIVE STRENGTH OF MASONRY,  $f'_m$ .** Minimum compressive strength, expressed as force per unit of net cross-sectional area, required of the masonry used in construction by the approved construction documents, and upon which the project design is based. Whenever the quantity  $f'_m$  is under the radical sign, the square root of numerical value only is intended and the result has units of pounds per square inch (psi) (MPa).

**SPECIFIED PUBLIC TRANSPORTATION.** *[DSA-AC] Transportation by bus, rail, or any other conveyance (other than aircraft) provided by a private entity to the general public, with general or special service (including charter service) on a regular and continuing basis.*

**[BF] SPLICE.** The result of a factory and/or field method of joining or connecting two or more lengths of a fire-resistant joint system into a continuous entity.

**SPORT ACTIVITY, AREA OF.** See “Area of sport activity.”

**[F] SPRAY ROOM.** A room designed to accommodate spraying operations.

**[BF] SPRAYED FIRE-RESISTANT MATERIALS.** Cementitious or fibrous materials that are sprayed to provide fire-resistant protection of the substrates.

**[BG] STAGE.** A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting and sound.

**[BE] STAIR.** A change in elevation, consisting of one or more risers.

**STAIRS.** *A series of two or more steps.*

**[BE] STAIRWAY.** One or more flights of stairs, either exterior or interior, with the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one level to another.

**STAIRWAY, EXIT ACCESS.** See “Exit access stairway.”

**STAIRWAY, EXTERIOR EXIT.** See “Exterior exit stairway.”

**STAIRWAY, INTERIOR EXIT.** See “Interior exit stairway.”

**STAIRWAY, SCISSOR.** See “Scissor stairway.”

**[BE] STAIRWAY, SPIRAL.** A stairway having a closed circular form in its plan view with uniform section-shaped treads attached to and radiating from a minimum-diameter supporting column.

**[F] STANDBY POWER SYSTEM.** A source of automatic electric power of a required capacity and duration to operate required building, hazardous materials or ventilation systems in the event of a failure of the primary power. Standby power systems are required for electrical loads where interruption of the primary power could create hazards or hamper rescue or fire-fighting operations.

**[F] STANDPIPE, TYPES OF.** Standpipe types are as follows:

**Automatic dry.** A dry standpipe system, normally filled with pressurized air, that is arranged through the use of a device, such as dry pipe valve, to admit water into the system piping automatically upon the opening of a hose valve. The water supply for an automatic dry standpipe system shall be capable of supplying the system demand.

**Automatic wet.** A wet standpipe system that has a water supply that is capable of supplying the system demand automatically.

**Manual dry.** A dry standpipe system that does not have a permanent water supply attached to the system. Manual dry standpipe systems require water from a fire department pumper to be pumped into the system through the fire department connection in order to meet the system demand.

**Manual wet.** A wet standpipe system connected to a water supply for the purpose of maintaining water within the system but does not have a water supply capable of delivering the system demand attached to the system. Manual-wet standpipe systems require water from a fire department pumper (or the like) to be pumped into the system in order to meet the system demand.

**Semiautomatic dry.** A dry standpipe system that is arranged through the use of a device, such as a deluge valve, to admit water into the system piping upon activation of a remote control device located at a hose connection. A remote control activation device shall be provided at each hose connection. The water supply for a semiautomatic dry standpipe system shall be capable of supplying the system demand.

**[F] STANDPIPE SYSTEM, CLASSES OF.** Standpipe classes are as follows:

**Class I system.** A system providing 2½-inch (64 mm) hose connections to supply water for use by fire departments and those trained in handling heavy fire streams.

**Class II system.** A system providing 1½-inch (38 mm) hose stations to supply water for use primarily by the building occupants or by the fire department during initial response.

**Class III system.** A system providing 1½-inch (38 mm) hose stations to supply water for use by building occupants and 2½-inch (64 mm) hose connections to supply a larger volume of water for use by fire departments and those trained in handling heavy fire streams.

**[BS] START OF CONSTRUCTION.** The date of permit issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within 180 days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns.

Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual “start of construction” means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

**STATE-OWNED/LEASED BUILDING.** [SFM] *State-Owned/Leased Building is 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.*

**STATE RESPONSIBILITY AREA.** [SFM] *(See Chapter 7A, Section 702A for definition of term.)*

**[BS] STEEL CONSTRUCTION, COLD-FORMED.** That type of construction made up entirely or in part of steel structural members cold formed to shape from sheet or strip steel such as roof deck, floor and wall panels, studs, floor joists, roof joists and other structural elements.

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**[BS] STEEL ELEMENT, STRUCTURAL.** Any steel structural member of a building or structure consisting of rolled shapes, pipe, hollow structural sections, plates, bars, sheets, rods or steel castings other than cold-formed steel or steel joist members.

**[BS] STEEL JOIST.** Any steel structural member of a building or structure made of hot-rolled or cold-formed solid or open-web sections, or riveted or welded bars, strip or sheet steel members, or slotted and expanded, or otherwise deformed rolled sections.

**[BF] STEEP SLOPE.** A roof slope greater than two units vertical in 12 units horizontal (17-percent slope).

**[S] STEP.** A riser and tread.

**STEPS, RECESSED STEPS, LADDERS AND RECESSED TREADS.** Those means of entry and exit to and from the pool which may be used in conjunction with each other.

**[BS] STONE MASONRY.** Masonry composed of field, quarried or cast stone units bonded by mortar.

**[F] STORAGE, HAZARDOUS MATERIALS.** The keeping, retention or leaving of hazardous materials in closed containers, tanks, cylinders, or similar vessels; or vessels supplying operations through closed connections to the vessel.

**[BS] STORAGE RACKS.** Cold-formed or hot-rolled steel structural members which are formed into steel storage racks, including pallet storage racks, movable-shelf racks, rack-supported systems, automated storage and retrieval systems (stacker racks), push-back racks, pallet-flow racks, case-flow racks, pick modules and rack-supported platforms. Other types of racks, such as drive-in or drive-through racks, cantilever racks, portable racks or racks made of materials other than steel, are not considered storage racks for the purpose of this code.

**[BG] STORM SHELTER.** A building, structure or portions thereof, constructed in accordance with ICC 500 and designated for use during a severe wind storm event, such as a hurricane or tornado.

**Community storm shelter.** A storm shelter not defined as a “Residential storm shelter.”

**Residential storm shelter.** A storm shelter serving occupants of dwelling units and having an occupant load not exceeding 16 persons.

**[BG] STORY.** That portion of a building included between the upper surface of a floor and the upper surface of the floor or roof next above (see “Basement,” “Building height,” “Grade plane” and “Mezzanine”). A story is measured as the vertical distance from top to top of two successive tiers of beams or finished floor surfaces and, for the topmost story, from the top of the floor finish to the top of the ceiling joists or, where there is not a ceiling, to the top of the roof rafters.

**[DSA-AC]** *That portion of a building or facility designed for human occupancy included between the upper surface of a floor and upper surface of the floor or roof next above. A story containing one or more mezzanines has more than one floor level. If the finished floor level directly above a basement or unused under-floor space is more than six feet (1829*

*mm) above grade for more than 50 percent of the total perimeter or is more than 12 feet (3658 mm) above grade at any point, the basement or unused under-floor space shall be considered as a story.*

**[BG] STORY ABOVE GRADE PLANE.** Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor next above is:

1. More than 6 feet (1829 mm) above grade plane; or
2. More than 12 feet (3658 mm) above the finished ground level at any point.

**[BS] STRENGTH (For Chapter 21).**

**Design strength.** Nominal strength multiplied by a strength reduction factor.

**Nominal strength.** Strength of a member or cross section calculated in accordance with these provisions before application of any strength-reduction factors.

**Required strength.** Strength of a member or cross section required to resist factored loads.

**[BS] STRENGTH (for Chapter 16).**

**Nominal strength.** The capacity of a structure or member to resist the effects of loads, as determined by computations using specified material strengths and dimensions and equations derived from accepted principles of structural mechanics or by field tests or laboratory tests of scaled models, allowing for modeling effects and differences between laboratory and field conditions.

**Required strength.** Strength of a member, cross section or connection required to resist factored loads or related internal moments and forces in such combinations as stipulated by these provisions.

**Strength design.** A method of proportioning structural members such that the computed forces produced in the members by factored loads do not exceed the member design strength [also called “load and resistance factor design” (LRFD)]. The term “strength design” is used in the design of concrete and masonry structural elements.

**[BS] STRUCTURAL COMPOSITE LUMBER.** Structural member manufactured using wood elements bonded together with exterior adhesives. Examples of structural composite lumber are:

**Laminated strand lumber (LSL).** A composite of wood strand elements with wood fibers primarily oriented along the length of the member, where the least dimension of the wood strand elements is 0.10 inch (2.54 mm) or less and their average lengths not less than 150 times the least dimension of the wood strand elements.

**Laminated veneer lumber (LVL).** A composite of wood veneer sheet elements with wood fibers primarily oriented along the length of the member, where the veneer element thicknesses are 0.25 inches (6.4 mm) or less.

**Oriented strand lumber (OSL).** A composite of wood strand elements with wood fibers primarily oriented along the length of the member, where the least dimension of the wood strand elements is 0.10 inches (2.54 mm) or less and their average lengths not less than 75 times and less than 150 times the least dimension of the strand elements.

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 3 – OCCUPANCY CLASSIFICATION AND USE

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC -CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X		X	X									
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below																				X		
Chapter / Section																						
302.1			X	X	X																	
302.1.3																					X	
303.1			X																			
303.2			X																			
303.7			X																			
303.8			X																			
304.1			X																			
305.1			X																			
305.2			X																			
305.2.1			X																			
306.2			X																			
Table 307.1(1)			X																			
Table 307.1(2)			X																			
307.1.1			X																			
308.1			X																			
308.3			X	†	†																	
308.3.3			X																			
308.4			X																			
308.4.6			X																			
308.4.7			X																			
308.4.8			X																			
308.4.9			X																			
308.5			X																			
308.5.1			X																			
308.5.1.1			X																			
308.5.2			X																			
308.5.3			X																			
308.5.4			X																			
310.1			X																			
310.2			X	X																		
310.3			X	X																		
310.3.1			X																			
310.3.2			X																			
310.4			X	X																		
310.4.1			X																			
310.5			X																			
310.6			X																			
313			X																			
314			X																			

The state agency does not adopt sections identified with the following symbol: †  
The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.



Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

### SECTION 305 EDUCATIONAL GROUP E

**305.1 Educational Group E.** Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by more *than six* persons at any one time for educational purposes through the 12th grade.

**Exception:** *[SFM] A residence used as a home school for the children who normally reside at the residence. Such residences shall remain classified as Group R-2, or Group R-3 occupancies.*

**305.1.1 Accessory to places of religious worship.** Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 303.1.4 and have occupant loads of less than 100 per room or space, shall be classified as Group A-3 occupancies.

**305.2 Group E, day care facilities.** This group includes buildings and structures or portions thereof occupied by more than *six* children 2 years of age *and older* who receive educational, supervision or personal care services for fewer than 24 hours per day.

**Exception:** *[SFM] A Day-care facility not otherwise classified as an R-3 occupancy, where occupants are not capable of responding to an emergency situation without physical assistance from the staff shall be classified as Group I-4.*

**305.2.1 Within places of religious worship.** Rooms and spaces within places of religious worship providing such day care during religious functions shall be classified as part of the primary occupancy *where not licensed for day-care purposes by the Department of Social Services.*

**305.2.2 Five or fewer children.** A facility having five or fewer children receiving such day care shall be classified as part of the primary occupancy.

**305.2.3 Five or fewer children in a dwelling unit.** A facility such as the above within a dwelling unit and having five or fewer children receiving such day care shall be classified as a Group R-3 occupancy or shall comply with the *California Residential Code.*

### SECTION 306 FACTORY GROUP F

**306.1 Factory Industrial Group F.** Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H hazardous or Group S storage occupancy.

**306.2 Moderate-hazard factory industrial, Group F-1.** Factory industrial uses that are not classified as Factory

Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

- Aircraft (manufacturing, not to include repair)
- Appliances
- Athletic equipment
- Automobiles and other motor vehicles
- Bakeries
- Beverages: over 16-percent alcohol content
- Bicycles
- Boats
- Brooms or brushes
- Business machines
- Cameras and photo equipment
- Canvas or similar fabric
- Carpets and rugs (includes cleaning)
- Clothing
- Construction and agricultural machinery
- Disinfectants
- Dry cleaning and dyeing
- Electric generation plants
- Electronics
- Engines (including rebuilding)
- Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities more than 2,500 square feet (232 m<sup>2</sup>) in area.
- Furniture
- Hemp products
- Jute products
- Laundries
- Leather products
- Machinery
- Metals
- Millwork (sash and door)
- [SFM] Motion picture and television production studio Sound Stages, Approved Production Facilities and production locations (without live audiences)*
- Motion pictures and television filming (without spectators)
- Musical instruments
- Optical goods
- Paper mills or products
- Photographic film
- Plastic products
- Printing or publishing
- Recreational vehicles
- Refuse incineration
- Shoes
- Soaps and detergents
- Textiles
- Tobacco
- Trailers
- Upholstering
- Wood; distillation
- Woodworking (cabinet)

**306.3 Low-hazard factory industrial, Group F-2.** Factory industrial uses that involve the fabrication or manufacturing of noncombustible materials that during finishing, packing or processing do not involve a significant fire hazard shall be

**OCCUPANCY CLASSIFICATION AND USE**

classified as F-2 occupancies and shall include, but not be limited to, the following:

- Beverages: up to and including 16-percent alcohol content
- Brick and masonry
- Ceramic products
- Foundries
- Glass products
- Gypsum
- Ice
- Metal products (fabrication and assembly)

**SECTION 307  
HIGH-HAZARD GROUP H**

**[F] 307.1 High-hazard Group H.** High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof, that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas complying with Section 414, based on the maximum allowable quantity limits for control areas set forth in Tables 307.1(1) and 307.1(2). Hazardous occupancies are classified in Groups H-1, H-2, H-3, H-4 and H-5 and shall be in accordance with this section, the require-

ments of Section 415 and the *California Fire Code*. Hazardous materials stored, or used on top of roofs or canopies, shall be classified as outdoor storage or use and shall comply with the *California Fire Code*.

**[F] 307.1.1 Uses other than Group H.** An occupancy that stores, uses or handles hazardous materials as described in one or more of the following items shall not be classified as Group H, but shall be classified as the occupancy that it most nearly resembles.

1. Buildings and structures occupied for the application of flammable finishes, provided that such buildings or areas conform to the requirements of Section 416 and the *California Fire Code*.
2. Wholesale and retail sales and storage of flammable and combustible liquids in mercantile occupancies conforming to the *California Fire Code*.
3. Closed piping system containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.
4. Cleaning establishments that utilize combustible liquid solvents having a flash point of 140°F (60°C) or higher in closed systems employing equipment listed by an approved testing agency,

**TABLE 307.1(1)  
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING A PHYSICAL HAZARD<sup>a, j, m, n, p</sup>**

MATERIAL	CLASS	GROUP WHEN THE MAXIMUM ALLOWABLE QUANTITY IS EXCEEDED	STORAGE <sup>b</sup>			USE-CLOSED SYSTEMS <sup>b</sup>			USE-OPEN SYSTEMS <sup>b</sup>	
			Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas cubic feet at NTP	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible dust	NA	H-2	See Note q	NA	NA	See Note q	NA	NA	See Note q	NA
Combustible fiber <sup>d</sup>	Loose Baled <sup>o</sup>	H-3	(100) (1,000)	NA	NA	(100) (1,000)	NA	NA	(20) (200)	NA
Combustible liquid <sup>d, i</sup>	II IIIA IIIB	H-2 or H-3 H-2 or H-3 NA	NA	120 <sup>d, e</sup> 330 <sup>d, e</sup> 13,200 <sup>e, f</sup>	NA	NA	120 <sup>d</sup> 330 <sup>d</sup> 13,200 <sup>f</sup>	NA	NA	30 <sup>d</sup> 80 <sup>d</sup> 3,300 <sup>f</sup>
Cryogenic flammable	NA	H-2	NA	45 <sup>d</sup>	NA	NA	45 <sup>d</sup>	NA	NA	10 <sup>d</sup>
Cryogenic inert	NA	NA	NA	NA	NL	NA	NA	NL	NA	NA
Cryogenic oxidizing	NA	H-3	NA	45 <sup>d</sup>	NA	NA	45 <sup>d</sup>	NA	NA	10 <sup>d</sup>
Explosives	Division 1.1	H-1	1 <sup>e, g</sup>	(1) <sup>e, g</sup>	NA	0.25 <sup>g</sup>	(0.25) <sup>g</sup>	NA	0.25 <sup>g</sup>	(0.25) <sup>g</sup>
	Division 1.2	H-1	1 <sup>e, g</sup>	(1) <sup>e, g</sup>		0.25 <sup>g</sup>	(0.25) <sup>g</sup>		0.25 <sup>g</sup>	(0.25) <sup>g</sup>
	Division 1.3	H-1 or H-2	10 <sup>e, g</sup>	(10) <sup>e, g</sup>		1 <sup>g</sup>	(1) <sup>g</sup>		1 <sup>g</sup>	(1) <sup>g</sup>
	Division 1.4	H-3	50 <sup>e, g</sup>	(50) <sup>e, g</sup>		50 <sup>g</sup>	(50) <sup>g</sup>		NA	NA
	Division 1.4G	H-3	125 <sup>e, l</sup>	NA		NA	NA		NA	NA
	Division 1.5	H-1	1 <sup>e, g</sup>	(1) <sup>e, g</sup>		0.25 <sup>g</sup>	(0.25) <sup>g</sup>		0.25 <sup>g</sup>	(0.25) <sup>g</sup>
Division 1.6	H-1	1 <sup>e, g</sup>	NA	NA	NA	NA	NA			
Flammable gas	Gaseous Liquefied	H-2	NA	NA (150) <sup>d, e</sup>	1,000 <sup>d, e</sup> NA	NA	NA (150) <sup>d, e</sup>	1,000 <sup>d, e</sup> NA	NA	NA
Flammable liquid <sup>c</sup>	IA IB and IC	H-2 or H-3	NA	30 <sup>d, e</sup> 120 <sup>d, e</sup>	NA	NA	30 <sup>d</sup> 120 <sup>d</sup>	NA	NA	10 <sup>d</sup> 30 <sup>d</sup>
Flammable liquid, combination (IA, IB, IC)	NA	H-2 or H-3	NA	120 <sup>d, e, h</sup>	NA	NA	120 <sup>d, h</sup>	NA	NA	30 <sup>d, h</sup>

(continued)

# CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE

## CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.

See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X	X	X								
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below						X	X					X								X		
Chapter / Section																						
403			X																			
403.1			X																			
403.1.1			X																			
403.2.1			X																			
403.2.1.1			X																			
403.3			X																			
403.3.1			X																			
403.3.2			X																			
403.3.2.1			X																			
403.3.3			X																			
403.3.5			X																			
403.4.7			X																			
403.4.7.1			X																			
403.5.3			X																			
403.5.4			X																			
403.6			X																			
403.7			X																			
404.5			X																			
404.6			X																			
404.11			X																			
406.2.1				X	X																	
406.2.2				X	X																	
406.2.3						X	X															
406.2.7				X	X	X																
406.3.1			X																			
406.8.2			X																			
406.8.5.1			X																			
406.8.5.2			X																			
406.9			X																			
406.9.1			X																			
406.9.2			X																			
406.9.3			X																			
407												X										
407.1			X																			
407.1.1			X																			
407.2			X																			
407.2.1			X																			
407.2.2			X																			
407.2.3			X																			
407.2.5			X																			
407.2.6			X																			
407.3			X																			

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE—**  
**continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X	X									
Adopt entire chapter as amendedd (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below						X	X					X									X	
Chapter / Section																						
407.3.1			X																			
407.3.1.1			X																			
407.3.2			X																			
407.4			X																			
407.4.1			X																			
407.4.1.1			X																			
407.4.1.2			X																			
407.4.2			X																			
407.4.2.1			X																			
407.4.3			X																			
407.4.4			X																			
407.4.4.2			X																			
407.4.4.3			X																			
407.4.4.3.1			X																			
407.4.4.3.2			X																			
407.4.4.5			X																			
407.4.4.5.1			X																			
407.4.4.5.3			X																			
407.4.4.6.1			X																			
407.4.4.6.2			X																			
407.4.5			X																			
407.5			X																			
407.5.2			X																			
407.6.1			X																			
407.7			X																			
407.10			X																			
407.11.1			X																			
407.11.2			X																			
407.11.3			X																			
407.11.4			X																			
407.12			X																			
408.1.2			X																			
408.1.2.1			X																			
408.1.2.2			X																			
408.1.2.3			X																			
408.1.2.4			X																			
408.1.2.5			X																			
408.1.2.6			X																			
408.1.2.7			X																			
408.1.3			X																			
408.2			X																			
408.2.1			X																			
408.3.1.1			X																			
408.3.6			X																			
408.3.6.1			X																			
408.3.6.2			X																			
408.3.6.3			X																			
408.3.6.4			X																			
408.3.8.1			X																			

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE—**  
**continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1 R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X	X	X								
Adopt entire chapter as amendedd (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below						X	X						X								X	
Chapter / Section																						
408.3.9			X																			
408.3.10			X																			
408.3.11			X																			
408.3.12			X																			
408.4			X																			
408.4.3			X																			
408.5.1			X																			
408.6			X																			
408.6.1			X																			
408.8.1			X																			
408.9.1			X																			
408.12			X																			
408.13			X																			
408.14			X																			
408.15			X																			
408.15.1			X																			
408.15.2			X																			
408.15.3			X																			
408.15.3.1			X																			
408.15.3.2			X																			
408.15.4			X																			
408.15.5			X																			
410.2.6			X																			
412.2.6							X															
414.1.1			X																			
414.5			X																			
414.5.4			X																			
415.11.7.1			X																			
415.11.7.1.1			X																			
415.11.7.1.2			X																			
415.11.7.1.3			X																			
415.11.7.1.4			X																			
415.11.7.2			X																			
415.12			X																			
415.12.1			X																			
415.12.1.1			X																			
415.12.1.2			X																			
415.12.1.3			X																			
415.12.1.4			X																			
415.12.1.5			X																			
415.13			X																			
415.13.1			X																			
415.13.2			X																			
415.13.3			X																			

*(continued)*

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE**  
**CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON OCCUPANCY AND USE—**  
**continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X										
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below						X	X						X								X	
Chapter / Section																						
419.1				X	X																	
419.3				X	X																	
419.6				X	X																	
419.7						X	X															
420.1			X	X	X																	
420.4			X																			
420.5			X																			
420.6			X																			
420.10.1			X	X	X																	
420.11			X	X																		
420.12			X	X		X																
420.13			X	X																		
420.14			X																			
420.15			X																			
422.1													X									
435			X																			
436			X																			
439			X																			
440			X																			
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442			X																			
443			X																			
444			X																			
446			X																			
449			X																			
450			X																			
452			X																			
453			X																			
455			X																			

The state agency does not adopt sections identified with the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.

2. Floors of Group S-2 parking garages shall not be required to have a sloped surface.
3. Slip-resistant, nonabsorbent, interior floor finishes having a critical radiant flux not more than 0.45 W/cm<sup>2</sup>, as determined by ASTM E648 or NFPA 253, shall be permitted in repair garages.

**406.2.5 Sleeping rooms.** Openings between a motor vehicle-related occupancy and a room used for sleeping purposes shall not be permitted.

**406.2.6 Fuel dispensing.** The dispensing of fuel shall only be permitted in motor fuel-dispensing facilities in accordance with Section 406.7.

**406.2.7 Electric vehicle charging stations.** Where provided, electric vehicle charging stations shall be installed in accordance with *the California Electrical Code and the California Green Building Standards Code*. Electric vehicle charging system equipment shall be listed and labeled in accordance with UL 2202. Electric vehicle supply equipment shall be listed and labeled in accordance with UL 2594. Accessibility to electric vehicle charging stations shall be provided in accordance with Chapters *11A and/or 11B*.

**406.2.8 Mixed occupancies and uses.** Mixed uses shall be allowed in the same building as public parking garages and repair garages in accordance with Section 508.1. Mixed uses in the same building as an open parking garage are subject to Sections 402.4.2.3, 406.5.11, 508.1, 510.3, 510.4 and 510.7.

**406.2.9 Equipment and appliances.** Equipment and appliances shall be installed in accordance with Sections 406.2.9.1 through 406.2.9.3 and the *California Mechanical Code, California Plumbing Code, and the California Electrical Code*.

**406.2.9.1 Elevation of ignition sources.** Equipment and appliances having an ignition source and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the equipment or appliance rests. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

**Exception:** Elevation of the ignition source is not required for appliances that are listed as flammable vapor ignition resistant.

**406.2.9.1.1 Parking garages.** Connection of a parking garage with any room in which there is a fuel-fired appliance shall be by means of a vestibule providing a two-doorway separation, except that a single door is permitted where the sources of ignition in the appliance are elevated in accordance with Section 406.2.9.

**Exception:** This section shall not apply to appliance installations complying with Section 406.2.9.2 or 406.2.9.3.

**406.2.9.2 Public garages.** Appliances located in public garages, motor fuel-dispensing facilities, repair garages or other areas frequented by motor vehicles shall be installed not less than 8 feet (2438 mm) above the floor. Where motor vehicles are capable of passing under an appliance, the appliance shall be installed at the clearances required by the appliance manufacturer and not less than 1 foot (305 mm) higher than the tallest vehicle garage door opening.

**Exception:** The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section 406.2.9.1 and NFPA 30A.

**406.2.9.3 Private garages.** Appliances located in private garages and carports shall be installed with a minimum clearance of 6 feet (1829 mm) above the floor.

**Exception:** The requirements of this section shall not apply where the appliances are protected from motor vehicle impact and are installed in accordance with Section 406.2.9.1.

**406.3 Private garages and carports.** Private garages and carports shall comply with Sections 406.2 and 406.3, or they shall comply with Sections 406.2 and 406.4.

**406.3.1 Classification.** Private garages and carports shall be classified as Group U occupancies. Each private garage shall be not greater than 1,000 square feet (93 m<sup>2</sup>) in area. Multiple private garages are permitted in a building where each private garage is separated from the other private garages by 1-hour fire barriers in accordance with Section 707, or 1-hour horizontal assemblies in accordance with Section 711, or both.

**Exception:** *The area of a private garage accessory to Group R-3 one- or two-family dwellings shall not be greater than 3,000 square feet in area.*

**406.3.2 Separation.** For other than private garages adjacent to dwelling units, the separation of private garages from other occupancies shall comply with Section 508. Separation of private garages from dwelling units shall comply with Sections 406.3.2.1 and 406.3.2.2.

**406.3.2.1 Dwelling unit separation.** The private garage shall be separated from the dwelling unit and its attic area by means of gypsum board, not less than 1/2 inch (12.7 mm) in thickness, applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than a 5/8-inch (15.9 mm) Type X gypsum board or equivalent and 1/2-inch (12.7 mm) gypsum board applied to structures supporting the separation from habitable rooms above the garage. Door openings between a private garage and the dwelling unit shall be equipped with either solid wood doors or solid or honeycomb core steel doors not less than 1 3/8 inches (34.9 mm) in thickness, or doors in compliance with Section 716.2.2.1 with a fire protection rating of not less than 20 minutes. Doors shall be self-closing and self-latching.

**406.3.2.2 Ducts.** Ducts in a private garage and ducts penetrating the walls or ceilings separating the dwelling unit from the garage, including its attic area, shall be

constructed of sheet steel of not less than 0.019 inch (0.48 mm) in thickness and shall not have openings into the garage.

**406.3.3 Carports.** Carports shall be open on not fewer than two sides. Carports open on fewer than two sides shall be considered to be a garage and shall comply with the requirements for private garages.

**406.3.3.1 Carport separation.** A separation is not required between a Group R-3 and U carport, provided that the carport is entirely open on two or more sides and there are not enclosed areas above.

**406.4 Public parking garages.** Parking garages, other than private garages, shall be classified as public parking garages and shall comply with the provisions of Sections 406.2 and 406.4 and shall be classified as either an open parking garage or an enclosed parking garage. Open parking garages shall also comply with Section 406.5. Enclosed parking garages shall also comply with Section 406.6. See Section 510 for special provisions for parking garages.

**406.4.1 Guards.** Guards shall be provided in accordance with Section 1015. Guards serving as vehicle barriers shall comply with Sections 406.4.2 and 1015.

**406.4.2 Vehicle barriers.** Vehicle barriers not less than 2 feet 9 inches (835 mm) in height shall be placed where the vertical distance from the floor of a drive lane or parking space to the ground or surface directly below is greater than 1 foot (305 mm). Vehicle barriers shall comply with the loading requirements of Section 1607.9.

**Exception:** Vehicle barriers are not required in vehicle storage compartments in a mechanical access parking garage.

**406.4.3 Ramps.** Vehicle ramps shall not be considered as required exits unless pedestrian facilities are provided. Vehicle ramps that are utilized for vertical circulation as well as for parking shall not exceed a slope of 1:15 (6.67 percent).

**406.5 Open parking garages.** Open parking garages shall comply with Sections 406.2, 406.4 and 406.5.

**406.5.1 Construction.** Open parking garages shall be of Type I, II or IV construction. Open parking garages shall meet the design requirements of Chapter 16. For vehicle barriers, see Section 406.4.2.

**406.5.2 Openings.** For natural ventilation purposes, the exterior side of the structure shall have uniformly distributed openings on two or more sides. The area of such openings in exterior walls on a tier shall be not less than 20 percent of the total perimeter wall area of each tier. The aggregate length of the openings considered to be providing natural ventilation shall be not less than 40 percent of the perimeter of the tier. Interior walls shall be not less than 20 percent open with uniformly distributed openings.

**Exception:** Openings are not required to be distributed over 40 percent of the building perimeter where the required openings are uniformly distributed over two opposing sides of the building.

**406.5.2.1 Openings below grade.** Where openings below grade provide required natural ventilation, the outside horizontal clear space shall be one and one-half times the depth of the opening. The width of the horizontal clear space shall be maintained from grade down to the bottom of the lowest required opening.

**406.5.3 Mixed occupancies and uses.** Mixed uses shall be allowed in the same building as an open parking garage subject to the provisions of Sections 402.4.2.3, 406.5.11, 508.1, 510.3, 510.4 and 510.7.

**406.5.4 Area and height.** Area and height of open parking garages shall be limited as set forth in Chapter 5 for Group S-2 occupancies and as further provided for in Section 508.1.

**406.5.4.1 Single use.** Where the open parking garage is used exclusively for the parking or storage of private motor vehicles, and the building is without other uses, the area and height shall be permitted to comply with Table 406.5.4, along with increases allowed by Section 406.5.5.

**Exception:** The grade-level tier is permitted to contain an office, waiting and toilet rooms having a total combined area of not more than 1,000 square feet (93 m<sup>2</sup>). Such area need not be separated from the open parking garage.

In open parking garages having a spiral or sloping floor, the horizontal projection of the structure at any cross section shall not exceed the allowable area per parking tier. In the case of an open parking garage having a continuous spiral floor, each 9 feet 6 inches (2896 mm) of height, or portion thereof, shall be considered under these provisions to be a tier.

**406.5.5 Area and height increases.** The allowable area and height of open parking garages shall be increased in accordance with the provisions of this section. Garages with sides open on three-fourths of the building's perimeter are permitted to be increased by 25 percent in area and one tier in height. Garages with sides open around the entire building's perimeter are permitted to be increased by 50 percent in area and one tier in height. For a side to be considered open under these provisions, the total area of openings along the side shall be not less than 50 percent of the interior area of the side at each tier and such openings shall be equally distributed along the length of the tier. For purposes of calculating the interior area of the side, the height shall not exceed 7 feet (2134 mm).

Allowable tier areas in Table 406.5.4 shall be increased for open parking garages constructed to heights less than the table maximum. The gross tier area of the garage shall not exceed that permitted for the higher structure. Not fewer than three sides of each such larger tier shall have continuous horizontal openings not less than 30 inches (762 mm) in clear height extending for not less than 80 percent of the length of the sides. All parts of such larger tier shall be not more than 200 feet (60 960 mm) horizontally from such an opening. In addition, each such opening shall face a street or yard accessible to a street with a

**TABLE 406.5.4  
OPEN PARKING GARAGES AREA AND HEIGHT**

TYPE OF CONSTRUCTION	AREA PER TIER (square feet)	HEIGHT (in tiers)		
		Ramp access	Mechanical access	
			Automatic sprinkler system	
			No	Yes
IA	Unlimited	Unlimited	Unlimited	Unlimited
IB	Unlimited	12 tiers	12 tiers	18 tiers
IIA	50,000	10 tiers	10 tiers	15 tiers
IIB	50,000	8 tiers	8 tiers	12 tiers
IV	50,000	4 tiers	4 tiers	4 tiers

For SI: 1 square foot = 0.0929 m<sup>2</sup>.

width of not less than 30 feet (9144 mm) for the full length of the opening, and standpipes shall be provided in each such tier.

Open parking garages of Type II construction, with all sides open, shall be unlimited in allowable area where the building height does not exceed 75 feet (22 860 mm). For a side to be considered open, the total area of openings along the side shall be not less than 50 percent of the interior area of the side at each tier and such openings shall be equally distributed along the length of the tier. For purposes of calculating the interior area of the side, the height shall not exceed 7 feet (2134 mm). All portions of tiers shall be within 200 feet (60 960 mm) horizontally from such openings or other natural ventilation openings as defined in Section 406.5.2. These openings shall be permitted to be provided in courts with a minimum dimension of 20 feet (6096 mm) for the full width of the openings.

**406.5.6 Fire separation distance.** Exterior walls and openings in exterior walls shall comply with Tables 601 and 602. The distance to an adjacent lot line shall be determined in accordance with Table 602 and Section 705.

**406.5.7 Means of egress.** Where persons other than parking attendants are permitted, open parking garages shall meet the means of egress requirements of Chapter 10. Where persons other than parking attendants are not permitted, there shall be not fewer than two exit stairways. Each exit stairway shall be not less than 36 inches (914 mm) in width. Lifts shall be permitted to be installed for use of employees only, provided that they are completely enclosed by noncombustible materials.

**[F] 406.5.8 Standpipe system.** An open parking garage shall be equipped with a standpipe system as required by Section 905.3.

**406.5.9 Enclosure of vertical openings.** Enclosure shall not be required for vertical openings except as specified in Section 406.5.7.

**406.5.10 Ventilation.** Ventilation, other than the percentage of openings specified in Section 406.5.2, shall not be required.

**406.5.11 Prohibitions.** The following uses and alterations are not permitted:

1. Vehicle repair work.
2. Parking of buses, trucks and similar vehicles.

3. Partial or complete closing of required openings in exterior walls by tarpaulins or any other means.

4. Dispensing of fuel.

**406.6 Enclosed parking garages.** Enclosed parking garages shall comply with Sections 406.2, 406.4 and 406.6.

**406.6.1 Heights and areas.** Enclosed vehicle parking garages and portions thereof that do not meet the definition of open parking garages shall be limited to the allowable heights and areas specified in Sections 504 and 506 as modified by Section 507. Roof parking is permitted.

**406.6.2 Ventilation.** A mechanical ventilation system and exhaust system shall be provided in accordance with Chapters 4 and 5 of the *California Mechanical Code*.

**[F] 406.6.3 Automatic sprinkler system.** An enclosed parking garage shall be equipped with an automatic sprinkler system in accordance with Section 903.2.10.

**406.7 Motor fuel-dispensing facilities.** Motor fuel-dispensing facilities shall comply with the *California Fire Code* and Sections 406.2 and 406.7.

**406.7.1 Vehicle fueling pad.** The vehicle shall be fueled on noncoated concrete or other approved paving material having a resistance not exceeding 1 megohm as determined by the methodology in EN 1081.

**406.7.2 Canopies.** Canopies under which fuels are dispensed shall have a clear, unobstructed height of not less than 13 feet 6 inches (4115 mm) to the lowest projecting element in the vehicle drive-through area. Canopies and their supports over pumps shall be of noncombustible materials, fire-retardant-treated wood complying with Chapter 23, heavy timber complying with Section 2304.11 or construction providing 1-hour fire resistance. Combustible materials used in or on a canopy shall comply with one of the following:

1. Shielded from the pumps by a noncombustible element of the canopy, or heavy timber complying with Section 2304.11.
2. Plastics covered by aluminum facing having a thickness of not less than 0.010 inch (0.30 mm) or corrosion-resistant steel having a base metal thickness of not less than 0.016 inch (0.41 mm). The plastic shall have a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in the form intended for use in accordance with ASTM

E84 or UL 723 and a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D1929.

3. Panels constructed of light-transmitting plastic materials shall be permitted to be installed in canopies erected over motor vehicle fuel-dispensing station fuel dispensers, provided that the panels are located not less than 10 feet (3048 mm) from any building on the same lot and face yards or streets not less than 40 feet (12 192 mm) in width on the other sides. The aggregate areas of plastics shall be not greater than 1,000 square feet (93 m<sup>2</sup>). The maximum area of any individual panel shall be not greater than 100 square feet (9.3 m<sup>2</sup>).

**406.7.2.1 Canopies used to support gaseous hydrogen systems.** Canopies that are used to shelter dispensing operations where flammable compressed gases are located on the roof of the canopy shall be in accordance with the following:

1. The canopy shall meet or exceed Type I construction requirements.
2. Operations located under canopies shall be limited to refueling only.
3. The canopy shall be constructed in a manner that prevents the accumulation of hydrogen gas.

**406.8 Repair garages.** Repair garages shall be constructed in accordance with the *California Fire Code* and Sections 406.2 and 406.8. This occupancy shall not include motor fuel-dispensing facilities, as regulated in Section 406.7.

**406.8.1 Ventilation.** Repair garages shall be mechanically ventilated in accordance with the *California Mechanical Code*. The ventilation system shall be controlled at the entrance to the garage.

**[F] 406.8.2 Gas detection system.** Repair garages used for repair of vehicles fueled by nonodorized gases *including but not limited to* hydrogen and nonodorized LNG, shall be provided with a *gas detection system that complies with Section 916. The gas detection system shall be designed to detect leakage of nonodorized gaseous fuel. Where lubrication or chassis service pits are provided in garages used for repairing nonodorized LNG-fueled vehicles, gas sensors shall be provided in such pits.*

**[F] 406.8.2.1 System activation.** Activation of a gas detection alarm shall result in all of the following:

1. Initiation of distinct audible and visual alarm signals in the repair garage, where the ventilation system is interlocked with gas detection.
2. Deactivation of all heating systems located in the repair garage.
3. Activation of the mechanical ventilation system, where the system is interlocked with gas detection.

**[F] 406.8.2.2 Failure of the gas detection system.** Failure of the gas detection system shall automatically deactivate the heating system, activate the mechanical ventilation system where the system is interlocked with

the gas detection system, and cause a trouble signal to sound at an approved location.

**[F] 406.8.3 Automatic sprinkler system.** A repair garage shall be equipped with an automatic sprinkler system in accordance with Section 903.2.9.1.

**406.9 Electric vehicle. [SFM]**

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

**406.9.2 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.*

**406.9.3 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.*

**SECTION 407  
GROUP I-2**

**407.1 General.** Occupancies in Group I-2 and I-2.1 shall comply with the provisions of Sections 407.1 through 407.12 and other applicable provisions of this code.

**407.1.1 Construction.** *Occupancies in Group I-2 wherein mental health patients are restrained are permitted to be housed in one-story buildings of Type IIA, Type IIIA or Type VA construction provided the floor area does not exceed 5,200 square feet (483 m<sup>2</sup>) between fire walls of two-hour fire-resistive construction with openings protected by fire assemblies having a 1<sup>1</sup>/<sub>2</sub>-hour fire protection rating.*

**407.2 Corridors continuity and separation.** Corridors in occupancies in Group I-2 and I-2.1 shall be continuous to the

**407.4.4.3 Access to corridor.** *Movement from habitable rooms shall be in accordance with Sections 407.4.4.3.1, 407.4.4.3.2 and 407.4.4.5.3.*

**Exception:** The distance of travel shall be permitted to be increased to 125 feet (38 100 mm) where an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72.

**407.4.4.3.1 One intervening room.** *Movement from habitable rooms shall not require passage through more than one intervening room and 100 feet (30 480 mm) distance of travel within the care suite.*

**407.4.4.3.2 Two intervening rooms.** *Movement from habitable rooms other than sleeping rooms located within a care suite, shall not require passage through more than two intervening rooms and 50 feet (15 240 mm) distance of exit access travel within the care suite.*

**Exception:** *The distance of travel shall be permitted to be increased to 100 feet (38 100 mm) where an automatic fire sprinkler system is provided throughout the Group I-2 fire area and an automatic smoke detection system is provided throughout the care suite and installed in accordance with NFPA 72.*

**407.4.4.4 Doors within care suites.** Doors in care suites serving habitable rooms shall be permitted to comply with one of the following:

1. Manually operated horizontal sliding doors permitted in accordance with Exception 9 to Section 1010.1.2.
2. Power-operated doors permitted in accordance with Exception 7 to Section 1010.1.2.
3. Means of egress doors complying with Section 1010.

**407.4.4.5 Care suites containing sleeping room areas.** Sleeping rooms shall be permitted to be grouped into care suites where one of the following criteria is met:

1. The care suite is not used as an exit access for more than eight care recipient beds.
2. The arrangement of the care suite allows for direct and constant visual supervision into the sleeping rooms by care providers.
3. An automatic smoke detection system is provided in the sleeping rooms and installed in accordance with NFPA 72.

**407.4.4.5.1 Area.** Care suites containing sleeping rooms shall be not greater than 7,500 square feet (696 m<sup>2</sup>) in area.

**Exceptions:**

1. *Care suites containing sleeping rooms shall be permitted to be not greater than 7,500 square feet (696 m<sup>2</sup>) in area where an automatic fire sprinkler system is provided throughout the Group I-2 fire area.*

2. *Care suites containing sleeping rooms shall be permitted to be not greater than 10,000 square feet (929 m<sup>2</sup>) in area where an automatic fire sprinkler system is provided throughout the Group I-2 fire area and where an automatic smoke detection system is provided throughout the care suite and installed in accordance with Section 907.*

**407.4.4.5.2 Exit access.** Any care suite that contains sleeping rooms, of more than 1,000 square feet (93 m<sup>2</sup>) shall have not fewer than two exit access doors from the care suite located in accordance with Section 1007.

**407.4.4.5.3 Travel distance.** The travel distance between any point in a care suite containing sleeping rooms and an exit access door from that care suite shall be not greater than 100 feet (30 480 mm).

**407.4.4.6 Care suites not containing sleeping rooms.** Areas not containing sleeping rooms, but only treatment areas and the associated rooms, spaces or circulation space, shall be permitted to be grouped into care suites and shall conform to the limitations in Sections 407.4.4.6.1 and 407.4.4.6.2.

**407.4.4.6.1 Area.** Care suites of rooms, other than sleeping rooms, shall have an area not greater than 10,000 square feet (929 m<sup>2</sup>).

**407.4.4.6.2 Exit access.** Any room or care suite, other than sleeping rooms, with an area of more than 2,500 square feet (232 m<sup>2</sup>) shall have not fewer than two exit access doors from the room or care suite located in accordance with Section 1007.

**407.4.5 Group I-2 and I-2.1 nonpatient-care suites.** *The means of egress provisions for nonpatient-care suites shall be in accordance with the primary use and occupancy of the suite.*

**407.4.5.1 Separation.** *Nonpatient-care suites shall be separated from other portions of the building, including other suites, by not less than a 1-hour fire barrier complying with Section 707. Each suite of rooms shall be separated from the remainder of the building by not less than a 1-hour fire barrier.*

**407.4.5.2 Area.** *Nonpatient-care suites of rooms shall have an area not greater than 10,000 square feet (929 m<sup>2</sup>).*

**407.4.5.3 Automatic sprinkler system protection.** *Nonpatient-care suites shall be located in fully sprinklered buildings.*

**407.5 Smoke barriers.** Smoke barriers shall be provided to subdivide every story used by persons receiving care, treatment or sleeping into not fewer than two smoke compartments. Smoke barriers shall be provided to subdivide other stories with an occupant load of 50 or more persons, regardless of occupancy or use, into not fewer than two smoke compartments. The smoke barrier shall be in accordance with Section 709.

**Exceptions:**

1. *This requirement shall not apply to Group I-2.1 less than 10,000 ft<sup>2</sup> (929 m<sup>2</sup>).*

2. An area in an adjoining occupancy shall be permitted to serve as a smoke compartment for a Group I-2.1 facility if the following criteria are met:

- 2.1. The separating wall and both compartments meet the requirements of 407.5.
- 2.2. The Group I-2.1 is less than 22,500 ft<sup>2</sup> (2100 m<sup>2</sup>).
- 2.3. Access from the Group I-2.1 to the other occupancy is unrestricted.

3. This requirement shall not apply to the following:

- 3.1. Any story, not containing a Group I-2 or I-2.1 occupancy, that is located above a story containing a Group I-2 or I-2.1 occupancy.
- 3.2. Areas that do not contain a Group I-2 or I-2.1 occupancy, where such areas are separated from the Group I-2 or I-2.1 occupancy by a horizontal exit in accordance with Section 1025.2.
- 3.3. Any story, not containing a Group I-2 or I-2.1 occupancy, that is located more than one story below a story containing a Group I-2 or I-2.1 occupancy.
- 3.4. Any story housing only mechanical equipment where such story is located below a story containing a Group I-2 or I-2.1 occupancy and is separated from the story above by a horizontal assembly having not less than a 2 hour fire resistance-rating.

**407.5.1 Smoke compartment size.** Stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m<sup>2</sup>) in Group I-2 occupancies.

**407.5.2 Exit access travel distance.** The distance of travel from any point in a smoke compartment to a smoke barrier door shall be not greater than 200 feet (60 960 mm).

**407.5.3 Refuge area.** Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 30 net square feet (2.8 m<sup>2</sup>) for each care recipient confined to bed or stretcher.
2. Not less than 6 square feet (0.56 m<sup>2</sup>) for each ambulatory care recipient not confined to bed or stretcher and for other occupants.

Areas or spaces permitted to be included in the calculation of refuge area are corridors, sleeping areas, treatment rooms, lounge or dining areas and other low-hazard areas.

**407.5.4 Independent egress.** A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated. Smoke compartments that do not contain an exit shall be provided

with direct access to not less than two adjacent smoke compartments.

**407.5.5 Horizontal assemblies.** Horizontal assemblies supporting smoke barriers required by this section shall be designed to resist the movement of smoke. Elevator lobbies shall be in accordance with Section 3006.2.

**407.6 Automatic-closing doors.** Automatic-closing doors with hold-open devices shall comply with Sections 709.5 and 716.2.

**[F] 407.7 Automatic sprinkler system.** Every facility as specified herein wherein more than six clients or patients are housed or cared for on the premises on a 24-hour per-day-basis shall have installed and maintained in an operable condition in every building or portion thereof where clients or patients are housed, an automatic sprinkler system of a type approved by the state fire marshal. The provisions of this subsection shall apply to every person, firm or corporation establishing, maintaining or operating a hospital, children's home, children's nursery or institution, or a home or institution for the care of aged or persons with dementia or other cognitive impairments, or any institution for persons with mental illness or persons with developmental disabilities and any nursing or convalescent home, and to any state-owned or state-occupied building used for any of the types of facilities specified herein.

**Exceptions:**

1. This section shall not apply to homes or institutions for the 24-hour-per-day care of ambulatory children if all of the following conditions are satisfied:

- 1.1. The buildings or portions thereof in which children are housed are not more than two stories in height and are constructed and maintained in accordance with regulations adopted by the state fire marshal.
- 1.2. The buildings or portions thereof housing more than six such children shall have installed and maintained in an operable condition therein, a fire alarm system of a type approved by the state fire marshal. Such system shall be activated by detectors responding to invisible particles of combustion other than heat, except that detectors used in closets, usable under-floor areas, storage rooms, bathrooms, attached garages, attics, plenums, laundry rooms and rooms of similar use, may be heat-responsive devices.
- 1.3. The building or portions thereof do not house persons with mental illness or children with developmental disabilities.

2. This section shall not apply to any one-story building or structure of an institution or home for the care of the aged providing 24-hour-per-day care if such building or structure is used or intended to be used for the housing of no more than six ambulatory aged persons. Such buildings or institutions shall have installed and maintained in an operable condition herein a fire alarm system of a type approved by the state fire marshal. Such system shall be activated by detectors responding to

*either visible or invisible particles of combustion other than heat, except that detectors used in closets, usable under-floor areas, storage rooms, bathrooms, attached garages, attics, plenums, laundry rooms and rooms of similar use, may be heat-responsive devices.*

3. *This section shall not apply to occupancies or any alterations thereto conforming to the construction provisions of this exception which were under construction or in existence on March 4, 1972. "Under construction" as used in this exception shall mean that actual work had been performed on the construction site and shall not be construed to mean that the hospital, home, nursery, institution, sanitarium or any portion thereof, was or is in the planning stage. The provisions of this exception shall apply to those buildings or structures having bearing walls and structural flame protected in accordance with the provisions of Column Type 1A of Table 601.*

4. *In detention facilities where inmates are not restrained.*

*The provisions of this section shall not apply to any facility used to house six or less persons on the premises.*

**407.7.1** *When a new addition is to be made to an unsprinklered building or structure as permitted by this subsection, such new addition shall be sprinklered as required by this section and shall be separated from the existing building or structures by not less than a two-hour fire-resistive fire barrier.*

*When a sprinkler system is added to an existing unsprinklered building or structure, the sprinklered area(s) shall be separated from the remainder of the building by not less than a one-hour fire-resistive fire barrier. The provisions of this section do not apply to any facility used to house six or less persons on the premises.*

**[F] 407.8 Fire alarm system.** A fire alarm system shall be provided in accordance with Section 907.2.6.

**[F] 407.9 Automatic fire detection.** Corridors in Group I-2, Condition 1 occupancies and spaces permitted to be open to the corridors by Section 407.2 shall be equipped with an automatic fire detection system.

Group I-2, Condition 2 occupancies shall be equipped with smoke detection as required in Section 407.2.

**Exceptions:**

1. Corridor smoke detection is not required where sleeping rooms are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each sleeping room and an audible and visual alarm at the care provider's station attending each unit.
2. Corridor smoke detection is not required where sleeping room doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.

**407.10 Secured yards.** Grounds are permitted to be fenced and gates therein are permitted to be equipped with locks, provided that safe dispersal areas having 30 net square feet

(2.8 m<sup>2</sup>) for bed and stretcher care recipients and 6 net square feet (0.56 m<sup>2</sup>) for ambulatory care recipients and other occupants are located between the building and the fence. Such provided safe dispersal areas shall be located not less than 50 feet (15 240 mm) from the building they serve. *Each safe dispersal area shall have a minimum of two exits. The aggregate clear width of exits from a safe dispersal area shall be determined on the basis of not less than one exit unit of 22 inches (559 mm) for each 500 persons to be accommodated, and no exit shall be less than 44 inches (1118 mm) in width. Gates shall not be installed across corridors or passageways leading to such dispersal areas unless they comply with egress requirements. Keys to gate locks shall be provided in accordance with the California Fire Code.*

**[F] 407.11 Electrical systems.** In Group I-2 or I-2.1 occupancies, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

**407.12 Special Hazards.**

**407.12.1** *Storage and handling of flammable, combustible liquids and hazardous materials shall be in accordance with the California Fire Code.*

**407.12.2** *All exterior openings in a boiler room or room containing central heating equipment, if located below openings in another story, or if less than 10 feet (3048 mm) from other doors or windows of the same building, shall be protected by a fire assembly having a three-fourths-hour fire protection rating.*

**407.12.3 Safety padding.** *See Sections 308.1 and 408.14.*

**407.12.4 Floor surfaces.** *Rooms occupied by patients whose personal liberties are restrained shall have non-combustible floor surfaces see Sections 308.1 and 804.4.3.*

**SECTION 408  
GROUP I-3**

**408.1 General.** Occupancies in Group I-3 shall comply with the provisions of Sections 408.1 through 408.11 and other applicable provisions of this code (see Section 308.5).

**408.1.2 Construction.** *Group I-3 Occupancies shall be housed in buildings of Type IA or Type IB.*

**Exception:** *Such occupancies may be housed in one-story buildings of Type IIA, Type IIIA or Type VA construction provided the floor area does not exceed 5,200 square feet (483 m<sup>2</sup>) between fire walls of two-hour fire-resistive construction with openings protected by fire assemblies having 1- and 1½-hour fire-protection rating.*

**408.1.2.1 Nonbearing walls and partitions interior.** *Nonbearing cell or dormitory walls within cell complexes shall be of noncombustible construction.*

**408.1.2.2 Intervening spaces.** *Common rooms and spaces within Group I-3 occupancies can be considered an intervening space in accordance with Section 1016.2 when the area is contained within housing units*

and suites, and not considered a corridor, when they meet any of the following:

1. Within prisons and local detention facilities of Type I construction, the exit access within a housing unit may be a non-rated corridor provided the required exit occupant load from any dayroom does not exceed 64 persons.
2. Within prison, jails, and courthouses: Circulation within any temporary holding suite of Type I construction and an occupant load less than 100.
3. Within prisons and local detention facilities, correctional medical or mental health housing suites, of Type I construction and an occupant load less than 100.

**408.1.2.3 Courthouse holding facilities.** Group I-3 courthouse holding facilities shall be considered a separate and distinct building from the remaining courthouse building for the purpose of determining the type of construction where all of the following conditions are met:

1. 2-hour fire barriers in accordance with Section 707 and 2-hour horizontal assemblies in accordance with Section 711 are provided to separate the courthouse holding facility from all other portions of the courthouse building.
2. Any of the structure used to support courthouse holding facilities meets the requirements for the Group I-3 portion of the building.
3. Each courthouse holding facility located above the first story is less than 1,000 square feet in area, and is designed to hold 10 or less in-custody defendants.
4. Courthouse holding facilities located above the first story containing an internal stairway discharging to the main courthouse holding facility at the first story or basement.
5. Additional exits from the courthouse holding facility located above the first story shall be permitted to exit through the courtrooms.
6. The main courthouse holding facility located on the first story or basement has at least one exit directly to the exterior and additional means of egress shall be permitted to pass through a 1-hour corridor or lobby in the courthouse building.

**408.1.2.4 Horizontal building separation for combined Group I-3/Group B occupancy.** A Group B Administration building one story in height shall be permitted to be located above a Group I-3 (or Group I-3/I-2) housing/treatment building that is one story above grade and shall be classified as a separate and distinct building for the purpose of determining the type of construction, and shall be considered a separate fire area, where all of the following conditions are met:

1. A 3-hour floor-ceiling assembly below the administration building is constructed as a horizontal assembly in accordance with Section 711.

2. Interior shafts for stairs, elevators and mechanical systems complete the 3-hour separation between the Group B and Group I-3 (or Group I-3/I-2).
3. The Group I-3 occupancy (or Group I-3/I-2 occupancies, correctional medical and mental health uses) below is minimum Type I-B construction with 2-hour fire resistive rated exterior walls.
4. No unprotected openings are allowed in lower roofs within 10 feet of unprotected windows in the upper floor.
5. The Group B building above is of noncombustible construction and equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1.
6. The Group B occupancy building above has all required means of egress capable of discharging directly to the exterior to a safe dispersal area.

**408.1.2.5 Temporary holding area.** In buildings protected with automatic sprinklers, corridor serving temporary holding rooms shall be one hour fire resistance rated when the temporary holding occupant load is greater than 20.

**408.1.2.6 Temporary holding facilities.** Temporary holding facilities with nine or fewer persons under restraint may be classified as Group B when located in a buildings complying with all of the following conditions:

1. The building shall be protected throughout with a monitored automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. The building shall protected with a automatic fire alarm system with notification appliances throughout the holding facility in accordance with Section 907.2.
3. The building shall be constructed of Type I, IIA, IIIA or VA construction.

**408.1.2.7 Secure interview rooms.** Secure Interview Rooms used for law enforcement shall be permitted to locked, and shall not be classified as Group I-3 occupancies where all of the following conditions are met:

1. A monitored automatic sprinkler system shall be provided throughout buildings and portions thereof including secure interview rooms. The automatic sprinkler system shall comply with Section 903.3.1.1.
2. Secure interview rooms shall be located in non-combustible construction.
3. Secure interview rooms have glazed or barred openings with direct, continuous observation from law enforcement personnel who have a means to open the secure interview room.
4. Not more than 6 occupants in secure interview rooms shall be located in the same fire area.
5. An automatic smoke detection system shall be installed within secure interview rooms and mechanical and electrical rooms.

**408.1.3 Security door assemblies in corridors, smoke barriers, and smoke partitions.** Security door assemblies shall be constructed in accordance with NFPA 252 or UL 10C, and where a smoke rating is required UL 1784, are not required to be tested or labeled.

**408.2 Other occupancies.** Buildings or portions of buildings in Group I-3 occupancies where security operations necessitate the locking of required means of egress shall be permitted to be classified as a different occupancy. Occupancies classified as other than Group I-3 shall meet the applicable requirements of this code for that occupancy where provisions are made for the release of occupants at all times.

Means of egress from detention and correctional occupancies that traverse other use areas shall, as a minimum, conform to requirements for detention and correctional occupancies.

**Exception:**

1. It is permissible to exit through a horizontal exit into other contiguous occupancies that do not conform to detention and correctional occupancy egress provisions but that do comply with requirements set forth in the appropriate occupancy, as long as the occupancy is not a Group H use.
2. Regardless of the provisions of Section 508, laundry areas and kitchens including associated dining areas, where commercial/institutional equipment is used shall be separated from the remainder of the building by construction capable of resisting the passage of smoke.
3. For the purpose of occupancy separation only courtroom docks that are directly accessory to courtrooms need not be separated from a courtroom.

**408.2.1 Correctional medical and mental health uses.** Where a Group I-3 occupancy occurs in building or portions of buildings, the following Subsections of Sections of 407 shall apply: 407.2.1; 407.2.2; 407.2.3; 407.3.1; 407.3.1.1; 407.4; 407.10.

**408.3 Means of egress.** Except as modified or as provided for in this section, the means of egress provisions of Chapter 10 shall apply.

**408.3.1 Door width.** Doors to resident sleeping units shall have a clear width of not less than 28 inches (711 mm).

**408.3.1.1 Cell doors shall open outwardly or slide laterally.**

**408.3.2 Sliding doors.** Where doors in a means of egress are of the horizontal-sliding type, the force to slide the door to its fully open position shall be not greater than 50 pounds (220 N) with a perpendicular force against the door of 50 pounds (220 N).

**408.3.3 Guard tower doors.** A hatch or trap door not less than 16 square feet (610 m<sup>2</sup>) in area through the floor and having dimensions of not less than 2 feet (610 mm) in any direction shall be permitted to be used as a portion of the means of egress from guard towers.

**408.3.4 Spiral stairways.** Spiral stairways that conform to the requirements of Section 1011.10 are permitted for access to and between staff locations.

**408.3.5 Ship's ladders.** Ship's ladders shall be permitted for egress from control rooms or elevated facility observation rooms in accordance with Section 1011.15.

**408.3.6 Exit discharge.** Exits are permitted to discharge into a fenced or walled courtyard. Enclosed yards or courts shall be of a size to accommodate all occupants, be located not less than 50 feet (15 240 mm) from the building and have an area of not less than 3 square feet (1.4 m<sup>2</sup>) per person. A gate shall be provided from the safe dispersal area to allow for the necessary relocation of occupants.

**408.3.6.1 Exterior fenced enclosures and fenced enclosures utilized for recreational or activity purposes, used for exit termination for more than 20 persons, and which do not provide a safe dispersal area, shall have not less than two exits.**

**408.3.6.2 Fenced enclosure utilized for recreational or activity purposes only, for more than 49 people, and which do not provide a safe dispersal area, shall be provided with not less than two exits.**

**408.3.6.3 Fenced enclosures located on roofs of buildings one or more stories in height shall be provided with not less than two exits regardless of occupant load.**

**408.3.6.4 Fenced enclosures utilized for central control buildings not normally occupied and not accessed by inmates or the general public are permitted to have only one exit from the fenced enclosure. These fenced enclosures shall only be occupied during emergency response conditions by not more than 29 prison staff occupants. Access to the fenced area shall be controlled remotely or at the gate with a key.**

**408.3.7 Sallyports.** A sallyport shall be permitted in a means of egress where there are provisions for continuous and unobstructed passage through the sallyport during an emergency egress condition.

**408.3.8 Interior exit stairway and ramp construction.** One interior exit stairway or ramp in each building shall be permitted to have glazing installed in doors and interior walls at each landing level providing access to the interior exit stairway or ramp, provided that the following conditions are met:

1. The interior exit stairway or ramp shall not serve more than four floor levels.
2. Exit doors shall be not less than  $\frac{3}{4}$ -hour fire door assemblies complying with Section 716.
3. The total area of glazing at each floor level shall not exceed 5,000 square inches (3.2 m<sup>2</sup>) and individual panels of glazing shall not exceed 1,296 square inches (0.84 m<sup>2</sup>).
4. The glazing shall be protected on both sides by an automatic sprinkler system. The sprinkler system shall be designed to wet completely the entire surface of any glazing affected by fire when actuated.
5. The glazing shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler system operates.

6. Obstructions, such as curtain rods, drapery traverse rods, curtains, drapes or similar materials shall not be installed between the automatic sprinklers and the glazing.

**408.3.8.1** *Where the number and arrangement of exits complies with the requirements of Chapter 10, other stairways which occur within the secure area of the detention facility and are not used for required exiting but are used primarily for the movement of inmates and security staff need not extend to the exterior.*

**408.3.9 Dead-end balconies.** *Exit balconies serving cell tiers shall not extend more than 50 feet (15 240 mm) beyond an exit stairway.*

**408.3.10 Travel distance.** *The travel distance may be increased to 300 feet for portions of Group I-3 occupancies open only to staff or where inmates are escorted at all times by staff.*

**408.3.11 Number of exits required.** *In temporary holding areas of noncombustible construction, a second means of egress is required when the occupant load is greater than 20.*

**408.3.12 Custody station.** *Spaces for custody stations, communications and related clerical areas shall be permitted to be open to, or located within the corridor, provided the required construction along the perimeter of the corridor is maintained. Construction of custody stations or portions of custody stations, within the envelope of the corridor, is not required to be fire-resistance rated. These provisions shall also apply to an enclosed custody station within the corridor.*

**408.4 Locks.** Egress doors are permitted to be locked in accordance with the applicable use condition. Doors from a refuge area to the outside are permitted to be locked with a key in lieu of locking methods described in Section 408.4.1. The keys to unlock the exterior doors shall be available at all times and the locks shall be operable from both sides of the door. *Security hardware may be used on any fire-rated door.*

**408.4.1 Remote release.** Remote release of locks on doors in a means of egress shall be provided with reliable means of operation, remote from the resident living areas, to release locks on all required doors. In Occupancy Condition 3 or 4, the arrangement, accessibility and security of the release mechanisms required for egress shall be such that with the minimum available staff at any time, the lock mechanisms are capable of being released within 2 minutes.

**Exception:** Provisions for remote locking and unlocking of occupied rooms in Occupancy Condition 4 are not required provided that not more than 10 locks are necessary to be unlocked in order to move occupants from one smoke compartment to a refuge area within 3 minutes. The opening of necessary locks shall be accomplished with not more than two separate keys.

**[F] 408.4.2 Power-operated doors and locks.** Power-operated sliding doors or power-operated locks for swinging doors shall be operable by a manual release mechanism at the door. Emergency power shall be provided for the doors and locks in accordance with Section 2702.

**Exceptions:**

1. Emergency power is not required in facilities with 10 or fewer locks complying with the exception to Section 408.4.1.
2. Emergency power is not required where remote mechanical operating releases are provided.

**408.4.3 Redundant operation.** Remote release, mechanically operated sliding doors or remote release, mechanically operated locks shall be provided with a mechanically operated release mechanism at each door, *and* shall be provided with a redundant remote release control.

**408.4.4 Relock capability.** Doors remotely unlocked under emergency conditions shall not automatically relock when closed unless specific action is taken at the remote location to enable doors to relock.

**408.5 Protection of vertical openings.** Any vertical opening shall be protected by a shaft enclosure in accordance with Section 713, or shall be in accordance with Section 408.5.1.

**408.5.1 Floor openings.** *The open space in front of a cell tier and connected chases, not exceeding two tiers in height, shall not be considered a vertical shaft and need not meet the fire-resistive shaft enclosure requirements of Section 713.*

**408.5.2 Shaft openings in communicating floor levels.** Where a floor opening is permitted between communicating floor levels of a housing unit in accordance with Section 408.5.1, plumbing chases serving vertically stacked individual cells contained with the housing unit shall be permitted without a shaft enclosure. | |

**408.6 Smoke barrier.** Occupancies in Group I-3 shall have smoke barriers complying with Sections 408.6 and 709 to divide every story occupied by residents for sleeping, or any other story having an occupant load of 50 or more persons, into not fewer than two smoke compartments.

**Exception:** Spaces having a direct exit to one of the following, provided that the locking arrangement of the doors involved complies with the requirements for doors at the smoke barrier for the use condition involved:

1. A public way.
2. A building separated from the resident housing area by a 2-hour fire-resistance-rated assembly or 50 feet (15 240 mm) of open space.
3. A secured yard or court having a holding space 50 feet (15 240 mm) from the housing area that provides 6 square feet (0.56 m<sup>2</sup>) or more of refuge area per occupant, including residents, staff and visitors.
4. *Holding facility.*

**408.6.1 Smoke compartments.** The number of residents in any smoke compartment shall be not more than 200.

**420.2 Separation walls.** Walls separating dwelling units in the same building, walls separating sleeping units in the same building and walls separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as fire partitions in accordance with Section 708.

**420.3 Horizontal separation.** Floor assemblies separating dwelling units in the same buildings, floor assemblies separating sleeping units in the same building and floor assemblies separating dwelling or sleeping units from other occupancies contiguous to them in the same building shall be constructed as horizontal assemblies in accordance with Section 711.

**420.4 Automatic sprinkler system.** Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.8. *Group R-2.2 shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Group R-2.1 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.2.6. Quick-response or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.*

**420.5 Fire alarm systems and smoke alarms.** Fire alarm systems and smoke alarms shall be provided in Group R-1, R-2 and R-2.1 occupancies in accordance with Sections 907.2.8, 907.2.9 and 907.2.10, respectively. Single- or multiple-station smoke alarms shall be provided in Groups R-2, R-2.1, R-3 and R-4 in accordance with Section 907.2.10. *Group R-2.2 shall be equipped throughout with an automatic fire alarm systems per 907.2.9.2 and shall have a manual fire alarm pull station at the 24-hour staff watch office.*

**420.6 Smoke barriers in Group R-2.1.** Smoke barriers shall be provided in Group R-2.1 to subdivide every story used by persons receiving care, treatment or sleeping and to provide other stories with an occupant load of 50 or more persons, into not fewer than two smoke compartments. Such stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m<sup>2</sup>) and the distance of travel from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barrier shall be in accordance with Section 709.

**420.6.1 Smoke barrier in Group R-2.2.** *Occupancies in Group R-2.2 shall have smoke barriers complying with Sections 709 to divide every story occupied by residents for sleeping, into no fewer than two smoke compartments.*

**Exception:** *Spaces having a direct exit to a public way.*

**420.6.2 Refuge area.** Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 15 net square feet (1.4 m<sup>2</sup>) for each care recipient.

2. Not less than 6 net square feet (0.56 m<sup>2</sup>) for other occupants.

Areas or spaces permitted to be included in the calculation of the refuge area are corridors, lounge or dining areas and other low-hazard areas.

**420.7 Reserved.**

**420.8 Reserved.**

**420.9 Group R cooking facilities.** In Group R occupancies, cooking appliances used for domestic cooking operations shall be in accordance with Section 917.0 of the *California Mechanical Code*.

**420.10 Group R-2 dormitory cooking facilities.** Domestic cooking appliances for use by residents of Group R-2 college dormitories shall be in accordance with Sections 420.10.1 and 420.10.2.

**420.10.1 Cooking appliances.** Where located in Group R-2 college dormitories, domestic cooking appliances for use by residents shall be in compliance with all of the following:

1. The types of domestic cooking appliances shall be limited to ovens, cooktops, ranges, warmers, coffee makers and microwaves.
2. Domestic cooking appliances shall be limited to approved locations.
3. Cooktops and ranges shall be protected in accordance with Section 904.13.
4. Cooktops and ranges shall be provided with a domestic cooking hood installed and constructed in accordance with the *California Mechanical Code*. *Kitchen range hoods shall also be rated for sound and meet field verification requirements in the California Energy Code for low-rise and high-rise residential buildings.*

**420.10.2 Cooking appliances in sleeping rooms.** Cooktops, ranges and ovens shall not be installed or used in sleeping rooms.

**420.11 [HCD 1] Construction waste management.** *Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.4.*

**420.12 Special provisions for residential hotels. [HCD 1 & HCD 1-AC]**

**420.12.1 Locking mail receptacles.** *A locking mail receptacle for each residential unit shall be provided in all residential hotels pursuant to the requirements specified in Health and Safety Code Section 17958.3.*

**420.13 [HCD 1] Electric vehicle (EV) charging for new construction.** *Newly constructed Group R-1, R-2 and R-3 buildings shall be provided with infrastructure to facilitate future installation and use of electric vehicle (EV) chargers in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.1.*

**420.14 Licensed 24-hour care facilities in a Group R-2.1, R-3.1 or R-4 occupancy.** See Section 435 for Special Provisions for licensed 24-hour care facilities in a Group R-2.1, R-3.1, or R-4 occupancy.

**420.15 Electronic monitoring.** In Group R-2.2 occupancies there shall be continuous electronic supervision via CCTV system camera coverage and monitoring the following areas: corridors, storage rooms over 100 square feet, central kitchen, and main entryway of the facility.

## SECTION 421 HYDROGEN FUEL GAS ROOMS

**[F] 421.1 General.** Where required by the *California Fire Code*, hydrogen fuel gas rooms shall be designed and constructed in accordance with Sections 421.1 through 421.8.

**[F] 421.2 Location.** Hydrogen fuel gas rooms shall not be located below grade.

**[F] 421.3 Design and construction.** Hydrogen fuel gas rooms not classified as Group H shall be separated from other areas of the building in accordance with Section 509.1.

**[F] 421.3.1 Pressure control.** Hydrogen fuel gas rooms shall be provided with a ventilation system designed to maintain the room at a negative pressure in relation to surrounding rooms and spaces.

**[F] 421.3.2 Windows.** Operable windows in interior walls shall not be permitted. Fixed windows shall be permitted where in accordance with Section 716.

**[F] 421.4 Exhaust ventilation.** Hydrogen fuel gas rooms shall be provided with mechanical exhaust ventilation in accordance with the applicable provisions of Section 502.16.1 of the *California Mechanical Code*.

**[F] 421.5 Gas detection system.** Hydrogen fuel gas rooms shall be provided with a gas detection system that complies with Sections 421.5.1, 421.5.2, and 916.

**[F] 421.5.1 System activation.** Activation of a gas detection alarm shall result in both of the following:

1. Initiation of distinct audible and visible alarm signals both inside and outside of the hydrogen fuel gas room.
2. Automatic activation of the mechanical exhaust ventilation system.

**[F] 421.5.2 Failure of the gas detection system.** Failure of the gas detection system shall automatically activate the mechanical exhaust ventilation system, stop hydrogen generation, and cause a trouble signal to sound at an approved location.

**[F] 421.6 Explosion control.** Explosion control shall be provided where required by Section 414.5.1.

**[F] 421.7 Standby power.** Mechanical ventilation and gas detection systems shall be provided with a standby power system in accordance with Section 2702.

## SECTION 422 AMBULATORY CARE FACILITIES

**422.1 General.** Occupancies classified as ambulatory care facilities shall comply with the provisions of Sections 422.1 through 422.6 and other applicable provisions of this code. **[For OSHPD 3]** For clinics licensed by California Department of Public Health also refer to Section 1226.2.

**422.2 Separation.** Ambulatory care facilities where the potential for four or more care recipients are to be incapable of self-preservation at any time shall be separated from adjacent spaces, corridors or tenants with a fire partition installed in accordance with Section 708.

**422.3 Smoke compartments.** Where the aggregate area of one or more ambulatory care facilities is greater than 10,000 square feet (929 m<sup>2</sup>) on one story, the story shall be provided with a smoke barrier to subdivide the story into not fewer than two smoke compartments. The area of any one such smoke compartment shall be not greater than 22,500 square feet (2092 m<sup>2</sup>). The distance of travel from any point in a smoke compartment to a smoke barrier door shall be not greater than 200 feet (60 960 mm). The smoke barrier shall be installed in accordance with Section 709 with the exception that smoke barriers shall be continuous from outside wall to an outside wall, a floor to a floor, or from a smoke barrier to a smoke barrier or a combination thereof.

**422.3.1 Means of egress.** Where ambulatory care facilities require smoke compartmentation in accordance with Section 422.3, the fire safety evacuation plans provided in accordance with Section 1002.2 shall identify the building components necessary to support a defend-in-place emergency response in accordance with Sections 403 and 404 of the *California Fire Code*.

**422.3.2 Refuge area.** Not less than 30 net square feet (2.8 m<sup>2</sup>) for each nonambulatory care recipient shall be provided within the aggregate area of corridors, care recipient rooms, treatment rooms, lounge or dining areas and other low-hazard areas within each smoke compartment. Each occupant of an ambulatory care facility shall be provided with access to a refuge area without passing through or utilizing adjacent tenant spaces.

**422.3.3 Independent egress.** A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.

**[F] 422.4 Automatic sprinkler systems.** Automatic sprinkler systems shall be provided for ambulatory care facilities in accordance with Section 903.2.2.

**[F] 422.5 Fire alarm systems.** A fire alarm system shall be provided for ambulatory care facilities in accordance with Section 907.2.2.

**[F] 422.6 Electrical systems.** In ambulatory care facilities, the essential electrical system for electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of Chapter 27 and NFPA 99.

## SECTION 423 STORM SHELTERS

**423.1 General.** This section applies to the construction of storm shelters constructed as separate detached buildings or constructed as rooms or spaces within buildings for the purpose of providing protection from storms that produce high winds, such as tornadoes and hurricanes during the storm. Such structures shall be designated to be hurricane shelters, tornado shelters, or combined hurricane and tornado shelters. Design of facilities for use as emergency shelters after the storm are outside the scope of ICC 500 and shall comply with Table 1604.5 as a Risk Category IV Structure.

**423.2 Construction.** In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500. Buildings or structures that are also designated as emergency shelters shall also comply with Table 1604.5 as Risk Category IV structures.

**423.3 Critical emergency operations.** In areas where the shelter design wind speed for tornados in accordance with Figure 304.2(1) of ICC 500 is 250 mph, 911 call stations, emergency operation centers and fire, rescue, ambulance and police stations shall comply with Table 1604.5 as a Risk Category IV structure and shall be provided with a storm shelter constructed in accordance with ICC 500.

**423.4 Group E occupancies.** In areas where the shelter design wind speed for tornados is 250 mph in accordance with Figure 304.2(1) of ICC 500, all Group E occupancies with an occupant load of 50 or more shall have a storm shelter constructed in accordance with ICC 500.

### Exceptions:

1. Group E day care facilities.
2. Group E occupancies accessory to places of religious worship.
3. Buildings meeting the requirements for shelter design in ICC 500.

**423.4.1 Required occupant capacity.** The required occupant capacity of the storm shelter shall include all of the buildings on the site and shall be the greater of the following:

1. The total occupant load of the classrooms, vocational rooms and offices in the Group E occupancy.
2. The occupant load of any indoor assembly space that is associated with the Group E occupancy.

### Exceptions:

1. Where a new building is being added on an existing Group E site, and where the new building is not of sufficient size to accommodate the required occupant capacity of the storm shelter for all of the buildings on the site, the storm shelter shall at a minimum accommodate the required occupant capacity for the new building.
2. Where approved by the code official, the required occupant capacity of the shelter shall be permitted to be reduced by the

occupant capacity of any existing storm shelters on the site.

**423.4.2 Location.** Storm shelters shall be located within the buildings they serve or shall be located where the maximum distance of travel from not fewer than one exterior door of each building to a door of the shelter serving that building does not exceed 1,000 feet (305 m).

## SECTION 424 CHILDREN'S PLAY STRUCTURES

**424.1 General.** Children's play structures installed inside all occupancies covered by this code that exceed 10 feet (3048 mm) in height or 150 square feet (14 m<sup>2</sup>) in area shall comply with Sections 424.2 through 424.5.

**424.2 Materials.** Children's play structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

1. Fire-retardant-treated wood complying with Section 2303.2.
2. Light-transmitting plastics complying with Section 2606.
3. Foam plastics (including the pipe foam used in soft-contained play equipment structures) having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source.
4. Aluminum composite material (ACM) meeting the requirements of Class A interior finish in accordance with Chapter 8 when tested as an assembly in the maximum thickness intended for use.
5. Textiles and films complying with the fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
6. Plastic materials used to construct rigid components of soft-contained play equipment structures (such as tubes, windows, panels, junction boxes, pipes, slides and decks) exhibiting a peak rate of heat release not exceeding 400 kW/m<sup>2</sup> when tested in accordance with ASTM E1354 at an incident heat flux of 50 kW/m<sup>2</sup> in the horizontal orientation at a thickness of 6 mm.
7. Ball pool balls, used in soft-contained play equipment structures, having a maximum heat-release rate not greater than 100 kilowatts when tested in accordance with UL 1975 or when tested in accordance with NFPA 289, using the 20 kW ignition source. The minimum specimen test size shall be 36 inches by 36 inches (914 mm by 914 mm) by an average of 21 inches (533 mm) deep, and the balls shall be held in a box constructed of galvanized steel poultry netting wire mesh.
8. Foam plastics shall be covered by a fabric, coating or film meeting the fire propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.
9. The floor covering placed under the children's play structure shall exhibit a Class I interior floor finish clas-

sification, as described in Section 804, when tested in accordance with ASTM E648 or NFPA 253.

**[F] 424.3 Fire protection.** Children's play structures shall be provided with the same level of approved fire suppression and detection devices required for other structures in the same occupancy.

**424.4 Separation.** Children's play structures shall have a horizontal separation from building walls, partitions and from elements of the means of egress of not less than 5 feet (1524 mm). Children's play structures shall have a horizontal separation from other children's play structures of not less than 20 feet (6090 mm).

**424.5 Area limits.** Children's play structures shall be not greater than 300 square feet (28 m<sup>2</sup>) in area, unless a special investigation, acceptable to the building official, has demonstrated adequate fire safety.

## SECTION 425 HYPERBARIC FACILITIES

**425.1 Hyperbaric facilities.** Hyperbaric facilities shall meet the requirements contained in Chapter 14 of NFPA 99.

## SECTION [F] 426 COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE

**[F] 426.1 General.** The provisions of Sections 426.1.1 through 426.1.7 shall apply to buildings in which materials that produce combustible dusts are stored or handled. Buildings that store or handle combustible dusts shall comply with NFPA 652 and the applicable provisions of NFPA 61, NFPA 85, NFPA 120, NFPA 484, NFPA 654, NFPA 655 and NFPA 664 and the *California Fire Code*.

**[F] 426.1.1 Type of construction and height exceptions.** Buildings shall be constructed in compliance with the height, number of stories and area limitations specified in Sections 504 and 506; except that where erected of Type I or II construction, the heights and areas of grain elevators and similar structures shall be unlimited, and where of Type IV construction, the maximum building height shall be 65 feet (19 812 mm) and except further that, in isolated areas, the maximum building height of Type IV structures shall be increased to 85 feet (25 908 mm).

**[F] 426.1.2 Grinding rooms.** Every room or space occupied for grinding or other operations that produce combustible dusts in such a manner that the room or space is classified as a Group H-2 occupancy shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. The fire-resistance rating of the enclosure shall be not less than 2 hours where the area is not more than 3,000 square feet (279 m<sup>2</sup>), and not less than 4 hours where the area is greater than 3,000 square feet (279 m<sup>2</sup>).

**[F] 426.1.3 Conveyors.** Conveyors, chutes, piping and similar equipment passing through the enclosures of rooms or spaces shall be constructed dirt tight and vapor tight, and be of approved noncombustible materials complying with Chapter 30.

**[F] 426.1.4 Explosion control.** Explosion control shall be provided as specified in the *California Fire Code*, or spaces shall be equipped with the equivalent mechanical ventilation complying with the *California Mechanical Code*.

**[F] 426.1.5 Grain elevators.** Grain elevators, malt houses and buildings for similar occupancies shall not be located within 30 feet (9144 mm) of interior lot lines or structures on the same lot, except where erected along a railroad right-of-way.

**[F] 426.1.6 Coal pockets.** Coal pockets located less than 30 feet (9144 mm) from interior lot lines or from structures on the same lot shall be constructed of not less than Type IB construction. Where more than 30 feet (9144 mm) from interior lot lines, or where erected along a railroad right-of-way, the minimum type of construction of such structures not more than 65 feet (19 812 mm) in building height shall be Type IV.

**[F] 426.1.7 Tire rebuilding.** Buffing operations shall be located in a room separated from the remainder of the building housing the tire rebuilding or tire recapping operation by a 1-hour fire barrier.

**Exception:** Buffing operations are not required to be separated where all of the following conditions are met:

1. Buffing operations are equipped with an approved continuous automatic water-spray system directed at the point of cutting action.
2. Buffing machines are connected to particle-collecting systems providing a minimum air movement of 1,500 cubic feet per minute (cfm) (0.71 m<sup>3</sup>/s) in volume and 4,500 feet per minute (fpm) (23 m/s) in-line velocity.
3. The collecting system shall discharge the rubber particles to an approved outdoor noncombustible or fire-resistant container, which is emptied at frequent intervals to prevent overflow.

## SECTION 427 MEDICAL GAS SYSTEMS

**[F] 427.1 General.** Medical gases at health care-related facilities intended for patient or veterinary care shall comply with Sections 427.2 through 427.2.3 in addition to requirements of Chapter 53 of the *California Fire Code*.

**[F] 427.2 Interior supply location.** Medical gases shall be located in areas dedicated to the storage of such gases without other storage or uses. Where containers of medical gases in quantities greater than the permitted amount are located inside the buildings, they shall be located in a 1-hour exterior room, 1-hour interior room or a gas cabinet in accordance

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 5 – GENERAL BUILDING HEIGHTS AND AREAS

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting Agency	BSC	BSC -CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X										
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below																						
Chapter / Section																						
503.1, <i>Exception 1</i>			X	X																		
Figure 5-1			X																			
Table 504.3			X																			
Table 504.4			X																			
Table 506.2			X																			
506.2.3			X																			
506.2.4			X																			
508.2.4			X																			
508.3.3			X																			
Table 508.4			X																			
Table 509			X																			
509.3			X																			
510.10			X																			

The state agency does not adopt sections identified with the following symbol: †  
The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.



# CHAPTER 5

## GENERAL BUILDING HEIGHTS AND AREAS

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**User note:**

*About this chapter:* Chapter 5 establishes the limits to which a building can be built. Building height, number of stories and building area are specified in this chapter. Chapter 5 must be used in conjunction with the occupancies established in Chapter 3 and the types of construction established in Chapter 6. This chapter also specifies the impact that mezzanines, accessory occupancies and mixed occupancies have on the overall size of a building.

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### SECTION 501 GENERAL

**501.1 Scope.** The provisions of this chapter control the height and area of structures hereafter erected and additions to existing structures.

### SECTION 502 BUILDING ADDRESS

**[F] 502.1 Address identification.** New and existing buildings shall be provided with approved address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of  $\frac{1}{2}$  inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other approved sign or means shall be used to identify the structure. Address identification shall be maintained.

### SECTION 503 GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

**503.1 General.** Unless otherwise specifically modified in Chapter 4 and this chapter, building height, number of stories and building area shall not exceed the limits specified in Sections 504 and 506 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Building height, number of stories and building area provisions shall be applied independently. For the purposes of determining area limitations, height limitations and type of construction, each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

**Exceptions:**

1. **[HCD 1]** Limited-density owner-built rural dwellings may be of any type of construction which will provide for a sound structural condition. Structural hazards which result in an unsound condition and

which may constitute a substandard building are delineated by Section 17920.3 of the Health and Safety Code.

2. Other than structural requirements, solar photovoltaic panels supported by a structure with no use underneath shall not constitute additional story or additional floor area and may exceed the height limit when constructed on a roof top of a building provided the following conditions are met:

- 1.1. For all occupancies, the highest point of the structure/panel shall meet the lower of the two values below:

1. 3' above the allowable building height per this code.
2. 3' above the roof of the building immediately below.

- 2.1. For installations on flat roofs in other than Group R-3 and R-4 occupancies, the highest point of the structure/panel shall meet the lower of the two values below:

1. 10' above the allowable building height per this code.
2. 10' above the roof of the building immediately below.

3. Other than structural requirements, solar photovoltaic panels supported by a structure over parking stalls shall not constitute additional story or additional floor area and may exceed the height limit as specified in exception 2 (above) when the following conditions are met (see Figure 5-1):

1. The area within the perimeter of the photovoltaic array has maximum rectangular dimension of 40 feet by 150 feet.
2. The distance between solar photovoltaic array structures is a minimum of 10 feet clear.
3. The driveway aisle separating solar photovoltaic array structures has a minimum width of 25 feet clear.
4. Solar photovoltaic array structure is used only for parking purposes with no storage.
5. Completely open on all sides (other than necessary structural supports) with no interior partitions.

**503.1.1 Special industrial occupancies.** Buildings and structures designed to house special industrial processes that require large areas and unusual building heights to accommodate craneways or special machinery and equipment, including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the building height, number of stories and building area limitations specified in Sections 504 and 506.

**503.1.2 Buildings on same lot.** Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building where the building height, number of stories of each building and the aggregate building area of the buildings are within the limitations specified in Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

**503.1.3 Type I construction.** Buildings of Type I construction permitted to be of unlimited tabular building heights and areas are not subject to the special requirements that allow unlimited area buildings in Section 507 or unlimited building height in Sections 503.1.1 and 504.3 or increased building heights and areas for other types of construction.

**503.1.4 Occupied roofs.** A roof level or portion thereof shall be permitted to be used as an occupied roof provided the occupancy of the roof is an occupancy that is permitted by Table 504.4 for the story immediately below the roof. The area of the occupied roofs shall not be included in the building area as regulated by Section 506.

**Exceptions:**

1. The occupancy located on an occupied roof shall not be limited to the occupancies allowed on the story immediately below the roof where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and occupant notification in accordance with Section 907.5 is provided in the area of the occupied roof.

2. Assembly occupancies shall be permitted on roofs of open parking garages of Type I or Type II construction, in accordance with the exception to Section 903.2.1.6.

**503.1.4.1 Enclosures over occupied roof areas.** Elements or structures enclosing the occupied roof areas shall not extend more than 48 inches (1220 mm) above the surface of the occupied roof.

**Exception:** Penthouses constructed in accordance with Section 1510.2 and towers, domes, spires and cupolas constructed in accordance with Section 1510.5.

**SECTION 504  
BUILDING HEIGHT AND NUMBER OF STORIES**

**504.1 General.** The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an automatic sprinkler system installed throughout the building.

**Exception:** The building height of one-story aircraft hangars, aircraft paint hangars and buildings used for the manufacturing of aircraft shall not be limited where the building is provided with an automatic sprinkler system or automatic fire-extinguishing system in accordance with Chapter 9 and is entirely surrounded by public ways or yards not less in width than one and one-half times the building height.

**504.1.1 Unlimited area buildings.** The height of unlimited area buildings shall be designed in accordance with Section 507.

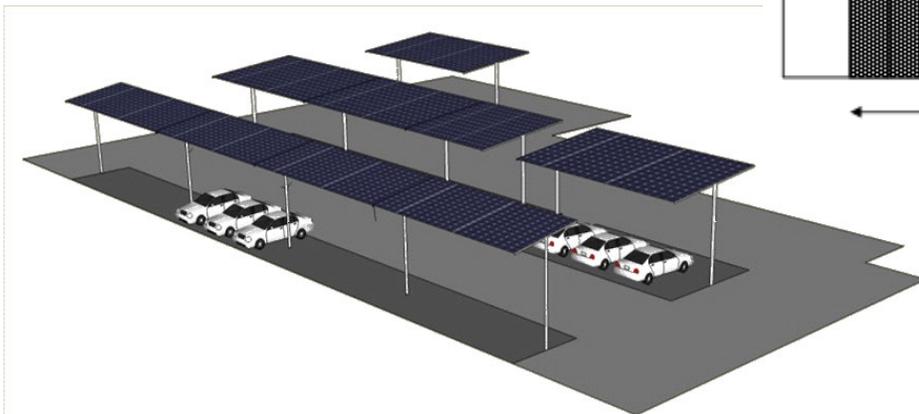
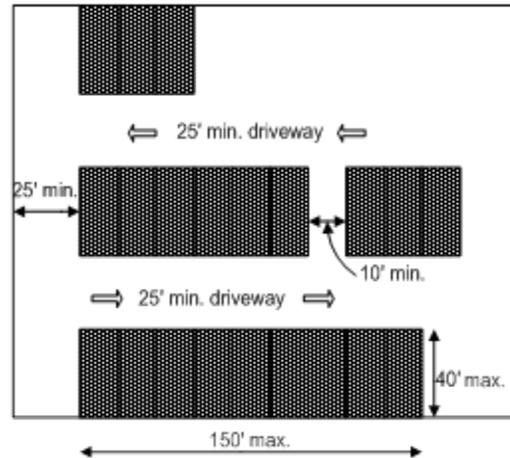


FIGURE 5-1

**TABLE 504.3  
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE<sup>a, i</sup>**

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
B, F, M, S, U	NS <sup>b</sup>	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
A, E	NS <sup>b</sup>	UL	160	65	55	65	55	65	50	40
	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	50	40
H-1, H-2, H-3, H-5, L	NS <sup>c, d</sup>	UL	160	65	55	65	55	65	50	40
	S (without area increase)									
	S (with area increase)	UL	160	65	55	65	55	65	50	40
H-4	NS <sup>c, d</sup>	UL	160	65	55	65	55	65	50	40
	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	50	40
I-3	NS <sup>d, e</sup>	UL	160	NP	NP	NP	NP	NP	NP	NP
	S (without area increase)	UL	180	NP	NP	NP	NP	NP	NP	NP
	S (with area increase)	UL	160	NP	NP	NP	NP	NP	NP	NP
I-2, I-2.1	NS <sup>d, e, f</sup>	UL	160	65	55	65	NP	65	50	NP
	S (without area increase)	UL	180	85						
	S (with area increase)	UL	160	65						
I-4	NS <sup>d, g</sup>	UL	160	65	55	65	55	65	50	40
	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	50	50
R-1 <sup>h</sup>	NS <sup>d</sup>	UL	160	65	55	65	55	65	50	40
	S13D	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	55	60	55	60	50	40
	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	50	40
R-2 <sup>h</sup>	NS <sup>d</sup>	UL	160	65	55	65	55	65	50	40
	S13R	60	60	60	55	60	55	60	50	40
	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	60 <sup>j</sup>	40
R-2.2	S (without area increase)	UL	180	85	75	85	75	85	70	60
	S (with area increase)	UL	160	65	55	65	55	65	60 <sup>j</sup>	40
R-3, R-3.1 <sup>h</sup>	NS <sup>d</sup>	UL	160	65	55	65	55	65	50	40
	S13D	60	60	60	55	60	55	60	50	40
	S13R	60	60	60	55	60	55	60	50	40
	S	UL	160	65	55	65	55	65	50	40
R-2.1, R-4 <sup>h</sup>	NS <sup>d</sup>	UL	160	65	55	65	55	65	50	40
	S13D	60	60	60	60	60	60	60	50	40
	S13R	60	60	60	60	60	60	60	60	60
	S	UL	180	85	75	85	75	85	70	60

For SI: 1 foot = 304.8 mm.

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H and all Group L occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of existing building height in accordance with the *California Existing Building Code*.
- e. New Group I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *California Fire Code*.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- i. In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in Tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.
- j. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.

**504.1.2 Special provisions.** The special provisions of Section 510 permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable heights of buildings based on the occupancy classification and type of construction, provided the special condition complies with the provisions specified in Section 510.

**504.2 Mixed occupancy.** In a building containing mixed occupancies in accordance with Section 508, no individual occupancy shall exceed the height and number of *story* limits specified in this section for the applicable occupancies.

**504.3 Height in feet.** The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

**Exception:** Towers, spires, steeples and other roof structures shall be constructed of materials consistent with the required type of construction of the building except where other construction is permitted by Section 1510.2.4. Such structures shall not be used for habitation or storage. The structures shall be unlimited in height where of noncombustible materials and shall not extend more than 20 feet (6096 mm) above the allowable building height where of combustible materials (see Chapter 15 for additional requirements).

**504.4 Number of stories.** The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

## SECTION 505 MEZZANINES AND EQUIPMENT PLATFORMS

**505.1 General.** Mezzanines shall comply with Section 505.2. Equipment platforms shall comply with Section 505.3.

**505.2 Mezzanines.** A mezzanine or mezzanines in compliance with Section 505.2 shall be considered a portion of the story below. Such mezzanines shall not contribute to either the building area or number of stories as regulated by Section 503.1. The area of the mezzanine shall be included in determining the fire area. The clear height above and below the mezzanine floor construction shall be not less than 7 feet (2134 mm).

**505.2.1 Area limitation.** The aggregate area of a mezzanine or mezzanines within a room shall be not greater than one-third of the floor area of that room or space in which they are located. The enclosed portion of a room shall not be included in a determination of the floor area of the room in which the mezzanine is located. In determining the allowable mezzanine area, the area of the mezzanine shall not be included in the floor area of the room.

**Exceptions:**

1. The aggregate area of mezzanines in buildings and structures of Type I or II construction for special industrial occupancies in accordance with Section 503.1.1 shall be not greater than two-thirds of the floor area of the room.
2. The aggregate area of mezzanines in buildings and structures of Type I or II construction shall be not greater than one-half of the floor area of the room in buildings and structures equipped throughout with an approved automatic sprinkler

system in accordance with Section 903.3.1.1 and an approved emergency voice/alarm communication system in accordance with Section 907.5.2.2.

3. The aggregate area of a mezzanine within a dwelling unit that is located in a building equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall not be greater than one-half of the floor area of the room, provided that:
  - 3.1. Except for enclosed closets and bathrooms, the mezzanine shall be open to the room in which such mezzanine is located;
  - 3.2. The opening to the room shall be unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts; and
  - 3.3. Exceptions to Section 505.2.3 shall not be permitted.

- 3.1. Except for enclosed closets and bathrooms, the mezzanine shall be open to the room in which such mezzanine is located;
- 3.2. The opening to the room shall be unobstructed except for walls not more than 42 inches (1067 mm) in height, columns and posts; and
- 3.3. Exceptions to Section 505.2.3 shall not be permitted.

**505.2.1.1 Aggregate area of mezzanines and equipment platforms.** Where a room contains both a mezzanine and an equipment platform, the aggregate area of the two raised floor levels shall be not greater than two-thirds of the floor area of that room or space in which they are located. The area of the mezzanine shall not exceed the area determined in accordance with Section 505.2.1.

**505.2.2 Means of egress.** The means of egress for mezzanines shall comply with the applicable provisions of Chapter 10.

**505.2.3 Openness.** A mezzanine shall be open and unobstructed to the room in which such mezzanine is located except for walls not more than 42 inches (1067 mm) in height, columns and posts.

**Exceptions:**

1. Mezzanines or portions thereof are not required to be open to the room in which the mezzanines are located, provided that the occupant load of the aggregate area of the enclosed space is not greater than 10.
2. A mezzanine having two or more exits or access to exits is not required to be open to the room in which the mezzanine is located.
3. Mezzanines or portions thereof are not required to be open to the room in which the mezzanines are located, provided that the aggregate floor area of the enclosed space is not greater than 10 percent of the mezzanine area.
4. In industrial facilities, mezzanines used for control equipment are permitted to be glazed on all sides.
5. In occupancies other than Groups H and I, which are no more than two stories above grade plane and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, a mezzanine having two or more exits or access to exits shall not be required to be open to the room in which the mezzanine is located.

**TABLE 504.4**  
**ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE<sup>a, b, n</sup>**

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	5	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	6	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	UL	5	3	2	3	2	3	2	1
A-2	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	12	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	UL	11	3	2	3	2	3	2	1
A-3	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	12	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	UL	11	3	2	3	2	3	2	1
A-4	NS	UL	11	3	2	3	2	3	2	1
	<i>S (without area increase)</i>	UL	12	4	3	4	3	4	3	2
	<i>S (with area increase)</i>	UL	11	3	2	3	2	3	2	1
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	NS	UL	11	5	3	5	3	5	3	2
	S	UL	12	6	4	6	4	6	4	3
E	NS	UL	5	3	2	3	2	3	1	1
	<i>S (without area increase)</i>	UL	6	4	3	4	3	4	2	2
	<i>S (with area increase)</i>	UL	5	3	2	3	2	3	1	1
F-1	NS	UL	11	4	2	3	2	4	2	1
	S	UL	12	5	3	4	3	5	3	2
F-2	NS	UL	11	5	3	4	3	5	3	2
	S	UL	12	6	4	5	4	6	4	3
H-1	NS <sup>c, d</sup>	1	1	1	1	1	1	1	1	NP
	S									
H-2	NS <sup>c, d</sup>	20	3	2	1	2	1	2	1	1
	S									
H-3	NS <sup>c, d</sup>	20	6	4	2	4	2	4	2	1
	S									
H-4	NS <sup>c, d</sup>	20	7	5	3	5	3	5	3	2
	<i>S (without area increase)</i>	20	8	6	4	6	4	6	4	3
	<i>S (with area increase)</i>	20	7	5	3	5	3	5	3	2
H-5	NS <sup>c, d</sup>	4	4	3	3	3	3	3	3	2
	S									
I-2, I-2.1 <sup>j, i</sup>	NS <sup>d, f</sup>	UL	4	2						
	<i>S (without area increase)</i>	UL	5	3	1	1	NP	1	1	NP
	<i>S (with area increase)</i>	UL	4	2						
I-3	NS <sup>d, e</sup>	NP	NP	NP	NP	NP	NP	NP	NP	NP
	<i>S (without area increase)</i>	UL	3	NP	NP	NP	NP	NP	NP	NP
	<i>S (with area increase)</i>	UL	2	NP	NP	NP	NP	NP	NP	NP
I-4	NS <sup>d, g</sup>	UL	5	3	2	3	2	3	1	1
	<i>S (without area increase)</i>	UL	6	4	3	4	3	4	2	2
	<i>S (with area increase)</i>	UL	5	3	2	3	2	3	1	1
L	NS	NP	NP	NP	NP	NP	NP	NP	NP	NP
	S	20	6	5	3	5	3	5	3	2
M	NS	UL	11	4	2	4	2	4	3	1
	S	UL	12	5	3	5	3	5	4	2

(continued)

**TABLE 504.4—continued**  
**ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE<sup>a, b, n</sup>**

OCCUPANCY CLASSIFICATION	TYPE OF CONSTRUCTION									
	SEE FOOTNOTES	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
R-1 <sup>h</sup>	NS <sup>d</sup>	UL	11	4	4	4	4	4	3	2
	S13R	4	4						3	2
	S (without area increase)	UL	12	5	5	5	5	5	4	3
	S (with area increase)	UL	11	4	4	4	4	4	3	2
R-2 <sup>h</sup>	NS <sup>d</sup>	UL	11	4	4	4	4	4	3	2
	S13R	4	4	4					3	2
	S (without area increase)	UL	12	5	5	5	5	5	4	3
	S (with area increase)	UL	11	4	4	4	4	4	4 <sup>o</sup>	2
R-2.1 <sup>h</sup>	NS <sup>d</sup>	UL	6 <sup>l</sup>	3 <sup>k</sup>	NP	3 <sup>k</sup>	NP	NP	3 <sup>k</sup>	NP
	S13R	UL	4 <sup>l</sup>	3 <sup>k</sup>	NP	3 <sup>k</sup>	NP	NP	3 <sup>k</sup>	NP
	S	UL	6 <sup>l</sup>	3 <sup>k</sup>	NP	3 <sup>k</sup>	NP	NP	3 <sup>k</sup>	NP
R-2.2 <sup>h</sup>	S (without area increase)	UL	12	5	5	5	5	5	4	3
	S (with area increase)	UL	11	4	4	4	4	4	4 <sup>o</sup>	2
R-3, R-3.1 <sup>h</sup>	NS <sup>d</sup>	UL	11	4	4	4	4	4	3	3
	S13D	4	4						3	3
	S13R	4	4						4	4
	S	UL	12	5	5	5	5	5	4	4
R-4 <sup>h</sup>	NS <sup>d</sup>	UL	11 <sup>l</sup>	4 <sup>k</sup>	4 <sup>m</sup>	4 <sup>k</sup>	4 <sup>m</sup>	4 <sup>m</sup>	3 <sup>k</sup>	2 <sup>m</sup>
	S13D	4	4 <sup>l</sup>						3 <sup>k</sup>	2 <sup>m</sup>
	S13R	4	4 <sup>l</sup>						4	3
	S	UL	11 <sup>l</sup>	5	5	5	5	5	4	3
S-1	NS	UL	11	4	2	3	2	4	3	1
	S	UL	12	5	3	4	3	5	4	2
S-2 <sup>i</sup>	NS	UL	11	5	3	4	3	4	4	2
	S	UL	12	6	4	5	4	5	5	3
U	NS	UL	5	4	2	3	2	4	2	1
	S	UL	6	5	3	4	3	5	3	2

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of existing building height in accordance with the *California Existing Building Code*.
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and 1103.5 of the *California Fire Code*.
- g. For new Group I-4 occupancies, see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- i. See Sections 407.1.1 and 408.1.2 for specific exceptions to construction type, allowable building areas and allowable heights.
- j. Restraint shall not be permitted in any building except in Group I-3 occupancies constructed for such use (see Section 408.1.2).
- k. Nonambulatory persons shall be limited to the first 2 stories.
- l. Nonambulatory persons shall be limited to the first 5 stories.
- m. Nonambulatory elderly clients are not permitted in buildings of these types of construction. See Sections 435.3.3 and 435.3.4.
- n. In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in Tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.
- o. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.

**505.3 Equipment platforms.** Equipment platforms in buildings shall not be considered as a portion of the floor below. Such equipment platforms shall not contribute to either the building area or the number of stories as regulated by Section 503.1. The area of the equipment platform shall not be included in determining the fire area in accordance with Section 903. Equipment platforms shall not be a part of any mezzanine and such platforms and the walkways, stairways, alternating tread devices and ladders providing access to an equipment platform shall not serve as a part of the means of egress from the building.

**505.3.1 Area limitation.** The aggregate area of all equipment platforms within a room shall be not greater than two-thirds of the area of the room in which they are located. Where an equipment platform is located in the same room as a mezzanine, the area of the mezzanine shall be determined by Section 505.2.1 and the combined aggregate area of the equipment platforms and mezzanines shall be not greater than two-thirds of the room in which they are located. The area of the mezzanine shall not exceed the area determined in accordance with Section 505.2.1.

**505.3.2 Automatic sprinkler system.** Where located in a building that is required to be protected by an automatic sprinkler system, equipment platforms shall be fully protected by sprinklers above and below the platform, where required by the standards referenced in Section 903.3.

**505.3.3 Guards.** Equipment platforms shall have guards where required by Section 1015.2.

**SECTION 506  
BUILDING AREA**

**506.1 General.** The floor area of a building shall be determined based on the type of construction, occupancy classification, whether there is an automatic sprinkler system installed throughout the building and the amount of building frontage on public way or open space.

**506.1.1 Unlimited area buildings.** Unlimited area buildings shall be designed in accordance with Section 507.

**506.1.2 Special provisions.** The special provisions of Section 510 permit the use of special conditions that are exempt from, or modify, the specific requirements of this chapter regarding the allowable areas of buildings based on the occupancy classification and type of construction, provided the special condition complies with the provisions specified in Section 510.

**506.1.3 Basements.** Basements need not be included in the total allowable floor area of a building provided the total area of such basements does not exceed the area permitted for a one-story above grade plane building.

**506.2 Allowable area determination.** The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3.

**506.2.1 Single-occupancy, one-story buildings.** The allowable area of a single-occupancy building with no

more than one story above grade plane shall be determined in accordance with Equation 5-1:

$$A_a = A_t + (NS \times I_f) \tag{Equation 5-1}$$

where:

$A_a$  = Allowable area (square feet).

$A_t$  = Tabular allowable area factor (NS, S1, S13R or S13D value, as applicable) in accordance with Table 506.2.

$NS$  = Tabular allowable area factor in accordance with Table 506.2 for nonsprinklered building (regardless of whether the building is sprinklered).

$I_f$  = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

**506.2.2 Mixed-occupancy, one-story buildings.** The allowable area of a mixed-occupancy building with no more than one story above grade plane shall be determined in accordance with the applicable provisions of Section 508.1 based on Equation 5-1 for each applicable occupancy.

**506.2.2.1 Group H-2 or H-3 mixed occupancies.** For a building containing Group H-2 or H-3 occupancies, the allowable area shall be determined in accordance with Section 508.4.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.

**506.2.3 Single-occupancy, multistory buildings.** The allowable area of a single-occupancy building with more than one story above grade plane shall be determined in accordance with Equation 5-2:

$$A_a = [A_t + (NS \times I_f)] \times S_a \tag{Equation 5-2}$$

where:

$A_a$  = Allowable area (square feet).

$A_t$  = Tabular allowable area factor (NS, S13R, S13D or SM value, as applicable) in accordance with Table 506.2.

$NS$  = Tabular allowable area factor in accordance with Table 506.2 for a nonsprinklered building (regardless of whether the building is sprinklered).

$I_f$  = Area factor increase due to frontage (percent) as calculated in accordance with Section 506.3.

$S_a$  = For other than Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, actual number of building stories above grade plane, not to exceed three. For Group A, E, H, I, L and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, actual number of building stories above grade plane, not to exceed two.

No individual story shall exceed the allowable area ( $A_a$ ) as determined by Equation 5-2 using the value of  $S_a = 1$ .

GENERAL BUILDING HEIGHTS AND AREAS

**TABLE 506.2**  
**ALLOWABLE AREA FACTOR (A, = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET<sup>a, b, j</sup>**

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
	S1	UL	UL	62,000	34,000	56,000	34,000	60,000	46,000	22,000
	SM (without height increase)	UL	UL	46,500	25,500	42,000	25,500	45,000	34,500	16,500
	SM (with height increase)	UL	UL	15,500	8,500	14,000	8,500	15,000	11,500	5,500
A-2	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-3	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-4	NS	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
	S1	UL	UL	62,000	38,000	56,000	38,000	60,000	46,000	24,000
	SM (without height increase)	UL	UL	46,500	28,500	42,000	28,500	45,000	34,500	18,000
	SM (with height increase)	UL	UL	15,500	9,500	14,000	9,500	15,000	11,500	6,000
A-5	NS	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
E	NS	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
	S1	UL	UL	106,000	58,000	94,000	58,000	102,000	74,000	38,000
	SM (without height increase)	UL	UL	79,500	43,500	70,500	43,500	76,500	55,500	28,500
	SM (with height increase)	UL	UL	26,500	14,500	23,500	14,500	25,500	18,500	9,500
F-1	NS	UL	UL	25,000	15,500	19,000	12,000	33,500	14,000	8,500
	S1	UL	UL	100,000	62,000	76,000	48,000	134,000	56,000	34,000
	SM	UL	UL	75,000	46,500	57,000	36,000	100,500	42,000	25,500
F-2	NS	UL	UL	37,500	23,000	28,500	18,000	50,500	21,000	13,000
	S1	UL	UL	150,000	92,000	114,000	72,000	202,000	84,000	52,000
	SM	UL	UL	112,500	69,000	85,500	54,000	151,500	63,000	39,000
H-1	NS <sup>c</sup>	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
	S1									
H-2	NS <sup>c</sup>	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	3,000
	S1									
	SM									
H-3	NS <sup>c</sup>	UL	60,000	26,500	14,000	17,500	13,000	25,500	10,000	5,000
	S1									
	SM									

(continued)

**TABLE 506.2—continued**  
**ALLOWABLE AREA FACTOR ( $A_t$  = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET<sup>a, b, j</sup>**

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
H-4	NS <sup>c, d</sup>	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	150,000	70,000	114,000	70,000	144,000	72,000	26,000
	SM (without height increase)	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
	SM (with height increase)	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
H-5	NS <sup>c, d</sup>	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	150,000	92,000	114,000	76,000	144,000	72,000	36,000
	SM (without height increase)	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
	SM (with height increase)	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
I-2, I-2.1	NS <sup>d, f</sup>	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
	S1	UL	UL	60,000	44,000	48,000	NP	48,000	38,000	NP
	SM (without height increase)	UL	UL	45,000	33,000	36,000	NP	36,000	28,500	NP
	SM (with height increase)	UL	UL	15,000	11,000	12,000	NP	12,000	9,500	NP
I-3	NS <sup>d, e</sup>	UL	15,100	NP	NP	NP	NP	NP	NP	NP
	S1	UL	45,300	NP	NP	NP	NP	NP	NP	NP
	SM (without height increase)	UL	30,200	NP	NP	NP	NP	NP	NP	NP
	SM (with height increase)	UL	15,100	NP	NP	NP	NP	NP	NP	NP
I-4	NS <sup>d, g</sup>	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
	S1	UL	121,000	106,000	52,000	94,000	52,000	102,000	74,000	36,000
	SM (without height increase)	UL	181,500	79,500	39,000	70,500	39,000	76,500	55,500	27,000
	SM (with height increase)	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
L	NS <sup>c</sup>									
	S1	UL	60,000	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	SM									
M	NS	UL	UL	21,500	12,500	18,500	12,500	20,500	14,000	9,000
	S1	UL	UL	86,000	50,000	74,000	50,000	82,000	56,000	36,000
	SM	UL	UL	64,500	37,500	55,500	37,500	61,500	42,000	27,000
R-1 <sup>h</sup>	NS <sup>d</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM (without height increase)	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	SM (with height increase)	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-2 <sup>h</sup>	NS <sup>d</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM (without height increase)	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	SM (with height increase)	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-2 Type VA construction <sup>k</sup>	NS <sup>d</sup>	NP	NP	NP	NP	NP	NP	NP	12,000	NP
	S13R	NP	NP	NP	NP	NP	NP	NP	12,000	NP
	S1	NP	NP	NP	NP	NP	NP	NP	48,000	NP
	SM (without height increase)	NP	NP	NP	NP	NP	NP	NP	36,000	NP
	SM (with height increase)	NP	NP	NP	NP	NP	NP	NP	36,000 <sup>j</sup>	NP

(continued)

GENERAL BUILDING HEIGHTS AND AREAS

TABLE 506.2—continued  
ALLOWABLE AREA FACTOR (A, = NS, S1, S13R, S13D or SM, as applicable) IN SQUARE FEET<sup>a, b, j</sup>

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
R-2.1 <sup>h</sup>	NS <sup>d</sup>	UL	55,000	19,000	NP	16,500	NP	NP	10,500	NP
	S13R	UL	55,000	19,000	NP	16,500	NP	NP	10,500	NP
	S1	UL	220,000	76,000	NP	66,000	NP	72,000	42,000	NP
	SM (without height increase)	UL	165,000	57,000	NP	49,500	NP	54,000	31,500	NP
	SM (with height increase)	UL	55,000	19,000	NP	16,500	NP	NP	10,500	NP
R-2.2 <sup>h</sup>	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM (without height increase)	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	SM (with height increase)	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-3, R-3.1 <sup>h</sup>	NS <sup>d</sup>	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S13D									
	S13R									
	S1									
	SM									
R-4 <sup>h</sup>	NS <sup>d</sup>	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
	S13D									
	S13R									
	S1	UL	UL	96,000	64,000	96,000	64,000	82,000	48,000	28,000
	SM (without height increase)	UL	UL	72,000	48,000	72,000	48,000	61,500	36,000	21,000
	SM (with height increase)	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
S-1	NS	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000
	S1	UL	192,000	104,000	70,000	104,000	70,000	102,000	56,000	36,000
	SM	UL	144,000	78,000	52,500	78,000	52,500	76,500	42,000	27,000
S-2	NS	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500
	S1	UL	316,000	156,000	104,000	156,000	104,000	154,000	84,000	54,000
	SM	UL	237,000	117,000	78,000	117,000	78,000	115,500	63,000	40,500
U	NS <sup>i</sup>	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500
	S1	UL	142,000	76,000	34,000	56,000	34,000	72,000	36,000	22,000
	SM	UL	106,500	57,000	25,500	42,000	25,500	54,000	27,000	16,500

For SI: 1 square foot = 0.0929 m<sup>2</sup>.

UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

- a. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
- b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
- c. New Group H and all Group L occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.5.
- d. The NS value is only for use in evaluation of existing building area in accordance with the *California Existing Building Code*.
- e. New Group I-1 and I-3 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6. For new Group I-1 occupancies, Condition 1, see Exception 1 of Section 903.2.6.
- f. New and existing Group I-2 occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.6 and Section 1103.5 of the *California Fire Code*.
- g. New Group I-4 occupancies see Exceptions 2 and 3 of Section 903.2.6.
- h. New Group R occupancies are required to be protected by an automatic sprinkler system in accordance with Section 903.2.8.
- i. The maximum allowable area for a single-story nonsprinklered Group U greenhouse is permitted to be 9,000 square feet, or the allowable area shall be permitted to comply with Table C102.1 of Appendix C.
- j. In other than Group A, E, H, I, L, and R occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, the S increases for height and stories in Tables 504.3 and 504.4 are permitted in addition to the S area increase in accordance with Table 506.2.
- k. For Group R-2 buildings of Type VA construction equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, S area increase is permitted in addition to the height and story increase provided the height shall not exceed 60 feet and 4 stories.

**507.8 Group H-2, H-3 and H-4 occupancies.** Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F or S occupancies in accordance with Sections 507.4 and 507.5 and the provisions of Sections 507.8.1 through 507.8.4.

**507.8.1 Allowable area.** The aggregate floor area of Group H occupancies located in an unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in Section 506 based on the perimeter of each Group H floor area that fronts on a public way or open space.

**507.8.1.1 Located within the building.** The aggregate floor area of Group H occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in Section 506.

**507.8.1.1.1 Liquid use, dispensing and mixing rooms.** Liquid use, dispensing and mixing rooms having a floor area of not more than 500 square feet (46.5 m<sup>2</sup>) need not be located on the outer perimeter of the building where they are in accordance with the *California Fire Code* and NFPA 30.

**507.8.1.1.2 Liquid storage rooms.** Liquid storage rooms having a floor area of not more than 1,000 square feet (93 m<sup>2</sup>) need not be located on the outer perimeter where they are in accordance with the *California Fire Code* and NFPA 30.

**507.8.1.1.3 Spray paint booths.** Spray paint booths that comply with the *California Fire Code* need not be located on the outer perimeter.

**507.8.2 Located on building perimeter.** Except as provided for in Section 507.8.1.1, Group H occupancies shall be located on the perimeter of the building. In Group H-2 and H-3 occupancies, not less than 25 percent of the perimeter of such occupancies shall be an exterior wall.

**507.8.3 Occupancy separations.** Group H occupancies shall be separated from the remainder of the unlimited area building and from each other in accordance with Table 508.4.

**507.8.4 Height limitations.** For two-story, unlimited area buildings, Group H occupancies shall not be located more than one story above grade plane unless permitted based on the allowable height and number of stories and feet as specified in Section 504 based on the type of construction of the unlimited area building.

**507.9 Unlimited mixed occupancy buildings with Group H-5.** The area of a Group B, F, H-5, M or S building not more than two stories above grade plane shall not be limited where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width, provided all of the following criteria are met:

1. Buildings containing Group H-5 occupancy shall be of Type I or II construction.

2. Each area used for Group H-5 occupancy shall be separated from other occupancies as required in Sections 415.11 and 508.4.
3. Each area used for Group H-5 occupancy shall not exceed the maximum allowable area permitted for such occupancies in Section 503.1 including modifications of Section 506.

**Exception:** Where the Group H-5 occupancy exceeds the maximum allowable area, the Group H-5 shall be subdivided into areas that are separated by 2-hour fire barriers.

**507.10 Aircraft paint hangar.** The area of a Group H-2 aircraft paint hangar not more than one story above grade plane shall not be limited where such aircraft paint hangar complies with the provisions of Section 412.5 and is surrounded and adjoined by public ways or yards not less in width than one and one-half times the building height.

**507.11 Group E buildings.** The area of a Group E building not more than one story above grade plane, of Type II, IIIA or IV construction, shall not be limited provided all of the following criteria are met:

1. Each classroom shall have not less than two means of egress, with one of the means of egress being a direct exit to the outside of the building complying with Section 1022.
2. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The building is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

**507.12 Motion picture theaters.** In buildings of Type II construction, the area of a motion picture theater located on the first story above grade plane shall not be limited where the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

**507.13 Covered and open mall buildings and anchor buildings.** The area of covered and open mall buildings and anchor buildings not exceeding three stories in height that comply with Section 402 shall not be limited.

## SECTION 508 MIXED USE AND OCCUPANCY

**508.1 General.** Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 or 508.4, or a combination of these sections.

**Exceptions:**

1. Occupancies separated in accordance with Section 510.
2. Where required by Table 415.6.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a detached building or structure.

3. Uses within live/work units, complying with Section 419, are not considered separate occupancies.

**508.2 Accessory occupancies.** Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections 508.2.1 through 508.2.4.

**508.2.1 Occupancy classification.** Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

**508.2.2 Allowable building height.** The allowable height and number of stories of the building containing accessory occupancies shall be in accordance with Section 504 for the main occupancy of the building.

**508.2.3 Allowable building area.** The allowable area of the building shall be based on the applicable provisions of Section 506 for the main occupancy of the building. Aggregate accessory occupancies shall not occupy more than 10 percent of the floor area of the story in which they are located and shall not exceed the tabular values for non-sprinklered buildings in Table 506.2 for each such accessory occupancy.

**508.2.4 Separation of occupancies.** No separation is required between accessory occupancies and the main occupancy.

**Exceptions:**

1. Group H-2, H-3, H-4 and H-5 *and L* occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group R-1, R-2, *R-2.1, R-2.2* and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.
3. *Group I-2 and I-2.1 shall be separated from all other occupancies in accordance with Section 508.4. No separation is required between Group B, E, R-2 sleeping units and S-2 occupancies accessory to Group I-2, I-2.1.*
4. *Group I-3 and vehicle sally-ports shall be separated from all other occupancies in accordance with Section 508.4. No separation is required between Group B, E, R-2 sleeping units and S-2 occupancies accessory to Group I-3 of Type I Construction.*

**508.3 Nonseparated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.

**508.3.1 Occupancy classification.** Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated

occupancies shall apply to the total nonseparated occupancy area.

**508.3.1.1 High-rise buildings.** Where nonseparated occupancies occur in a high-rise building, the most restrictive requirements of Section 403 that apply to the nonseparated occupancies shall apply throughout the high-rise building.

**508.3.1.2 Group I-2, Condition 2 occupancies.** Where one of the nonseparated occupancies is Group I-2, Condition 2, the most restrictive requirements of Sections 407, 509 and 712 shall apply throughout the fire area containing the Group I-2 occupancy. The most restrictive requirements of Chapter 10 shall apply to the path of egress from the Group I-2, Condition 2 occupancy up to and including the exit discharge.

**508.3.2 Allowable building area, height and number of stories.** The allowable building area, height and number of stories of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

**508.3.3 Separation.** No separation is required between nonseparated occupancies.

**Exceptions:**

1. Group H-2, H-3, H-4 and H-5, *I-2, I-2.1 and L* occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Group R-1, R-2, *R-2.1, R-2.2* and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from other occupancies contiguous to them in accordance with the requirements of Section 420.
3. *Separation is required between Group I-3 and vehicle sally ports.*
4. *Where Group I-3 is not the main occupancy and the area is greater than 10 percent of the floor area, it shall be separated per Table 508.4.*

**508.4 Separated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as separated occupancies.

**508.4.1 Occupancy classification.** Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building. The most restrictive provisions of Chapter 9 that apply to the separate occupancies shall apply to the total nonfire-barrier-separated occupancy areas. Occupancy separations that serve to define fire area limits established in Chapter 9 for requiring a fire protection system shall also comply with Section 901.7.

**508.4.2 Allowable building area.** In each story, the building area shall be such that the sum of the ratios of the actual building area of each separated occupancy divided by the allowable building area of each separated occupancy shall not exceed 1.

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 7 – FIRE AND SMOKE PROTECTION FEATURES

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC -CG	SFM	HCD			DSA			OSHDPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X	X	X	X		X	X							
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X																	
Adopt only those sections that are listed below																						
Chapter / Section																						
703.4				X	X																	
704.6.1			X																			
705.2.3.2			X																			
705.5			X																			
705.12			X																			
Table 706.4			X																			
Table 707.3.10			X																			
708.1			X																			
708.3			X																			
709.5			X																			
709.5.1			X																			
710.2			X																			
710.8			X																			
712.1.9			X																			
716.2.2.1			X																			
716.2.6.6			X																			
716.2.9.4			X																			
717.5.2			X																			
717.5.4			X																			
717.5.4.1			X																			
717.5.5			X																			
717.6.1			X																			
721.2				X	X																	
721.2.1				X	X																	

The state agency does not adopt sections identified with the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.



## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 8 – INTERIOR FINISHES

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X			X	X			X	X	X	X	X	X	X								
Adopt entire chapter as amendeded (amended sections listed below)			X																			
Adopt only those sections that are listed below		X																				
Chapter / Section																						
801.1		X																				
Table 803.11			X																			
804.1			X																			
804.4			X																			
804.4.1			X																			
804.4.2			X																			
804.4.3			X																			
806.4			X																			
806.7			X																			

The state agency does not adopt sections identified by the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.



*When not used for height increases or for area increases, an automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be allowed in Group R-2.1 occupancies.*

*An automatic sprinkler system designed in accordance with Section 903.3.1.3 shall not be utilized in Group R-2.1 or R-4 occupancies.*

**[F] 903.2.8.1 Group R-3.** An automatic sprinkler system installed in accordance with Section 903.3.1.3 shall be permitted in Group R-3 occupancies.

**[F] 903.2.9 Group S-1.** An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 m<sup>2</sup>).
2. A Group S-1 fire area is located more than three stories above grade plane.
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m<sup>2</sup>).
4. A Group S-1 fire area used for the storage of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m<sup>2</sup>).
5. A Group S-1 occupancy used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m<sup>2</sup>).

**[F] 903.2.9.1 Repair garages.** An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406, as shown:

1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 m<sup>2</sup>).
2. Buildings not more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet (1115 m<sup>2</sup>).
3. Buildings with repair garages servicing vehicles parked in basements.
4. A Group S-1 fire area used for the repair of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m<sup>2</sup>).

**[F] 903.2.9.2 Bulk storage of tires.** Buildings and structures where the area for the storage of tires exceeds 20,000 cubic feet (566 m<sup>3</sup>) shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**[F] 903.2.10 Group S-2 enclosed parking garages.** An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.6 where either of the following conditions exists:

1. Where the fire area of the enclosed parking garage exceeds 12,000 square feet (1115 m<sup>2</sup>).

2. Where the enclosed parking garage is located beneath other groups.

**Exception:** Enclosed parking garages located beneath Group R-3 occupancies.

**[F] 903.2.10.1 Commercial parking garages.** An automatic sprinkler system shall be provided throughout buildings used for storage of commercial motor vehicles where the fire area exceeds 5,000 square feet (464 m<sup>2</sup>).

**[F] 903.2.11 Specific building areas and hazards.** In all occupancies other than Group U, an automatic sprinkler system shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through 903.2.11.6.

**[F] 903.2.11.1 Stories without openings.** An automatic sprinkler system shall be installed throughout all stories, including basements, of all buildings where the floor area exceeds 1,500 square feet (139.4 m<sup>2</sup>) and where the story does not comply with the following criteria for exterior wall openings:

1. Openings below grade that lead directly to ground level by an exterior stairway complying with Section 1011 or an outside ramp complying with Section 1012. Openings shall be located in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on not fewer than one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).
2. Openings entirely above the adjoining ground level totaling not less than 20 square feet (1.86 m<sup>2</sup>) in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on not fewer than one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm). The height of the bottom of the clear opening shall not exceed 44 inches (1118 mm) measured from the floor.

**[F] 903.2.11.1.1 Opening dimensions and access.** Openings shall have a minimum dimension of not less than 30 inches (762 mm). Access to such openings shall be provided for the fire department from the exterior and shall not be obstructed in a manner such that fire fighting or rescue cannot be accomplished from the exterior.

**[F] 903.2.11.1.2 Openings on one side only.** Where openings in a story are provided on only one side and the opposite wall of such story is more than 75 feet (22 860 mm) from such openings, the story shall be equipped throughout with an approved automatic sprinkler system, or openings shall be provided on not fewer than two sides of the story.

**[F] 903.2.11.1.3 Basements.** Where any portion of a basement is located more than 75 feet (22 860 mm) from openings required by Section 903.2.11.1, or where walls, partitions or other obstructions are

installed that restrict the application of water from hose streams, the basement shall be equipped throughout with an approved automatic sprinkler system.

**[F] 903.2.11.2 Rubbish and linen chutes.** An automatic sprinkler system shall be installed at the top of rubbish and linen chutes and in their terminal rooms. Chutes shall have additional sprinkler heads installed at alternate floors and at the lowest intake. Where a rubbish chute extends through a building more than one floor below the lowest intake, the extension shall have sprinklers installed that are recessed from the drop area of the chute and protected from freezing in accordance with Section 903.3.1.1. Such sprinklers shall be installed at alternate floors, beginning with the second level below the last intake and ending with the floor above the discharge. Access to sprinklers in chutes shall be provided for servicing.

**[F] 903.2.11.3 Buildings 55 feet or more in height.** An automatic sprinkler system shall be installed throughout buildings that have one or more stories with an occupant load of 30 or more located 55 feet (16 764 mm) or more above the lowest level of fire department vehicle access, measured to the finished floor.

**Exceptions:**

1. Open parking structures.
2. Occupancies in Group F-2.

**[F] 903.2.11.4 Ducts conveying hazardous exhausts.** Where required by the *California Mechanical Code*, automatic sprinklers shall be provided in ducts conveying hazardous exhaust or flammable or combustible materials.

**Exception:** Ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

**[F] 903.2.11.5 Commercial cooking operations.** An automatic sprinkler system shall be installed in commercial kitchen exhaust hood and duct systems where an automatic sprinkler system is used to comply with Section 904.

**[F] 903.2.11.6 Other required suppression systems.** In addition to the requirements of Section 903.2, the provisions indicated in Table 903.2.11.6 require the installation of a fire suppression system for certain buildings and areas.

**[F] 903.2.12 During construction.** Automatic sprinkler systems required during construction, alteration and demolition operations shall be provided in accordance with Chapter 33 of the *California Fire Code*.

**903.2.13 Reserved.**

**903.2.14 Motion picture and television production studio sound stages, approved production facilities and production locations.**

**903.2.14.1 Existing sound stages and approved production facilities.** All existing sound stages and approved production facilities equipped with an automatic fire sprinkler system shall be maintained in

accordance with the provisions of *California Fire Code Chapter 9*.

**903.2.14.2 New sound stages.** All new sound stages shall be equipped with an approved automatic fire sprinkler system. The system shall be installed in accordance with the provisions of the *California Fire Code Chapter 9* and shall meet the minimum design requirements of an Extra Hazard, Group 2 system.

**903.2.15 Automatic sprinkler system—existing high-rise buildings.** See *California Fire Code Chapter 11* and *California Existing Building Code*.

**903.2.15.1 Existing Group R-1 and R-2 high-rise buildings fire-extinguishing systems.** See *California Fire Code Chapter 11* and *California Existing Building Code*.

**903.2.16 Group L occupancies.** An automatic sprinkler system shall be installed throughout buildings housing Group L occupancies. Sprinkler systems for Group L occupancy shall be designed for the square footage area of the Group L occupancy based on an area of sprinkler operation of 2,500 square feet (232 m<sup>2</sup>) and design density of 0.20 gpm/sf.

**[F] TABLE 903.2.11.6  
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS**

SECTION	SUBJECT
402.5, 402.6.2	Covered and open mall buildings
403.3	High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access
404.3	Atriums
405.3	Underground structures
407.7	Group I-2
410.6	Stages
411.3	Special amusement buildings
412.2.4	Airport traffic control towers
412.3.6, 412.3.6.1, 412.5.6	Aircraft hangars
415.11.11	Group H-5 HPM exhaust ducts
416.5	Flammable finishes
417.4	Drying rooms
419.5	Live/work units
424.3	Children's play structures
428	Buildings containing Group L occupancies
440	Horse racing stables
441	Pet kennels
449	Public libraries
507	Unlimited area buildings
509.4	Incidental uses
1029.6.2.3	Smoke-protected assembly seating
CFC	Sprinkler system requirements as set forth in Section 903.2.11.6 of the <i>California Fire Code</i>

locations, provided that such manual fire alarm boxes are visible and provided with ready access, and the distances of travel required in Section 907.4.2.1 are not exceeded.

3. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official and staff evacuation responsibilities are included in the fire safety and evacuation plan required by Section 404 of the *California Fire Code*.

[F] 907.2.6.1 *Reserved.*

[F] 907.2.6.2 **Group I-2 and Group I-2.1.** A manual and automatic fire alarm system shall be installed in Group I-2 and I-2.1 occupancies. Where automatic fire suppression systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

*Exception:* Where an entire facility is used for the housing of persons, none of whom are physically or mentally handicapped or nonambulatory, and are between the ages of 18 and 64, the buildings or structures comprising such facility shall be exempt from the provisions of this subsection relating to the installation of an automatic fire alarm system.

**907.2.6.2.1 Notification.** The fire alarm notification system shall be in accordance with Section 907.5.2.5.

**907.2.6.2.2 Automatic fire detection.** Smoke detectors shall be provided in accordance with this section.

1. In patient and client sleeping rooms. Actuation of such detectors shall cause a visual display on the corridor side of the room in which the detector is located and shall cause an audible and visual alarm at the respective nurses' station. A nurse call system listed for this function is an acceptable means of providing the audible and visual alarm at the respective nurses' station and corridor room display. Operation of the smoke detector shall not include any alarm verification feature.

*Exception:* In patient and client rooms equipped with existing automatic door closers having integral smoke detector, the integral detector is allowed to substitute for the room smoke detector, provided it meets all the required alerting functions.

2. Group I-2 nurses' stations. A minimum of one (1) smoke detector shall be installed at the nurses' station and centrally located.
3. In waiting areas and corridors onto which they open, in the same smoke compartment, in accordance with Section 407.2.1.

4. In areas where patients are restrained, smoke detectors shall be installed at ceilings throughout all occupied areas and mechanical/electrical spaces of smoke compartments and in adjacent smoke compartments where occupants of those compartments utilize the same means of egress.

[F] 907.2.6.3 **Group I-3 occupancies.** Group I-3 occupancies shall be equipped with a manual fire alarm system and automatic smoke detection system installed for alerting staff.

*Exception:* An automatic smoke detection system is not required within temporary holding cells.

[F] 907.2.6.3.1 **System initiation.** Actuation of an automatic fire-extinguishing system, automatic sprinkler system, a manual fire alarm box or a fire detector shall initiate an approved fire alarm signal that automatically notifies staff.

[F] 907.2.6.3.2 **Manual fire alarm boxes.** Manual fire alarm boxes are not required to be located in accordance with Section 907.4.2 where the fire alarm boxes are provided at staff-attended locations having direct supervision over areas where manual fire alarm boxes have been omitted.

[F] 907.2.6.3.2.1 **Manual fire alarm boxes in detainee areas.** Manual fire alarm boxes are allowed to be locked in areas occupied by detainees, provided that staff members are present within the subject area and have keys readily available to operate the manual fire alarm boxes.

[F] 907.2.6.3.3 **Automatic smoke detection system.** An automatic smoke detection system shall be installed throughout resident housing areas, including sleeping units and contiguous day rooms, group activity spaces and other common spaces normally open to inmates.

**Exceptions:**

1. Other approved smoke detection arrangements may be used to prevent damage or tampering or for other purposes provided the function of detecting any fire is fulfilled and the location of the detectors is such that the speed of detection will be equivalent to that provided by the spacing and location required in accordance with NFPA 72 as referenced in Chapter 35. This may include the location of detectors in return air ducts from cells, behind grilles or in other locations. Spot type, combination duct and open area smoke detectors may be used when located not more than 14 inches (356mm) from the return air grill. For initiation and annunciation purposes, these detectors may be combined in groups of four. The fire code official having jurisdiction, however, must approve the proposed equivalent performance of the design.

2. For detention housing and/or mental health housing area(s), including correctional medical and mental health uses, automatic smoke detection system in sleeping units shall not be required when all of the following conditions are met:
  - 2.1. All rooms, including the inmate cells are provided with an automatic sprinkler system in accordance with Section 903.3.1.1.
  - 2.2. Building is continuously staffed by a correctional officer at all times.
3. Smoke detectors are not required to be installed in inmate cells with two or fewer occupants in detention facilities which do not have a correctional medical and mental health use.
4. Smoke detectors are not required to be installed in inmate day rooms of detention facilities where 24-hour direct visual supervision is provided by a correctional officer(s) and a manual fire alarm box is located in the control room.

**907.2.6.3.4 System annunciation.** A staff alerting fire alarm shall sound at all staff control stations on the floor of activation and an audible and visual signal shall be indicated on an annunciator at the facility control center upon activation of any automatic extinguishing system, automatic detection system, or any smoke detector or manual actuating or initiating device. In addition, where there are staff-control stations on the floor, an audible, visual and manual alarm shall be located in each staff control station.

Fire and trouble signals of fire alarm systems and sprinkler water-flow and supervisory signals of extinguishing systems shall be annunciated in an area designated as the facility control center which shall be constantly attended by staff personnel. All such signals shall produce both an audible signal and visual display at the facility control center indicating the building, floor zone or other designated area from which the signal originated in accordance with Section 907.6.4.

All local detention facilities within the scope of Section 6031.4 of the Penal Code shall have a automatic smoke detection system. A manual fire alarm-initiating device shall be installed in all guard control stations and shall be capable of alerting personnel in a central control point to the presence of fire or smoke within the facility.

**907.2.6.4 Large family day-care.** Every large family day-care home shall be provided with at least one manual fire alarm box 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 unit or be electrically supervised or provided with emergency power. Such device or devices shall be attached to the structure and must be a device that is listed and approved by the Office of the State Fire Marshal.

**[F] 907.2.7 Group M.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group M occupancies where one of the following conditions exists:

1. The combined Group M occupant load of all floors is 500 or more persons.
2. The Group M occupant load is more than 100 persons above or below the lowest level of exit discharge.

**Exceptions:**

1. A manual fire alarm system is not required in covered or open mall buildings complying with Section 402.
2. Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will automatically activate throughout the notification zones upon sprinkler water flow.

**[F] 907.2.7.1 Occupant notification.** During times that the building is occupied, the initiation of a signal from a manual fire alarm box or from a waterflow switch shall not be required to activate the alarm notification appliances when an alarm signal is activated at a constantly attended location from which evacuation instructions shall be initiated over an emergency voice/alarm communication system installed in accordance with Section 907.5.2.2.

**[F] 907.2.8 Group R-1.** Fire alarm systems and smoke alarms shall be installed in Group R-1 occupancies as required in Sections 907.2.8.1 through 907.2.8.3.

**[F] 907.2.8.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R- 1 occupancies.

**Exceptions:**

1. A manual fire alarm system is not required in buildings not more than two stories in height where all individual sleeping units and contiguous attic and crawl spaces to those units are separated from each other and public or common areas by not less than 1-hour fire partitions and each individual sleeping unit has an exit directly to a public way, egress court or yard.
2. Manual fire alarm boxes are not required throughout the building where all of the following conditions are met:
  - 2.1. The building is equipped throughout with an automatic sprinkler system

installed in accordance with Section 903.3.1.1 or 903.3.1.2.

- 2.2. The notification appliances will activate upon sprinkler water flow.
- 2.3. Not fewer than one manual fire alarm box is installed at an approved location.

**[F] 907.2.8.2 Automatic smoke detection system.** An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed throughout all interior corridors serving sleeping units.

**Exception:** An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

**[F] 907.2.8.3 Smoke alarms.** Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.

**[F] 907.2.9 Group R-2, R-2.1 and R-2.2.** Fire alarm systems and smoke alarms shall be installed in Group R-2 and R-2.1 occupancies as required in Sections 907.2.9.1 and 907.2.9.4.1. *Group R-2.2 shall be equipped throughout with an automatic fire alarm system and shall have a manual fire alarm pull station at the 24-hour staff watch office.*

**[F] 907.2.9.1 Manual fire alarm system.** A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies where any of the following conditions apply:

1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge.
2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit.
3. The building contains more than 16 dwelling units or sleeping units.
4. *Congregate residences with more than 16 occupants.*

**Exceptions:**

1. A fire alarm system is not required in buildings not more than two stories in height where all dwelling units or sleeping units and contiguous attic and crawl spaces are separated from each other and public or common areas by not less than 1-hour fire partitions and each dwelling unit or sleeping unit has an exit directly to a public way, egress court or yard.
2. Manual fire alarm boxes are not required where the building is equipped throughout

with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.

3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1027.6, Exception 3.

**[F] 907.2.9.2 Smoke alarms.** Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.10.

**[F] 907.2.9.3 Group R-2 college and university buildings.** An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group R-2 occupancies operated by a college or university for student or staff housing in all of the following locations:

1. Common spaces outside of dwelling units and sleeping units.
2. Laundry rooms, mechanical equipment rooms and storage rooms.
3. All interior corridors serving sleeping units or dwelling units.

**Exception:** An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units or dwelling units and where each sleeping unit or dwelling unit either has a means of egress door opening directly to an exterior exit access that leads directly to an exit or a means of egress door opening directly to an exit.

Required smoke alarms in dwelling units and sleeping units in Group R-2 occupancies operated by a college or university for student or staff housing shall be interconnected with the fire alarm system in accordance with NFPA 72.

**907.2.9.4 Licensed Group R-2.1 occupancies.** *Licensed Group R-2.1 occupancies housing more than six nonambulatory, elderly clients shall be provided with an approved manual and automatic fire alarm system.*

**Exceptions:** *Buildings housing nonambulatory clients on the first story only and which are protected throughout by the following:*

1. *An approved and supervised automatic sprinkler system, as specified in Sections 903.3.1.1 or 903.3.1.2, which upon activation will initi-*

ate the fire alarm system to notify all occupants.

2. A manual fire alarm system.
3. Smoke alarms required by Section 907.2.11.

**907.2.9.4.1 Smoke alarms.** Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.

**[F] 907.2.10 Single- and multiple-station smoke alarms.** Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.10.1 through 907.2.10.7 and NFPA 72.

**Exception:** For Group R occupancies. A fire alarm system with smoke detectors located in accordance with this section may be installed in lieu of smoke alarms. Upon actuation of the detector, only those notification appliances in the dwelling unit or guest room where the detector is actuated shall activate.

**[F] 907.2.10.1 Group R-1.** Single- or multiple-station smoke alarms shall be installed in all of the following locations in Group R-1:

1. In sleeping areas.
2. In every room in the path of the means of egress from the sleeping area to the door leading from the sleeping unit.
3. In each story within the sleeping unit, including basements. For sleeping 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 907.2.11.8 for specific location requirements.

**[F] 907.2.10.2 Groups R-2, R-2.1, R-2.2, R-3, R-3.1, R-4 and R-4.1.** Single- or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-2.1, R-2.2, R-3, R-3.1 and R-4 regardless of occupant load at all of the following locations:

1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms.
2. In each room used for sleeping purposes.
3. In each story within a dwelling unit, including basements 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.
4. In a Group R-3.1 occupancies, in addition to the above, smoke alarms shall be provided throughout the habitable areas of the dwelling unit except kitchens.

See Section 907.2.11.8 for specific location requirements.

**907.2.10.2.1 Group I-4 occupancies.** Large family day-care homes shall be equipped with State Fire Marshal approved and listed single station residential type smoke alarms.

**907.2.10.2.2 Group R-3.1.** In all facilities housing a bedridden client, 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. 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 unit, or be electrically supervised or provided with emergency power.

**907.2.10.2.3 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.

**[F] 907.2.10.3 Installation near cooking appliances.** See Section 907.2.11.8.

**[F] 907.2.10.4 Installation near bathrooms.** See Section 907.2.11.8.

**[F] 907.2.10.5 Interconnection.** Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Group R occupancies, 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. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

**[F] 907.2.10.6 Power source.** In new construction, and in newly classified Group R-3.1 occupancies, required smoke alarms shall receive their primary power from the building wiring where 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 in accordance with Section 2702. 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.

**Exception:** Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system that complies with Section 2702.

**[F] 907.2.10.7 Smoke detection system.** Smoke detectors listed in accordance with UL 268 and provided as part of the building fire alarm system shall be an

acceptable alternative to single- and multiple-station smoke alarms and shall comply with the following:

1. The fire alarm system shall comply with all applicable requirements in Section 907.
2. Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with Section 907.5.2.
3. Activation of a smoke detector in a dwelling unit or sleeping unit shall not activate alarm notification appliances outside of the dwelling unit or sleeping unit, provided that a supervisory signal is generated and monitored in accordance with Section 907.6.6.

**907.2.10.8 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 40°F (4°C) or exceed 100°F (38°C).*
- (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.*

**Exceptions:**

- (1) *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.*
- (2) *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.*

- (3) *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 of NFPA 72.*
- (12) *Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3 of NFPA 72.*

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

**907.2.10.9 Existing Group R occupancies.** *See the California Residential Code for existing Group R-3 occupancies or Chapter 11 of the California Fire Code for all other existing Group R occupancies.*

**[F] 907.2.11 Special amusement buildings.** *An automatic smoke detection system shall be provided in special amusement buildings in accordance with Sections 907.2.11.1 through 907.2.11.3.*

**[F] 907.2.11.1 Alarm.** Activation of any single smoke detector, the automatic sprinkler system or any other automatic fire detection device shall immediately activate an audible and visible alarm at the building at a constantly attended location from which emergency action can be initiated, including the capability of manual initiation of requirements in Section 907.2.11.2.

**[F] 907.2.11.2 System response.** The activation of two or more smoke detectors, a single smoke detector equipped with an alarm verification feature, the automatic sprinkler system or other approved fire detection device shall automatically do all of the following:

1. Cause illumination of the means of egress with light of not less than 1 footcandle (11 lux) at the walking surface level.
2. Stop any conflicting or confusing sounds and visual distractions.
3. Activate an approved directional exit marking that will become apparent in an emergency.
4. Activate a prerecorded message, audible throughout the special amusement building, instructing patrons to proceed to the nearest exit. Alarm signals used in conjunction with the prerecorded message shall produce a sound that is distinctive from other sounds used during normal operation.

**[F] 907.2.11.3 Emergency voice/alarm communication system.** An emergency voice/alarm communication system, which is allowed to serve as a public address system, shall be installed in accordance with Section 907.5.2.2 and be audible throughout the entire special amusement building.

**[F] 907.2.12 High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access.** High-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access shall be provided with an automatic smoke detection system in accordance with Section 907.2.12.1, a fire department communication system in accordance with Section 907.2.12.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.

**Exceptions:**

1. Airport traffic control towers in accordance with Sections 412 and 907.2.21.
2. Open parking garages in accordance with Section 406.5.
3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1.
4. Low-hazard special occupancies in accordance with Section 503.1.1.
5. In Group I-2, I-2.1 and R-2.1 occupancies, the alarm shall sound at a constantly attended location and occupant notification shall be broadcast

by the emergency voice/alarm communication system.

**[F] 907.2.12.1 Automatic smoke detection.** Automatic smoke detection in high-rise buildings and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access shall be in accordance with Sections 907.2.12.1.1 and 907.2.12.1.2.

**[F] 907.2.12.1.1 Area smoke detection.** Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall activate the emergency voice/alarm communication system in accordance with Section 907.5.2.2. In addition to smoke detectors required by Sections 907.2.1 through 907.2.9, smoke detectors shall be located as follows:

1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room that is not provided with sprinkler protection.
2. In each elevator machine room, machinery space, control room and control space and in elevator lobbies.

**[F] 907.2.12.1.2 Duct smoke detection.** Smoke detectors listed for use in air duct systems shall be provided in accordance with this section and the California Mechanical Code. The activation of any detector required by this section shall initiate a visible and audible supervisory signal at a constantly attended location. Duct smoke detectors complying with Section 907.3.1 shall be located as follows:

1. In the main return air and exhaust air plenum of each air-conditioning system having a capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m<sup>3</sup>/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
2. At each connection to a vertical duct or riser serving two or more stories from a return air duct or plenum of an air-conditioning system. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m<sup>3</sup>/s) and serving not more than 10 air-inlet openings.

**[F] 907.2.12.2 Fire department communication system.** Where a wired communication system is approved in lieu of an emergency responder radio coverage system in accordance with Section 510 of the California Fire Code, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and standby power rooms,

fire pump rooms, areas of refuge and inside interior exit stairways. The fire department communication device shall be provided at each floor level within the interior exit stairway.

**[F] 907.2.12.3 Multiple-channel voice evacuation.** In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, voice evacuation systems for high-rise buildings shall be multiple-channel systems.

**[F] 907.2.13 Atriums connecting more than two stories.** A fire alarm system shall be installed in occupancies with an atrium that connects more than two stories, with smoke detection installed in locations required by a rational analysis in Section 909.4 and in accordance with the system operation requirements in Section 909.17. The system shall be activated in accordance with Section 907.5. Such occupancies in Group A, E or M shall be provided with an emergency voice/alarm communication system complying with the requirements of Section 907.5.2.2.

**[F] 907.2.14 High-piled combustible storage areas.** An automatic smoke detection system shall be installed throughout high-piled combustible storage areas where required by Section 3206.5 of the *California Fire Code*.

**[F] 907.2.15 Aerosol storage uses.** Aerosol product rooms and general-purpose warehouses containing aerosol products shall be provided with an approved manual fire alarm system where required by the *California Fire Code*.

**[F] 907.2.16 Lumber, wood structural panel and veneer mills.** Lumber, wood structural panel and veneer mills shall be provided with a manual fire alarm system.

**[F] 907.2.17 Underground buildings with smoke control systems.** Where a smoke control system is installed in an underground building in accordance with this code, automatic smoke detectors shall be provided in accordance with Section 907.2.17.1.

**[F] 907.2.17.1 Smoke detectors.** Not fewer than one smoke detector listed for the intended purpose shall be installed in all of the following areas:

1. Mechanical equipment, electrical, transformer, telephone equipment, elevator machine or similar rooms.
2. Elevator lobbies.
3. The main return and exhaust air plenum of each air-conditioning system serving more than one story and located in a serviceable area downstream of the last duct inlet.
4. Each connection to a vertical duct or riser serving two or more floors from return air ducts or plenums of heating, ventilating and air-conditioning systems, except that in Group R occupancies, a listed smoke detector is allowed to be used in each return air riser carrying not more than 5,000 cfm (2.4 m<sup>3</sup>/s) and serving not more than 10 air-inlet openings.

**[F] 907.2.17.2 Alarm required.** Activation of the smoke control system shall activate an audible alarm at a constantly attended location.

**[F] 907.2.18 Deep underground buildings.** Where the lowest level of a structure is more than 60 feet (18 288 mm) below the finished floor of the lowest level of exit discharge, the structure shall be equipped throughout with a manual fire alarm system, including an emergency voice/alarm communication system installed in accordance with Section 907.5.2.2.

**[F] 907.2.19 Covered and open mall buildings.** Where the total floor area exceeds 50,000 square feet (4645 m<sup>2</sup>) within either a covered mall building or within the perimeter line of an open mall building, an emergency voice/alarm communication system shall be provided. Access to emergency voice/alarm communication systems serving a mall, required or otherwise, shall be provided for the fire department. The system shall be provided in accordance with Section 907.5.2.2.

**[F] 907.2.20 Residential aircraft hangars.** Not fewer than one single-station smoke alarm shall be installed within a residential aircraft hangar as defined in Chapter 2 and shall be interconnected into the residential smoke alarm or other sounding device to provide an alarm that will be audible in all sleeping areas of the dwelling.

**[F] 907.2.21 Airport traffic control towers.** An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be provided in airport control towers in accordance with Sections 907.2.21.1 and 907.2.21.2.

**Exception:** Audible appliances shall not be installed within the control tower cab.

**[F] 907.2.21.1 Airport traffic control towers with multiple exits and automatic sprinklers.** Airport traffic control towers with multiple exits and equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 shall be provided with smoke detectors in all of the following locations:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Outside each opening into interior exit stairways.
5. Along the single means of egress permitted from observation levels.
6. Outside each opening into the single means of egress permitted from observation levels.

**[F] 907.2.21.2 Other airport traffic control towers.** Airport traffic control towers with a single exit or where sprinklers are not installed throughout shall be provided with smoke detectors in all of the following locations:

1. Airport traffic control cab.
2. Electrical and mechanical equipment rooms.
3. Airport terminal radar and electronics rooms.
4. Office spaces incidental to the tower operation.
5. Lounges for employees, including sanitary facilities.
6. Means of egress.

7. Utility shafts where access to smoke detectors can be provided.

**[F] 907.2.22 Battery rooms.** An automatic smoke detection system shall be installed in areas containing stationary storage battery systems as required in Section 1206.2 of the *California Fire Code*.

**[F] 907.2.23 Capacitor energy storage systems.** An automatic smoke detection system shall be installed in areas containing capacitor energy storage systems as required by Section 1206.3 of the *California Fire Code*.

**907.2.24 Motion picture and television production studio sound stages and approved production facilities.**

**907.2.24.1 Sound stages-solid-ceiling sets and platforms.** Where required by Chapter 48 of the *California Fire Code*, all interior solid-ceiling sets over 600 square feet (55.7 m<sup>2</sup>) in area, and platforms (when provided) over 600 square feet (55.7 m<sup>2</sup>) in area and which exceed 3 feet (914 mm) in height shall be protected by an approved heat detector system. Heat detectors shall be spaced 30 feet (9144 mm) on center or as required by the manufacturer's installation instructions. The fire alarm system shall be connected to an approved supervising station in accordance with Section 907.6.5 or a local alarm which will give an audible signal at a constantly attended location.

**907.2.24.2 Production locations—solid-ceiling sets and platforms.** Where required by Chapter 48 of the *California Fire Code* in buildings with existing fire protection systems and where production intends to construct solid-ceiling sets over 600 square feet (55.7 m<sup>2</sup>) in area, and platforms over 600 square feet (55.7 m<sup>2</sup>) in area and which exceed 3 feet (914 mm) in height shall be protected by an approved heat detector system. Heat detectors shall be spaced 30 feet (9144 mm) on center or as required by the manufacturer's installation instructions. The fire alarm system shall be connected to an approved supervising station in accordance with Section 907.6.6 or a local alarm which will give an audible signal at a constantly attended location.

**907.2.24.3 Fire alarm control units.** Fire alarm control units shall be California State Fire Marshal listed and shall be utilized in accordance with their listing. Control units are permitted to be temporarily supported by sets, platforms or pedestals.

**907.2.24.4 Heat detectors.**

**907.2.24.4.1 Heat detection required by this section** shall be defined as a portable system as it is intended to be reinstalled when platforms or sets are changed.

**907.2.24.4.2 Heat detectors shall be secured to standard outlet boxes and are allowed to be temporarily supported by sets, platforms or pedestals.**

**907.2.24.4.3 Heat detectors shall be provided for solid-ceiling sets and platforms where required by Sections 4805.3 and 4811.14.**

**907.2.25 Group C occupancies (organized camps).**

**907.2.25.1 General.** Every building and structure used or intended for sleeping purposes shall be provided with an automatic smoke detection system.

**Exceptions:**

1. Buildings and structures in existence and in operation prior to January 1, 1985.
2. Tents, tent structures and buildings and structures that do not exceed 25 ft (7620 mm) in any lateral dimensions and where such building or structure is not more than one story.

**907.2.25.2 Camp fire alarm.** Every organized camp shall provide and maintain audible appliances, or devices suitable for sounding a fire alarm. Such audible appliances or devices may be of any type acceptable to the enforcing agency provided they are distinctive in tone from all other signaling devices or systems and shall be audible throughout the camp premises. When an automatic fire alarm system is provided, as required by Section 450.6.6 of the *California Building Code*, all audible appliances required by this section shall be of the same type as that used in the automatic system.

**907.2.26 Fixed-guideway and passenger rail transit systems fire alarm and communication systems.**

**907.2.26.1 General.** Every fixed-guideway transit station shall be provided with an approved emergency voice/alarm communication system in accordance with NFPA 72. The emergency voice/alarm communication system, designed and installed so that damage to any one speaker will not render any paging zone of the system inoperative.

**Exception: Open stations**

**907.2.26.2 System components.** Each station fire alarm system shall consist of:

1. Fire alarm control unit at a location as permitted by the enforcing agency.
2. An alarm annunciator(s). The annunciator(s) shall be located at a point acceptable to the enforcing agency. The annunciator(s) shall indicate the type of device and general location of alarm. All alarm, supervisory and trouble signals shall be transmitted to the local annunciator(s) and the operations control center.
3. Manual fire alarm boxes shall be provided throughout passenger platforms and stations.

**Exception:** Two-way emergency communication reporting devices (emergency telephones) are allowed to be used in lieu of manual fire alarm boxes as permitted by the enforcing agency. Such devices shall provide two-way communication between the operations control center and each device. Such devices shall be located as required for manual fire alarm

boxes, and shall be distinctly identified by signs, coloring or other means acceptable to the enforcing agency.

4. Automatic smoke detectors in all ancillary spaces.

**Exceptions:**

1. Ancillary spaces protected by an approved fixed automatic extinguishing system; or
2. Ancillary spaces protected by quick-response sprinklers.

5. Automatic control of exiting components.

**907.2.26.3 Emergency voice/alarm communication system.** Each station shall be provided with an emergency voice/alarm communication system capable of transmitting voice, recorded or electronically generated textual messages to all areas of the station. The system(s) shall be configured such that the messages can be initiated from either the Emergency Management Panel (EMP) or the operations control center.

**907.2.26.4 Emergency telephones.** A dedicated two-way emergency communication phone system designed and installed in accordance with NFPA 72 shall be provided in all underground stations to facilitate direct communications for emergency response between remote locations and the EMP.

**907.2.26.4.1 Remote emergency phones shall be located at ends of station platforms, each hose outlet connection and station valve rooms.**

**907.2.26.4.2 Provisions shall be made in the design of this two-way emergency communication phone system for extensions of the system to the next passenger station or guideway portal.**

**907.2.27 Winery caves.** An approved manual fire alarm system conforming to the provisions of Section 907.2 shall be provided in all Type 3 winery caves.

**907.2.28 Group L.** A manual fire alarm system shall be installed throughout buildings having Group L occupancies. When Group L occupancies are located in mixed use buildings, at least one manual fire alarm box shall be located within the Group L occupancy.

**907.2.28.1 Group L occupancies located on the 11<sup>th</sup> story and above.** Manual fire alarm boxes shall be required on each side of the 2-hour fire-smoke barrier and at each exit on the 11<sup>th</sup> story and above.

**907.2.29 Public school state funded construction projects for kindergarten through 12<sup>th</sup> grade - automatic fire alarm system requirements.**

**907.2.29.1 Alterations to existing buildings on an existing public school campus.** An automatic fire alarm system shall be provided for all portions within the scope of an alteration project. The provisions of this section shall apply to any public school project on an existing campus and receiving state funds pursuant to Leroy F. Green, School Facilities Act of 1998, California Education Code Sections 17070.10 through

17079. For purposes of this section, an existing campus refers to a school site, where an application for construction of original buildings was made to DSA prior to July 1, 2002.

**Exceptions:**

1. A manual fire alarm system may be provided for a construction project that has an estimated total cost of less than \$200,000.
2. A manual fire alarm system may be provided for a relocatable building that is sited with the intent that it be at the site for less than three years and is sited upon a temporary foundation in a manner that is designed to permit easy removal. See California Administrative Code, Section 4-314 for definition of relocatable building.
3. A fire alarm system is not required for detached buildings designed and used for non-instructional purposes that meet the applicable requirements for that occupancy. Buildings would include, but not be limited to:

- Concession Stand
- Press Box
- Restroom Facilities
- Shade Structure
- Snack Bar
- Storage Building
- Ticket Booth

**[F] 907.3 Fire safety functions.** Automatic fire detectors utilized for the purpose of performing fire safety functions shall be connected to the building's fire alarm control unit where a fire alarm system is installed. Detectors shall, upon actuation, perform the intended function and activate the alarm notification appliances or activate a visible and audible supervisory signal at a constantly attended location. In buildings not equipped with a fire alarm system, the automatic fire detector shall be powered by normal electrical service and, upon actuation, perform the intended function. The detectors shall be located in accordance with NFPA 72.

**[F] 907.3.1 Duct smoke detectors.** Smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit where a fire alarm system is required by Section 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the California Mechanical Code. In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a supervisory signal and not as a fire alarm. They shall not be used as a substitute for required open area detection.

**Exceptions:**

1. The supervisory signal at a constantly attended location is not required where duct smoke detec-

tors activate the building's alarm notification appliances.

2. In occupancies not required to be equipped with a fire alarm system, actuation of a smoke detector shall activate a visible and an audible signal in an approved location. Smoke detector trouble conditions shall activate a visible or audible signal in an approved location and shall be identified as air duct detector trouble.

**[F] 907.3.2 Special locking systems.** Where special locking systems are installed on means of egress doors in accordance with Sections 1010.1.9.7 or 1010.1.9.8, an automatic detection system shall be installed as required by that section.

*907.3.2.1 In other than Groups I, R-2.1 and R-4 occupancies for single-story building, smoke detectors shall be installed at ceilings throughout all occupied areas and mechanical/electrical spaces. For multiple-story buildings, smoke detectors shall be installed throughout all occupied areas and mechanical/electrical spaces for the story where delayed egress devices are installed. Additional detectors are required on adjacent stories where occupants of those stories utilize the same means of egress.*

**Exception:** Refer to Section 907.3.2.4 for Group A courthouse occupancies.

*907.3.2.2 For Group I and R-2.1 occupancies. Smoke detectors shall be installed at ceilings throughout all occupied areas and mechanical/electrical spaces of smoke-compartments where delayed egress devices are installed. Additional detectors are required in adjacent smoke-compartments where occupants of those compartments utilize the same means of egress.*

*907.3.2.3 For Group R-4. Occupancies licensed as residential care facilities for the elderly, and housing clients with Alzheimer's disease or dementia residential facilities, smoke detectors shall be installed at ceilings throughout all occupiable rooms and areas and mechanical/ electrical rooms and spaces.*

*907.3.2.4 For Group A Courthouse occupancies. An approved automatic smoke detection system shall be installed at ceilings in all occupied corridors and mechanical/electrical spaces of smoke-compartments where delayed egress devices are installed.*

**[F] 907.3.3 Elevator emergency operation.** Automatic fire detectors installed for elevator emergency operation shall be installed in accordance with the provisions of *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders* and NFPA 72.

**[F] 907.3.4 Wiring.** The wiring to the auxiliary devices and equipment used to accomplish the fire safety functions shall be monitored for integrity in accordance with NFPA 72.

**[F] 907.4 Initiating devices.** Where manual or automatic alarm initiation is required as part of a fire alarm system, the

initiating devices shall be installed in accordance with Sections 907.4.1 through 907.4.3.1.

**[F] 907.4.1 Protection of fire alarm control unit.** In areas that are not continuously occupied, a single smoke detector shall be provided at the location of each fire alarm control unit, notification appliance circuit power extenders, and supervising station transmitting equipment.

**Exception:** Where ambient conditions prohibit installation of a smoke detector, a heat detector shall be permitted.

**[F] 907.4.2 Manual fire alarm boxes.** Where a manual fire alarm system is required by another section of this code, it shall be activated by fire alarm boxes installed in accordance with Sections 907.4.2.1 through 907.4.2.6.

**[F] 907.4.2.1 Location.** Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each exit. In buildings not protected by an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, additional manual fire alarm boxes shall be located so that the distance of travel to the nearest box does not exceed 200 feet (60 960 mm).

**Exception:** When individual dwelling units are served by a single exit stairway, additional boxes at other than the ground floor may be omitted.

**[F] 907.4.2.2 Height.** The height of the manual fire alarm boxes shall be not less than 42 inches (1067 mm) and not more than 48 inches (1219 mm) measured vertically, from the floor level to the *highest point of the activating handle or lever of the box. Manual fire alarm boxes shall also comply with Section 11B-309.*

**[F] 907.4.2.3 Color.** Manual fire alarm boxes shall be red in color.

**[F] 907.4.2.4 Signs.** Where fire alarm systems are not monitored by a supervising station, an approved permanent sign shall be installed adjacent to each manual fire alarm box that reads: WHEN ALARM SOUNDS CALL FIRE DEPARTMENT.

**Exception:** Where the manufacturer has permanently provided this information on the manual fire alarm box.

**[F] 907.4.2.5 Protective covers.** The fire code official is authorized to require the installation of listed manual fire alarm box protective covers to prevent malicious false alarms or to provide the manual fire alarm box with protection from physical damage. The protective cover shall be transparent or red in color with a transparent face to permit visibility of the manual fire alarm box. Each cover shall include proper operating instructions. A protective cover that emits a local alarm signal shall not be installed unless approved. Protective covers shall not project more than that permitted by Section 1003.3.3.

**[F] 907.4.2.6 Unobstructed and unobscured.** Manual fire alarm boxes shall be provided with ready access, unobstructed, unobscured and visible at all times.

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 10 – MEANS OF EGRESS

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.  
See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC-CG	SFM	HCD			DSA			OSHDPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X													
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X	X				X	X	X		X	X							
Adopt only those sections that are listed below							X															
Chapter / Section																						
1003.1, not SFM exception							X															
1003.1			X			X																
1003.1.1									X													
1003.1.2										X	X			X								
1003.2			X																			
1003.3 Exc.			X																			
1003.3.1			X																			
1003.3.3.1			X																			
1003.3.4				X	X	X																
1003.5			X	X	X	X																
Table 1004.5			X																			
1004.9			X																			
1005.3.1			X																			
1005.3.2			X																			
1005.7.1			X																			
1005.7.2			X																			
1006.2.1			X																			
Table 1006.2.1			X																			
1006.2.2			X																			
1006.2.2.4			X																			
1006.2.2.6			X																			
1006.2.2.7			X																			
1006.3.3			X																			
Table 1006.3.3(1)			X																			
Table 1006.3.3(2)			X																			
1008.2			X																			
1008.3.2			X																			
1009.1			X	X	X	X	X															
1009.2						X	X															
1009.2.1							X															
1009.3						X	X															
1009.4			X				X															
1009.4.1			X																			
1009.4.2							X															
1009.5			X	X	X	X	X															
1009.6							X															

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 10 – MEANS OF EGRESS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHDP					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X													
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X	X					X	X	X		X	X						
Adopt only those sections that are listed below							X															
Chapter / Section																						
1009.6.1							X															
1009.6.2							X															
> 1009.6.3			X	X	X	X	X															
1009.6.4							X															
1009.6.5							X															
1009.7							X															
1009.7.1							X															
1009.7.2							X															
1009.7.3							X															
1009.7.4							X															
1009.8							X															
> 1009.8.1							X															
1009.8.1.1						X	X															
1009.8.2			X			X	X															
1009.9						X	X															
1009.10							X															
1009.11						X	X															
1009.12			X			X	X															
1010 (1st paragraph below title only)							X															
1010.1.1			X			X																
1010.1.1.1			X																			
1010.1.2			X																			
1010.1.2.1			X																			
1010.1.4.1						X																
1010.1.4.5.1			X																			
1010.1.5						X	X															
1010.1.7						X	X															
1010.1.8						X	X															
1010.1.9.1			X			X	X															
1010.1.9.6			X																			
1010.1.9.7			X																			
1010.1.9.8			X																			
1010.1.9.8.1			X																			
>    1010.1.9.8.1 (Item 4, 6.3 & 6.4 only)							X															
>    1010.1.9.13			X																			
1010.1.10			X																			
1010.1.11			X																			

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 10 – MEANS OF EGRESS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X													
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X	X						X	X	X								
Adopt only those sections that are listed below							X															
Chapter / Section																						
1011(1st paragraph below title only)							X															
1011.2			X																			
1011.5.2			X																			
1011.5.2 [DSA-AC: exc. 4 only]							X															
1011.6			X																			
1011.11			X																			
1011.11 (2nd paragraph only)							X															
1011.15			X																			
1012 (1st paragraph below title only)							X															
1012.1						X																
1012.6.3						X																
1012.6.4						X																
1012.6.5						X																
1012.10						X																
1013.1			X																			
1013.2			X																			
1013.4			X			X	X															
1013.6.3			X																			
1013.7			X																			
1013.8			X																			
1014 (1st paragraph below title only)							X															
1014.8			X			X																
1015.2			X				X															
1015.3			X	X	X	X	X															
1015.4			X																			
1015.8				X	X	X																
1016.2			X																			
1016.2.2			X																			
Table 1017.2			X																			
1018.2 (1st paragraph below title only)							X															
1018.3 Exception only							X															
1018.5 Exception only							X															
1019.3			X																			
1019.4			X																			
1020.1			X																			
Table 1020.1			X																			
Table 1020.2			X																			
1020.4			X																			

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 10 – MEANS OF EGRESS—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter	X							X	X													
Adopt entire chapter as amendeded (amended sections listed below)			X	X	X	X				X	X	X		X	X							
Adopt only those sections that are listed below							X															
Chapter / Section																						
1020.5			X							X		X		X								
1020.6			X																			
1023.2			X																			
1023.9			X			X																
1023.9 (2nd paragraph only)							X															
1023.9.1			X																			
1023.11.2			X																			
1024.2			X																			
1026.4.2			X																			
1028.5			X																			
1029.1			X																			
1029.2			X																			
1029.3			X																			
1029.3.1			X																			
1029.6.4			X																			
1029.9.1			X																			
1030.1			X																			
1030.1.1			X																			

The state agency does not adopt sections identified by the following symbol: †

The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.

building element other than a means of egress component as specified in this chapter. Obstructions shall not be placed in the minimum width or required capacity of a means of egress component except projections permitted by this chapter. The minimum width or required capacity of a means of egress system shall not be diminished along the path of egress travel.

**1003.7 Elevators, escalators and moving walks.** Elevators, escalators and moving walks shall not be used as a component of a required means of egress from any other part of the building.

**Exception:** Elevators used as an accessible means of egress in accordance with Section 1009.4.

**SECTION 1004  
OCCUPANT LOAD**

**1004.1 Design occupant load.** In determining means of egress requirements, the number of occupants for whom means of egress facilities are provided shall be determined in accordance with this section.

**1004.2 Cumulative occupant loads.** Where the path of egress travel includes intervening rooms, areas or spaces, cumulative occupant loads shall be determined in accordance with this section.

**1004.2.1 Intervening spaces or accessory areas.** Where occupants egress from one or more rooms, areas or spaces through others, the design occupant load shall be the combined occupant load of interconnected accessory or intervening spaces. Design of egress path capacity shall be based on the cumulative portion of occupant loads of all rooms, areas or spaces to that point along the path of egress travel.

**1004.2.2 Adjacent levels for mezzanines.** That portion of the occupant load of a mezzanine with required egress through a room, area or space on an adjacent level shall be added to the occupant load of that room, area or space.

**1004.2.3 Adjacent stories.** Other than for the egress components designed for convergence in accordance with Section 1005.6, the occupant load from separate stories shall not be added.

**1004.3 Multiple function occupant load.** Where an area under consideration contains multiple functions having different occupant load factors, the design occupant load for such area shall be based on the floor area of each function calculated independently.

**1004.4 Multiple occupancies.** Where a building contains two or more occupancies, the means of egress requirements shall apply to each portion of the building based on the occupancy of that space. Where two or more occupancies utilize portions of the same means of egress system, those egress components shall meet the more stringent requirements of all occupancies that are served.

**1004.5 Areas without fixed seating.** The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.5. For areas without fixed seating, the occupant load shall be not less than that number determined by dividing the floor area under consideration by

**TABLE 1004.5  
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR <sup>a</sup>
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno, slots, etc.) Exhibit gallery and museum	11 gross 30 net
Assembly with fixed seats	See Section 1004.6
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas Concentrated business use areas	150 gross See Section 1004.8
Courtrooms—other than fixed seating areas	40 net
Day care	35 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas	20 net 50 net
Exercise rooms	50 gross
Group H-5 fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Laboratory Educational (K–12 <sup>th</sup> grade) Laboratories, non-educational Laboratory suite <sup>b</sup>	50 net 100 net 200 gross
Library Reading rooms Stack area	50 net 100 gross
Locker rooms	50 gross
Mall buildings—covered and open	See Section 402.8.2
Mercantile Storage, stock, shipping areas	60 gross 300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool Decks	50 gross 15 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m<sup>2</sup>.

a. Floor area in square feet per occupant.

b. See Section 453.2.

## MEANS OF EGRESS

the occupant load factor assigned to the function of the space as set forth in Table 1004.5. Where an intended function is not listed in Table 1004.5, the building official shall establish a function based on a listed function that most nearly resembles the intended function.

**Exception:** Where approved by the building official, the actual number of occupants for whom each occupied space, floor or building is designed, although less than those determined by calculation, shall be permitted to be used in the determination of the design occupant load.

**1004.5.1 Increased occupant load.** The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.5, provided that all other requirements of the code are met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m<sup>2</sup>) of occupiable floor space. Where required by the building official, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the building official, such diagram shall be posted.

**1004.6 Fixed seating.** For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces, shall be determined in accordance with Section 1004.5 and added to the number of fixed seats.

The occupant load of wheelchair spaces and the associated companion seat shall be based on one occupant for each wheelchair space and one occupant for the associated companion seat provided in accordance with Section 1108.2.3.

For areas having fixed seating without dividing arms, the occupant load shall be not less than the number of seats based on one person for each 18 inches (457 mm) of seating length.

The occupant load of seating booths shall be based on one person for each 24 inches (610 mm) of booth seat length measured at the backrest of the seating booth.

**1004.7 Outdoor areas.** Yards, patios, occupied roofs, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with means of egress as required by this chapter. The occupant load of such outdoor areas shall be assigned by the building official in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

### Exceptions:

1. Outdoor areas used exclusively for service of the building need only have one means of egress.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2.

**1004.8 Concentrated business use areas.** The occupant load factor for concentrated business use shall be applied to telephone call centers, trading floors, electronic data processing centers and similar business use areas with a higher

density of occupants than would normally be expected in a typical business occupancy environment. Where approved by the building official, the occupant load for concentrated business use areas shall be the actual occupant load, but not less than one occupant per 50 square feet (4.65 m<sup>2</sup>) of gross occupiable floor space.

**1004.9 Posting of occupant load.** Every room or space which is used for assembly, classroom, dining, drinking, or similar purposes having an occupant load of 50 or more shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space, for the intended configurations. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or the owner's authorized agent.

## SECTION 1005 MEANS OF EGRESS SIZING

**1005.1 General.** All portions of the means of egress system shall be sized in accordance with this section.

**Exception:** Aisles and aisle accessways in rooms or spaces used for assembly purposes complying with Section 1029.

**1005.2 Minimum width based on component.** The minimum width, in inches (mm), of any means of egress components shall be not less than that specified for such component, elsewhere in this code.

**1005.3 Required capacity based on occupant load.** The required capacity, in inches (mm), of the means of egress for any room, area, space or story shall be not less than that determined in accordance with Sections 1005.3.1 and 1005.3.2:

**1005.3.1 Stairways.** The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.3 inch (7.6 mm) per occupant. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required capacity of the stairways serving that story.

### Exceptions:

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with smoke-protected assembly seating shall be permitted to use the capacity factors in Table 1029.6.2 indicated for stepped aisles for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.

3. Facilities with open-air assembly seating shall be permitted to the capacity factors in Section 1029.6.3 indicated for stepped aisles for exit access or exit stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.
4. *For Group H-1, H-2, H-3 and H-4 occupancies the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.7 inches (7.62 mm) per occupant.*

**1005.3.2 Other egress components.** The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch (5.1 mm) per occupant.

**Exceptions:**

1. For other than Group H and I-2 occupancies, the capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.15 inch (3.8 mm) per occupant in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
2. Facilities with smoke-protected assembly seating shall be permitted to use the capacity factors in Table 1029.6.2 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is provided with a smoke control system complying with Section 909.
3. Facilities with open-air assembly seating shall be permitted to the capacity factors in Section 1029.6.3 indicated for level or ramped aisles for means of egress components other than stairways where the entire path for means of egress from the seating to the exit discharge is open to the outdoors.
4. *For Group H-1, H-2, H-3 and H-4 occupancies the total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.4 inches (5.08 mm) per occupant.*

**1005.4 Continuity.** The minimum width or required capacity of the means of egress required from any story of a building shall not be reduced along the path of egress travel until arrival at the public way.

**1005.5 Distribution of minimum width and required capacity.** Where more than one exit, or access to more than one exit, is required, the means of egress shall be configured such that the loss of any one exit, or access to one exit, shall not reduce the available capacity or width to less than 50 percent of the required capacity or width.

**1005.6 Egress convergence.** Where the means of egress from stories above and below converge at an intermediate level, the capacity of the means of egress from the point of convergence shall be not less than the largest minimum width or the sum of the required capacities for the stairways or ramps serving the two adjacent stories, whichever is larger.

**1005.7 Encroachment.** Encroachments into the required means of egress width shall be in accordance with the provisions of this section.

**1005.7.1 Doors.** Doors, when fully opened, shall not reduce the required width by more than 7 inches (178 mm). Doors in any position shall not reduce the required width by more than one-half.

**Exceptions:**

1. *In other than Group I-2 occupancies,* surface-mounted latch release hardware shall be exempt from inclusion in the 7-inch maximum (178 mm) encroachment where both of the following conditions exist:
  - 1.1. The hardware is mounted to the side of the door facing away from the adjacent wall where the door is in the open position.
  - 1.2. The hardware is mounted not less than 34 inches (865 mm) nor more than 48 inches (1219 mm) above the finished floor.
2. The restrictions on door swing shall not apply to doors within individual dwelling units and sleeping units of Group R-2 occupancies and dwelling units of Group R-3 occupancies.

**1005.7.2 Other projections.** Handrail projections shall be in accordance with the provisions of Section 1014.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width not more than 1½ inches (38 mm) on each side.

**Exception:** Projections are permitted in corridors within Group R-2.1 in accordance with Section 407.4.3 of the *California Building Code*.

**1005.7.3 Protruding objects.** Protruding objects shall comply with the applicable requirements of Section 1003.3.

## SECTION 1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS

**1006.1 General.** The number of exits or exit access doorways required within the means of egress system shall comply with the provisions of Section 1006.2 for spaces, including mezzanines, and Section 1006.3 for stories or occupied roofs.

**1006.2 Egress from spaces.** Rooms, areas or spaces, including mezzanines, within a story or basement shall be provided with the number of exits or access to exits in accordance with this section.

**1006.2.1 Egress based on occupant load and common path of egress travel distance.** Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1. The cumulative

**MEANS OF EGRESS**

occupant load from adjacent rooms, areas or spaces shall be determined in accordance with Section 1004.2.

**Exceptions:**

1. The number of exits from foyers, lobbies, vestibules or similar spaces need not be based on cumulative occupant loads for areas discharging through such spaces, but the capacity of the exits from such spaces shall be based on applicable cumulative occupant loads.
2. Rooms and care suites in Group I-2 and I-2.1 occupancies complying with Section 407.4.
3. *In detention and correctional facilities and holding cells, such as are found in courthouse buildings, when the occupant load is more than 20 see Section 408.3.11.*

**1006.2.1.1 Three or more exits or exit access doorways.** Three exits or exit access doorways shall be provided from any space with an occupant load of 501 to 1,000. Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.

**1006.2.2 Egress based on use.** The numbers of exits or access to exits shall be provided in the uses described in Sections 1006.2.2.1 through 1006.2.2.7.

**1006.2.2.1 Boiler, incinerator and furnace rooms.** Two exit access doorways are required in boiler, incinerator and furnace rooms where the area is over 500 square feet (46 m<sup>2</sup>) and any fuel-fired equipment exceeds 400,000 British thermal units (Btu) (422 000 KJ) input capacity. Where two exit access doorways are required, one is permitted to be a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the length of the maximum overall diagonal dimension of the room.

**1006.2.2.2 Refrigeration machinery rooms.** Machinery rooms larger than 1,000 square feet (93 m<sup>2</sup>) shall have not less than two exits or exit access doorways. Where two exit access doorways are required, one such doorway is permitted to be served by a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

**TABLE 1006.2.1  
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY**

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL > 30	
A <sup>c</sup> , E, M	49	75	75	75 <sup>a</sup>
B	49	100	75	100 <sup>a</sup>
F	49	75	75	100 <sup>a</sup>
H-1, H-2, H-3	3	NP	NP	25 <sup>b</sup>
H-4, H-5	10	NP	NP	75 <sup>b</sup>
I-2 <sup>d</sup> , I-2.1, I-4	10	NP	NP	75 <sup>a</sup>
I-3	10	NP	NP	100 <sup>a</sup>
R-1	10	NP	NP	75 <sup>a</sup>
R-2	20	NP	NP	125 <sup>a</sup>
R-2.1	10	NP	NP	75 <sup>a</sup>
R-2.2	20	NP	NP	125 <sup>a</sup>
R-3 <sup>e</sup> , R-3.1 <sup>e</sup>	20	NP	NP	125 <sup>a, g</sup>
R-4 <sup>e</sup>	20	NP	NP	125 <sup>a, g</sup>
S <sup>f</sup>	29	100	75	100 <sup>a</sup>
U	49	100	75	75 <sup>a</sup>
L	See Section 453.6.1		NP	NP

For SI: 1 foot = 304.8 mm.

NP = Not Permitted.

- a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
- b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.
- c. For a room or space used for assembly purposes having fixed seating, see Section 1029.8.
- d. For the travel distance limitations *and number of exit and exit access requirements for rooms and spaces* in Group I-2 or I-2.1, see Section 407.4.
- e. The common path of egress travel distance shall only apply in a Group R-3 occupancy located in a mixed occupancy building.
- f. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet.
- g. For the travel distance limitations in Groups R-3 and R-4 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3, see Section 1006.2.2.6.
- h. For holding cells, see Section 408.3.11.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an exit or exit access doorway. An increase in exit access travel distance is permitted in accordance with Section 1017.1.

Exit and exit access doorways shall swing in the direction of egress travel, regardless of the occupant load served. Exit and exit access doorways shall be tight fitting and self-closing.

**1006.2.2.3 Refrigerated rooms or spaces.** Rooms or spaces having a floor area larger than 1,000 square feet (93 m<sup>2</sup>), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two exits or exit access doorways.

Exit access travel distance shall be determined as specified in Section 1017.1, but all portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access doorway where such rooms are not protected by an approved automatic sprinkler system. Egress is allowed through adjoining refrigerated rooms or spaces.

**Exception:** Where using refrigerants in quantities limited to the amounts based on the volume set forth in the *California Mechanical Code*.

**1006.2.2.4 Group I-4 means of egress.** Group I-4 facilities, rooms or spaces where care is provided for more than 10 children that are 2½ years of age or less, shall have access to not less than two exits or exit access doorways.

**1006.2.2.5 Vehicular ramps.** Vehicular ramps shall not be considered as an exit access ramp unless pedestrian facilities are provided.

**1006.2.2.6 Group R-3 and R-4.** Where Group R-3 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-3 shall not be more than 125 feet. Where Group R-4 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-4 shall not be more than 75 feet.

**1006.2.2.6 Group R-3 and R-4. [SFM]** Where Group R-3 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-3 shall not be more than 125 feet. Where Group R-4 occupancies are permitted by Section 903.2.8 to be protected by an automatic sprinkler system installed in accordance with Section 903.3.1.3, the exit access travel distance for Group R-4 shall not be more than 75 feet.

**1006.2.2.7 Large family day-care home.** Every story or basement of a large family day-care home shall be pro-

vided 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 (813 mm) in clear width and not less than 6 feet 8 inches (2,032 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.

Tables 1006.3.3(1) and 1006.3.3(2) are not applicable to this occupancy classification.

**1006.3 Egress from stories or occupied roofs.** The means of egress system serving any story or occupied roof shall be provided with the number of separate and distinct exits or access to exits based on the aggregate occupant load served in accordance with this section. Where stairways serve more than one story, only the occupant load of each story considered individually shall be used in calculating the required number of exits or access to exits serving that story.

**1006.3.1 Adjacent story.** The path of egress travel to an exit shall not pass through more than one adjacent story.

**Exception:** The path of egress travel to an exit shall be permitted to pass through more than one adjacent story in any of the following:

1. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit, sleeping unit or live/work unit.
2. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility.
3. Exit access stairways and ramps in open parking garages that serve only the parking garage.
4. Exit access stairways and ramps serving open-air assembly seating complying with the exit access travel distance requirements of Section 1029.7.

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- Exit access stairways and ramps between the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

**1006.3.2 Egress based on occupant load.** Each story and occupied roof shall have the minimum number of separate and distinct exits, or access to exits, as specified in Table 1006.3.2. A single exit or access to a single exit shall be permitted in accordance with Section 1006.3.3. The required number of exits, or exit access stairways or ramps providing access to exits, from any story or occupied roof shall be maintained until arrival at the exit discharge or a public way.

**TABLE 1006.3.2  
MINIMUM NUMBER OF EXITS OR  
ACCESS TO EXITS PER STORY**

OCCUPANT LOAD PER STORY	MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY
1-500	2
501-1,000	3
More than 1,000	4

**1006.3.3 Single exits.** A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

- The occupant load, number of dwelling units and common path of egress travel distance do not exceed the values in Table 1006.3.3(1) or 1006.3.3(2).
- Rooms, areas and spaces, at the level of exit discharge, complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
- Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
- Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
- Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
  - The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.

- Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit's entrance door provides access to not less than two approved independent exits.

**1006.3.3.1 Mixed occupancies.** Where one exit, or exit access stairway or ramp providing access to exits at other stories, is permitted to serve individual stories, mixed occupancies shall be permitted to be served by single exits provided each individual occupancy complies with the applicable requirements of Table 1006.3.3(1) or 1006.3.3(2) for that occupancy. Where applicable, cumulative occupant loads from adjacent occupancies shall be considered to be in accordance with the provisions of Section 1004.1. In each story of a mixed occupancy building, the maximum number of occupants served by a single exit shall be such that the sum of the ratios of the calculated number of occupants of the space divided by the allowable number of occupants indicated in Table 1006.3.3(2) for each occupancy does not exceed one. Where dwelling units are located on a story with other occupancies, the actual number of dwelling units divided by four plus the ratio from the other occupancy does not exceed one.

## SECTION 1007 EXIT AND EXIT ACCESS DOORWAY CONFIGURATION

**1007.1 General.** Exits, exit access doorways, and exit access stairways and ramps serving spaces, including individual building stories, shall be separated in accordance with the provisions of this section.

**1007.1.1 Two exits or exit access doorways.** Where two exits, exit access doorways, exit access stairways or ramps, or any combination thereof, are required from any portion of the exit access, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between them. Interlocking or scissor stairways shall be counted as one exit stairway.

### Exceptions:

- Where interior exit stairways or ramps are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section

**TABLE 1006.3.3(1)  
STORIES WITH ONE EXIT OR ACCESS TO ONE EXIT FOR R-2 AND R-3 OCCUPANCIES**

STORY	OCCUPANCY	MAXIMUM NUMBER OF DWELLING UNITS	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE
Basement, first, second or third story above grade plane	R-2 <sup>a, b</sup>	4 dwelling units	125 feet
	R-3 <sup>a</sup>	NA	NA
Fourth story above grade plane and higher	R-3 <sup>a</sup>	NA	125 feet

For SI: 1 foot = 3048 mm.

NP = Not Permitted.

NA = Not Applicable.

- Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1030.
- This table is used for R-2 occupancies consisting of dwelling units. For R-2 occupancies consisting of sleeping units, use Table 1006.3.3(2).

**1010.1.4.4.1 Remote operation of locks.** Remote operation of locks complying with Section 1010.1.4.4 shall be permitted.

**1010.1.4.5 Security grilles.** In Groups B, F, M and S, horizontal sliding or vertical security grilles are permitted at the main exit and shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grilles shall remain secured in the full-open position during the period of occupancy by the general public. Where two or more means of egress are required, not more than one-half of the exits or exit access doorways shall be equipped with horizontal sliding or vertical security grilles.

**1010.1.4.5.1 Special provisions—school classrooms.** *School classrooms constructed after January 1, 1990, not equipped with automatic sprinkler systems, which have metal grilles or bars on all their windows and do not have at least two exit doors within 3 feet (914 mm) of each end of the classroom opening to the exterior of the building or to a common hallway used for evacuation purposes, shall have an inside release for the grilles or bars on at least one window farthest from the exit doors. The window or windows with the inside release shall be clearly marked as emergency exits.*

**1010.1.5 Floor elevation.** There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

**Exceptions:**

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
  - 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided that the door does not swing over the top step.
  - 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in Section 1003.5, Exception 1, and Section 1022.2, which are not on an accessible route.
3. In Group R-3 occupancies not required to be *adaptable or accessible*, the landing at an exterior doorway shall be not more than  $7\frac{3}{4}$  inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.
4. Variations in elevation due to differences in finish materials, but not more than  $\frac{1}{2}$  inch (12.7 mm).
5. Exterior decks, patios or balconies that are part of *adaptable or accessible* dwelling units, have impervious surfaces and that are not more than 4 inches (102 mm) below the finished floor level of the adjacent interior space of the dwelling unit. *See also Chapter 11A, Section 1132A.4.*

6. Doors serving equipment spaces not required to be *adaptable or accessible* and serving an occupant load of five or less shall be permitted to have a landing on one side to be not more than 7 inches (178 mm) above or below the landing on the egress side of the door.

**1010.1.6 Landings at doors.** Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). Where a landing serves an occupant load of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

**Exception:** Landing length in the direction of travel in Groups R-3 and U and within individual units of Group R-2 need not exceed 36 inches (914 mm).

**1010.1.7 Thresholds.** Thresholds at doorways shall not exceed  $\frac{3}{4}$  inch (19.1 mm) in height above the finished floor or landing for sliding doors serving dwelling units or  $\frac{1}{2}$  inch (12.7 mm) above the finished floor or landing for other doors. Raised thresholds and floor level changes greater than  $\frac{1}{4}$  inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

**Exceptions:**

1. In occupancy Group R-2 or R-3, threshold heights for sliding and side-hinged exterior doors shall be permitted to be up to  $7\frac{3}{4}$  inches (197 mm) in height if all of the following apply:
  - 1.1. The door is not part of the required means of egress.
  - 1.2. The door is not part of an accessible route as required by Chapter 11A or 11B.
  - 1.3. The door is not part of an *adaptable or accessible dwelling unit*.
2. In *adaptable or accessible dwelling units*, where Exception 5 to Section 1010.1.5 permits a 4-inch (102 mm) elevation change at the door, the threshold height on the exterior side of the door shall not exceed  $4\frac{3}{4}$  inches (120 mm) in height above the exterior deck, patio or balcony for sliding doors or  $4\frac{1}{2}$  inches (114 mm) above the exterior deck, patio or balcony for other doors.

**1010.1.8 Door arrangement.** Space between two doors in a series shall be 48 inches (1219 mm) minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors.

**Exceptions:**

1. The minimum distance between horizontal sliding power-operated doors in a series shall be 48 inches (1219 mm).
2. Storm and screen doors serving individual dwelling units in Groups R-2 and R-3 need not be spaced 48 inches (1219 mm) from the other door.

3. Doors within individual dwelling units in Groups R-2 and R-3 other than *adaptable or accessible* dwelling units.

**1010.1.9 Door operations.** Except as specifically permitted by this section, egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

**1010.1.9.1 Hardware.** Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter *11A or 11B* shall not require tight grasping, tight pinching or twisting of the wrist to operate.

*These design requirements for door handles, pulls, latches, locks and other operating devices, intended for use on required means of egress doors in other than Group R and M occupancies with an occupant load of 10 or less, shall comply with SFM Standard 12-10-2, Section 12-10-202 contained in the CCR, Title 24, Part 12, California Referenced Standards Code.*

**1010.1.9.2 Hardware height.** Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

**Exception:** Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the latch release on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided that the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

**1010.1.9.3 Monitored or recorded egress.** Where electrical systems that monitor or record egress activity are incorporated, the locking system shall comply with Section 1010.1.9.7, 1010.1.9.8, 1010.1.9.9, 1010.1.9.10 or 1010.1.9.11 or shall be readily openable from the egress side without the use of a key or special knowledge or effort.

**1010.1.9.4 Locks and latches.** Locks and latches shall be permitted to prevent operation of doors where any of the following exist:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
  - 2.1. The locking device is readily distinguishable as locked.
  - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. The sign shall be in letters 1

inch (25 mm) high on a contrasting background.

- 2.3. The use of the key-operated locking device is revocable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts does not have a doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.
6. Doors serving roofs not intended to be occupied shall be permitted to be locked preventing entry to the building from the roof.

**1010.1.9.5 Bolt locks.** Manually operated flush bolts or surface bolts are not permitted.

**Exceptions:**

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serves an occupant load of less than 50 persons in a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf. The inactive leaf shall not contain doorknobs, panic bars or similar operating hardware.
4. Where a pair of doors serves a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf provided that such inactive leaf is not needed to meet egress capacity requirements and the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The inactive leaf shall not contain doorknobs, panic bars or similar operating hardware.
5. Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress capacity requirements and the inactive leaf shall not contain doorknobs, panic bars or similar operating hardware.

not more than  $\frac{9}{16}$  inch (14.3 mm) from the foremost projection of the tread. Risers shall be solid and vertical or sloped under the tread above from the underside of the nosing above at an angle not more than 30 degrees (0.52 rad) from the vertical.

**1011.5.5.1 Nosing projection size.** The leading edge (nosings) of treads shall project not more than  $1\frac{1}{4}$  inches (32 mm) beyond the tread below.

**1011.5.5.2 Nosing projection uniformity.** Nosing projections of the leading edges shall be of uniform size, including the projections of the nosing's leading edge of the floor at the top of a flight.

**1011.5.5.3 Solid risers.** Risers shall be solid.

**Exceptions:**

1. Solid risers are not required for stairways that are not required to comply with Section 1009.3, provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. The size of the opening in the riser is not restricted.
3. Solid risers are not required for spiral stairways constructed in accordance with Section 1011.10.

**1011.6 Stairway landings.** There shall be a floor or landing at the top and bottom of each stairway. The width of landings, measured perpendicularly to the direction of travel, shall be not less than the width of stairways served. Every landing shall have a minimum depth, measured parallel to the direction of travel, equal to the width of the stairway or 48 inches (1219 mm), whichever is less. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. Where wheelchair spaces are required on the stairway landing in accordance with Section 1009.6.3, the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

**Exceptions:**

1. Where stairways connect stepped aisles to cross aisles or concourses, stairway landings are not required at the transition between stairways and stepped aisles constructed in accordance with Section 1029.
2. *In Group R-3 occupancies a floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs.*

**1011.7 Stairway construction.** Stairways shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.

**1011.7.1 Stairway walking surface.** The walking surface of treads and landings of a stairway shall not be sloped steeper than one unit vertical in 48 units horizontal (2-per-

cent slope) in any direction. Stairway treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

**Exceptions:**

1. Openings in stair walking surfaces shall be a size that does not permit the passage of  $\frac{1}{2}$ -inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.
2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided that a sphere with a diameter of  $1\frac{1}{8}$  inches (29 mm) cannot pass through the opening.

**1011.7.2 Outdoor conditions.** Outdoor stairways and outdoor approaches to stairways shall be designed so that water will not accumulate on walking surfaces.

**1011.7.3 Enclosures under interior stairways.** The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stairway enclosure.

**Exception:** Spaces under stairways serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with  $\frac{1}{2}$ -inch (12.7 mm) gypsum board.

**1011.7.4 Enclosures under exterior stairways.** There shall not be enclosed usable space under exterior exit stairways unless the space is completely enclosed in 1-hour fire-resistance-rated construction. The open space under exterior stairways shall not be used for any purpose.

**1011.8 Vertical rise.** A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

**Exception:** Spiral stairways used as a means of egress from technical production areas.

**1011.9 Curved stairways.** Curved stairways with winder treads shall have treads and risers in accordance with Section 1011.5 and the smallest radius shall be not less than twice the minimum width or required capacity of the stairway.

**Exception:** The radius restriction shall not apply to curved stairways in Group R-3 and within individual dwelling units in Group R-2.

**1011.10 Spiral stairways.** Spiral stairways are permitted to be used as a component in the means of egress only within dwelling units or from a space not more than 250 square feet (23 m<sup>2</sup>) in area and serving not more than five occupants, or from technical production areas in accordance with Section 410.5.

A spiral stairway shall have a  $6\frac{3}{4}$ -inch (171 mm) minimum clear tread depth at a point 12 inches (305 mm) from the narrow edge. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall

## MEANS OF EGRESS

not be more than 9<sup>1</sup>/<sub>2</sub> inches (241 mm). The minimum stairway clear width at and below the handrail shall be 26 inches (660 mm).

**1011.11 Handrails.** Flights of stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall comply with Section 2407.

*[DSA-AC] For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see Chapter 11B, Sections 11B-504.6 and 11B-505.*

### Exceptions:

1. Flights of stairways within dwelling units and flights of spiral stairways are permitted to have a handrail on one side only.
2. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
3. *[SFM] In Group R-3 occupancies, a continuous run of treads or flight of stairs with less than four risers does not require handrails.*
4. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

**1011.12 Stairway to roof.** In buildings four or more stories above grade plane, one stairway shall extend to the roof surface unless the roof has a slope steeper than four units vertical in 12 units horizontal (33-percent slope).

**Exception:** Other than where required by Section 1011.12.1, in buildings without an occupied roof access to the roof from the top story shall be permitted to be by an alternating tread device, a ship's ladder or a permanent ladder.

**1011.12.1 Stairway to elevator equipment.** Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway.

**1011.12.2 Roof access.** Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with Section 1510.2.

**Exception:** In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m<sup>2</sup>) in area and having a minimum dimension of 2 feet (610 mm).

**1011.13 Guards.** Guards shall be provided along stairways and landings where required by Section 1015 and shall be constructed in accordance with Section 1015. Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by guards installed in accordance with Section 1015.

**1011.14 Alternating tread devices.** Alternating tread devices are limited to an element of a means of egress in buildings of Groups F, H and S from a mezzanine not more than 250 square feet (23 m<sup>2</sup>) in area and that serves not more than five occupants; in buildings of Group I-3 from a guard

tower, observation station or control room not more than 250 square feet (23 m<sup>2</sup>) in area and for access to unoccupied roofs. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.

**1011.14.1 Handrails of alternating tread devices.** Handrails shall be provided on both sides of alternating tread devices and shall comply with Section 1014.

**1011.14.2 Treads of alternating tread devices.** Alternating tread devices shall have a minimum tread depth of 5 inches (127 mm), a minimum projected tread depth of 8<sup>1</sup>/<sub>2</sub> inches (216 mm), a minimum tread width of 7 inches (178 mm) and a maximum riser height of 9<sup>1</sup>/<sub>2</sub> inches (241 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projections of adjacent treads. The riser height shall be measured vertically between the leading edges of adjacent treads. The riser height and tread depth provided shall result in an angle of ascent from the horizontal of between 50 and 70 degrees (0.87 and 1.22 rad). The initial tread of the device shall begin at the same elevation as the platform, landing or floor surface.

**Exception:** Alternating tread devices used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet (23 m<sup>2</sup>) in area that serves not more than five occupants shall have a minimum tread depth of 3 inches (76 mm) with a minimum projected tread depth of 10<sup>1</sup>/<sub>2</sub> inches (267 mm). The rise to the next alternating tread surface shall not exceed 8 inches (203 mm).

**1011.15 Ship's ladders.** Ship's ladders are permitted to be used in *lifeguard towers not open to the public* and Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m<sup>2</sup>) with not more than three occupants and for access to unoccupied roofs. The minimum clear width at and below the handrails shall be 20 inches (508 mm).

**1011.15.1 Handrails of ship's ladders.** Handrails shall be provided on both sides of ship's ladders.

**1011.15.2 Treads of ship's ladders.** Ship's ladders shall have a minimum tread depth of 5 inches (127 mm). The tread shall be projected such that the total of the tread depth plus the nosing projection is not less than 8<sup>1</sup>/<sub>2</sub> inches (216 mm). The maximum riser height shall be 9<sup>1</sup>/<sub>2</sub> inches (241 mm).

**1011.16 Ladders.** Permanent ladders shall not serve as a part of the means of egress from occupied spaces within a building. Permanent ladders shall be constructed in accordance with Section 306.5 of the *California Mechanical Code*. Permanent ladders shall be permitted to provide access to the following areas:

1. Spaces frequented only by personnel for maintenance, repair or monitoring of equipment.
2. Nonoccupiable spaces accessed only by catwalks, crawl spaces, freight elevators or very narrow passageways.
3. Raised areas used primarily for purposes of security, life safety or fire safety including, but not limited to,

2. Means of egress are not prohibited through stockrooms in Group M occupancies where all of the following are met:

- 2.1. The stock is of the same hazard classification as that found in the main retail area.
- 2.2. Not more than 50 percent of the exit access is through the stockroom.
- 2.3. The stockroom is not subject to locking from the egress side.
- 2.4. There is a demarcated, minimum 44-inch-wide (1118 mm) aisle defined by full- or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

6. The means of egress shall not pass through any room subject to locking except in Group I-3 occupancies classified as detention facilities and psychiatric treatment areas in Group I-2 occupancies.

**1016.2.1 Multiple tenants.** Where more than one tenant occupies any one floor of a building or structure, each tenant space, dwelling unit and sleeping unit shall be provided with access to the required exits without passing through adjacent tenant spaces, dwelling units and sleeping units.

**Exception:** The means of egress from a smaller tenant space shall not be prohibited from passing through a larger adjoining tenant space where such rooms or spaces of the smaller tenant occupy less than 10 percent of the area of the larger tenant space through which they pass; are the same or similar occupancy group; a discernible path of egress travel to an exit is provided; and the means of egress into the adjoining space is not subject to locking from the egress side. A required means of egress serving the larger tenant space shall not pass through the smaller tenant space or spaces.

**1016.2.2 Basement exits in Group I-2 occupancies.** For additional requirements for occupancies in Group I-2 or I-2.1, see Section 407.

**SECTION 1017  
EXIT ACCESS TRAVEL DISTANCE**

**1017.1 General.** Travel distance within the exit access portion of the means of egress system shall be in accordance with this section.

**1017.2 Limitations.** Exit access travel distance shall not exceed the values given in Table 1017.2.

**1017.2.1 Exterior egress balcony increase.** Exit access travel distances specified in Table 1017.2 shall be increased up to an additional 100 feet (30 480 mm) provided that the last portion of the exit access leading to the exit occurs on an exterior egress balcony constructed in accordance with Section 1021. The length of such balcony shall be not less than the amount of the increase taken.

**TABLE 1017.2  
EXIT ACCESS TRAVEL DISTANCE<sup>a</sup>**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200 <sup>c</sup>	250 <sup>b</sup>
R-2.1	Not Permitted	250 <sup>b</sup>
B	200	300 <sup>c</sup>
F-2, S-2, U	300	400 <sup>c</sup>
H-1	Not Permitted	75 <sup>d</sup>
H-2	Not Permitted	100 <sup>d</sup>
H-3	Not Permitted	150 <sup>d</sup>
H-4	Not Permitted	175 <sup>d</sup>
H-5	Not Permitted	200 <sup>c</sup>
I-2, I-2.1, I-3 <sup>f</sup>	Not Permitted	200 <sup>c</sup>
I-4	150	200 <sup>c</sup>
L	Not Permitted	200 <sup>c</sup>

For SI: 1 foot = 304.8 mm.

- a. See the following sections for modifications to exit access travel distance requirements:
  - Section 402.8: For the distance limitation in malls.
  - Section 404.9: For the distance limitation through an atrium space.
  - Section 407.4: For the distance limitation in Group I-2 or I-2.1.
  - Section 408.3.10: For increased limitation in Group I-3
  - Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
  - Section 411.3: For the distance limitation in special amusement buildings.
  - Section 412.6: For the distance limitations in aircraft manufacturing facilities.
  - Section 1006.2.2.2: For the distance limitation in refrigeration machinery rooms.
  - Section 1006.2.2.3: For the distance limitation in refrigerated rooms and spaces.
  - Section 1006.3.3: For buildings with one exit.
  - Section 1017.2.2: For increased distance limitation in Groups F-1 and S-1.
  - Section 1029.7: For increased limitation in assembly seating.
  - Section 3103.4: For temporary structures.
  - Section 3104.9: For pedestrian walkways.
- b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
- c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- d. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.
- e. Group R-3 and R-4 buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.3. See Section 903.2.8 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.3.
- f. Not permitted in nonsprinklered Group I-3 occupancies.

**1017.2.2 Groups F-1 and S-1 increase.** The maximum exit access travel distance shall be 400 feet (122 m) in Group F-1 or S-1 occupancies where all of the following conditions are met:

- 1. The portion of the building classified as Group F-1 or S-1 is limited to one story in height.
- 2. The minimum height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet (7315 mm).

## MEANS OF EGRESS

3. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

**1017.3 Measurement.** Exit access travel distance shall be measured from the most remote point of each room, area or space along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit.

**Exception:** In open parking garages, exit access travel distance is permitted to be measured to the closest riser of an exit access stairway or the closest slope of an exit access ramp.

**1017.3.1 Exit access stairways and ramps.** Travel distance on exit access stairways or ramps shall be included in the exit access travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stair and landings. The measurement along ramps shall be made on the walking surface in the center of the ramp and landings.

### SECTION 1018 AISLES

*[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with Chapter 11A or Chapter 11B, Section 11B-403, as applicable.*

**1018.1 General.** Aisles and aisle accessways serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section. Aisles or aisle accessways shall be provided from all occupied portions of the exit access that contain seats, tables, furnishings, displays and similar fixtures or equipment. The minimum width or required capacity of aisles shall be unobstructed.

**Exception:** Encroachments complying with Section 1005.7.

**1018.2 Aisles in assembly spaces.** Aisles and aisle accessways serving a room or space used for assembly purposes shall comply with Section 1029.

**1018.3 Aisles in Groups B and M.** In Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall be not less than that required for corridors by Section 1020.2.

**Exception:** Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11B, (see Section 11B-403) need not exceed 28 inches (711 mm) in width.

**1018.4 Aisle accessways in Group M.** An aisle accessway shall be provided on not less than one side of each element within the merchandise pad. The minimum clear width for an aisle accessway not required to be accessible shall be 30 inches (762 mm). The required clear width of the aisle accessway shall be measured perpendicular to the elements and merchandise within the merchandise pad. The 30-inch (762 mm) minimum clear width shall be maintained to pro-

vide a path to an adjacent aisle or aisle accessway. The common path of egress travel shall not exceed 30 feet (9144 mm) from any point in the merchandise pad.

**Exception:** For areas serving not more than 50 occupants, the common path of egress travel shall not exceed 75 feet (22 860 mm).

**1018.5 Aisles in other than assembly spaces and Groups B and M.** In other than rooms or spaces used for assembly purposes and Group B and M occupancies, the minimum clear aisle capacity shall be determined by Section 1005.1 for the occupant load served, but the width shall be not less than that required for corridors by Section 1020.2.

**Exception:** Nonpublic aisles serving less than 50 people and not required to be accessible by Chapter 11B (see Section 11B-403) need not exceed 28 inches (711 mm) in width.

### SECTION 1019 EXIT ACCESS STAIRWAYS AND RAMPS

**1019.1 General.** Exit access stairways and ramps serving as an exit access component in a means of egress system shall comply with the requirements of this section. The number of stories connected by exit access stairways and ramps shall include basements, but not mezzanines.

**1019.2 All occupancies.** Exit access stairways and ramps that serve floor levels within a single story are not required to be enclosed.

**1019.3 Occupancies other than Groups I-2, I-2.1, I-3, and R-2.1.** In other than Group I-2, I-2.1, I-3 and R-2.1 occupancies, floor openings containing exit access stairways or ramps that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

1. Exit access stairways and ramps that serve or atmospherically communicate between only two stories. Such interconnected stories shall not be open to other stories.
2. In Group R-1, R-2, R-2.1, R-3 or R-3.1 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.
3. Exit access stairways serving and contained within a Group R-3 congregate residence or a Group R-4 facility are not required to be enclosed.
4. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.
5. Exit access stairways and ramps within an atrium complying with the provisions of Section 404.

3. Secondary exterior doors onto decks, patios or balcony surfaces constructed of impervious materials (e.g., concrete, brick, flagstone) may have a maximum change in height from the interior landing of 4 inches (101.6 mm). Changes in height greater than  $\frac{1}{2}$  inch (12.7 mm) shall be accomplished by means of a ramp complying with Section 1114A or by means of a platform constructed to the level of the floor as illustrated in Figure 11A-8J.
4. Secondary exterior doors onto decks, patios or balcony surfaces constructed of impervious materials (e.g., concrete, brick, flagstone) may have a maximum change in height from the interior landing of 1 inch (25.4 mm), provided a ramp with a maximum slope of 1:8 is permanently installed. (See Figure 11A-8K.)
5. In buildings containing covered multifamily dwelling units, the floor or landing immediately outside the entry may be sloped up to  $\frac{1}{4}$  inch (6.35 mm) per foot (12 inches) (305 mm), in a direction away from the primary entrance of the dwelling unit for drainage.

**1132A.4.1 Thresholds.** Thresholds at the primary entry and required exit doors shall be no higher than  $\frac{1}{2}$  inch (12.7 mm). Thresholds at secondary exterior doors, including sliding door tracks, shall be no higher than  $\frac{3}{4}$  inch (19.05 mm). Changes in height at interior door thresholds (e.g., floor material changes at door thresholds) shall not exceed  $\frac{1}{2}$  inch (12.7 mm). Thresholds shall comply with the following:

1. Thresholds with a change in height of not more than  $\frac{1}{4}$  inch (6.35 mm) may be vertical.
2. Thresholds with a change in height between  $\frac{1}{4}$  inch (6.35 mm) and  $\frac{3}{4}$  inch (19.05 mm) shall be beveled with a slope no greater than 1 unit vertical in 2 units horizontal (50-percent slope).

#### 1132A.5 Maneuvering clearances at doors.

**1132A.5.1 General.** The floor or landing on the dwelling unit side of the primary entry door and any required exit door shall have a minimum length of not less than 44 inches (1118 mm). Section 1126A.3 shall apply to maneuvering clearances at the side of the door exposed to common or public use spaces.

Maneuvering clearances at interior doors shall provide a minimum length on both sides of the door of at least 42 inches (1067 mm) measured at a right angle to the plane of the door in its closed position.

**Exception:** A 39-inch (991 mm) length is acceptable at interior doors when a minimum clear opening width of 34 inches (864 mm) is provided.

**1132A.5.2 Strike edge maneuvering space at doors.** The width of the level area on the side to which the door swings shall extend 18 inches (457 mm) past the strike edge for all doors. The width of the level area at the exterior side of the primary entry door and any required exit doors shall comply with Section 1126A.

#### Notes:

1. See Section 1134A for bathrooms that are required to be accessible.
2. Twenty-four inches (610 mm) is preferred for strike edge clearance.

**1132A.6 Closer-effort to operate doors.** Maximum effort to operate doors shall not exceed 8  $\frac{1}{2}$  pounds (38 N) for exterior doors and 5 pounds (22 N) for interior doors, such pull or push effort being applied at right angles to hinged doors and at the center plane of sliding or folding doors. Compensating devices or automatic door operators may be utilized to meet these standards. When fire doors are required, the maximum effort to operate the door may be increased to the minimum allowable by the appropriate enforcement agency, not to exceed 15 pounds (66.7 N).

**1132A.7 Type of lock or latch.** The type of latch and lock required for all doors shall be in accordance with Section 1132A.8 and Chapter 10, Section 1008.

**1132A.8 Hand-activated door hardware.** Hand-activated door latching, locking and opening hardware shall be centered between 30 inches (762 mm) and 44 inches (1118 mm) above the floor. Latching and locking doors that are hand-activated and on an accessible route shall be operable with a single effort by lever-type hardware, panic bars, push-pull activating bars or other hardware designed to provide passage without requiring the ability to grasp the opening hardware. Locked exit doors shall operate consistent with Section 1132A.6, in the direction of egress.

**1132A.8.1 Lever-type hardware.** The lever or lever of actuated latches or locks shall be curved with a return to within  $\frac{1}{2}$  inch (12.7 mm) of the door to prevent catching on the clothing of persons during egress in Group R and U occupancies with an occupant load greater than 10.

**1132A.9 Smooth surface.** Swinging door or gate surfaces within 10 inches (254 mm) of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within  $\frac{1}{16}$  inch (1.6 mm) of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped.

#### Exceptions:

1. Automatic doors.
2. Tempered glass doors without stiles and having a bottom rail or shoe with the top leading edge tapered at 60 degrees minimum from the horizontal.
3. Doors or gates that do not extend to within 10 inches (254 mm) of the finish floor.

**1132A.10 Door signal devices.** Every primary entrance to a covered multifamily dwelling unit shall be provided with a door buzzer, bell, chime or equivalent. The activating mechanism shall be mounted a maximum of 48 inches (1219 mm) above the floor and connected to permanent wiring.

## SECTION 1133A KITCHENS

**1133A.1 General.** Kitchens shall be on an accessible route and shall comply with this section. (See Figure 11A-10A.)

**1133A.2 Clear floor space.** Clear floor space at kitchens shall comply with the following:

1. A clear floor space at least 30 inches (762 mm) by 48 inches (1219 mm) that allows a parallel approach by a

person in a wheelchair shall be provided at the range or cooktop.

2. A clear floor space at least 30 inches (762 mm) by 48 inches (1219 mm) that allows either a parallel or forward approach shall be provided at the kitchen sink and all other fixtures or appliances including the oven, dishwasher, refrigerator/freezer and trash compactor.
3. A clear floor space at least 30 inches (762 mm) by 48 inches (1219 mm) that allows either a parallel or a forward approach shall be provided at the work surface required by Section 1133A.4.
4. The centerline of the 30-inch (762 mm) by 48-inch (1219 mm) clear floor space provided for parallel or forward approach shall be aligned with the centerline of the work space, appliance or fixture.

**1133A.2.1 Clear width.** Kitchens shall have a minimum clear width measured between any cabinet, countertop or the face of any appliance (excluding handles and controls) that projects into the kitchen and the opposing cabinet, countertop, appliance or wall as follows:

1. U-shaped kitchens, designed with parallel approach at a range or cooktop located at the base of the U, shall have a minimum clear width of at least 60 inches (1524 mm). (See Figure 11A-10A.)
2. U-shaped kitchens, designed with a cooktop or sink located at the base of the U, which provides a knee and toe space in accordance with Section 1133A.7 to allow for a forward approach, shall have a clear width of at least 48 inches (1219 mm). (See Figure 11A-10A.)
3. All other kitchen designs shall provide a minimum clear width of at least 48 inches (1219 mm). (See Figure 11A-10A.)

**1133A.3 Removable base cabinets.** Sinks and work surfaces required by Section 1133A.4 (see Item 1 and Item 2) shall be provided with knee and toe space complying with Section 1133A.7. Base cabinets (including toeboard and shelving) directly under kitchen sinks and work surfaces shall be removable without the use of specialized tools or specialized knowledge in order to provide knee and toe space. The finish floor beneath kitchen sinks and work surfaces shall be extended to the wall.

**1133A.4 Countertops.** Kitchen countertops shall comply with this section and shall be provided with the following:

1. A minimum linear length of 30 inches (762 mm) of countertop shall be provided for the kitchen sink installation.
2. A minimum linear length of 30 inches (762 mm) of countertop shall be provided for a work surface.
3. Sinks and work surfaces may be a single integral unit a minimum of 60 inches (1524 mm) in length, or be separate components.

**Exception:** Two 15-inch (381 mm) wide minimum breadboards may be provided in lieu of the required 30 inches (762 mm) of countertop work surface.

**1133A.4.1 Repositionable countertops.** Repositionable countertops shall be provided in a minimum of 5 percent of the covered multifamily dwelling units. Repositionable countertops shall comply with the following:

1. Sinks and work surfaces required by Section 1133A.4 shall be designed to enable repositioning to a minimum height of 28 inches (711 mm).
2. Base cabinets directly under sinks and work surfaces shall be removable as required in Section 1133A.3.
3. The sides of adjacent cabinets and the back wall, which may become exposed to moisture or food handling when a countertop is lowered, shall be constructed of durable, nonabsorbent materials appropriate for such uses.
4. Finished flooring shall be extended to the wall beneath the sink and work surface.

**Exceptions:**

1. Stone, cultured stone and tiled countertops may be used without meeting the repositioning requirements.
2. Two 15-inch (381 mm) wide minimum breadboards may be provided in lieu of the required 30 inches (762 mm) of countertop work surface, and used without meeting the repositioning requirements.

**1133A.5 Lower shelving.** Lower shelving and/or drawer space shall be provided in the kitchen at a height of no more than 48 inches (1219 mm) above the floor.

**1133A.6 Kitchen sink faucet controls.** Faucet controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist.

The force required to activate controls shall be no greater than 5 pounds (22.2N). Lever-operated, push-type and electronically controlled mechanisms are examples of acceptable designs. Self-closing valves are allowed if the faucet remains open for at least 10 seconds.

**1133A.7 Knee and toe space.** Knee and toe space, when required by Section 1133A, shall comply with Section 1138A.2 and the following:

1. The knee and toe space shall be clear and unobstructed, or removable base cabinets in compliance with Section 1133A.3 shall be provided.
2. The knee and toe space shall be 30 inches (762 mm) wide minimum, centered on the sink, countertop or appliance.
3. A clear floor space shall not extend into the knee and toe space more than 19 inches (483 mm).

**1133A.7.1 Plumbing protection.** Water supply and drain pipes under kitchen sinks shall be insulated or otherwise covered to protect against contact. There shall be no sharp or abrasive surfaces under kitchen sinks.

## SECTION 1134A BATHING AND TOILET FACILITIES

**1134A.1 General.** All bathrooms, bathing and toilet facilities within covered multifamily dwelling units shall comply with this section.

**1134A.2 Number of complying bathrooms.** Bathrooms shall be designed to comply with one of the following options:

**Option 1.** All bathrooms within the dwelling unit shall be designed to comply with the following:

1. Toilet, bathing and shower facilities shall comply with Section 1134A.4.
2. Bathtubs shall comply with Section 1134A.5.
3. Showers shall comply with Section 1134A.6.
4. Water closets shall comply with Section 1134A.7.
5. Lavatories, vanities, mirrors and towel fixtures shall comply with Section 1134A.8.
6. Bathrooms shall be provided with an accessible route into and through the bathroom.
7. If a door is provided, it shall comply with the requirements of Section 1132A.5.
8. A minimum 18-inch (457 mm) clear maneuvering space shall be provided on the swing side of the door at the strike edge of the door.
9. Switches, outlets and controls shall comply with Section 1142A.
10. Reinforced walls to allow for the future installation of grab bars around the toilet, tub and shower shall comply with Sections 1134A.5 for bathtubs, 1134A.6 for showers and 1134A.7 for water closets. Grab bars shall comply with Sections 1127A.4- and 1127A.2.2, Item 4.

**Option 2.** Only one bathroom within the dwelling unit shall be designed to comply with the following:

1. Toilet, bathing and shower facilities shall comply with Section 1134A.4.
2. Bathtubs shall comply with Section 1134A.5.
3. Showers shall comply with Section 1134A.6.
4. Water closets shall comply with Section 1134A.7.
5. Lavatories, vanities, mirrors and towel fixtures shall comply with Section 1134A.8.
6. Where both a tub and shower are provided in the bathroom, at least one shall be made accessible. Additional requirements apply to dwelling units containing two or more bathrooms when a bathtub is provided as the accessible bathing fixture.

Where two or more bathrooms are provided within the same dwelling unit and a bathtub is installed to comply with Option 2, Item 6 in one bathroom and a shower stall is provided in a subsequent bathroom, both the bathtub selected to comply with Option 2, Item 6 and at least one shower stall within the dwelling unit shall meet all the applicable accessibility requirements provided

in Section 1134A. (See Section 1134A.5 for bathtubs, or Section 1134A.6 for showers.)

7. When two or more lavatories are provided, at least one shall be made accessible and comply with Section 1134A.8.
8. Bathrooms shall be provided with an accessible route into and through the bathroom.
9. If a door is provided, it shall comply with the requirements of Section 1132A.5.
10. A minimum 18-inch (457 mm) clear maneuvering space shall be provided on the swing side of the door at the strike edge of the door.
11. Switches, outlets and controls shall comply with Section 1142A.
12. Reinforced walls to allow for the future installation of grab bars around the toilet, tub and shower shall comply with Sections 1134A.5 for bathtubs, 1134A.6 for showers and 1134A.7 for water closets. Grab bars shall comply with Sections 1127A.4 and 1127A.2.2, Item 4.

When Option 2 is used, all additional bathrooms must comply with Items 8 through 12 above.

**1134A.3 Powder rooms.** All powder rooms shall be designed to comply with Section 1134A.2, Option 2, Items 8 through 12. When the powder room is the only toilet facility located on an accessible level, it shall comply with the Option 2 items listed above, plus all additional requirements located in Sections 1134A.4, 1134A.7 and 1134A.8.

**1134A.4 Sufficient maneuvering space.** Bathing and toilet facilities required to be adaptable shall provide sufficient maneuvering space for a person using a wheelchair or other mobility aid to enter and close the door, use the fixtures, reopen the door and exit.

Where the door swings into the bathroom or powder room, there shall be a clear maneuvering space outside the swing of the door of at least 30 inches by 48 inches (762 mm by 1219 mm) within the room. The clear maneuvering space shall allow the user to position a wheelchair or other mobility aid clear of the path of the door as it is closed and to permit use of fixtures.

Doors may swing into the required clear space at any fixture when a clear maneuvering space is provided outside the swing arc of the door so it can be closed.

Maneuvering spaces may include any knee space or toe space available below bathroom fixtures.

**1134A.5 Bathtubs.** Bathtubs required to be accessible shall comply with this section.

1. **Floor space.** There shall be a minimum clear floor space 48 inches parallel by 30 inches perpendicular (1219 mm by 762 mm) to the side of a bathtub or bathtub-shower combination to provide for the maneuvering of a wheelchair and transfer to and from the bathing facilities. The controls shall be on the wall at the foot of the bathtub. The edge of the clear floor space shall be flush with the control wall surface. The

area under a lavatory, located at the control end of the tub, may be included in the clear floor space provided the lavatory is 19 inches (483 mm) maximum deep, and the knee and toe space comply with Section 1134A.8. Cabinets under lavatories and toilets shall not encroach into the clear floor space.

2. **Reinforced walls for grab bars.** A bathtub installed without surrounding walls shall provide reinforced areas for the installation of floor-mounted grab bars.

Where a bathtub is installed with surrounding walls, grab bar reinforcement shall be located on each end of the bathtub, 32 inches to 38 inches (813 mm to 965 mm) above the floor, extending a minimum of 24 inches (610 mm) from the front edge of the bathtub toward the back wall of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. (See Figure 11A-9G.)

Grab bar reinforcement shall be installed on the back wall of the bathtub a maximum of 6 inches (152.4 mm) above the bathtub rim extending upward to at least 38 inches (965 mm) above the floor. Grab bar backing shall be installed horizontally to permit the installation of a 48-inch (1219 mm) grab bar with each end a maximum of 6 inches (152.4 mm) from the end walls of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

3. **Bathtub controls.** Faucet controls and operation mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist.

The force required to activate controls shall be no greater than 5 pounds (22.2 N). Lever operated, push type and electronically controlled mechanisms are examples of acceptable designs.

4. **Shower unit.** A shower spray unit is not required in bathtubs.
5. **Bathtub enclosures.** Doors and panels of bathtub enclosures shall be substantially constructed from approved, shatter-resistant materials. Hinged doors shall open outward. Glazing used in doors and panels of bathtub enclosures shall be fully tempered, laminated safety glass or approved plastic. When glass is used, it shall have minimum thickness of not less than  $\frac{1}{8}$  inch (3.17 mm) when fully tempered, or  $\frac{1}{4}$  inch (6.35 mm) when laminated, and shall pass the test requirements of this part, Chapter 24, Glass and Glazing. Plastics used in doors and panels of bathtub enclosures shall be of a shatter-resistant type.

**1134A.6 Showers.** Showers required to be accessible shall comply with this section.

1. **Size.** When one or more shower stalls are provided within the same dwelling units, at least one shower stall comply with one of the following requirements.

1.1. The shower stall shall measure at least 42 inches wide by 48 inches deep (1067 mm by 1219 mm) with an entrance opening of at least 36 inches (914 mm); or

1.2. The shower stall shall measure at least 30 inches deep by 60 inches wide (762 mm by 1524 mm) with an entrance opening of at least 60 inches (1524 mm). A water closet may project a maximum of 12 inches (305 mm) into the opening, provided that a minimum of 36 inches (914 mm) clear space is maintained between the water closet and the shower wall as illustrated in Figure 11A 9L; or

1.3. Other shower stall configurations shall measure at least 36 inches deep by 60 inches wide (914 mm by 1524 mm) with an entrance opening of at least 36 inches (914 mm) when a wall is installed on the opening side.

2. **Slope.** The maximum slope of the shower floor shall be  $\frac{1}{2}$  inch (12.7 mm) per foot in any direction and shall slope to a drain. The floor surfaces shall be of Carborundum or grit-faced tile or of material providing equivalent slip resistance.

3. **Floor space.** A clear maneuvering space at least 30 inches in width by 48 inches in length (762 mm by 1219 mm) shall be located outside the shower, flush and parallel to the control wall.

4. **Reinforced walls for grab bars.** Grab bar reinforcement shall be installed continuous in the walls of showers 32 inches to 38 inches (813 mm to 965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

Glass-walled shower stalls shall provide reinforcement for installation of floor-mounted or ceiling-mounted grab bars.

5. **Thresholds.** When a threshold is used, it shall be a maximum of 2 inches (50.8 mm) in height and have a beveled or sloped angle not exceeding 1 unit vertical in 2 units horizontal (26.6 degrees from the horizontal). Thresholds  $\frac{1}{2}$  inch (12.7 mm) or less in height may have a beveled or sloped angle not exceeding 1 unit vertical in 1 unit horizontal (45 degrees from the horizontal).

6. **Shower controls.** Faucet controls and operation mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist. The force required to activate controls shall be no greater than 5 pounds (22.2 N). Lever operated, push-type and electronically controlled mechanisms are examples of acceptable designs.

7. **Shower enclosures.** Doors and panels of shower enclosures shall be substantially constructed from approved, shatter-resistant materials. Hinged shower doors shall

open outward. Glazing used in doors and panels of shower enclosures shall be fully tempered, laminated safety glass or approved plastic. When glass is used, it shall have minimum thickness of not less than  $\frac{1}{8}$  inch (3.17 mm) when fully tempered, or  $\frac{1}{4}$  inch (6.35 mm) when laminated, and shall pass the test requirements of this part, Chapter 24, Glass and Glazing. Plastics used in doors and panels of shower enclosures shall be of a shatter-resistant type.

**1134A.7 Water closets.** Water closets in bathrooms or powder rooms required to be accessible shall comply with this section.

1. **Floor space and location.** The minimum floor space provided at a water closet shall be 48 inches (1219 mm) in clear width. The clear floor space shall extend past the front edge of the water closet at least 36 inches (914 mm). See Figure 11A-9M.

**Exception:** The 48-inch (1219 mm) minimum clear width may be reduced to 36 inches (914 mm) for lavatories, cabinets, wing walls or privacy walls located immediately adjacent to a water closet which extend no more than 24 inches (610 mm) in depth.

Water closets shall be located within bathrooms in a manner that permits a grab bar to be installed on at least one side of the fixture. The centerline of the water closet shall be 17 inches (432 mm) minimum to 18 inches (457 mm) maximum from a grab bar wall or partition. In locations where water closets are adjacent to non-grab bar walls, vanities, lavatories or bathtubs, the centerline of the fixture shall be a minimum of 18 inches (457 mm) from the obstacle.

2. **Reinforced walls for grab bars.** Where the water closet is not placed adjacent to a side wall capable of accommodating a grab bar, the bathroom shall have provisions for installation of floor-mounted, foldaway or similar alternative grab bars.

Where the water closet is placed adjacent to a side wall, reinforcement shall be installed on both sides or one side and the back. If reinforcement is installed at the back, it shall be installed between 32 inches (813 mm) and 38 inches (965 mm) above the floor. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height. The backing shall be a minimum of 40 inches (1016 mm) in length.

Reinforcement installed at the side of the water closet shall be installed 32 inches to 38 inches (813 mm to 965 mm) above the floor. The reinforcement shall be installed a maximum of 12 inches (305 mm) from the rear wall and shall extend a minimum of 26 inches (660 mm) in front of the water closet. The grab bar reinforcement shall be a minimum of 6 inches (152.4 mm) nominal in height.

3. **Seat height.** The minimum height of water closet seats shall be 15 inches (381 mm) above the floor.

4. **Water closet controls.** Water closet controls shall be mounted no more than 44 inches (1118 mm) above the floor. The force required to activate controls shall be no greater than 5 pounds (22.2 N).

**1134A.8 Lavatories, vanities, mirrors and towel fixtures.** Bathrooms or powder rooms required to be accessible shall have at least one accessible lavatory. Where mirrors and towel fixtures are provided, at least one of each shall be accessible.

1. **Location.** Vanities and lavatories shall be installed with the centerline of the fixture a minimum of 18 inches (457 mm) horizontally from an adjoining wall or fixture to allow for forward approach. When parallel approach is provided, lavatories shall be installed with the centerline of the fixture a minimum of 24 inches (610 mm) horizontally from an adjoining wall or fixture. The top of the fixture rim shall be a maximum of 34 inches (864 mm) above the finished floor.
2. **Floor space.** A clear maneuvering space at least 30 inches by 48 inches (762 mm by 1219 mm) shall be provided at lavatories and shall be centered on the lavatory.
3. **Cabinets.** Cabinets under lavatories are acceptable provided the bathroom has space to allow a parallel approach by a person in a wheelchair and the lavatory cabinets are designed with adaptable knee and toe space.
4. **Knee and toe space.** Knee and toe space shall be provided by one of the following:
  - 4.1. The space beneath the lavatory shall be left clear and unobstructed;
  - 4.2. Any cabinet beneath the lavatory shall be removable without the use of specialized knowledge or specialized tools; or
  - 4.3. Doors to the cabinet beneath the lavatory shall be removable or openable to provide the required unobstructed knee and toe space.

The knee and toe space shall be centered on the fixture, and shall comply with Section 1138A.2. The clear floor space required by Item 2 shall not extend into the knee and toe space more than 19 inches (483 mm). (See Figure 11A-9D.)

5. **Finished floor.** The finished floor beneath the lavatory shall be extended to the wall.
6. **Plumbing protection.** Water supply and drain pipes under lavatories shall be insulated or otherwise covered to protect against contact. There shall be no sharp or abrasive surfaces under lavatories.
7. **Lavatory faucet controls.** Faucet controls and operation mechanisms shall be operable with one hand and shall not require tight grasping, pinching or twisting of the wrist.

The force required to activate controls shall be no greater than 5 pounds (22.2 N). Lever operated, push-type and electronically controlled mechanisms are examples of acceptable designs. Self-closing valves are allowed if the faucet remains open for at least 10 seconds.

8. Mirrors and towel fixtures. Where mirrors or towel fixtures are provided they shall be mounted with the bottom edge no higher than 40 inches (1016 mm) from the floor.

### SECTION 1135A LAUNDRY ROOMS

**1135A.1 General.** If clothes washing machines and clothes dryers are provided in covered multifamily dwelling units, one of each type of appliance shall be provided. Where front-loading clothes washers are not provided, management shall provide assistive devices, on request of the occupant, to permit the use of top-loading clothes washers.

### SECTION 1136A ELECTRICAL RECEPTACLE, SWITCH AND CONTROL HEIGHTS

**1136A.1 Receptacle heights.** Electrical receptacle outlets on branch circuits of 30 amperes or less and communication system receptacles shall be located no more than 48 inches (1219 mm) measured from the top of the receptacle outlet box nor less than 15 inches (381 mm) measured from the bottom of the receptacle outlet box to the level of the finished floor or working platform. If the reach is over a physical barrier or an obstruction (for example, a kitchen base cabinet), receptacles shall be located within the reach ranges specified in Section 1138A.3. Physical barriers and obstructions shall not extend more than 25 inches (635 mm) from the wall beneath the receptacle.

Receptacle outlets that do not satisfy these specifications are acceptable provided that comparable receptacle outlets,

that perform the same functions, are provided within the same area and are accessible.

#### Exceptions:

1. Receptacle outlets installed as part of permanently installed baseboard heaters are exempt.
2. Required receptacle outlets shall be permitted in floors when adjacent to sliding panels or walls.
3. Baseboard electrical outlets used in relocatable partitions, window walls or other electrical convenience floor outlets are not subject to the minimum height requirements.
4. This section shall not apply to existing buildings when the enforcing agency determines that compliance with these standards would create an unreasonable hardship.

**1136A.2 Switch and control heights.** Controls or switches intended to be used by the occupant of the room or area to control lighting and receptacle outlets, appliances, alarms or cooling, heating and ventilating equipment shall be located no more than 48 inches (1219 mm) measured from the top of the outlet box nor less than 15 inches (381 mm) measured from the bottom of the outlet box to the level of the finished floor or working platform. If the reach is over a physical barrier or an obstruction (for example, a kitchen base cabinet) switches and controls shall be located within the reach ranges specified in Section 1138A.3. Physical barriers or obstructions shall not extend more than 25 inches (635 mm) from the wall beneath a control.

Switches and controls that do not satisfy these specifications are acceptable provided that comparable controls or outlets, that perform the same functions, are provided within the same area and are accessible.

**Exception:** Appliances (e.g., kitchen stoves, dishwashers, range hoods, microwave ovens and similar appliances) which have controls located on the appliance. | |

## Division V – FEATURES COMMON TO EXTERIOR AND INTERIOR OF BUILDINGS

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### SECTION 1137A OTHER FEATURES AND FACILITIES

**1137A.1 General.** This division shall apply to features and facilities of common use areas on accessible floors or sites.

**Note:** The provisions in this division are not applicable to dwelling units, unless otherwise specified.

### SECTION 1138A SPACE ALLOWANCES AND REACH RANGES

#### 1138A.1 Space allowances.

**1138A.1.1 Single wheelchair passage width.** The minimum clear width for single wheelchair passage shall be 36 inches (914 mm) continuously. (See Figure 11A-1E.)

See Section 1113A for minimum clear width of sidewalks, and Section 1120A for minimum clear width of interior accessible routes.

**Exception:** 32 inches (813 mm) in width is acceptable at a point not to exceed 24 inches (610 mm) in length. The segments with reduced width shall be separated by segments that are 48 inches (1219 mm) long minimum and 36 inches (914 mm) wide minimum.

**1138A.1.2 Width for two wheelchairs passing.** The minimum width for two wheelchairs to pass is 60 inches (1524 mm) (See Figure 11A-1E).

An accessible route (exterior and interior) with a clear width less than 60 inches (1524 mm) shall provide passing spaces at intervals of 200 feet (60 960 mm) maximum. Passing spaces shall be either: a space 60 inches (1524 mm) minimum by 60 inches (1524 mm) minimum; or, an intersection of two walking surfaces providing a T-shaped space complying with Section 1138A.1.3.1, where the base and arms of the T-shaped space extend 48 inches (1219 mm) minimum beyond the intersection. (See Figure 11A-1L.)

**1138A.1.3 Wheelchair turning space.** The space required for a wheelchair to make a 180-degree turn shall be a circular clear space of 60 inches (1524 mm) diameter minimum (See Figure 11A-1D(a)); or a T-shaped space complying with Section 1138A.1.3.1. The circular turning

space shall be permitted to include knee and toe clearance complying with Section 1138A.2

If a person in a wheelchair must make a turn around an obstruction, the minimum clear width of the accessible route shall be as required in Section 1138A.1.5.

**1138A.1.3.1 T-shaped turning space.** A T-shaped turning space shall be within a 60 inch (1524 mm) square minimum with arms and base 36 inches (914 mm) wide minimum. Each arm of the T shall be clear of obstructions 12 inches (305 mm) minimum in each direction, and the base shall be clear of obstructions 24 inches (610 mm) minimum. The space shall be permitted to include knee and toe clearance complying with Section 1138A.2 only at the end of either the base or one arm. (See Figure 11A-1D (b).)

**1138A.1.3.2 Surfaces of turning spaces.** Turning spaces for wheelchairs shall be stable, firm, slip resistant, and shall comply with Section 1110A.3 or Section 1119A.2. Changes in level are not permitted. Slopes not steeper than 1:48 shall be permitted.

#### 1138A.1.4 Clear floor or ground space for wheelchairs.

**1138A.1.4.1 Size and approach.** The minimum clear floor or ground space shall be 30 inches by 48 inches (762 mm by 1219 mm). The minimum clear floor or ground space may be positioned for forward or parallel approach to an object (See Figure 11A-1G). Clear floor or ground space may be part of the knee and toe space required under some objects unless otherwise specified.

**1138A.1.4.2 Relationship of maneuvering clearances to wheelchair spaces.** One full unobstructed side of the clear floor or ground space for a wheelchair shall adjoin an accessible route or adjoin another wheelchair clear floor space.

If a clear floor space is located in an alcove or otherwise confined on all or a part of three sides, additional maneuvering clearances shall be provided in accordance with the following: (See Figure 11A-1H).

- 1. Forward approach.** Alcoves shall be 36 inches (914 mm) wide minimum when the depth exceeds 24 inches (610 mm).
- 2. Parallel approach.** Alcoves shall be 60 inches (1524 mm) wide minimum when the depth exceeds 15 inches (381 mm).

**1138A.1.4.3 Surfaces of wheelchair spaces.** Clear floor or ground spaces for wheelchairs shall be stable, firm, slip resistant, and shall comply with Section 1110A.3 or Section 1119A.2. Changes in level are not permitted. Slopes not steeper than 1:48 shall be permitted.

**1138A.1.4.3.1 Gratings.** Gratings located in ground and floor surfaces along accessible routes shall be limited to spaces no greater than 1/2-inch (12.7mm) wide in one direction. If gratings have elongated openings, they shall be placed so that the long

dimension is perpendicular to the dominant direction of traffic.

**1138A.1.5 Turn around obstruction.** When the accessible route makes a 180 degree turn around an element which is less than 48 inches (1219 mm) wide, clear width shall be 42 inches (1067 mm) minimum approaching the turn, 48 inches (1219 mm) minimum at the turn and 42 inches (1067 mm) minimum leaving the turn. When the clear width at the turn is 60 inches (1524 mm) minimum, the clear width when approaching and when leaving the turn shall be 36 inches (914 mm) minimum. (See Figure 11A-1C (b).)

When the accessible route makes a 90 degree turn around an element which is more than 48 inches (1219 mm) wide, clear width shall be 36 inches (914 mm) minimum approaching the turn, at the turn and leaving the turn. (See Figure 11A-1C (a).)

**1138A.2 Knee and toe space.** When space beneath an accessible element is included as part of a clear floor space, or turning space, the space shall comply with this section. Additional space shall not be prohibited beneath an element but shall not be considered as part of the clear floor space or turning space. (See Figure 11A-9D.)

**1138A.2.1 Knee space.** Space under an element between 9 inches (229 mm) and 27 inches (686 mm) above the finish floor shall be considered knee space. The knee space shall be clear and unobstructed.

**Exceptions:**

1. For lavatories required to be accessible, the knee space shall be at least 29 inches (737 mm) high at the front face and reducing to not less than 27 inches (686 mm) at a point 8 inches (203.2 mm) back from the front edge.
2. For lavatories and sinks required to be accessible, the dip of the overflow shall not be considered in determining knee and toe clearances.

**1138A.2.1.1 Minimum width.** Knee space shall be 30 inches (762 mm) wide minimum.

**1138A.2.1.2 Maximum depth.** Knee space shall extend 25 inches (635 mm) maximum under an element at 9 inches (229 mm) above the finish floor.

**1138A.2.1.3 Minimum depth.** When knee space is required under an element as part of a clear floor space, the knee space shall be 11 inches (279 mm) deep minimum at 9 inches (229 mm) above the finish floor, and 8 inches (203 mm) deep minimum at 27 inches (686 mm) above the finish floor, measured from the front edge of the element.

**Exceptions:**

1. Combined knee and toe space shall extend 19 inches (483 mm) minimum under sinks required to be accessible.
2. Combined knee and toe space shall extend 19 inches (483 mm) minimum under built-in dining and work surfaces required to be accessible.

**1138A.2.1.4 Clearance reduction.** Between 9 inches (229 mm) and 27 inches (686 mm) above the finish floor, the knee space shall be permitted to be reduced at a rate of 1 inch (25 mm) in depth for each 6 inches (152 mm) in height.

**1138A.2.2 Toe space.** Space under an element between the finish floor and 9 inches (229 mm) above the finish floor shall be considered toe space.

**1138A.2.2.1 Minimum width.** Toe space shall be 30 inches (762 mm) wide minimum.

**1138A.2.2.2 Maximum depth.** Toe space shall extend 25 inches (635 mm) maximum under an element.

**1138A.2.2.3 Minimum depth.** When toe space is required under an element as part of a clear floor space, the toe space shall extend 17 inches (432 mm) minimum under the element, measured from the front edge of the element.

**Exceptions:**

1. Combined knee and toe space shall extend 19 inches (483 mm) minimum under sinks required to be accessible.
2. Combined knee and toe space shall extend 19 inches (483 mm) minimum under build-in dining and work surfaces required to be accessible.

**1138A.2.2.4 Additional clearance.** Space extending greater than 6 inches (152 mm) beyond the available knee space at 9 inches (229 mm) above the finish floor shall not be considered toe space.

**1138A.3 Reach ranges.**

**1138A.3.1 Forward reach.**

1. **Unobstructed.** When the clear floor space allows only forward approach to an object, the maximum high forward reach allowed shall be 48 inches (1219 mm) and the minimum low forward reach shall be no less than 15 inches (381 mm) above the finish floor. (See Figure 11A-II(a).)
2. **Obstructed high reach.** When the high forward reach is over an obstruction, the clear floor space shall extend beneath the element for a distance not less than the reach depth over the obstruction.

The high forward reach shall be 48 inches (1219 mm) maximum when the reach depth is 20 inches (508 mm) maximum. When the reach depth exceeds 20 inches (508 mm), but is not more than 25 inches (635 mm), the high forward reach shall be 44 inches (1118 mm) maximum. (See Figure 11A-II(b).)

**1138A.3.2 Side reach.**

1. **Unobstructed.** When a clear floor space allows a parallel approach to an element, and the side reach is unobstructed, the high side reach shall be 48 inches (1219 mm) maximum, and the low side reach shall be 15 inches (381 mm) minimum

without urinals or one water closet and one urinal. Unisex (*single-user or family*) bathing rooms shall contain one shower or one shower and one bathtub, one lavatory, and one water closet. Doors to unisex (*single-user or family*) toilet rooms and unisex (*single-user or family*) bathing rooms shall have privacy latches.

**11B-213.2.2 Unisex (Patient) toilet rooms in medical care and long-term care facilities.** *Common-use unisex toilet rooms for exclusive patient use not located within patient bedrooms shall contain a lavatory and one water closet.*

**11B-213.2.3 Unisex (Patient) bathing rooms in medical care and long-term care facilities.** *Common-use unisex bathing rooms for exclusive patient use not located within patient bedrooms shall contain one shower or one bathtub, one lavatory, and one water closet.*

**11B-213.3 Plumbing fixtures and accessories.** Plumbing fixtures and accessories provided in a toilet room or bathing room required to comply with *Section 11B-213.2* shall comply with *Section 11B-213.3*.

**11B-213.3.1 Toilet compartments.** Where toilet compartments are provided, at least *five percent of the toilet compartments, or five percent of the combination of toilet compartments and urinals, but no fewer than one toilet compartment* shall comply with *Section 11B-604.8.1*. In addition to the *compartments* required to comply with *Section 11B-604.8.1*, where six or more toilet compartments are provided, or where the combination of urinals and water closets totals six or more fixtures, *toilet compartments complying with Section 11B-604.8.2 shall be provided in the same quantity as the toilet compartments required to comply with Section 11B-604.8.1.*

**11B-213.3.2 Water closets.** Where water closets are provided, at least *5 percent but no fewer than one* shall comply with *Section 11B-604*.

**11B-213.3.3 Urinals.** Where *one or more urinals* are provided, at least *10 percent but no fewer than one* shall comply with *Section 11B-605*.

**11B-213.3.4 Lavatories.** Where lavatories are provided, at least *10 percent but no fewer than one* shall comply with *Section 11B-606* and shall not be located in a toilet compartment.

**11B-213.3.5 Mirrors.** Where mirrors are provided, at least one shall comply with *Section 11B-603.3*.

**11B-213.3.6 Bathing facilities.** Where bathtubs or showers are provided, at least one bathtub complying with *Section 11B-607* or at least one shower complying with *Section 11B-608* shall be provided. *Where two or more accessible showers are provided within the same functional area, at least one shower shall be opposite hand from the other or others (that is, one left-hand controls versus right-hand controls). Transfer-type shower compartments shall be permitted in transient lodging guest rooms, multibedroom housing units in undergraduate student housing and residential dwelling units; and shall not be permitted at other locations to meet the requirements of Section 11B-213.3.6.*

**11B-213.3.7 Coat hooks and shelves.** Where coat hooks or shelves are provided in toilet rooms without toilet compartments, at least one of each type shall comply with *Section 11B-603.4*. Where coat hooks or shelves are provided in toilet compartments, at least one of each type complying with *Section 11B-604.8.3* shall be provided in toilet compartments required to comply with *Section 11B-213.3.1*. Where coat hooks or shelves are provided in bathing facilities, at least one of each type complying with *Section 11B-603.4* shall serve fixtures required to comply with *Section 11B-213.3.6*.

#### **11B-214 Washing machines and clothes dryers**

**11B-214.1 General.** Where provided, washing machines and clothes dryers shall comply with *Section 11B-214*.

**11B-214.2 Washing machines.** Where three or fewer washing machines are provided, at least one shall comply with *Section 11B-611*. Where more than three washing machines are provided, at least two shall comply with *Section 11B-611*.

**11B-214.3 Clothes dryers.** Where three or fewer clothes dryers are provided, at least one shall comply with *Section 11B-611*. Where more than three clothes dryers are provided, at least two shall comply with *Section 11B-611*.

#### **11B-215 Fire alarm systems and carbon monoxide alarm systems**

**11B-215.1 General.** Where fire alarm systems and carbon monoxide alarm systems provide audible alarm coverage, alarms shall comply with *Section 11B-215*.

**Exception:** In existing facilities, visible alarms for fire alarm systems shall not be required except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.

**11B-215.2 Public and common use areas.** Alarms in public use areas and common use areas shall comply with *Chapter 9, Section 907.5.2.3.1*.

**11B-215.3 Employee work areas.** Where employee work areas have audible alarm coverage, the wiring system shall be designed so that visible alarms complying with *Chapter 9, Section 907.5.2.3.1* Exception can be integrated into the alarm system.

**11B-215.4 Transient lodging.** Guest rooms required to comply with *Section 11B-224.4* shall provide fire alarms complying with *Chapter 9, Section 907.5.2.3.2*, and carbon monoxide alarms, where provided, complying with *Chapter 9, Section 915*.

**11B-215.5 Residential facilities.** Where provided in residential dwelling units required to comply with *Section 11B-809.5*, fire alarms shall comply with *Chapter 9, Section 907.5.2.3.3* and carbon monoxide alarms shall comply with *Chapter 9, Section 915*.

#### **11B-216 Signs**

**11B-216.1 General.** *New or altered signs* shall be provided in accordance with *Section 11B-216* and shall comply with

*Section 11B-703. The addition of or replacement of signs shall not trigger any additional path of travel requirements.*

**Exceptions:**

1. Building directories, menus, seat and row designations in assembly areas, occupant names, building addresses, and company names and logos shall not be required to comply with *Section 11B-216*.
2. *Reserved*.
3. Temporary, 7 days or less, signs shall not be required to comply with *Section 11B-216*.
4. In detention and correctional facilities, signs not located in public use areas shall not be required to comply with *Section 11B-216*.

**11B-216.2 Designations.** Interior and exterior signs identifying permanent rooms and spaces shall comply with *Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5*. Where pictograms are provided as designations of permanent rooms and spaces, the pictograms shall comply with *Section 11B-703.6* and shall have text descriptors complying with *Sections 11B-703.2 and 11B-703.5*.

**Exception:** Exterior signs that are not located at the door to the space they serve shall not be required to comply with *Section 11B-703.2*.

**11B-216.3 Directional and informational signs.** Signs that provide direction to or information about interior and exterior spaces and facilities of the site shall comply with *Section 11B-703.5*.

**11B-216.4 Means of egress.** Signs for means of egress shall comply with *Section 11B-216.4*.

**11B-216.4.1 Exit doors.** Signs required by *Chapter 10, Section 1013.4* at doors to exit passageways, exit discharge, and exit stairways shall comply with *Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5*.

**11B-216.4.2 Areas of refuge and exterior areas for assisted rescue.** Signs required by *Chapter 10, Section 1009.11* to provide instructions in areas of refuge shall comply with *Section 11B-703.5*. Signs required by *Chapter 10, Section 1009.9* at doors to areas of refuge and exterior areas for assisted rescue shall comply with *Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5* and include an International Symbol of Accessibility complying with *Section 11B-703.7.2.1*.

**11B-216.4.3 Directional signs.** Signs required by *Chapter 10, Section 1009.10* to provide directions to accessible means of egress shall comply with *Section 11B-703.5*.

**11B-216.4.4 Delayed egress locks.** Signs required by *Chapter 10, Section 1010.1.9.8.1, Item 6.4* at doors with delayed egress locks shall comply with *Sections 11B-703.1, 11B-703.2, 11B-703.3 and 11B-703.5*.

**11B-216.5 Parking.** Signs identifying parking spaces and signs within parking facilities shall comply with *Section 11B-216.5*.

**11B-216.5.1 Parking spaces.** Parking spaces complying with *Section 11B-502* shall be identified by signs complying with *Sections 11B-502.6 and 11B-502.8*.

**Exceptions:**

1. *Reserved*.
2. In residential facilities, where parking spaces are assigned to specific residential dwelling units, identification of accessible parking spaces shall not be required.

**11B-216.5.2 Parking facilities.** Signs within parking facilities shall comply with *Section 11B-216.5.2*.

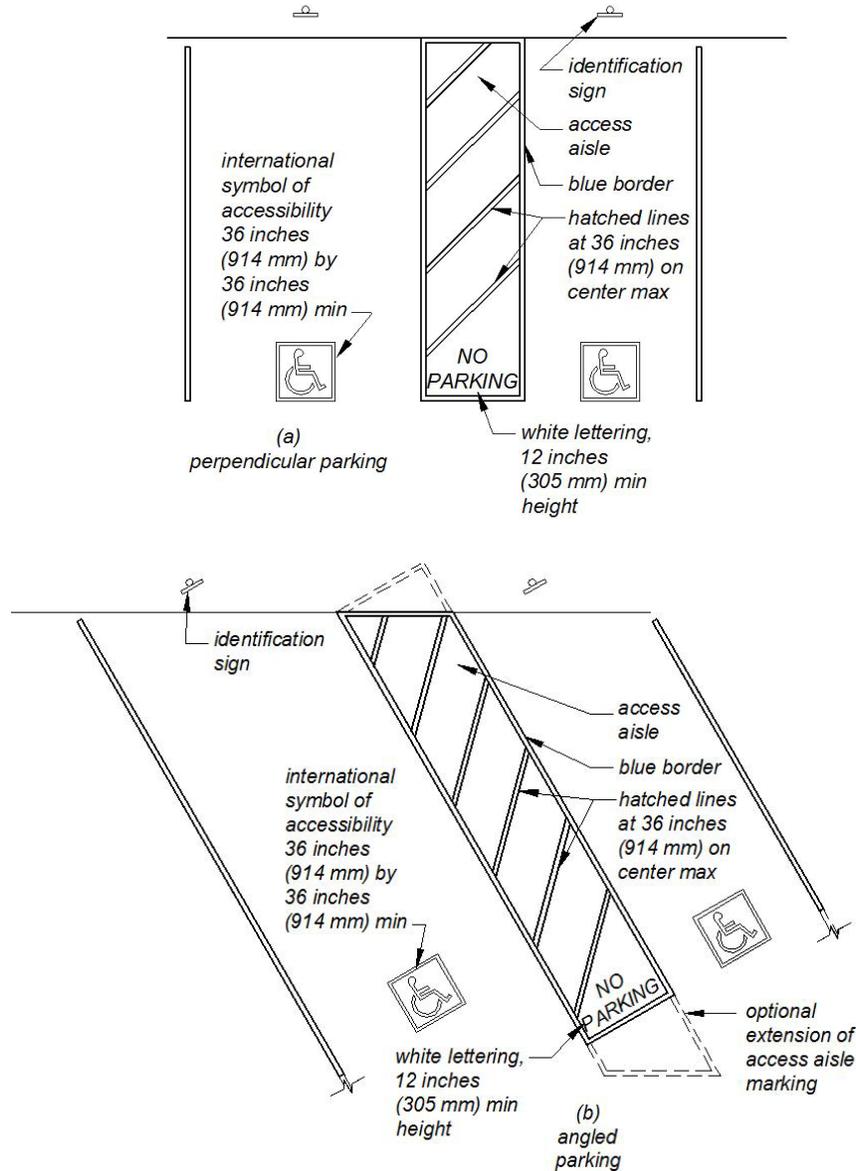
**11B-216.5.2.1 Signs intended for use by pedestrians.** Signs intended for use by pedestrians within parking facilities, including directional or informational signs indicating parking sections or levels, shall comply with the requirements of *Section 11B-216*.

**11B-216.5.2.2 Additional signs.** Signs within parking facilities containing parking spaces complying with *Section 11B-502* shall comply with *Section 11B-502.8*.

**11B-216.6 Entrances.** In existing buildings and facilities where not all entrances comply with *Section 11B-404*, entrances complying with *Section 11B-404* shall be identified by the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*. Directional signs complying with *Section 11B-703.5* that indicate the location of the nearest entrance complying with *Section 11B-404* shall be provided at entrances that do not comply with *Section 11B-404*. Directional signs complying with *Section 11B-703.5*, including the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*, indicating the accessible route to the nearest accessible entrance shall be provided at junctions when the accessible route diverges from the regular circulation path.

**11B-216.7 Elevators.** Where existing elevators do not comply with *Section 11B-407*, elevators complying with *Section 11B-407* shall be clearly identified with the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*. Existing buildings that have been remodeled to provide specific elevators for public use that comply with these building standards shall have the location of and the directions to these elevators posted in the building lobby on a sign complying with *Section 11B-703.5*, including the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*.

**11B-216.8 Toilet rooms and bathing rooms.** Where existing toilet rooms or bathing rooms do not comply with *Section 11B-603*, directional signs indicating the location of the nearest toilet room or bathing room complying with *Section 11B-603* within the facility shall be provided. Signs shall comply with *Section 11B-703.5* and shall include the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*. Where existing toilet rooms or bathing rooms do not comply with *Section 11B-603*, the toilet rooms or bathing rooms complying with *Section 11B-603* shall be identified by the International Symbol of Accessibility complying with *Section 11B-703.7.2.1*. Where clustered single user toilet rooms or bathing facilities are permitted to use exceptions to *Section 11B-213.2*, toilet rooms or bathing



**FIGURE 11B-502.3.3**  
**ANGLED AND PERPENDICULAR PARKING IDENTIFICATION**

**11B-502.4 Floor or ground surfaces.** Parking spaces and access aisles serving them shall comply with Section 11B-302. Access aisles shall be at the same level as the parking spaces they serve. Changes in level are not permitted.

**Exception:** Slopes not steeper than 1:48 shall be permitted.

**11B-502.5 Vertical clearance.** Parking spaces, access aisles and vehicular routes serving them shall provide a vertical clearance of 98 inches (2489 mm) minimum.

**Exception:** In existing multistory parking facilities, car parking spaces, access aisles and vehicular routes serving them shall provide a vertical clearance of 80 inches (2032 mm) minimum. Existing vertical clearance in excess of 80 inches (2032 mm) and less than 98 inches (2489 mm) shall

be maintained. This exception shall not apply to van parking spaces, access aisles, or vehicular routes serving them.

**11B-502.6 Identification.** Parking space identification signs shall include the International Symbol of Accessibility complying with Section 11B-703.7.2.1 in white on a blue background. Signs identifying van parking spaces shall contain additional language or an additional sign with the designation “van accessible”. Signs shall be 60 inches (1524 mm) minimum above the finish floor or ground surface measured to the bottom of the sign.

**Exception:** Signs located within a circulation path shall be a minimum of 80 inches (2032 mm) above the finish floor or ground surface measured to the bottom of the sign.

**11B-502.6.1 Finish and size.** Parking identification signs shall be reflectorized with a minimum area of 70 square inches (45,161 mm<sup>2</sup>).

**11B-502.6.2 Minimum fine.** Additional language or an additional sign below the International Symbol of Accessibility shall state "Minimum Fine \$250".

**11B-502.6.3 Location.** A parking space identification sign shall be visible from each parking space. Signs shall be permanently posted either immediately adjacent to the parking space or within the projected parking space width at the head end of the parking space. Signs may also be permanently posted on a wall at the interior end of the parking space.

**11B-502.6.4 Marking.** Each accessible car and van space shall have surface identification complying with either Section 11B-502.6.4.1 or 11B-502.6.4.2.

**11B-502.6.4.1** The parking space shall be marked with an International Symbol of Accessibility complying with Section 11B-703.7.2.1 in white on a blue background a minimum 36 inches wide by 36 inches high (914 mm by 914 mm). The centerline of the International Symbol of Accessibility shall be a maximum of 6 inches (152 mm) from the centerline of the parking space, its sides parallel to the length of the parking space and its lower corner at, or lower side aligned with, the end of the parking space length.

**11B-502.6.4.2** The parking space shall be outlined in blue or painted blue and shall be marked with an International Symbol of Accessibility complying with Section 11B-703.7.2.1 a minimum 36 inches wide by 36 inches high (914 mm by 914 mm) in white or a suitable contrasting color. The centerline of the International Symbol of Accessibility shall be a maximum of 6 inches (152 mm) from the centerline of the parking space, its sides parallel to the length of the parking space and its lower corner at, or lower side aligned with, the end of the parking space.

**11B-502.7 Relationship to accessible routes.** Parking spaces and access aisles shall be designed so that cars and vans, when parked, cannot obstruct the required clear width of adjacent accessible routes.

**11B-502.7.1 Arrangement.** Parking spaces and access aisles shall be designed so that persons using them are not required to travel behind parking spaces other than to pass behind the parking space in which they parked.

**11B-502.7.2 Wheel stops.** A curb or wheel stop shall be provided if required to prevent encroachment of vehicles over the required clear width of adjacent accessible routes.

**11B-502.8 Additional signs.** An additional sign shall be posted either; 1) in a conspicuous place at each entrance to an off-street parking facility or 2) immediately adjacent to on-site accessible parking and visible from each parking space.

**11B-502.8.1 Size.** The additional sign shall not be less than 17 inches (432 mm) wide by 22 inches (559 mm) high.

**11B-502.8.2 Lettering.** The additional sign shall clearly state in letters with a minimum height of 1 inch (25 mm) the following:

"Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or special license plates issued for persons with disabilities will be towed away at the owner's expense. Towed vehicles may be reclaimed at: \_\_\_\_\_ or by telephoning \_\_\_\_\_."

Blank spaces shall be filled in with appropriate information as a permanent part of the sign.

**11B-503 Passenger drop-off and loading zones**

**11B-503.1 General.** Passenger drop-off and loading zones shall comply with Section 11B-503.

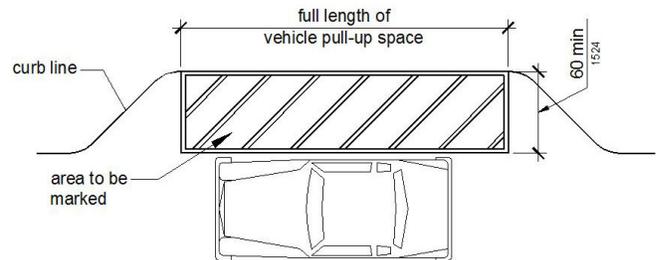
**11B-503.2 Vehicle pull-up space.** Passenger drop-off and loading zones shall provide a vehicular pull-up space 96 inches (2438 mm) wide minimum and 20 feet (6096 mm) long minimum.

**11B-503.3 Access aisle.** Passenger drop-off and loading zones shall provide access aisles complying with Section 11B-503 adjacent and parallel to the vehicle pull-up space. Access aisles shall adjoin an accessible route and shall not overlap the vehicular way.

**11B-503.3.1 Width.** Access aisles serving vehicle pull-up spaces shall be 60 inches (1524 mm) wide minimum.

**11B-503.3.2 Length.** Access aisles shall extend the full length of the vehicle pull-up spaces they serve.

**11B-503.3.3 Marking.** Access aisles shall be marked with a painted borderline around their perimeter. The area within the borderlines shall be marked with hatched lines a maximum of 36 inches (914 mm) on center in a color contrasting with that of the aisle surface.



**FIGURE 11B-503.3 PASSENGER DROP-OFF AND LOADING ZONE ACCESS AISLE**

**11B-503.4 Floor and ground surfaces.** Vehicle pull-up spaces and access aisles serving them shall comply with Section 11B-302. Access aisles shall be at the same level as the

**11B-707.9.1 General.** *Point-of-sale systems that include a video touch screen or any other non-tactile keypad shall be equipped with either of the following:*

**11B-707.9.1.1 Tactilely discernible numerical keypad.**

*A tactilely discernible numerical keypad similar to a telephone keypad containing a raised dot with a dot base diameter between 1.5 mm and 1.6 mm and a height between 0.6 mm and 0.9 mm on the number 5 key that enables a visually impaired person to enter his or her own personal identification number or any other personal information necessary to process the transaction in a manner that provides the opportunity for the same degree of privacy input and output available to all individuals.*

**11B-707.9.1.2 Other technology.**

*Other technology, such as a radio frequency identification device, fingerprint biometrics, or some other mechanism that enables a visually impaired person to access the video touch screen device with his or her personal identifier and to process his or her transaction in a manner that provides the opportunity for the same degree of privacy input and output available to all individuals. Where a video screen overlay is provided it shall be equipped with a tactilely discernible numerical keypad complying with Section 11B-707.9.1.1.*

**11B-708 Two-way communication systems**

**11B-708.1 General.** Two-way communication systems shall comply with Section 11B-708.

**11B-708.2 Audible and visual indicators.** The system shall provide both audible and visual signals.

**11B-708.3 Handsets.** Handset cords, if provided, shall be 29 inches (737 mm) long minimum.

**11B-708.4 Residential dwelling unit communication systems.** Communications systems between a residential dwelling unit and a site, building, or floor entrance shall comply with Section 11B-708.4.

**11B-708.4.1 Common use or public use system interface.** The common use or public use system interface shall include the capability of supporting voice and TTY communication with the residential dwelling unit interface.

**11B-708.4.2 Residential dwelling unit interface.** The residential dwelling unit system interface shall include a telephone jack capable of supporting voice and TTY communication with the common use or public use system interface.

## DIVISION 8: SPECIAL ROOMS, SPACES, AND ELEMENTS

### 11B-801 General

**11B-801.1 Scope.** The provisions of *Division 8* shall apply where required by *Division 2* or where referenced by a requirement in this *chapter*.

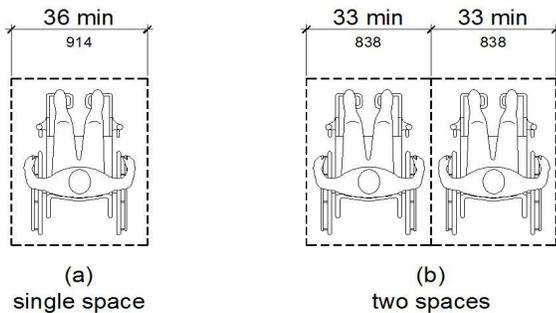
### 11B-802 Wheelchair spaces, companion seats, and designated aisle seats and semi-ambulant seats

**11B-802.1 Wheelchair spaces.** Wheelchair spaces shall comply with *Section 11B-802.1*.

**11B-802.1.1 Floor or ground surface.** The floor or ground surface of wheelchair spaces shall comply with *Section 11B-302*. Changes in level are not permitted.

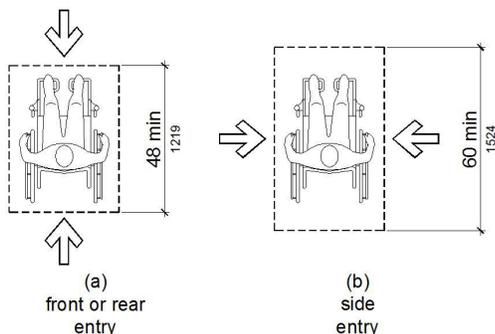
**Exception:** Slopes not steeper than 1:48 shall be permitted.

**11B-802.1.2 Width.** A single wheelchair space shall be 36 inches (914 mm) wide minimum. Where two adjacent wheelchair spaces are provided, each wheelchair space shall be 33 inches (838 mm) wide minimum.



**FIGURE 11B-802.1.2  
WIDTH OF WHEELCHAIR SPACES**

**11B-802.1.3 Depth.** Where a wheelchair space can be entered from the front or rear, the wheelchair space shall be 48 inches (1219 mm) deep minimum. Where a wheelchair space can be entered only from the side, the wheelchair space shall be 60 inches (1524 mm) deep minimum.



**FIGURE 11B-802.1.3  
DEPTH OF WHEELCHAIR SPACES**

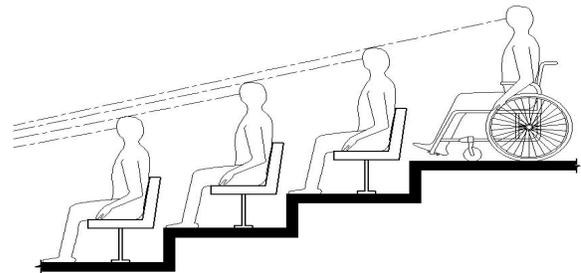
**11B-802.1.4 Approach.** Wheelchair spaces shall adjoin accessible routes. Accessible routes shall not overlap wheelchair spaces.

**11B-802.1.5 Overlap.** Wheelchair spaces shall not overlap circulation paths.

**11B-802.2 Lines of sight.** Lines of sight to the screen, performance area, or playing field for spectators in wheelchair spaces shall comply with *Section 11B-802.2*.

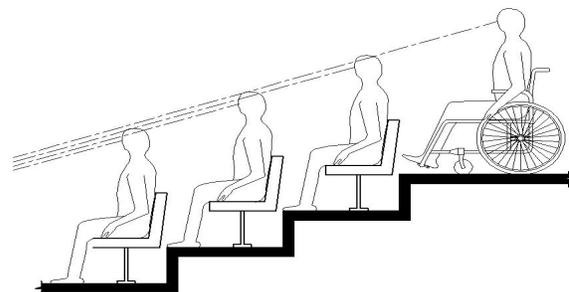
**11B-802.2.1 Lines of sight over seated spectators.** Where spectators are expected to remain seated during events, spectators in wheelchair spaces shall be afforded lines of sight complying with *Section 11B-802.2.1*.

**11B-802.2.1.1 Lines of sight over heads.** Where spectators are provided lines of sight over the heads of spectators seated in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the heads of seated spectators in the first row in front of wheelchair spaces.



**FIGURE 11B-802.2.1.1  
LINES OF SIGHT OVER THE  
HEADS OF SEATED SPECTATORS**

**11B-802.2.1.2 Lines of sight between heads.** Where spectators are provided lines of sight over the shoulders and between the heads of spectators seated in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the shoulders and between the heads of seated spectators in the first row in front of wheelchair spaces.



**FIGURE 11B-802.2.1.2  
LINES OF SIGHT BETWEEN THE  
HEADS OF SEATED SPECTATORS**

## CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE CHAPTER 12 – INTERIOR ENVIRONMENT

(Matrix Adoption Tables are nonregulatory, intended only as an aid to the code user.

See Chapter 1 for state agency authority and building applications.)

Adopting agency	BSC	BSC-CG	SFM	HCD			DSA			OSHPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter								X	X													
Adopt entire chapter as amendeded (amended sections listed below)	X			X	X					X	X	X	X	X	X							
Adopt only those sections that are listed below		X	X												X	X	X			X		
Chapter / Section																						
1202.1				X	X																	
1202.2.1				X	X																	
1202.3				X	X																	
Table 1202.3				X	X																	
1202.4.1.3																					X	
1202.5				X	X																	
1202.5.2.1				X	X																	
1202.6			X																			
1203.1, Exceptions 2 & 4				X	X																	
1203.1, Exception 3										X	X	X	X	X	X							
1203.4.1.1																					X	
1203.4.2																					X	
1204.1				X	X																	
1204.6		X																				
1204.7	X																					
1204.7.1	X																					
1205			X																			
1206.3, Exception				X	X																	
1206.4				X	X																	
1206.5		X																				
1207.1				X																		
1207.2										X	X	X	X	X	X							
1207.4				X																		
1208			X																			
1208.1.1																					X	
1209.2										X	X	X	X	X	X							
1210-1210.6				X	X																	
1211				X																		
Table 1224.4.6.5										X	X	X	X	X	X							
1224										X	X											
1225												X										
1226													X									
1227														X								
1228															X							
1230																X						
1231																X						
1235																	X					
1236																	X					
1237																	X					
1240																		X				
1241																		X				
1242																		X				

(continued)

**CALIFORNIA BUILDING CODE – MATRIX ADOPTION TABLE  
CHAPTER 12 – INTERIOR ENVIRONMENT—continued**

Adopting agency	BSC	BSC- CG	SFM	HCD			DSA			OSHDPD					BSCC	DPH	AGR	DWR	CEC	CA	SL	SLC
				1	2	1/AC	AC	SS	SS/CC	1	1R	2	3	4								
Adopt entire chapter								X	X													
Adopt entire chapter as amended (amended sections listed below)	X			X	X					X	X	X	X	X	X							
Adopt only those sections that are listed below		X	X												X	X	X			X		
Chapter / Section																						
1243																	X					
1250																					X	
1251																					X	
1252																					X	
1253																					X	
1254																					X	

*The Office of the State Fire Marshal's adoption of this chapter or individual sections is applicable to structures regulated by other state agencies pursuant to Section 1.11.*

# CHAPTER 12

## INTERIOR ENVIRONMENT

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**User note:**

*About this chapter:* Chapter 12 provides minimum provisions for the interior of buildings—the occupied environment. Ventilation, lighting, and space heating are directly regulated in this chapter and in conjunction with the California Mechanical Code® and the California Energy Code®. Minimum room size and maximum room-to-room sound transmission are set for certain occupancies.

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### SECTION 1201 GENERAL

**1201.1 Scope.** The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodentproofing associated with the interior spaces of buildings.

### SECTION 1202 VENTILATION

**1202.1 General.** Buildings shall be provided with natural ventilation in accordance with Section 1202.5, or mechanical ventilation in accordance with the *California Mechanical Code*.

**1202.2 Roof ventilation.** Roof assemblies shall be ventilated in accordance with this section or shall comply with Section 1202.3.

**1202.2.1 Ventilated attics and rafter spaces.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof framing members shall have cross ventilation for each separate space by ventilation openings protected against the entrance of rain and snow. Blocking and bridging shall be arranged so as not to interfere with the movement of air. An airspace of not less than 1 inch (25 mm) shall be provided between the insulation and the roof sheathing. The net free ventilating area shall be not less than  $\frac{1}{150}$  of the area of the space ventilated. Ventilators shall be installed in accordance with manufacturer's installation instructions.

**Exception:** The net free cross-ventilation area shall be permitted to be reduced to  $\frac{1}{300}$  provided both of the following conditions are met:

1. In Climate Zones 14 and 16, a Class I or II vapor retarder is installed on the warm-in-winter side of the ceiling.
2. At least 40 percent and not more than 50 percent of the required venting area is provided by ventilators located in the upper portion of the attic or rafter space. Upper ventilators shall be located not more than 3 feet (914 mm) below the ridge or highest point of the space, measured vertically, with the balance of the ventilation provided by eave or cornice vents. Where the location of wall or roof framing members conflicts with the

installation of upper ventilators, installation more than 3 feet (914 mm) below the ridge or highest point of the space shall be permitted.

**1202.2.2 Openings into attic.** Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of not less than  $\frac{1}{16}$  inch (1.6 mm) and not more than  $\frac{1}{4}$  inch (6.4 mm) shall be permitted. Openings for ventilation having a least dimension larger than  $\frac{1}{4}$  inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of not less than  $\frac{1}{16}$  inch (1.6 mm) and not more than  $\frac{1}{4}$  inch (6.4 mm). Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *California Mechanical Code*.

**1202.3 Unvented attic and unvented enclosed rafter assemblies.** Unvented attics and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all of the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, not less than a  $\frac{1}{4}$ -inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In Climate Zones 14 and 16, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.

*See the California Energy Code, Figure 100.1-A — California Climate Zones.*

**4.1. [HCD 1 & HCD 2]** In Climate Zones 14 and 16, a Class I or Class II vapor retarder shall be installed on the indirectly conditioned

*space side of all insulation in an unvented attic with air-permeable insulation, for condensation control.*

5. Insulation shall be located in accordance with the following:

5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing. *No insulation shall be required when roof tiles, wood shingles or wood shakes, or any other roofing system using battens and no continuous underlayment is installed. A continuous underlayment shall be considered to exist if sheathing, roofing paper or any continuous layer having a perm rate of no more than one perm under the dry cup method is present.*

5.1.1. Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.

5.1.2. Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R-values in Table 1202.3 for condensation control.

5.1.3. Where both air-impermeable and air-permeable insulation are provided, the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing and shall be in accordance with the R-values in Table 1202.3 for condensation control. The air-permeable insulation shall be installed directly under the air-impermeable insulation.

5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.

5.2. Where preformed insulation board is used as the air-impermeable insulation layer, it shall be

sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

**Exceptions:**

1. Section 1202.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
2. Section 1202.3 does not apply to enclosures in Climate Zones 14 and 16 that are humidified beyond 35 percent during the three coldest months.

**TABLE 1202.3  
INSULATION FOR CONDENSATION CONTROL**

CLIMATE ZONE	MINIMUM R-VALUE OF AIR-IMPERMEABLE INSULATION <sup>a</sup>
6-15 tile roof only	0 (none required)
3-15	R-5
1 & 2	R-10
16	R-15

a. Contributes to, but does not supersede, thermal resistance requirements for attic and roof assemblies in the *California Energy Code*.

**1202.4 Under-floor ventilation.** The space between the bottom of the floor joists and the earth under any building except spaces occupied by basements or cellars shall be provided with ventilation in accordance with Section 1202.4.1, 1202.4.2 or 1202.4.3.

**1202.4.1 Ventilation openings.** Ventilation openings through foundation walls shall be provided. The openings shall be placed so as to provide cross ventilation of the under-floor space. The net area of ventilation openings shall be in accordance with Section 1202.4.1.1 or 1202.4.1.2. Ventilation openings shall be covered for their height and width with any of the following materials, provided that the least dimension of the covering shall be not greater than 1/4 inch (6.4 mm):

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast-iron grilles or gratings.
4. Extruded load-bearing vents.
5. Hardware cloth of 0.035-inch (0.89 mm) wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension not greater than 1/8 inch (3.2 mm).
7. Operable louvres, where ventilation is provided in accordance with Section 1202.4.1.2.

**1202.4.1.1 Ventilation area for crawl spaces with open earth floors.** The net area of ventilation openings for crawl spaces with uncovered earth floors shall be not less than 1 square foot for each 150 square feet (0.67 m<sup>2</sup> for each 100 m<sup>2</sup>) of crawl space area.

**1202.4.1.2 Ventilation area for crawl spaces with covered floors.** The net area of ventilation openings for

crawl spaces with the ground surface covered with a Class I vapor retarder shall be not less than 1 square foot for each 1,500 square feet (0.67 m<sup>2</sup> for each 1000 m<sup>2</sup>) of crawl space area.

**1202.4.1.3 [SPCB] Openings for under-floor ventilation shall be not less than 1 1/2 square feet (0.135 m<sup>2</sup>) for each 25 linear feet (7620 linear mm) of exterior wall. They shall be covered with corrosion-resistant wire mesh with mesh openings not less than 1/4 inch (6.4 mm) nor more than 1/2 inch (13 mm) in any dimension.**

**1202.4.2 Ventilation in cold climates.** In extremely cold climates, where a ventilation opening will cause a detrimental loss of energy, ventilation openings to the interior of the structure shall be provided.

**1202.4.3 Mechanical ventilation.** Mechanical ventilation shall be provided to crawl spaces where the ground surface is covered with a Class I vapor retarder. Ventilation shall be in accordance with Section 1202.4.3.1 or 1202.4.3.2.

**1202.4.3.1 Continuous mechanical ventilation.** Continuously operated mechanical ventilation shall be provided at a rate of 1.0 cubic foot per minute (cfm) for each 50 square feet (1.02 L/s for each 10 m<sup>2</sup>) of crawl space ground surface area and the ground surface shall be covered with a Class I vapor retarder.

**1202.4.3.2 Conditioned space.** The crawl space shall be conditioned in accordance with the *California Mechanical Code* and the walls of the crawl space shall be insulated in accordance with the *California Energy Conservation Code*.

**1202.4.4 Flood hazard areas.** For buildings in flood hazard areas as established in Section 1612.3, the openings for under-floor ventilation shall be deemed as meeting the flood opening requirements of ASCE 24 provided that the ventilation openings are designed and installed in accordance with ASCE 24.

**1202.5 Natural ventilation.** Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

**[HCD 1]** *In employee housing, all openable windows in rooms used for living, dining, cooking or sleeping purposes, and toilet and bath buildings, shall be provided and maintained with insect screening.*

**[HCD 1]** *Door openings of rooms used for dining, cooking, toilet and bathing facilities in employee housing shall be provided and maintained with insect screening or with solid doors equipped with self-closing devices in lieu thereof, when approved by the enforcement agency.*

**[HCD 1]** *The windows, doors, louvers or other approved closeable openings not required by Section 1030 may open into a passive solar energy collector for ventilation required by this section. The area of ventilation openings to the outside of the passive solar energy collector shall be increased to compensate for the openings required by the interior space.*

**1202.5.1 Ventilation area required.** The openable area of the openings to the outdoors shall be not less than 4 percent of the floor area being ventilated.

**1202.5.1.1 Adjoining spaces.** Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3 m<sup>2</sup>). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

**Exception:** Exterior openings required for ventilation shall be allowed to open into a sunroom with thermal isolation or a patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The openable area of the openings to the outdoors shall be based on the total floor area being ventilated.

**1202.5.1.2 Openings below grade.** Where openings below grade provide required natural ventilation, the outside horizontal clear space measured perpendicular to the opening shall be one and one-half times the depth of the opening. The depth of the opening shall be measured from the average adjoining ground level to the bottom of the opening.

**1202.5.2 Contaminants exhausted.** Contaminant sources in naturally ventilated spaces shall be removed in accordance with the *California Mechanical Code* and the *California Fire Code*.

**1202.5.2.1 Bathrooms.** Rooms containing bathtubs, showers, spas and similar bathing fixtures shall be mechanically ventilated in accordance with the *California Mechanical Code*.

*The minimum exhaust rate shall not be less than that established by Table 403.7 "Minimum Exhaust Rates." See California Mechanical Code, Chapter 5, for additional provisions related to environmental air ducts.*

**[HCD 1]** *In addition to the requirements in this section and in the California Mechanical Code, bathrooms in Group R occupancies shall be mechanically ventilated in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.*

**1202.5.3 Openings on yards or courts.** Where natural ventilation is to be provided by openings onto yards or courts, such yards or courts shall comply with Section 1205.

**1202.6 Other ventilation and exhaust systems.** Ventilation and exhaust systems for occupancies and operations involving flammable or combustible hazards or other contaminant sources as covered in the *California Mechanical Code* or the *California Fire Code* shall be provided as required by both codes.

**SECTION 1203  
TEMPERATURE CONTROL**

**1203.1 Equipment and systems.** Interior spaces intended for human occupancy shall be provided with active or passive space heating systems capable of maintaining an indoor temperature of not less than 68°F (20°C) at a point 3 feet (914 mm) above the floor on the design heating day.

**Exceptions:**

1. Space heating systems are not required for:
  - 1.1. Interior spaces where the primary purpose of the space is not associated with human comfort.
  - 1.2. Group F, H, S or U occupancies.
2. *[HCD 1] For limited-density owner-built rural dwellings, a heating facility or appliance shall be installed in each dwelling subject to the provisions of Subchapter 1, Chapter 1, Title 25, California Code of Regulations, commencing with Section 74; however, there shall be no specified requirement for heating capacity or temperature maintenance. The use of solid-fuel or solar-heating devices shall be deemed as complying with the requirements of this section. If nonrenewable fuel is used in these dwellings, rooms so heated shall meet current installation standards.*
3. *[OSHPD 1, 1R, 2, 3, 4 & 5] Space heating systems shall comply with the requirements of the California Mechanical Code.*
4. *[HCD 1] When a passive solar energy collector is designed as a conditioned area it shall comply with the California Energy Code. Nonconditioned passive solar energy collectors are exempt from compliance with the California Energy Code.*

**SECTION 1204  
LIGHTING**

**1204.1 General.** Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1204.2 or shall be provided with artificial light in accordance with Section 1204.3. Exterior glazed openings shall open directly onto a public way or onto a yard or court in accordance with Section 1205.

*[HCD 1] Glazed openings may open into a passive solar energy collector provided the area of exterior glazed openings in the passive solar energy collector is increased to compensate for the area required by the interior space.*

**1204.2 Natural light.** The minimum net glazed area shall be not less than 8 percent of the floor area of the room served.

**1204.2.1 Adjoining spaces.** For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room or 25 square feet (2.32 m<sup>2</sup>), whichever is greater.

**Exception:** Openings required for natural light shall be permitted to open into a sunroom with thermal isolation

or a patio cover where the common wall provides a glazed area of not less than one-tenth of the floor area of the interior room or 20 square feet (1.86 m<sup>2</sup>), whichever is greater.

**1204.2.2 Exterior openings.** Exterior openings required by Section 1204.2 for natural light shall open directly onto a public way, yard or court, as set forth in Section 1205.

**Exceptions:**

1. Required exterior openings are permitted to open into a roofed porch where the porch meets all of the following criteria:
  - 1.1. Abuts a public way, yard or court.
  - 1.2. Has a ceiling height of not less than 7 feet (2134 mm).
  - 1.3. Has a longer side at least 65 percent open and unobstructed.
2. Skylights are not required to open directly onto a public way, yard or court.

**1204.3 Artificial light.** Artificial light shall be provided that is adequate to provide an average illumination of 10 footcandles (107 lux) over the area of the room at a height of 30 inches (762 mm) above the floor level.

**1204.4 Stairway illumination.** Stairways within dwelling units and exterior stairways serving a dwelling unit shall have an illumination level on tread runs of not less than 1 footcandle (11 lux). Stairways in other occupancies shall be governed by Chapter 10.

**1204.4.1 Controls.** The control for activation of the required stairway lighting shall be in accordance with the *California Electrical Code*.

**1204.5 Emergency egress lighting.** The means of egress shall be illuminated in accordance with Section 1008.1.

**1204.6 Light pollution reduction.** *[BSC-CG] See California Green Building Standards Code, Chapter 5, Division 5.1 for additional light pollution reduction requirements.*

**1204.7 Campus lighting for parking facilities and primary walkways at California state universities, colleges and community colleges.** *[BSC] Artificial light shall be provided for parking facilities and primary walkways at California State Universities, colleges and community colleges in accordance with provisions of this subsection. This subsection shall not apply to the University of California unless the Regents of the University of California, by resolution, make it applicable.*

**1204.7.1 Lighting requirements.** *Based on the recommendations of the most current edition of the Illumination Engineering Society lighting handbook, the following lighting standards shall be used for all new construction of open parking facilities, covered parking facilities and primary walkways:*

1. *Open and covered parking facilities.*
  - 1.1. *Medium-level activity usage when medium usage is present.*
  - 1.2. *High-level activity usage when high usage is present.*
2. *Primary campus walkways.*

**[P] 1209.3 Privacy.** Privacy at water closets and urinals shall be provided in accordance with Sections 1209.3.1 and 1209.3.2.

**[P] 1209.3.1 Water closet compartment.** Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

**Exceptions:**

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.
3. This provision is not applicable to toilet areas located within Group I-3 occupancy housing areas.

**[P] 1209.3.2 Urinal partitions.** Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal not less than 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished backwall surface, whichever is greater.

**Exceptions:**

1. Urinal partitions shall not be required in a single-occupant or family or assisted-use toilet room with a lockable door.
2. Toilet rooms located in child day care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

**SECTION 1210 [HCD 1 & HCD 2]  
GARAGE DOOR SPRINGS**

**1210.1 General.** This section shall apply to applications listed in Sections 1.8.2.1.1 and 1.8.2.1.3 regulated by the Department of Housing and Community Development.

**1210.1.1 Garage door extension springs.** Every garage door extension spring sold or offered for sale, whether new or as a replacement, or installed in any garage or carport which is accessory to an apartment house, hotel, motel or dwelling shall conform to the following requirements:

*Hard-drawn spring wire shall conform to ASTM A227/A227M-17 or a more current version, and shall be made by the steel processes described therein, conforming to the chemical composition requirements listed and meeting the standards of steel heat as set forth by the ladle analysis. Wire tensile strength and dimension variations shall meet the prescribed properties of established standards.*

*Oil-tempered wire shall conform to ASTM A229/A229M-17 or a more current version, and shall be made by the steel processes described therein, conforming to the chemical composition requirements listed and meeting the standards of steel heat as set forth by the ladle analysis. Wire tensile strength and dimension variations shall meet the prescribed properties of established standards.*

*Extension springs shall be fabricated from either hard-drawn spring wire or oil-tempered wire as specified above.*

**1210.2 Design standards.** Minimum design standard shall be 9,000 cycles. (One cycle is an action on the door from the fully closed position, to the fully open position, and returned to the fully closed position.)

**1210.3 Certification.** Mill certification of wire physical tests and chemical properties shall be kept on file by the spring manufacturer.

*Physical cycling tests shall be performed for each extension spring design and shall be certified by an approved testing agency acceptable to the department and reports kept on file by the spring manufacturer.*

**1210.4 Restraining devices.** Each extension spring shall be equipped with an approved device capable of restraining the spring or any part thereof in the event it breaks. Restraining devices shall be physically tested for each extension spring family of products in accordance with ANSI/DASMA 103-2017 or an equivalent standard. Tests shall be certified by an approved testing agency acceptable to the department. Test reports shall be kept on file by the manufacturer responsible for the restraining device.

**1210.5 Identification.** Extension springs, or door systems with extension springs, and restraining devices shall be permanently identified as to manufacturer and shall indicate maximum recommended stretch. Both extension springs and restraining devices shall bear information stating that they have been manufactured in accordance with requirements of the California Department of Housing and Community Development.

**1210.6 Installation.** Installation of extension springs, restraining devices and hardware shall be in accordance with the door manufacturer's installation instructions. Instructions shall be provided by the door manufacturer and shall specify the approved method of restraint and maximum recommended stretch. Unless otherwise permitted by the door manufacturer's installation instructions, the hardware and extension springs shall be mounted to nominal 2 by 6 framing members, conforming to the applicable provisions of Section 2303.

**SECTION 1211 [HCD 1]  
POLLUTANT CONTROL**

**1211.1 Finish material pollutant control.** Finish materials, including adhesives, sealants, caulks, paints and coatings, aerosol paints and coatings, carpet systems, carpet cushion, carpet adhesive, resilient flooring systems, and composite wood products shall meet the volatile organic compound (VOC) emission limits in accordance with the California Green Building Standards Code (CALGreen), Chapter 4, Division 4.5.

**SECTION 1212**  
**Reserved**

**SECTION 1213**  
**Reserved**

**SECTION 1214**  
**Reserved**

**SECTION 1215**  
**Reserved**

**SECTION 1216**  
**Reserved**

**SECTION 1217**  
**Reserved**

**SECTION 1218**  
**Reserved**

**SECTION 1219**  
**Reserved**

**SECTION 1220**  
**Reserved**

**SECTION 1221**  
**Reserved**

**SECTION 1222**  
**Reserved**

**SECTION 1223**  
**Reserved**

**SECTION 1224 [OSHPD 1 & OSHPD 1R]**  
**HOSPITALS**

**1224.1 Scope. [OSHPD 1]** The provisions of this section shall apply to general acute-care hospitals and general acute-care hospitals providing only acute medical rehabilitation center services. The provisions of Section 1225 shall apply to distinct part skilled nursing and intermediate-care services on a general acute-care hospital license provided in a separate unit.

**[OSHPD 1R]** This section shall apply to buildings removed from acute care service, in compliance with Part 10, California Existing Building Code, Chapter 3A, and remain under OSHPD jurisdiction.

**1224.2 Application.** New buildings and additions, alterations or repairs to existing buildings subject to licensure shall comply with applicable provisions of the California Electrical Code, California Mechanical Code, California Plumbing Code, California Energy Code, California Fire Code, California Existing Building Code (Parts 3, 4, 5, 6, 9 and 10 of Title 24) and this section.

**Exceptions:**

1. Facilities licensed and in operation prior to the effective date of this section shall not be required to institute corrective alterations or construction to comply with any new requirements imposed thereby

or subsequently, except where specifically required or where the enforcing agency determines that a definite hazard to health and safety exists. Facilities for which preliminary drawings have been submitted to the enforcing agency prior to the effective date of this change shall not be required to comply with such new requirements, provided working drawings are submitted within one year of the effective date of such new requirements.

2. A change in function shall require compliance with all the functional requirements for new construction in this code, including requirements in Sections 1224, 1225, 1226, 1227 and 1228.
3. The provisions of this section do not prohibit the use of alternate space utilization, new concepts of design, treatment techniques, equipment and alternate finish materials provided the intent of this section is accommodated and written approval for such alternative is granted by the enforcing agency. Written substantiating evidence in support of the alternate and a written request for consideration shall be submitted to the enforcing agency.
4. Nothing in this section shall prohibit the provisions of required services from a centralized service facility serving two or more licensed facilities when approved in writing by the licensing agency. Buildings and required spaces for services provided in a separate centralized services facility shall comply with all applicable provisions of these regulations and applicable local codes and ordinances for the services so provided.
5. Acute psychiatric hospitals and general acute-care hospitals providing only acute medical rehabilitation center services may provide for surgical and anesthesia services to be provided by an outside licensed facility when approved by the licensing agency.
6. When the Corrections Standards Authority, the Department of Corrections or the Department of Youth Authority determines that a particular requirement for hospitals located in a correctional facility may compromise the safety, security or protection of staff, inmates or property, the enforcement agency shall consider an alternate design.

**1224.2.1 Removed from acute care service [OSHPD 1R].** Hospital buildings removed from acute care service in accordance with Part 10, California Existing Building Code, Section 309A may provide outpatient services and other uses. Required Basic or Supplemental Services on the hospital's license may not be provided.

**Exceptions:**

1. Duplicative hospital services when permitted by California Department of Public Health.
2. Skilled Nursing Services may be provided in conformance with Section 1225.
3. Acute Psychiatric Services may be provided in conformance with Section 1228.

dedicated patient toilets, provide a minimum of one patient toilet room within the service space, refer to Section 1226.4.14.1.

**1226.5.5.1.2 Outpatient change area.** A separate space shall be provided where outpatients change from street clothing. This shall include provisions for clothing storage, space for clothing change and gowning area. Dressing rooms shall be readily accessible to the imaging rooms.

**1226.5.5.1.3 Staff facilities.** In service space of three or more procedure rooms, staff toilet room(s) internal to the service space.

**1226.5.5.1.4 Handwashing stations.** Handwashing stations shall be located within the unit.

**1226.5.5.1.5 Imaging storage (active).** If imaging storage systems are used, provide a means of sorting and filing patient film or electronic media for immediate retrieval shall be provided.

**1226.5.5.1.6 Medication station.** Provision shall be made for locked storage of medications and drugs. Refer to Section 1226.4.13.2.

**1226.5.5.1.7 Areas for off-site laundry services.** Refer to Section 1226.4.15.1.

**1226.5.5.2 Radiation protection.** Radiation protection requirements for equipment refer to Section 1224.18.1.1.

**1226.5.6 X-ray examination services.** When provided, x-ray examination services space shall comply with the following:

1. X-ray room.
2. When shielded control alcove with protective view windows is provided, refer to Section 1224.18.1.1.
3. Fluoroscopy room, when provided, shall have a toilet room directly accessible to the fluoroscopy room. This toilet room is in addition to common patient toilet room facilities located in the radiological/imaging service space.
4. Space for processing images.
5. An office or other suitable area for viewing and reporting radiographic examination.

**1226.5.7 Computerized tomography (CT) scanning.** When provided, CT services space shall comply with the requirements of Section 1224.18.3.

**1226.5.8 Magnetic resonance imaging (MRI).** When provided, MRI services space shall comply with the requirements of Section 1224.18.4.

**1226.5.9 Ultrasound.** When ultrasound is provided, refer to Section 1224.18.5.

**1226.5.10 Mammography.** When mammography is provided, refer to Section 1224.18.6.

**GASTROINTESTINAL ENDOSCOPY**

**1226.5.11 Gastrointestinal endoscopy.** When provided, gastrointestinal endoscopy services space shall comply with Section 1224.39.3 and the provisions of this section:

**1226.5.11.1 Procedure Room(s).**

**1226.5.11.1.1 Space requirements.** Refer to Section 1224.39.3.1.1.

**1226.5.11.1.2 Handwashing station.** Refer to Section 1224.39.3.1.2.

**1226.5.11.2 Processing room.** Refer to Section 1224.39.3.2.

**1226.5.11.3 Preoperative patient holding.** Refer to Section 1224.16.2.

**1226.5.11.4 Post-anesthesia recovery area.** Refer to Section 1224.16.

**1226.5.11.5 Communication system.** Refer to Section 1224.39.3.5.

**1226.5.11.6 Support areas for outpatient gastrointestinal endoscopy.**

**1226.5.11.6.1 Control station.** Refer to Section 1224.15.3.1.

**1226.5.11.6.2 Medication station.** Refer to Section 1226.4.13.2.

**1226.5.11.6.3 Soiled workroom.** Refer to Section 1224.15.3.7.

**1226.5.11.6.4 Clean utility room.** Refer to Section 1224.15.3.8.

**1226.5.11.6.5 Anesthesia workroom.** Refer to Section 1224.15.3.9.

**1226.5.11.6.6 Storage room(s) for equipment and supplies used in gastrointestinal endoscopy service space.** Refer to Section 1224.15.3.10.

**1226.5.11.6.7 Staff clothing change areas.** Refer to Section 1224.15.3.11.

**1226.5.11.6.8 Housekeeping room.** Refer to Section 1224.39.2.3.2.

**1226.5.11.6.9 Cleanup room.** Refer to Section 1224.39.2.3.1.

**1226.5.11.6.10 Sterile and pharmaceutical supply storage.** Refer to Section 1226.4.13.5.

**1226.5.11.7 Additional support areas for patients.**

**1226.5.11.7.1 Outpatient change area.** A separate space shall be provided where patients change out of their street clothing and are prepared for the procedure. This space shall include provisions for clothing storage, toilet room(s), sink, space for clothing change and gowning area.

**NUCLEAR MEDICINE**

**1226.5.12 Nuclear medicine.** When provided, nuclear medicine services space shall comply with Section 1224.34 and the provisions of this section:

**1226.5.12.1 Radiation protection.** When provided, refer to Section 1224.34.1.1.

**1226.5.12.2 Nuclear medicine room.** Refer to Section 1224.34.1.2.

**1226.5.12.3 Radiopharmacy.** When provided, refer to Section 1224.34.1.3.

**1226.5.12.4 Support areas for nuclear medicine services.**

**1226.5.12.4.1 Cleanup.** Refer to Section 1224.34.2.2.

**1226.5.12.4.2 Dose administration area.** Refer to Section 1224.34.2.5.

**1226.5.12.4.3 Holding.** Refer to Section 1224.34.2.6.

**1226.5.12.4.4 Patient dressing rooms.** Refer to Section 1224.34.2.7.

**1226.5.12.4.5 Patient toilet room(s).** Refer to Section 1224.34.2.8.

**1226.5.12.4.6 Staff toilet room(s).** Refer to Section 1224.34.2.9.

**1226.5.12.4.7 Handwashing stations.** Refer to Section 1224.34.2.10.

**1226.5.12.4.8 Control desk and reception.** Refer to Section 1226.5.3.

**1226.5.12.4.9 Clean linen storage.** A storage area for clean linen shall be provided.

**1226.5.12.4.10 Soiled and contaminated material.** Refer to Section 1224.34.2.13.

**1226.5.12.5 Radiotherapy service space.** When provided, radiotherapy service space shall comply with the following provisions of this section:

**1226.5.12.5.1 Radiation protection.** Refer to Section 1224.34.3.2.

**1226.5.12.5.2 Room sizes.** Refer to Section 1224.34.3.3.

**1226.5.12.5.3 General support area.** Refer to Section 1224.34.3.4.

**1226.5.12.6 Additional support areas for linear accelerator.**

**1226.5.12.6.1 Mold room.** Refer to Section 1224.34.4.1.

**1226.5.12.6.2 Block room.** Refer to Section 1224.34.4.2.

**1226.5.12.7 Additional support areas for cobalt room.**

**1226.5.12.7.1 Hot lab.**

**1226.5.12.8 High dose rate brachytherapy room.**

**CANCER TREATMENT/INFUSION THERAPY**

**1226.5.13 Cancer treatment/infusion therapy service space.** When provided, cancer treatment/infusion therapy service space shall comply with the provisions of this section:

**1226.5.13.1 Treatment area.**

**1226.5.13.1.1 Location.** Refer to Section 1224.39.4.2.1.

**1226.5.13.1.2 Nurses' station(s).** Refer to Section 1224.39.4.2.2.

**1226.5.13.1.3 Individual patient treatment areas.** Refer to Section 1224.39.4.2.3.

**1226.5.13.1.4 Handwashing stations.** Refer to Section 1224.39.4.2.4.

**1226.5.13.1.5 Privacy.** Refer to Section 1224.39.4.2.5.

**1226.5.13.1.6 Medication dispensing.** Refer to Section 1224.39.4.2.6.

**1226.5.13.1.7 Examination room.** Refer to Section 1224.39.4.2.7.

**1226.5.13.1.8 Clean utility room.** Refer to Section 1224.39.4.2.8.

**1226.5.13.1.9 Soiled utility room.** Refer to Section 1224.39.4.2.9.

**1226.5.13.1.10 Nourishment station.** Refer to Section 1224.39.4.2.10.

**1226.5.13.1.11 Housekeeping room.** Refer to Section 1224.39.4.2.11.

**1226.5.13.1.12 Supplies.** Refer to Section 1224.39.4.2.12.

**1226.5.13.1.13 Storage.** Refer to Section 1224.39.4.2.13.

**1226.5.13.1.14 Clean linen storage.** Refer to Section 1224.39.4.2.14.

**1226.5.13.1.15 Patient storage.** Refer to Section 1224.39.4.3.2.

**HYPERBARIC THERAPY**

**1226.5.14 Hyperbaric therapy service space.** When provided, hyperbaric therapy service space shall comply with Section 1224.39.5 and the provisions of this section:

**1226.5.14.1 General.** Refer to Section 1224.39.5.1.

**1226.5.14.2 Hyperbaric chambers.** Refer to Section 1224.39.5.2.

**1226.5.14.3 Pre-procedure patient holding area(s).** Refer to Section 1224.39.5.3.

**1226.5.14.4 Medical gas station outlets.** Refer to Section 1224.39.5.4.

**1226.5.14.5 Support areas for the hyperbaric suite.**

**1226.5.14.5.1 Reception/control desk.** Refer to Section 1224.39.5.5.1.

**1226.5.14.5.2 Examination/treatment room(s).** Refer to Section 1224.39.5.5.2.

**1226.5.14.5.3 Clean linen storage.** Refer to Section 1224.39.5.5.3.

**1226.5.14.5.4 Clean supply room.** Refer to Section 1224.39.5.5.4.

**1226.5.14.5.5 Gas cylinder room.** Refer to Section 1224.39.5.5.5.

**1226.5.14.5.6 Gurney and wheelchair storage.** Refer to Section 1224.39.5.5.6.

**1226.5.14.5.7 Housekeeping room.** Refer to Section 1224.39.5.5.7.

**1226.5.14.5.8 Compressor room.** Refer to Section 1224.39.5.5.8.

**1226.5.14.6 Support areas for staff.** Refer to Section 1224.39.5.6.

less than 6 inches (152 mm) in length bent at right angles and laid in the mortar joint, and spaced so that the eyes or loops are 12 inches (305 mm) maximum on center in both directions. There shall be provided not less than a 0.1055-inch (2.68 mm) corrosion-resistant wire tie, or approved equal, threaded through the exposed loops for every 2 square feet (0.2 m<sup>2</sup>) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm) in length bent so that the tie will lie in the stone veneer mortar joint. The last 2 inches (51 mm) of each wire leg shall have a right-angle bend. One-inch (25 mm) minimum thickness of cement grout shall be placed between the backing and the stone veneer.

2. With wood stud backing, a 2-inch by 2-inch (51 by 51 mm) 0.0625-inch (1.59 mm) zinc-coated or nonmetallic coated wire mesh with two layers of water-resistive barrier in accordance with Section 1403.2 shall be applied directly to wood studs spaced not more than 16 inches (406 mm) on center. On studs, the mesh shall be attached with 2-inch-long (51 mm) corrosion-resistant steel wire furring nails at 4 inches (102 mm) on center providing a minimum 1.125-inch (29 mm) penetration into each stud and with 8d annular threaded nails at 8 inches (203 mm) on center, into top and bottom plates or with equivalent wire ties. There shall be not less than a 0.1055-inch (2.68 mm) zinc-coated or nonmetallic coated wire, or approved equal, attached to the stud with not smaller than an 8d (0.120 in. diameter) annular threaded nail for every 2 square feet (0.2 m<sup>2</sup>) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm) in length, so bent that the tie will lie in the stone veneer mortar joint. The last 2 inches (51 mm) of each wire leg shall have a right-angle bend. One-inch (25 mm) minimum thickness of cement grout shall be placed between the backing and the stone veneer.
3. With cold-formed steel stud backing, a 2-inch by 2-inch (51 by 51 mm) 0.0625-inch (1.59 mm) zinc-coated or nonmetallic coated wire mesh with two layers of water-resistive barrier in accordance with Section 1403.2 shall be applied directly to steel studs spaced a not more than 16 inches (406 mm) on center. The mesh shall be attached with corrosion-resistant #8 self-drilling, tapping screws at 4 inches (102 mm) on center, and at 8 inches (203 mm) on center into top and bottom tracks or with equivalent wire ties. Screws shall extend through the steel connection not fewer than three exposed threads. There shall be not less than a 0.1055-inch (2.68 mm) corrosion-resistant wire, or approved equal, attached to the stud with not smaller than a #8 self-drilling, tapping screw extending through the steel framing not fewer than three exposed threads for every 2 square feet (0.2 m<sup>2</sup>) of stone veneer. This tie shall be a loop having legs not less than 15 inches (381 mm) in length, so bent that the tie will lie in the stone veneer mortar joint. The last 2 inches (51 mm) of each wire leg shall have a right-angle bend. One-inch (25 mm) minimum thickness of cement grout shall be placed between the backing and the stone veneer. The cold-formed steel

framing members shall have a minimum bare steel thickness of 0.0428 inches (1.087 mm).

**[BS] 1404.8 Slab-type veneer.** Anchored slab-type veneer units not exceeding 2 inches (51 mm) in thickness shall be anchored directly to masonry, concrete or light-frame construction. For veneer units of marble, travertine, granite or other stone units of slab form, ties of corrosion-resistant dowels in drilled holes shall be located in the middle third of the edge of the units, spaced not more than 24 inches (610 mm) apart around the periphery of each unit with not less than four ties per veneer unit. Units shall not exceed 20 square feet (1.9 m<sup>2</sup>) in area. If the dowels are not tight fitting, the holes shall be drilled not more than 0.063 inch (1.6 mm) larger in diameter than the dowel, with the hole countersunk to a diameter and depth equal to twice the diameter of the dowel in order to provide a tight-fitting key of cement mortar at the dowel locations where the mortar in the joint has set. Veneer ties shall be corrosion-resistant metal capable of resisting, in tension or compression, a force equal to two times the weight of the attached veneer. If made of sheet metal, veneer ties shall be not smaller in area than 0.0336 by 1 inch (0.853 by 25 mm) or, if made of wire, not smaller in diameter than 0.1483-inch (3.76 mm) wire.

**[BS] 1404.9 Terra cotta.** Anchored terra cotta or ceramic units not less than 1<sup>5</sup>/<sub>8</sub> inches (41 mm) thick shall be anchored directly to masonry, concrete or stud construction. Tied terra cotta or ceramic veneer units shall be not less than 1<sup>5</sup>/<sub>8</sub> inches (41 mm) thick with projecting dovetail webs on the back surface spaced approximately 8 inches (203 mm) on center. The facing shall be tied to the backing wall with corrosion-resistant metal anchors of not less than No. 8 gage wire installed at the top of each piece in horizontal bed joints not less than 12 inches (305 mm) nor more than 18 inches (457 mm) on center; these anchors shall be secured to 1/4-inch (6.4 mm) corrosion-resistant pencil rods that pass through the vertical aligned loop anchors in the backing wall. The veneer ties shall have sufficient strength to support the full weight of the veneer in tension. The facing shall be set with not less than a 2-inch (51 mm) space from the backing wall and the space shall be filled solidly with Portland cement grout and pea gravel. Immediately prior to setting, the backing wall and the facing shall be drenched with clean water and shall be distinctly damp when the grout is poured.

**[BS] 1404.10 Adhered masonry veneer.** Adhered masonry veneer shall comply with the applicable requirements in this section and Sections 12.1 and 12.3 of TMS 402.

**[BS] 1404.10.1 Exterior adhered masonry veneer.** Exterior adhered masonry veneer shall be installed in accordance with Section 1404.10 and the manufacturer's instructions.

**[BS] 1404.10.1.1 Water-resistive barriers.** Water-resistive barriers shall be installed as required in Section 2510.6.

**[BS] 1404.10.1.2 Flashing.** Flashing shall comply with the applicable requirements of Section 1404.4 and the following.

**[BS] 1404.10.1.2.1 Flashing at foundation.** A corrosion-resistant screed or flashing of a minimum

## EXTERIOR WALLS

0.019-inch (0.48 mm) or 26 gage galvanized or plastic with a minimum vertical attachment flange of  $3\frac{1}{2}$  inches (89 mm) shall be installed to extend not less than 1 inch (25 mm) below the foundation plate line on exterior stud walls in accordance with Section 1404.4. The water-resistive barrier shall lap over the exterior of the attachment flange of the screed or flashing.

**[BS] 1404.10.1.3 Clearances.** On exterior stud walls, adhered masonry veneer shall be installed not less than 4 inches (102 mm) above the earth, or not less than 2 inches (51 mm) above paved areas, or not less than  $\frac{1}{2}$  inch (12.7 mm) above exterior walking surfaces that are supported by the same foundation that supports the exterior wall.

**[BS] 1404.10.1.4 Adhered masonry veneer installed with lath and mortar.** Exterior adhered masonry veneer installed with lath and mortar shall comply with the following.

**[BS] 1404.10.1.4.1 Lathing.** Lathing shall comply with the requirements of Section 2510.

**[BS] 1404.10.1.4.2 Scratch coat.** A nominal  $\frac{1}{2}$ -inch-thick (12.7 mm) layer of mortar complying with the material requirements of Sections 2103 and 2512.2 shall be applied, encapsulating the lathing. The surface of this mortar shall be scored horizontally, resulting in a scratch coat.

**[BS] 1404.10.1.4.3 Adhering veneer.** The masonry veneer units shall be adhered to the mortar scratch coat with a nominal  $\frac{1}{2}$ -inch-thick (12.7 mm) setting bed of mortar complying with Sections 2103 and 2512.2 applied to create a full setting bed for the back of the masonry veneer units. The masonry veneer units shall be worked into the setting bed resulting in a nominal  $\frac{3}{8}$ -inch (9.5 mm) setting bed after the masonry veneer units are applied.

**[BS] 1404.10.1.5 Adhered masonry veneer applied directly to masonry and concrete.** Adhered masonry veneer applied directly to masonry or concrete shall comply with the applicable requirements of Section 1404.10 and with the requirements of Section 1404.10.1.4 or 2510.7.

**[BS] 1404.10.1.6 Cold weather construction.** Cold weather construction of adhered masonry veneer shall comply with the requirements of Sections 2104 and 2512.4.

**[BS] 1404.10.1.7 Hot weather construction.** Hot weather construction of adhered masonry veneer shall comply with the requirements of Section 2104.

**[BS] 1404.10.2 Exterior adhered masonry veneers—porcelain tile.** Adhered units shall not exceed  $\frac{5}{8}$  inch (15.8 mm) thickness and 24 inches (610 mm) in any face dimension nor more than 3 square feet (0.28 m<sup>2</sup>) in total face area and shall not weigh more than 9 pounds psf (0.43 kN/m<sup>2</sup>). Porcelain tile shall be adhered to an approved backing system.

**[BS] 1404.10.3 Interior adhered masonry veneers.** Interior adhered masonry veneers shall have a maximum weight of 20 psf (0.958 kg/m<sup>2</sup>) and shall be installed in accordance with Section 1404.10. Where the interior adhered masonry veneer is supported by wood construction, the supporting members shall be designed to limit deflection to  $\frac{1}{600}$  of the span of the supporting members.

**[BS] 1404.11 Metal veneers.** Veneers of metal shall be fabricated from approved corrosion-resistant materials or shall be protected front and back with porcelain enamel, or otherwise be treated to render the metal resistant to corrosion. Such veneers shall be not less than 0.0149-inch (0.378 mm) nominal thickness sheet steel mounted on wood or metal furring strips or approved sheathing on light-frame construction.

**[BS] 1404.11.1 Attachment.** Exterior metal veneer shall be securely attached to the supporting masonry or framing members with corrosion-resistant fastenings, metal ties or by other approved devices or methods. The spacing of the fastenings or ties shall not exceed 24 inches (610 mm) either vertically or horizontally, but where units exceed 4 square feet (0.4 m<sup>2</sup>) in area there shall be not less than four attachments per unit. The metal attachments shall have a cross-sectional area not less than provided by W 1.7 wire. Such attachments and their supports shall be designed and constructed to resist the wind loads as specified in Section 1609 for components and cladding.

**1404.11.2 Weather protection.** Metal supports for exterior metal veneer shall be protected by painting, galvanizing or by other equivalent coating or treatment. Wood studs, furring strips or other wood supports for exterior metal veneer shall be approved pressure-treated wood or protected as required in Section 1402.2. Joints and edges exposed to the weather shall be caulked with approved durable waterproofing material or by other approved means to prevent penetration of moisture.

**1404.11.3 Backup.** Masonry backup shall not be required for metal veneer unless required by the fire-resistance requirements of this code.

**1404.11.4 Grounding.** Grounding of metal veneers on buildings shall comply with the requirements of Chapter 27 of this code.

**[BS] 1404.12 Glass veneer.** The area of a single section of thin exterior structural glass veneer shall not exceed 10 square feet (0.93 m<sup>2</sup>) where that section is not more than 15 feet (4572 mm) above the level of the sidewalk or grade level directly below, and shall not exceed 6 square feet (0.56 m<sup>2</sup>) where it is more than 15 feet (4572 mm) above that level.

**[BS] 1404.12.1 Length and height.** The length or height of any section of thin exterior structural glass veneer shall not exceed 48 inches (1219 mm).

**[BS] 1404.12.2 Thickness.** The thickness of thin exterior structural glass veneer shall be not less than 0.344 inch (8.7 mm).

**[BS] 1404.12.3 Application.** Thin exterior structural glass veneer shall be set only after backing is thoroughly dry and after application of an approved bond coat uniformly over the entire surface of the backing so as to effectively

forced membranes or breaking strength for reinforced membranes when tested as herein required.

**1504.7 Impact resistance.** Roof coverings installed on low-slope roofs (roof slope < 2:12) in accordance with Section 1507 shall resist impact damage based on the results of tests conducted in accordance with ASTM D3746, ASTM D4272 or the “Resistance to Foot Traffic Test” in Section 4.6 of FM 4470.

**1504.8 Surfacing and ballast materials in hurricane-prone regions.** For a building located in a hurricane-prone region as defined in Section 202, or on any other building with a mean roof height exceeding that permitted by Table 1504.8 based on the exposure category and basic wind speed at the site, the following materials shall not be used on the roof:

1. Aggregate used as surfacing for roof coverings.
2. Aggregate, gravel or stone used as ballast.

**TABLE 1504.8  
MAXIMUM ALLOWABLE MEAN ROOF HEIGHT  
PERMITTED FOR BUILDINGS WITH AGGREGATE ON THE  
ROOF IN AREAS OUTSIDE A HURRICANE-PRONE REGION**

NOMINAL DESIGN WIND SPEED, $V_{asd}$ (mph) <sup>b, d</sup>	MAXIMUM MEAN ROOF HEIGHT (ft) <sup>b, c</sup>		
	Exposure category		
	B	C	D
85	170	60	30
90	110	35	15
95	75	20	NP
100	55	15	NP
105	40	NP	NP
110	30	NP	NP
115	20	NP	NP
120	15	NP	NP
Greater than 120	NP	NP	NP

For SI: 1 foot = 304.8 mm; 1 mile per hour = 0.447 m/s.

- a. Mean roof height as defined in ASCE 7.
- b. For intermediate values of  $V_{asd}$ , the height associated with the next higher value of  $V_{asd}$  shall be used, or direct interpolation is permitted.
- c. NP = gravel and stone not permitted for any roof height.
- d.  $V_{asd}$  shall be determined in accordance with Section 1609.3.1.

**SECTION 1505  
FIRE CLASSIFICATION**

**[BF] 1505.1 General.** Roof assemblies shall be divided into the classes defined in this section. Class A, B and C roof assemblies and roof coverings required to be listed by this section shall be tested in accordance with ASTM E108 or UL 790. In addition, fire-retardant-treated wood roof coverings shall be tested in accordance with ASTM D2898. The minimum roof coverings installed on buildings shall comply with Table 1505.1 based on the type of construction of the building.

**Exception:** Skylights and sloped glazing that comply with Chapter 24 or Section 2610.

**TABLE 1505.1<sup>a</sup>  
MINIMUM ROOF COVERING CLASSIFICATION  
FOR TYPES OF CONSTRUCTION**

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	C	B	C	B	B	C

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m<sup>2</sup>.

a. Unless otherwise required in accordance with Chapter 7A.

**1505.1.1 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.

**1505.1.2 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.

**1505.1.3 Roof coverings within 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.

**1505.1.4 Roofing requirements in a Wildland-Urban Interface Fire Area.** Roofing requirements for structures located in a Wildland-Urban Interface Fire Area shall also comply with Section 705A.

**[BF] 1505.2 Class A roof assemblies.** Class A roof assemblies are those that are effective against severe fire test exposure. Class A roof assemblies and roof coverings shall be listed and identified as Class A by an approved testing agency. Class A roof assemblies shall be permitted for use in buildings or structures of all types of construction.

**Exceptions:**

1. Class A roof assemblies include those with coverings of brick, masonry or an 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 non-

combustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.

3. Class A roof assemblies include minimum 16 ounce per square foot (0.0416 kg/m<sup>2</sup>) copper sheets installed over combustible decks.
4. Class A roof assemblies include slate installed over ASTM D226, Type II underlayment over combustible decks.

**[BF] 1505.3 Class B roof assemblies.** Class B roof assemblies are those that are effective against moderate fire-test exposure. Class B roof assemblies and roof coverings shall be listed and identified as Class B by an approved testing agency.

**[BF] 1505.4 Class C roof assemblies.** Class C roof assemblies are those that are effective against light fire-test exposure. Class C roof assemblies and roof coverings shall be listed and identified as Class C by an approved testing agency.

**[BF] 1505.5 Nonclassified roofing.** Nonclassified roofing is approved material that is not listed as a Class A, B or C roof covering.

**[BF] 1505.6 Fire-retardant-treated wood 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 ICC 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.*

**[BF] 1505.7 Special purpose roofs.** Special purpose wood shingle or wood shake roofing shall conform to the grading and application requirements of Section 1507.8 or 1507.9. In addition, an underlayment of <sup>5</sup>/<sub>8</sub>-inch (15.9 mm) Type X water-resistant gypsum backing board or gypsum sheathing shall be placed under minimum nominal <sup>1</sup>/<sub>2</sub>-inch-thick (12.7 mm) wood structural panel solid sheathing or 1-inch (25 mm) nominal spaced sheathing.

**[BF] 1505.8 Building-integrated photovoltaic products.** Building-integrated photovoltaic products installed as the roof covering shall be tested, listed and labeled for fire classification in accordance with Section 1505.1.

**[BF] 1505.9 Rooftop mounted photovoltaic panel systems.** Rooftop rack-mounted photovoltaic panel systems shall be tested, listed and identified with a fire classification in accordance with UL 1703 and UL 2703. The fire classification shall comply with Table 1505.1 based on the type of construction of the building.

**[BF] 1505.10 Roof gardens and landscaped roofs.** Roof gardens and landscaped roofs shall comply with Section 1505.1 and 1507.16 and shall be installed in accordance with ANSI/SPRI VF-1.

## SECTION 1506 MATERIALS

**1506.1 Scope.** The requirements set forth in this section shall apply to the application of roof-covering materials specified herein. Roof coverings shall be applied in accordance with this chapter and the manufacturer's installation instructions. Installation of roof coverings shall comply with the applicable provisions of Section 1507.

**1506.2 Material specifications and physical characteristics.** Roof-covering materials shall conform to the applicable standards listed in this chapter.

**1506.3 Product identification.** Roof-covering materials shall be delivered in packages bearing the manufacturer's identifying marks and approved testing agency labels required in accordance with Section 1505. Bulk shipments of materials shall be accompanied with the same information issued in the form of a certificate or on a bill of lading by the manufacturer.

## SECTION 1507 REQUIREMENTS FOR ROOF COVERINGS

**1507.1 Scope.** Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions.

**1507.1.1 Underlayment.** Underlayment for asphalt shingles, clay and concrete tile, metal roof shingles, mineral-surfaced roll roofing, slate and slate-type shingles, wood shingles, wood shakes, metal roof panels and photovoltaic shingles shall conform to the applicable standards listed in this chapter. Underlayment materials required to comply with ASTM D226, D1970, D4869 and D6757 shall bear a label indicating compliance with the standard designation and, if applicable, type classification indicated in Table 1507.1.1(1). Underlayment shall be applied in accordance with Table 1507.1.1(2). Underlayment shall be attached in accordance with Table 1507.1.1(3).

### Exceptions:

1. As an alternative, self-adhering polymer modified bitumen underlayment complying with ASTM D1970 and installed in accordance with

**1507.12 Thermoset single-ply roofing.** The installation of thermoset single-ply roofing shall comply with the provisions of this section.

**1507.12.1 Slope.** Thermoset single-ply membrane roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

**1507.12.2 Material standards.** Thermoset single-ply roof coverings shall comply with ASTM D4637 or ASTM D5019.

**1507.12.3 Ballasted thermoset low-slope roofs.** Ballasted thermoset low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and Section 1504.4. Stone used as ballast shall comply with ASTM D448 or ASTM D7655.

**1507.13 Thermoplastic single-ply roofing.** The installation of thermoplastic single-ply roofing shall comply with the provisions of this section.

**1507.13.1 Slope.** Thermoplastic single-ply membrane roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope).

**1507.13.2 Material standards.** Thermoplastic single-ply roof coverings shall comply with ASTM D4434, ASTM D6754 or ASTM D6878.

**1507.13.3 Ballasted thermoplastic low-slope roofs.** Ballasted thermoplastic low-slope roofs (roof slope < 2:12) shall be installed in accordance with this section and Section 1504.4. Stone used as ballast shall comply with ASTM D448 or ASTM D7655.

**1507.14 Sprayed polyurethane foam roofing.** The installation of sprayed polyurethane foam roofing shall comply with the provisions of this section.

**1507.14.1 Slope.** Sprayed polyurethane foam roofs shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope) for drainage.

**1507.14.2 Material standards.** Spray-applied polyurethane foam insulation shall comply with ASTM C1029 Type III or IV or ASTM D7425.

**1507.14.3 Application.** Foamed-in-place roof insulation shall be installed in accordance with the manufacturer's instructions. A liquid-applied protective coating that complies with Table 1507.14.3 shall be applied not less than 2 hours nor more than 72 hours following the application of the foam.

**TABLE 1507.14.3  
PROTECTIVE COATING MATERIAL STANDARDS**

MATERIAL	STANDARD
Acrylic coating	ASTM D6083
Silicone coating	ASTM D6694
Moisture-cured polyurethane coating	ASTM D6947

**1507.14.4 Foam plastics.** Foam plastic materials and installation shall comply with Chapter 26.

**1507.15 Liquid-applied roofing.** The installation of liquid-applied roofing shall comply with the provisions of this section.

**1507.15.1 Slope.** Liquid-applied roofing shall have a design slope of not less than one-fourth unit vertical in 12 units horizontal (2-percent slope).

**1507.15.2 Material standards.** Liquid-applied roofing shall comply with ASTM C836, ASTM C957, ASTM D1227 or ASTM D3468, ASTM D6083, ASTM D6694 or ASTM D6947.

**1507.16 Vegetative roofs, roof gardens and landscaped roofs.** Vegetative roofs, roof gardens and landscaped roofs shall comply with the requirements of this chapter, Section 1607.13.3 and the *California Fire Code*.

**[BF] 1507.16.1 Structural fire resistance.** The structural frame and roof construction supporting the load imposed on the roof by the vegetative roof, roof gardens or landscaped roofs shall comply with the requirements of Table 601.

**1507.17 Photovoltaic shingles.** The installation of photovoltaic shingles shall comply with the provisions of this section.

**1507.17.1 Deck requirements.** Photovoltaic shingles shall be applied to a solid or closely fitted deck, except where the shingles are specifically designed to be applied over spaced sheathing.

**1507.17.2 Deck slope.** Photovoltaic shingles shall be installed on roof slopes of not less than two units vertical in 12 units horizontal (2:12).

**1507.17.3 Underlayment.** Underlayment shall comply with Section 1507.1.1.

**1507.17.4 Ice barrier.** Where required, ice barriers shall comply with Section 1507.1.2.

**1507.17.5 Fasteners.** Fasteners for photovoltaic shingles shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12-gage [0.105 inch (2.67 mm)] shank with a minimum 3/8-inch-diameter (9.5 mm) head, of a length to penetrate through the roofing materials and not less than 3/4 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 3/4 inch (19.1 mm) thick, the nails shall penetrate through the sheathing. Fasteners shall comply with ASTM F1667.

**1507.17.6 Material standards.** Photovoltaic shingles shall be listed and labeled in accordance with UL 1703.

**1507.17.7 Attachment.** Photovoltaic shingles shall be attached in accordance with the manufacturer's installation instructions.

**1507.17.8 Wind resistance.** Photovoltaic shingles shall be tested in accordance with procedures and acceptance criteria in ASTM D3161. Photovoltaic shingles shall comply with the classification requirements of Table 1504.1.1 for

the appropriate maximum nominal design wind speed. Photovoltaic shingle packaging shall bear a label to indicate compliance with the procedures in ASTM D3161 and the required classification from Table 1504.1.1.

**1507.18 Building-integrated photovoltaic roof panels.** The installation of building-integrated photovoltaic (BIPV) roof panels shall comply with the provisions of this section.

**1507.18.1 Deck requirements.** BIPV roof panels shall be applied to a solid or closely fitted deck, except where the roof covering is specifically designed to be applied over spaced sheathing.

**1507.18.2 Deck slope.** BIPV roof panels shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater.

**1507.18.3 Underlayment.** Underlayment shall comply with ASTM D226, ASTM D4869 or ASTM D6757.

**1507.18.4 Underlayment application.** Underlayment shall be applied shingle fashion, parallel to and starting from the eave, lapped 2 inches (51 mm) and fastened sufficiently to hold in place.

**1507.18.4.1 High-wind attachment.** Underlayment applied in areas subject to high winds [ $V_{asd}$  greater than 110 mph (49 m/s) as determined in accordance with Section 1609.3.1] shall be applied in accordance with the manufacturer’s instructions. Fasteners shall be applied along the overlap at not more than 36 inches (914 mm) on center. Underlayment installed where  $V_{asd}$  is not less than 120 mph (54 m/s) shall comply with ASTM D226, Type III, ASTM D4869, Type IV or ASTM D6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. The underlayment shall be applied in accordance with Section 1507.1.1 except all laps shall be not less than 4 inches (102 mm). Underlayment shall be attached using cap nails or cap staples. Caps shall be metal or plastic with a nominal head diameter of not less than 1 inch (25.4 mm). Metal caps shall have a thickness of not less than 0.010 inch (0.25 mm). Power-driven metal caps shall have a thickness of not less than 0.010 inch (0.25 mm). Thickness of the outside edge of plastic caps shall be not less than 0.035 inch (0.89 mm). The cap nail shank shall be not less than 0.083 inch (2.11 mm) for ring shank cap nails and 0.091 inch (2.31 mm) for smooth shank cap nails. Staple gage shall be not less than 21 gage [0.02 inch (0.81 mm)]. Cap nail shank and cap staple legs shall have a length sufficient to penetrate through-the-roof sheathing or not less than  $\frac{3}{4}$  inch (19.1 mm) into the roof sheathing.

**Exception:** As an alternative, adhered underlayment complying with ASTM D1970 shall be permitted.

**1507.18.4.2 Ice barrier.** In areas where there has been a history of ice forming along the eaves causing a back-up of water, an ice barrier consisting of not fewer than two layers of underlayment cemented together or of a self-adhering polymer/modified bitumen sheet shall be used instead of normal underlayment and extend from the lowest edges of all roof surfaces to a point not less

than 24 inches (610 mm) inside the exterior wall line of the building.

**Exception:** Detached accessory structures that do not contain conditioned floor area.

**1507.18.5 Material standards.** BIPV roof panels shall be listed and labeled in accordance with UL 1703.

**1507.18.6 Attachment.** BIPV roof panels shall be attached in accordance with the manufacturer’s installation instructions.

**1507.18.7 Wind resistance.** BIPV roof panels shall be tested in accordance with UL 1897. BIPV roof panel packaging shall bear a label to indicate compliance with UL 1897.

**SECTION 1508  
ROOF INSULATION**

**[BF] 1508.1 General.** The use of above-deck thermal insulation shall be permitted provided that such insulation is covered with an approved roof covering and passes the tests of NFPA 276 or UL 1256 when tested as an assembly.

**Exceptions:**

1. Foam plastic roof insulation shall conform to the material and installation requirements of Chapter 26.
2. Where a concrete roof deck is used and the above-deck thermal insulation is covered with an approved roof covering.

**[BF] 1508.2 Material standards.** Above-deck thermal insulation board shall comply with the standards in Table 1508.2.

**[BF] TABLE 1508.2  
MATERIAL STANDARDS FOR ROOF INSULATION**

Cellular glass board	ASTM C552
Composite boards	ASTM C1289, Type III, IV, V or VII
Expanded polystyrene	ASTM C578
Extruded polystyrene	ASTM C578
Fiber-reinforced gypsum board	ASTM C1278
Glass-faced gypsum board	ASTM C1177
High-density polyisocyanurate board	ASTM C1289, Type II, Class 4
Mineral fiber insulation board	ASTM C726
Perlite board	ASTM C728
Polyisocyanurate board	ASTM C1289, Type I or II
Wood fiberboard	ASTM C208, Type II

**SECTION 1509  
RADIANT BARRIERS INSTALLED ABOVE DECK**

**[BF] 1509.1 General.** A radiant barrier installed above a deck shall comply with Sections 1509.2 through 1509.4.

**[BF] 1509.2 Fire testing.** Radiant barriers shall be permitted for use above decks where the radiant barrier is covered with an approved roof covering and the system consisting of the

listed and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer’s instructions.

**Exception:** [BSC] The effective wind area shall be in accordance with Chapter 16 and ASCE 7 Section 26.2.

**1510.7.2.1 Installation.** [DSA-SS, DSA-SS/CC, HCD 1 & HCD 2, OSHPD 1, 1R, 2, 4 & 5] Supports and attachments of photovoltaic panels to the roof structure, the panels, modules and components shall be designed for applied loads per this code, and shall comply with industry standards determined applicable by the enforcement agency. Seismic design requirements shall be determined from ASCE 7 Section 13.6.12. Wind design pressures shall be determined from ASCE 7 Section 29.4.3 or 29.4.4 using effective wind area per ASCE 7 Section 26.2. Calculations and drawings of the supports and attachments shall be submitted to the enforcement agency for review.

**[BG] 1510.8 Other rooftop structures.** Rooftop structures not regulated by Sections 1510.2 through 1510.7 shall comply with Sections 1510.8.1 through 1510.8.5, as applicable.

**[BG] 1510.8.1 Aerial supports.** Aerial supports shall be constructed of noncombustible materials.

**Exception:** Aerial supports not greater than 12 feet (3658 mm) in height as measured from the roof deck to the highest point on the aerial supports shall be permitted to be constructed of combustible materials.

**[BG] 1510.8.2 Bulkheads.** Bulkheads used for the shelter of mechanical or electrical equipment or vertical shaft openings in the roof assembly shall comply with Section 1510.2 as penthouses. Bulkheads used for any other purpose shall be considered as an additional story of the building.

**[BG] 1510.8.3 Dormers.** Dormers shall be of the same type of construction as required for the roof in which such dormers are located or the exterior walls of the building.

**[BG] 1510.8.4 Fences.** Fences and similar structures shall comply with Section 1510.6 as mechanical equipment screens.

**[BG] 1510.8.5 Flagpoles.** Flagpoles and similar structures shall not be required to be constructed of noncombustible materials and shall not be limited in height or number.

**[BG] 1510.9 Structural fire resistance.** The structural frame and roof construction supporting loads imposed upon the roof by any rooftop structure shall comply with the requirements of Table 601. The fire-resistance reduction permitted by Table 601, Note a, shall not apply to roofs containing rooftop structures.

**SECTION 1511  
REROOFING**

**1511.1 General.** Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

**Exceptions:**

1. Roof replacement or roof recover of existing low-slope roof coverings shall not be required to meet

the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.

2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1502.2 for roofs that provide for positive roof drainage. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1502.2.

**1511.2 Structural and construction loads.** Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.

**1511.3 Roof replacement.** Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck.

**Exception:** Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

**1511.3.1 Roof recover.** The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

1. Where the new roof covering is installed in accordance with the roof covering manufacturer’s approved instructions.
2. Complete and separate roofing systems, such as standing-seam metal roof panel systems, that are designed to transmit the roof loads directly to the building’s structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.
3. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1511.4.
4. The application of a new protective roof coating over an existing protective roof coating, metal roof panel, built-up roof, spray polyurethane foam roofing system, metal roof shingles, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings.

**1511.3.1.1 Exceptions.** A roof recover shall not be permitted where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.
2. Where the existing roof covering is slate, clay, cement or asbestos-cement tile.

- Where the existing roof has two or more applications of any type of roof covering.

**1511.4 Roof recovering.** Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber, glass fiber or other approved materials securely fastened in place.

**1511.5 Reinstallation of materials.** Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

**1511.6 Flashings.** Flashings shall be reconstructed in accordance with approved manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

## SECTION 1512 PHOTOVOLTAIC PANELS AND MODULES

**1512.1 Photovoltaic panels and modules.** Photovoltaic panels and modules installed on a roof or as an integral part of a roof assembly shall comply with the requirements of this code (see Section 3111) and the California Fire Code.

## SECTION 1513 [DSA-SS & DSA-SS/CC, OSHPD 1, 1R, 2, 4 & 5] SEISMIC ANCHORAGE OF SLATE SHINGLE, CLAY AND CONCRETE TILE ROOF COVERINGS

**1513.1 Fasteners.** Nails shall be long enough to penetrate into the sheathing  $\frac{3}{4}$  inch (19 mm). Where sheathing is less than  $\frac{3}{4}$  inch (19 mm) in thickness, nails shall be driven into supports, unless nails with ring shanks are used.

All fasteners shall be corrosion resistant and fabricated of copper, stainless steel, or brass, or shall have a hot dipped galvanized coating not less than 1.0 ounce of zinc per square foot (305 gm/m<sup>2</sup>).

Nails for slate shingles and clay or concrete tile shall be copper, brass or stainless steel with gage and length per common ferrous nails.

**1513.2 Wire.** Wire for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.

Wire supporting a single tile or shingle shall not be smaller than  $\frac{1}{16}$  inch (1.6 mm) in diameter. Continuous wire ties supporting more than one tile shall not be smaller than 0.084 inch (2 mm) in diameter.

**1513.3 Metal strips.** Metal strips for attaching slate shingles and clay or concrete tile shall be copper, brass or stainless steel capable of supporting four times the weight of tile.

**1513.4 Clay or concrete tiles.** Clay or concrete tile shall be installed in accordance with Table 1507.3.7 and as described herein.

- On wood roofs or roofs of other material to which wood strips are secured, every cover or top tile when fastened with nails shall be nailed directly into  $1\frac{1}{4}$  inches (32 mm) sound grain soft wood strips of sufficient height to support the tile.

Pan or bottom tiles shall be nailed directly to the roof sheathing or to wood strips. Wood strips shall be secured to the roof by nails spaced not over 12 inches (305 mm) apart.

- On concrete roofs, wires shall be secured in place by wire loops embedded into the concrete not less than 2 inches (51 mm). The wire loops shall be spaced not more than 36 inches (914 mm) on center parallel to the eaves, and spaced vertically to allow for the minimum 3 inches (76 mm) lapping of the tile.
- Where continuous ties of twisted wire, interlocking wires or metal strips extending from the ridge to eave are used to attach tile, the ties shall be attached to the roof construction at the ridge, eave and at intervals not exceeding 10 feet 0 inch (3048 mm) on center. The ties within 2 feet 0 inch (610 mm) of the rake shall be attached at intervals of 5 feet 0 inch (1524 mm).

Attachment for continuous ties shall be nails, screws staples or approved clips of the same material as the ties, and shall not be subjected to withdrawal forces. Attachments for continuous ties shall have an allowable working stress shear resistance of not less than twice the dead weight of the tile tributary to the attachment, but not less than 300 pounds (136 kg).

- Tile with projecting anchor lugs at the bottom of the tiles shall be held in position by means of 1-inch by 2-inch (25mm by 51mm) wood stripping nailed to the roof sheathing over the underlay.
- Clay or concrete tile on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer in Chapter 14. The nose of all tiles shall be securely fastened.
- Clay or concrete tile shall have a minimum of two fasteners per tile. Tiles that are 8 inches (203 mm) in width or less are permitted to be fastened at the center of the head with one fastener per tile.
- Interlocking clay or concrete tile shall have a minimum of one nail near center of head or two wire ties per tile.

**1513.5 Slate shingles.** Slate shingles on roofs with slopes exceeding 24 units vertical in 12 units horizontal (200 percent slope) shall be attached as required for veneer per Chapter 14.

# HISTORY NOTE APPENDIX

## 2019 California Building Code California Code of Regulations, Title 24, Part 2

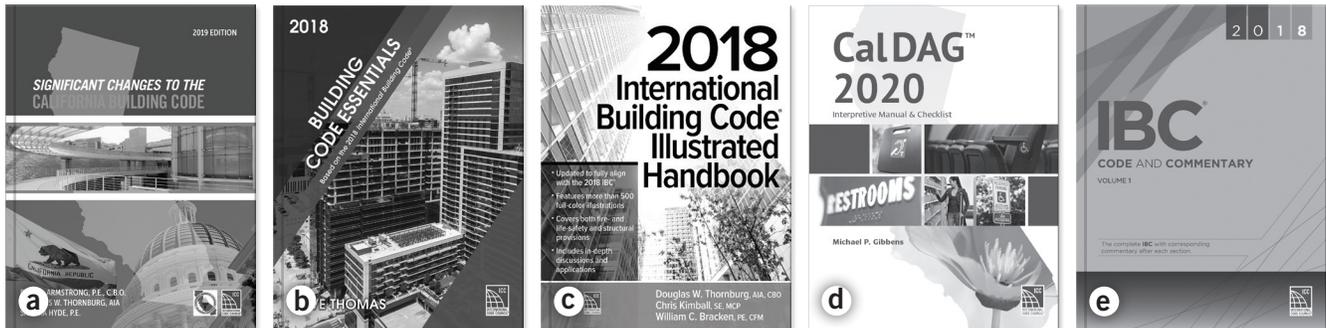
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### HISTORY:

For prior code history, see the History Note Appendix to the *California Building Code* 2016 Triennial Edition, effective January 1, 2017.

1. BSC 02/18, HCD 03/18, DSA-SS/CC 02/18, DSA/AC 01/18, SFM 01/18, OSHPD 02/18 and OSHPD 03/18, CDPH 01/18, SLC 01/18, BSCC 01/18 -- Adoption of the 2018 edition of the *International Building Code* published by the International Code Council, for incorporation into the 2019 *California Building Code*, CCR Title 24, Part 2 with amendments for state-regulated occupancies effective on January 1, 2020.
2. Erratum to correct editorial errors in Matrix Adoption Tables and miscellaneous corrections throughout chapters 2, 3, 4, 5, 9, 10, 11, 12, 14, 15, 16, 16A, 17, 17A, 18, 18A, 20, 22, 22A, 23, 25, 27, 35, effective January 1, 2020.





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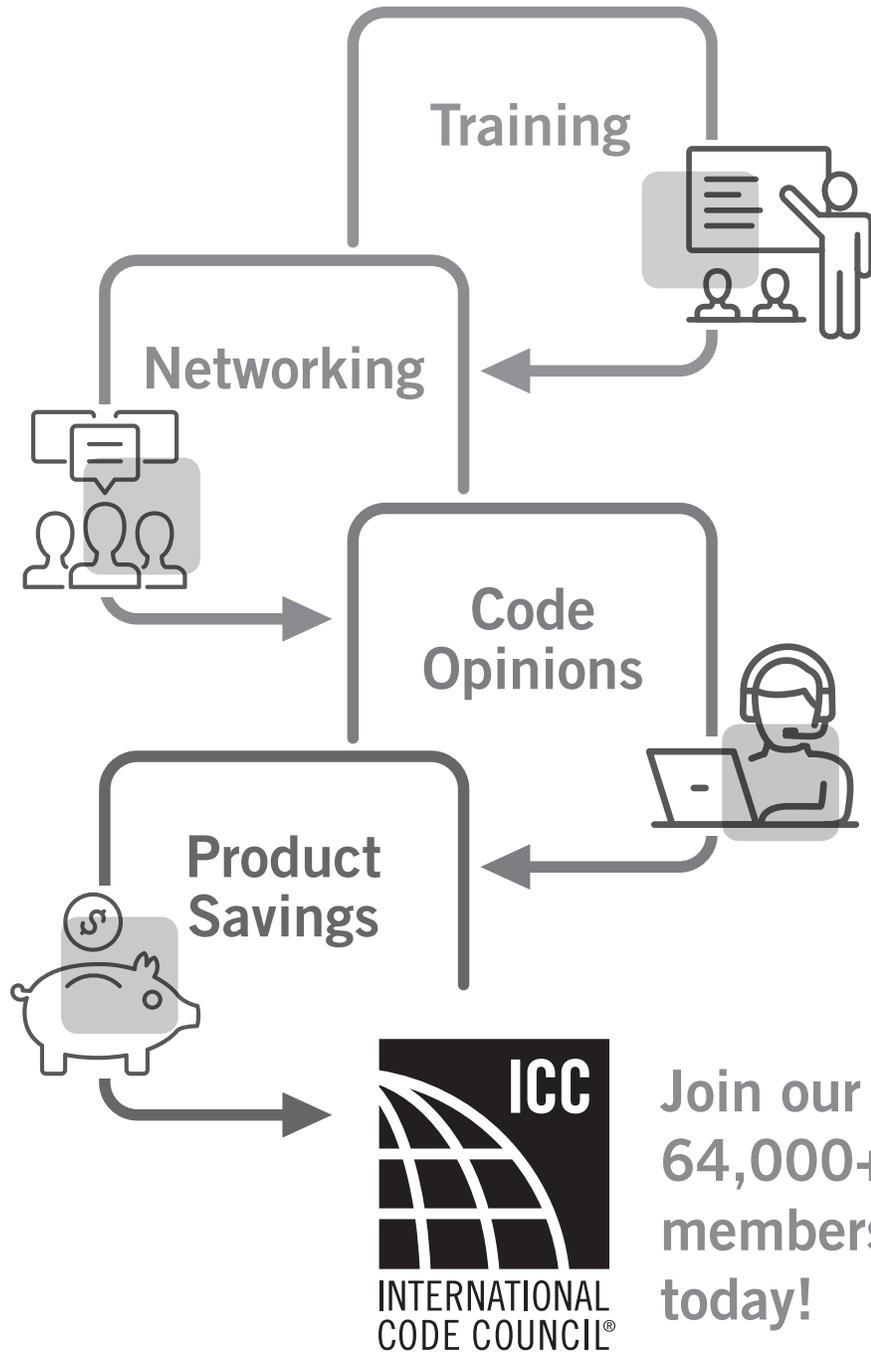
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