REVISION RECORD FOR THE STATE OF CALIFORNIA

SUPPLEMENT

July 1, 2012

2010 Title 24, Part 9, California Fire Code

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

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suggested that the section number, as well as the page number be checked when inserting this material and removing the superseded material.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

It is further suggested that the superseded material be retained with this revision record sheet so that the prior wording of any section can be easily ascertained.

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

Note

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specifications, and construction for that permit, it is strongly recommended that the removed pages be retained for historical reference.

Part 9

Remove Existing Pages	Insert Blue-Colored Pages
vii and viii	vii and viii
xix through xxvi	xix through xxvi.4
1 and 2	1 and 2
7 through 10	7 through 9.2
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California Matrix Adoption Tables

Format of the California Matrix Adoption Tables

The matrix adoption tables, which follow, show the user which state agencies have adopted and/or amended given sections of the model code. The building application determines which state agency's adoptions apply. See Sections 1.8 through 1.11 for building applications and enforcement responsibilities.

Agencies are grouped together, based on either local or state enforcement responsibilities. For example, regulations from SFM are enforced both at the state and local levels; therefore, SFM is listed twice in each adoption table indicating state enforcement responsibilities and local enforcement responsibilities.

The side headings identify the scope of state agencies' adoption as follows:

Adopt the entire IFC chapter without state amendments.

If there is an "X" under a particular state agency's acronym on this row; this means that particular state agency has adopted the entire model code chapter without any state amendments.

Example:

CHAPTER 2 – DEFINITIONS AND ABBREVIATIONS

Adopting agency			HCD			DSA			OSHPD										
	BSC	SFM	1	2	1-AC	AC	SS	SS/CC	1	2	3	4	CSA	DPH	AGR	DWR	CA	SL	SLC
Adopt entire chapter		X																	
Adopt entire chapter as amended (amended sections listed below)						S	A	M	P	L	E								
Adopt only those sections that are listed below																			
Chapter/Section																			

Adopt the entire IFC chapter as amended, state-amended sections are listed below:

If there is an "X" under a particular state agency's acronym on this row, it means that particular state agency has adopted the entire model code chapter; with state amendments.

Each state-amended section that the agency has added to that particular chapter is listed. There will be an "X" in the column, by that particular section, under the agency's acronym, as well as an "X" by each section that the agency has adopted.

Example:

CHAPTER 2 – DEFINITIONS AND ABBREVIATIONS

Adopting agency			HCD			DSA			OSHPD										
	BSC	SFM	1	2	1-AC	AC	SS	SS/CC	1	2	3	4	CSA	DPH	AGR	DWR	CA	SL	SLC
Adopt entire chapter																			
Adopt entire chapter as amended (amended sections listed below)		X																	
Adopt only those sections that are listed below						S	A	M	P	L	E								
Chapter/Section																			
202		X																	

Adopts only those sections that are listed below:

If there is an "X" under a particular state agency's acronym on this row, it means that particular state agency is adopting only specific model code or state-amended sections within this chapter. There will be an "X" in the column under the agency's acronym, as well as an "X" by each section that the agency has adopted.

Example:

CHAPTER 2 – DEFINITIONS AND ABBREVIATIONS

									DSA			HCD			OSHPD				
Adopting Agency	BSC	DPH	CSA	SL	CA	DWR	AGR	CEC	AC	SS	SS-CC	1	2	1/AC	1	2	3	4	SFM
Adopt entire chapter																			
Adopt entire chapter as amended (amended sections listed below)					S	A	M	P	L	E									
Adopt only those sections that are listed below													X	X					
Chapter 1																			
202					S	A	M	P	L	E			X	X					
202						C	O	N	T.				X	X					
203													X	X					
203													X	X					

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California Matrix Adoption Tables with California Code of Regulations, Title 19, Division 1

State Fire Marshal T-24 Column:
If there is an "X" in the T-24 column under SFM, refer to the California Matrix Adoption Tables explaining how to use the matrix adoption tables.

State Fire Marshal T-19 Column:
If there is an "X" in the T-19 column under SFM, this means that the corresponding section was reprinted from the California Code of Regulations (CCR), Title 19, Division 1 into the *California Fire Code* for the code user's convenience. The corresponding Title-19 sections were listed in the matrix adoption tables in the order that they appear in the *California Fire Code*. The scope, applicability and appeals procedures of CCR, Title 19, Division 1 has not changed. For information regarding the specific purpose and scope of CCR, Title 19, unless otherwise specified, refer to CCR, Title 19, Division 1, Chapter 1, Subchapter 1, Article 1, Sections 1.00 through 1.14.

Example:

CHAPTER 3 – GENERAL PRECAUTIONS AGAINST FIRE

		SFM		HCD			DSA		OSHPD											
Adopting Agency	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt Entire Chapter																				
Adopt Entire Chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below		X																		
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section							S	A	M	P	L	E								
301		X																		
[T-19 §3.14]			X																	
[T-19 §3.19 (a-g)]			X																	
304		X																		
[T-19 §3.07(a)]			X																	
[T-19 §3.07(b)]			X																	

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals procedures of CCR, Title 19, Division 1 remains the same.

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CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE
CHAPTER 1 – SCOPE AND ADMINISTRATION

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below		X																		
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
Division I																				
1.1 – 1.12		X																		
1.11 – 1.11.10		X																		
Division II																				
102.1 – 102.5		X																		
102.9		X																		
104.2		X																		
104.5		X																		
104.7 – 104.7.2		X																		
104.10		X																		
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105.2.4		X																		
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105.3.3 – 105.3.8		X																		
105.4 – 105.4.6		X																		
105.5		X																		
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Table 105.6.8		X																		
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105.6.13 – 105.6.15		X																		
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Table 105.6.20		X																		
105.6.21 – 105.6.26		X																		
105.6.43		X																		
105.6.46		X																		
105.6.47		X																		
105.7 – 105.7.14		X																		
106.2 – 106.4		X																		
109 – 109.3.1		X																		
110.1 – 110.4		X																		
111 – 111.4		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

and districts providing fire protection services on request of the chief fire official or the governing body.

5. *Any fee charged pursuant to the enforcement authority of this section shall not exceed the estimated reasonable cost of providing the service for which the fee is charged pursuant to Section 66014 of the Government Code.*

[California Code of Regulations, Title 19, Division 1, §1.11] Enforcement of Regulations.

In most instances the application of California Code of Regulations, Title 19, Division 1 to existing occupancies will necessitate the granting of sufficient time to effect the necessary changes. The inspection authority must, therefore, exercise good judgment in authorizing sufficient time to complete the required changes, taking into consideration the degree of danger to life in event of fire while rectification is being carried out. The inspection authority may require immediate compliance with any or all of the regulations, or he may grant a reasonable length of time in which to conform.

[California Code of Regulations, Title 19, Division 1, §3.12] Enforcement Agency.

(a) The provisions of California Code of Regulations, Title 19, Division 1 regulations shall be enforced by the State Fire Marshal, the chief of any city or county fire department or fire protection district, and their authorized representatives, in their respective areas of jurisdiction.

(b) The division of authority for the enforcement of these regulations shall be in accordance with the following:

(1) The chief of any city or county fire department or fire protection district, and their authorized representatives shall enforce the rules and regulations in their respective areas.

(2) The State Fire Marshal shall have authority to enforce the rules and regulations in areas outside of corporate cities and county fire protection districts.

(3) The State Fire Marshal shall have authority to enforce the rules and regulations in corporate cities and county fire protection districts upon request of the chief fire official or the governing body.

(c) Regardless of the provisions of subsections (a) and (b) above, these regulations shall be enforced in state institutions, state-owned and state-occupied buildings in accordance with the provisions of Section 13108, Health and Safety Code.

(d) Regardless of the above provisions of this section, these regulations shall be enforced only by the State Fire Marshal in every jail or place of detention for persons charged with or convicted of a crime, unless the chief of a city or county fire department or fire protection district, or such chief's authorized representative, indicates in writing to the State Fire Marshal that inspections of such jails or places of detention will be conducted by the chief or such person's authorized representative, in their respective area of jurisdiction. The inspections shall be made at least once every two years for the purpose of enforcing the regulations adopted by the State Fire Marshal, pursuant to Section 13143. Reports of inspection conducted pursuant to this subsection shall be on forms provided by the State Fire Marshal and shall be submitted to the official in charge of the facility, the local governing body, the State Fire Marshal and the Corrections Standards Authority within 30 days of the inspections.

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

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

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

1.11.2.1.3 *Pursuant to Health and Safety Code Section 13112, any person who violates any order, rule or regulation of the State Fire Marshal is guilty of a misdemeanor punishable by a fine of not less than $100.00 or more than $500.00, or by imprisonment for not less than six months, or by both. A person is guilty of a separate*

offense each day during which he or she commits, continues or permits a violation of any provision of, or any order, rule or regulation of, the State Fire Marshal as contained in this code.

Any inspection authority who, in the exercise of his or her authority as a deputy State Fire Marshal, causes any legal complaints to be filed or any arrest to be made shall notify the State Fire Marshal immediately following such action.

1.11.2.2 Right of entry. *The fire chief of any city, county or fire protection district, or such person's authorized representative, may enter any state institution or any other state-owned or state-occupied building for the purpose of preparing a fire suppression preplanning program or for the purpose of investigating any fire in a state-occupied building.*

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

[California Code of Regulations, Title 19, Division 1, §1.08] Report of Arrest.

Any inspection authority who, in the exercise of his authority as a Deputy State Fire Marshal, causes any legal complaints to be filed or any arrest to be made shall notify the State Fire Marshal immediately following such action.

[California Code of Regulations, Title 19, Division 1, §1.13] Penalty.

Section 13112 of the Health and Safety Code provides that:

(a) "Every person who violates any provision of this chapter, or any order, rule or regulation made pursuant to this chapter is guilty of a misdemeanor punishable by a fine of not less than one hundred dollars ($100) or more than five hundred dollars ($500), or by imprisonment for not more than six months, or by both."

(b) "A person is guilty of a separate offense each day during which he commits, continues, or permits a violation of any provision of, or any order, rule or regulation made pursuant to, this chapter."

1.11.2.3 More restrictive fire and panic safety building standards.

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

1.11.2.3.2 *Any fire protection district that proposes to adopt an ordinance pursuant to this section shall, not less than 30 days prior to noticing a proposed ordinance for public hearing, provide a copy of that ordinance, together with the adopted findings made pursuant to Section 1.11.2.3.1, to the city, county, or city and county where the ordinance will apply. The city, county, or city and county may provide the district with written comments, which shall become part of the fire protection district's public hearing record.*

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

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

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

Approval of a request for use of an alternative material, assembly of materials, equipment, method of construction, method of installation of equipment or means of protection made pursuant to these provisions shall be limited to the

particular case covered by request and shall not be construed as establishing any precedent for any future request.

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

1.11.3 Construction documents.

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

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

1.11.3.3 New construction high-rise buildings.

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

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

1.11.3.4 Existing high-rise buildings.

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

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

1.11.4 Fees.

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

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

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

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

1.11.4.5 Care facilities. *The primary fire enforcing agency shall complete the final fire clearance inspection for a com-*

munity care facility, residential care facility for the elderly, or child day-care facility within 30 days of receipt of the request for the final inspection, or as of the date the prospective facility requests the final prelicensure inspection by the State Department of Social Services, whichever is later.

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

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

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

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

1.11.5 Inspections. *Work performed subject to the provisions of this Code shall comply with the inspection requirements contained in Section 106 as adopted by the Office of the State Fire Marshal.*

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

1.11.6 Certificate of Occupancy. *A Certificate of Occupancy shall be issued as specified in Title 24, Part 2, California Building Code, Section 111.*

1.11.7 Temporary Structures and Uses. *See Title 24, Part 2, California Building Code, Section 107.*

1.11.8 Service Utilities. *See Title 24, Part 2, California Building Code, Section 112.*

1.11.9 Stop Work Order. *See Title 24, Part 2, California Building Code, Section 115.*

1.11.10 Unsafe Buildings, Structures and Equipment. *See Title 24, Part 2, California Building Code, Section 116.*

[California Code of Regulations, Title 19, Division 1, §1.03] Scope.

(a) California Code of Regulations, Title 19, Division 1 regulations shall govern the use and maintenance of any building or structure used or intended for use as an asylum, jail, mental hospital, hospital, sanitarium, home for aged, children's home or institution, school or any similar occupancy of any capacity; and any theater, dance hall, skating rink, auditorium, assembly hall, meeting hall, night club, fair building, or similar place of assemblage where 50 or more persons may gather together in a building, room or structure for the purpose of amusement, entertainment, instruction, deliberation, worship, drinking or dining, awaiting transportation, or education, and in any building or structure which is open to the public and is used or intended to be used for the showing of motion pictures when an admission fee is charged and when such building or structure has a capacity of 10 or more persons, and shall apply to both new and existing occupancies.

Exception:

(1) Buildings controlled by the Federal Government, provided they are not subject to the provisions of Section 15452, Education Code.

(2) Homes and institutions and day care facilities which provide nonmedical board, room, and care for 6 or fewer ambulatory children.

California Code of Regulations, Title 19, Division 1 regulations shall also apply to any building housing any occupancy when such building is used as an auxiliary or accessory structure to any of the occupancies specified herein. They do not apply to structural requirements not relating to fire and panic safety nor to matters dealing exclusively with health and sanitation.

(b) In accordance with Section 13108 of theHealth and Safety Code, California Code of Regulations, Title 19, Division 1 regulations shall govern the design and construction relating to fire protection in any state institution and in any state-owned or state-occupied building. For purposes of California Code of Regulations, Title 19, Division 1 regulations, "state-occupied buildings" are defined as those portions of a building which are leased or rented by the state and shall include all required exits leading therefrom to a public way. Portions of state-occupied buildings which are not leased or rented by the state shall not fall within the scope of this subsection unless such portions present an exposure hazard to the state-occupied area.

(c) California Code of Regulations, Title 19, Division 1 regulations shall also govern the use and maintenance of "organized camps" as defined in Section 18897, Health and Safety Code.

(d) California Code of Regulations, Title 19, Division 1 regulations shall also govern the use and maintenance of any building or structure used or intended for the housing of any person of any age when such person is referred to or placed within such home or facility for protective social care and supervision services by any governmental agency.

(e) California Code of Regulations, Title 19, Division 1 regulations shall also govern the construction, use

and maintenance of 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. For the purpose of this subsection, "building access" shall mean 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 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.

(f) California Code of Regulations, Title 19, Division 1 regulations shall also apply to vehicles, ships and boats or other mobile structures when fixed in a specific location and used for any occupancy within the scope of this section.

***Note:** Unless otherwise specified, Title 19 applies to all building occupancies, and related features and equipment throughout the state.*

[California Code of Regulations, Title 19, Division 1, §1.09.1] Order of Precedence.

In the event of any differences between California Code of Regulations, Title 19, Division 1 regulations and the standard reference documents or standard fire prevention practices, the text of California Code of Regulations, Title 19, Division 1 regulations shall govern. Where a specific provision varies from a general provision, the specific provision shall apply.

DIVISION II
ADMINISTRATION

PART 1—GENERAL PROVISIONS

SECTION 101
GENERAL

101.1 Title. These regulations shall be known as the *Fire Code* of [NAME OF JURISDICTION], hereinafter referred to as "this code."

101.2 Scope. This code establishes regulations affecting or relating to structures, processes, premises and safeguards regarding:

1. The hazard of fire and explosion arising from the storage, handling or use of structures, materials or devices;
2. Conditions hazardous to life, property or public welfare in the occupancy of structures or premises;
3. Fire hazards in the structure or on the premises from occupancy or operation;
4. Matters related to the construction, extension, repair, alteration or removal of fire suppression or alarm systems; and
5. Conditions affecting the safety of fire fighters and emergency responders during emergency operations.

101.2.1 Appendices. Provisions in the appendices shall not apply unless specifically adopted.

101.3 Intent. The purpose of this code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations.

101.4 Severability. If a section, subsection, sentence, clause or phrase of this code is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this code.

101.5 Validity. In the event any part or provision of this code is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions hereof, which are determined to be legal; and it shall be presumed that this code would have been adopted without such illegal or invalid parts or provisions.

SECTION 102
APPLICABILITY

102.1 Construction and design provisions. The construction and design provisions of this code shall apply to:

1. Structures, facilities and conditions arising after the adoption of this code.
2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.
3. Existing structures, facilities and conditions when required in Chapter 46.
4. Existing structures, facilities and conditions which, in the opinion of the *fire code official*, constitute a distinct hazard to life or property.

102.2 Administrative, operational and maintenance provisions. The administrative, operational and maintenance provisions of this code shall apply to:

1. Conditions and operations arising after the adoption of this code.
2. Existing conditions and operations.

102.3 Change of use or occupancy. No change shall be made in the use or occupancy of any structure that would place the structure in a different division of the same group or occupancy or in a different group of occupancies, unless such structure is made to comply with the requirements of this code and the *California Building Code*. Subject to the approval of the *fire code official*, the use or occupancy of an existing structure shall be allowed to be changed and the structure is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code and the *California Building Code* for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

102.4 Application of building code. The design and construction of new structures shall comply with the *California Building Code*, and any *alterations*, additions, changes in use or changes in structures required by this code, which are within the scope of the *California Building Code*, shall be made in accordance therewith.

102.5 Application of residential code. Where structures are designed and constructed in accordance with the *California Residential Code*, the provisions of this code shall apply as follows:

1. Construction and design provisions: Provisions of this code pertaining to the exterior of the structure shall apply including, but not limited to, premises identification, fire apparatus access and water supplies. Where interior or exterior systems or devices are installed, construction permits required by Section 105.7 of this code shall also apply.
2. Administrative, operational and maintenance provisions: All such provisions of this code shall apply.

102.6 Historic buildings. The provisions of this code relating to the construction, *alteration*, repair, enlargement, restoration, relocation or moving of buildings or structures shall not be mandatory for existing buildings or structures identified and classified by the state or local jurisdiction as historic buildings when such buildings or structures do not constitute a distinct hazard to life or property. Fire protection in designated historic

CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE
CHAPTER 2 – DEFINITIONS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
Aged Home or Institution		X																		
Assembly		X																		
Assembly Building		X																		
Bedridden Person		X																		
Building		X																		
Care and Supervision		X																		
Catastrophically Injured		X																		
Cell		X																		
Cell Complex		X																		
Cell Tiers		X																		
Child Care Center		X																		
Child or Children		X																		
Chronically Ill		X																		
Congregate Living Health Facility (CLHF)		X																		
Congregate Residence		X																		
Day-Care		X																		
Day-Care Home, Family		X																		
Day-Care Home, Large Family		X																		
Day-Care Home, Small Family		X																		
Day Room		X																		
Enforcing Agency		X																		
Fire Appliance		X																		
Fixed Guideway Transit System		X																		
Full-Time Care		X																		

continued

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
High-Rise Building		X																		
Holding Facility		X																		
Housing Unit		X																		
Infant		X																		
Laboratory		X																		
Lodging House		X																		
Mentally Retarded Persons, Profoundly or Severely		X																		
Modernization Project		X																		
New Public School Campus		X																		
Nonaccessible Area		X																		
Nonambulatory Persons		X																		
Noncombustible		X																		
Occupancy Classification		X																		
Permanent Portable Building		X																		
Portable Building		X																		
Portable Building, Exempted		X																		
Protective Social Care Facility		X																		
Residential Care Facility for the Chronically Ill (RCF/CI)		X																		
Residential Care Facility For The Elderly (RCFE)		X																		
Residential Facility (RF)		X																		
Restraint		X																		
Terminally Ill		X																		
Winery Caves		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CHAPTER 2
DEFINITIONS

SECTION 201
GENERAL

201.1 Scope. Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings shown in this chapter.

201.2 Interchangeability. Words used in the present tense include the future; words stated in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural, the singular.

201.3 Terms defined in other codes. Where terms are not defined in this code and are defined in the *California Building Code, California Mechanical Code* or *California Plumbing Code*, such terms shall have the meanings ascribed to them as in those codes.

201.4 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies. *Merriam Webster's Collegiate Dictionary, 11th Edition*, shall be considered as providing ordinarily accepted meanings.

SECTION 202
GENERAL DEFINITIONS

[B] ACCESSIBLE MEANS OF EGRESS. See Section 1002.1.

[B] ACCESSIBLE ROUTE. A continuous, unobstructed path that complies with Chapter 11 of the *California Building Code*.

AEROSOL. See Section 2802.1.

Level 1 aerosol products. See Section 2802.1.

Level 2 aerosol products. See Section 2802.1.

Level 3 aerosol products. See Section 2802.1.

AEROSOL CONTAINER. See Section 2802.1.

AEROSOL WAREHOUSE. See Section 2802.1.

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

AGENT. A *person* who shall have charge, care or control of any structure as *owner*, or agent of the *owner*, or as executor, executrix, administrator, administratrix, trustee or guardian of the estate of the *owner*. Any such *person* representing the actual *owner* shall be bound to comply with the provisions of this code to the same extent as if that *person* was the *owner*.

[B] AGRICULTURAL BUILDING. A structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products. This structure shall not be a place of human habitation or a place of employment where agricultural products are processed, treated or packaged, nor shall it be a place used by the public.

[B] AIR-INFLATED STRUCTURE. See Section 2402.1.

AIR-SUPPORTED STRUCTURE. See Section 2402.1.

AIRCRAFT MOTOR-VEHICLE FUEL-DISPENSING FACILITY. See Section 2202.1.

AIRCRAFT OPERATION AREA (AOA). See Section 1102.1.

AIRPORT. See Section 1102.1.

[B] AISLE. See Section 1002.1.

[B] AISLE ACCESSWAY. See Section 1002.1.

ALARM NOTIFICATION APPLIANCE. See Section 902.1.

ALARM SIGNAL. See Section 902.1.

ALARM VERIFICATION FEATURE. See Section 902.1.

ALCOHOL-BASED HAND RUB. See Section 3402.1.

ALCOHOL BLENDED FUELS. See Section 2202.1.

[EB] ALTERATION. Any construction or renovation to an existing structure other than a repair or addition.

[B] ALTERNATING TREAD DEVICE. See Section 1002.1.

[B] AMBULATORY HEALTH CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals who are rendered incapable of self-preservation.

AMMONIUM NITRATE. See Section 3302.1.

ANNUNCIATOR. See Section 902.1.

APPROVED. Acceptable to the *fire code official*.

[B] AREA, BUILDING. The area included within surrounding *exterior walls* (or *exterior walls* and *fire walls*) exclusive of vent shafts and *courts*. Areas of the building not provided with surrounding walls shall be included in the building area if such areas are included within the horizontal projection of the roof or floor above.

[B] AREA OF REFUGE. See Section 1002.1.

ARRAY. See Section 2302.1.

ARRAY, CLOSED. See Section 2302.1.

ASSEMBLY. *The gathering together of 50 or more persons for such purposes as deliberation, education, instruction, worship, entertainment, amusement, drinking, dining or awaiting transportation.*

ASSEMBLY BUILDING. A building or portion of a building used for the gathering together of 50 or more persons for such purposes as deliberation, education, instruction, worship, entertainment, amusement, drinking or dining, or awaiting transportation. *Any building or structure or portion thereof used or intended to be used for the showing of motion pictures when an admission fee is charged and when such building or*

structure is open to the public and has a capacity of 10 or more persons.

[B] ATRIUM. An opening connecting two or more stories other than enclosed *stairways*, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with Section 505 of the *California Building Code*.

[B] ATTIC. The space between the ceiling beams of the top story and the roof rafters.

AUDIBLE ALARM NOTIFICATION APPLIANCE. See Section 902.1.

AUTOMATED RACK STORAGE. See Section 2302.1.

AUTOMATIC. See Section 902.1.

AUTOMATIC FIRE-EXTINGUISHING SYSTEM. See Section 902.1.

AUTOMATIC SMOKE DETECTION SYSTEM. See Section 902.1.

AUTOMATIC SPRINKLER SYSTEM. See Section 902.1.

AUTOMOTIVE MOTOR FUEL-DISPENSING FACILITY. See Section 2202.1.

AVERAGE AMBIENT SOUND LEVEL. See Section 902.1.

[B] AWNING. An architectural projection that provides weather protection, identity or decoration and is wholly supported by the building to which it is attached. An awning is comprised of a lightweight, rigid skeleton structure over which a covering is attached.

BARRICADE. See Section 3302.1.

Artificial barricade. See Section 3302.1.

Natural barricade. See Section 3302.1.

BARRICADED. See Section 3302.1.

[B] BASEMENT. A story that is not a story above grade plane.

BATTERY SYSTEM, STATIONARY LEAD ACID. See Section 602.1.

BATTERY TYPES. See Section 602.1.

Lithium-ion battery. See Section 602.1.

Lithium metal polymer battery. See Section 602.1.

Nickel cadmium (Ni-Cd) battery. See Section 602.1.

Nonrecombinant battery. See Section 602.1.

Recombinant battery. See Section 602.1.

Stationary storage battery. See Section 602.1.

Valve-regulated lead-acid (VRLA) battery. See Section 602.1.

Vented (Flooded) lead-acid battery. See Section 602.1.

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

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

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

BIN BOX. See Section 2302.1.

BLAST AREA. See Section 3302.1.

BLAST SITE. See Section 3302.1.

BLASTER. See Section 3302.1.

BLASTING AGENT. See Section 3302.1.

[B] BLEACHERS. See Section 1002.1.

[B] BOARDING HOUSE. A building arranged or used for lodging for compensation, with or without meals, and not occupied as a single-family unit.

BOILING POINT. See Section 2702.1.

BONFIRE. See Section 302.1.

BRITISH THERMAL UNIT (BTU). The heat necessary to raise the temperature of 1 pound (0.454 kg) of water by 1°F (0.5565°C).

[B] BUILDING. Any structure used or intended for supporting or sheltering any use or occupancy.

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

[B] BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of the *California Building Code*, or a duly authorized representative.

BULK HYDROGEN COMPRESSED GAS SYSTEM. See Section 3502.1.

BULK LIQUEFIED HYDROGEN GAS SYSTEM. See Section 3502.1.

BULK OXYGEN SYSTEM. See Section 4002.1.

BULK PLANT OR TERMINAL. See Section 3402.1.

BULK TRANSFER. See Section 3402.1.

BULLET RESISTANT. See Section 3302.1.

CANOPY. A structure or architectural projection of rigid construction over which a covering is attached that provides weather protection, identity or decoration, and may be structurally independent or supported by attachment to a building on one end and by not less than one stanchion on the outer end.

CARBON DIOXIDE EXTINGUISHING SYSTEM. See Section 902.1.

used in process operations that do not propagate a *detonation* or *deflagration* between articles shall be allowed in Group H-3 occupancies.

Division 1.5
Division 1.6

Organic peroxides, unclassified detonable
Oxidizers, Class 4
Unstable (reactive) materials, Class 3 detonable, and Class 4

High-hazard Group H-2. Buildings and structures containing materials that pose a *deflagration* hazard or a hazard from accelerated burning shall be classified as Group H-2. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* which are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch (103.4 kPa) gauge
Combustible dusts
Cryogenic fluids, flammable
Flammable gases
Organic peroxides, Class I
Oxidizers, Class 3, that are used or stored in normally open containers or systems, or in closed containers or systems pressurized at more than 15 pounds per square inch (103.4 kPa) gauge
Pyrophoric liquids, solids and gases, nondetonable
Unstable (reactive) materials, Class 3, nondetonable
Water-reactive materials, Class 3

High-hazard Group H-3. Buildings and structures containing materials that readily support combustion or that pose a *physical hazard* shall be classified as Group H-3. Such materials shall include, but not be limited to, the following:

Class I, II or IIIA flammable or *combustible liquids* that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103.4 kPa) or less
Combustible fibers, other than densely packed baled cotton
Consumer fireworks, 1.4G (Class C, Common)
Cryogenic fluids, oxidizing
Flammable solids
Organic peroxides, Class II and III
Oxidizers, Class 2
Oxidizers, Class 3, that are used or stored in normally closed containers or systems pressurized at 15 pounds per square inch gauge (103 kPa) or less
Oxidizing gases
Unstable (reactive) materials, Class 2
Water-reactive materials, Class 2

High-hazard Group H-4. Buildings and structures which contain materials that are *health hazards* shall be classified as Group H-4. Such materials shall include, but not be limited to, the following:

Corrosives
Highly toxic materials
Toxic materials

High-hazard Group H-5. Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those listed in Tables 2703.1.1(1) and 2703.1.1(2) shall be classified as Group H-5. Such facilities and areas shall be designed and constructed in accordance with Section 415.8 of the *California Building Code*.

[B] Institutional Group I. Institutional Group I occupancy includes, among others, the use of a building or structure, or a portion thereof, in which people are cared for or live in a supervised environment, having physical limitations because of health or age, are harbored for medical treatment or other care or treatment, or in which people are detained for penal or correctional purposes or in which the liberty of the occupants is restricted. Institutional occupancies shall be classified as Group I-1, I-2, I-3 or I-4. *Restraint shall not be permitted in any building except in Group I-3 occupancies constructed for such use. See California Building Code Section 408.1.1.*

Where occupancies house both ambulatory and nonambulatory persons, the more restrictive requirements shall apply.

Group I-1. *Not used. (See Group R-2.1 or Section 310.1, California Building Code.)*

[B] Group I-2. This occupancy shall include buildings and structures used for medical, surgical, psychiatric, nursing or custodial care for *persons* who are not capable of self-preservation *or classified as nonambulatory or bedridden*. This group shall include, but not be limited to, the following:

Child care facilities
Detoxification facilities
Hospitals
Mental hospitals
Nursing homes

Group I-2.1 Ambulatory healthcare facility. *A healthcare facility that receives persons for outpatient medical care that may render the patient incapable of unassisted self-preservation and where each tenant space accommodates more than five such patients.*

Group I-3. This occupancy shall include buildings *or portions of buildings* and structures which are inhabited by *one or more persons* who are under restraint. An I-3 facility is occupied by *persons* who are *restrained*. This group shall include, but not be limited to, the following:

Correctional centers
Detention centers
Jails
Juvenile halls
Prisons
Reformatories

Buildings of Group I-3 shall be classified as one of the occupancy conditions indicated below:

Condition 1. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas and other spaces where access or occupancy is permitted, to the exterior via *means of egress* without restraint. A Condition 1 facility is permitted to be constructed as Group R.

Condition 2. This occupancy condition shall include buildings in which free movement is allowed from sleeping areas and any other occupied smoke compartment to one or more other smoke compartments. Egress to the exterior is impeded by locked *exits*.

Condition 3. This occupancy condition shall include buildings in which free movement is allowed within individual smoke compartments, such as within a residential unit comprised of individual sleeping units and group activity spaces, where egress is impeded by remote-controlled release of *means of egress* from such smoke compartment to another smoke compartment.

Condition 4. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Remote-controlled release is provided to permit movement from sleeping units, activity spaces and other occupied areas within the smoke compartment to other smoke compartments.

Condition 5. This occupancy condition shall include buildings in which free movement is restricted from an occupied space. Staff-controlled manual release is provided to permit movement from sleeping units, activity spaces and other occupied areas within the smoke compartment to other smoke compartments.

[B] Group I-4, day-care facilities. This group shall include buildings and structures occupied by *persons* of any age who receive custodial care for less than 24 hours by individuals other than parents or guardians, relatives by blood, marriage, or adoption, and in a place other than the home of the *person* cared for. A facility such as the above with *six* or fewer *clients* shall be classified as Group R-3 or shall comply with the *California Residential Code*. Places of worship during religious functions are not included.

Adult *day*-care facility. A facility that provides accommodations for less than 24 hours for more than *six* unrelated adults and provides supervision and personal care services shall be classified as Group I-4.

Child *day*-care facility. Child care facilities that provide supervision and personal care on less than a 24-hour basis for more than *six* children *under 2 years of age* shall be classified as Group I-4.

Exception: A child day care facility that provides care for more than *six* but no more than 100 children under *2 years of age*, where the rooms in which the children are cared for are located on a *level of exit discharge* serving such rooms and each of these child care rooms has an *exit* door directly to the exterior, shall be classified as Group E.

Group L Laboratories. [SFM] *Group L occupancy includes the use of a building or structure, or a portion thereof containing one or more laboratory suites as defined in Section 443 of the California Building Code.*

[B] Mercantile Group M. Mercantile Group M occupancy includes, among others, the use of a building or structure or a portion thereof, for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following.

Department stores
Drug stores
Markets
Motor fuel-dispensing facilities
Retail or wholesale stores
Sales rooms

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

R-1 Residential occupancies containing sleeping units where the occupants are primarily transient in nature, including:

Boarding houses (transient)
Hotels (transient)
Motels (transient)

Congregate living facilities (transient) *or congregate residences (transient)* with 10 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-2 Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

Apartment houses
Boarding houses (nontransient)
Convents
Dormitories
Fraternities and sororities
Hotels (nontransient)
Live/work units
Monasteries
Motels (nontransient)
Vacation timeshare properties

Congregate living facilities *or congregate residences* with 16 or fewer occupants are permitted to comply with the construction requirements for Group R-3.

R-2.1 *This occupancy shall include buildings, structures or parts thereof housing clients, on a 24-hour basis, who because of age, mental disability or other reasons, live in a supervised residential environment that provides personal care services.*

This occupancy may contain more than six nonambulatory and/or bedridden clients. (See Appendix Chapter 4, Section 425 Special Provisions For Licensed 24-Hour

CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE
CHAPTER 3 – GENERAL PRECAUTIONS AGAINST FIRE

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below		**X**																		
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
301		X																		
[T-19 §3.14]			X																	
[T-19 §3.19 (a-g)]			X																	
304		X																		
[T-19 §3.07(a)]			X																	
[T-19 §3.07(b)]			X																	
304.3		†																		
[T-19 §3.19 (b)(c)]			X																	
[T-19 §3.25 (a)(b)]			X																	
[T-19 §3.32 (a)(b)]			X																	
[T-19 §3.32 (d)]			X																	
[T-19 §3.32 (c)]			X																	
308.5		X																		
312		X																		
314		X																		
315		X																		
316		X																		

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

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

by removing all bush, flammable vegetation or combustible growth which is located from 30 feet (9144 mm) to 100 feet (30 480 mm) from such building or structure or to the property line, whichever is nearer, as may be required by the enforcing agency if he finds that, because of extra hazardous conditions, a firebreak of only 30 feet (9144 mm) around such building or structure is not sufficient to provide reasonable fire safety. Grass and other vegetation located more than 30 feet (9144 mm) from such building or structure and less than 18 inches (457 mm) in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.

(3) Remove that portion of any tree which extends within 10 feet (3048 mm) of the outlet of any chimney or stovepipe.

(4) Cut and remove all dead or dying portions of trees located adjacent to or overhanging any building.

(5) Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.

(6) Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed of nonflammable material with openings of not more than ½ inch in size.

(7) Vegetation around all applicable buildings and structures shall be maintained in accordance with the following laws and regulations:

(A) Public Resources Code Section 4291.

(B) California Code of Regulations Title 14 - Natural Resources, Division 1.5 - Department of Forestry and Fire Protection, "General Guideline to Create Defensible Space."

(C) California Government Code Section 51182.

(D) California Code of Regulations, Title 24, Part 9.

304.1.3 Space underneath seats. Spaces underneath grandstand and bleacher seats shall be kept free from combustible and flammable materials. Except where enclosed in not less than 1-hour fire-resistance-rated construction in accordance with the *California Building Code*, spaces underneath grandstand and bleacher seats shall not be occupied or utilized for purposes other than *means of egress*.

304.2 Storage. Storage of combustible rubbish shall not produce conditions that will create a nuisance or a hazard to the public health, safety or welfare.

304.3 Containers. Combustible rubbish, and waste material kept within or near a structure shall be stored in accordance with Sections 304.3.1 through 304.3.4.

[California Code of Regulations, Title 19, Division 1, §3.19(b) and (c) Housekeeping.

Every building or portion of a building governed by California Code of Regulations, Title 19, Division 1 regulations shall be maintained in a neat orderly manner, free from any condition that would create a fire or life hazard or a condition which would add to or contribute to the rapid spread of fire. Provisions shall be made for the proper storage and disposal of waste materials and rubbish consistent with the following:

(b) All combustible waste material and rubbish shall be stored in approved containers or shall be stored in a manner approved by the enforcing agency as being consistent with standard fire prevention practices until such waste material and rubbish is removed from the premises or otherwise disposed of in a proper manner.

(1) Containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3) shall comply with the provisions of California Code of Regulations, Title 24, Part 9, Section 304.3.

(2) Wastebaskets and linen containers in Group I-2 and I-3 occupancies shall comply with the provisions of California Code of Regulations, Title 24, Part 9, Section 808.

(c) Approved self-closing metal containers or listed disposal containers by an approved testing or listing agency shall be provided and maintained in all rooms or locations where oily rags, oily waste, paint rags, or similar materials subject to spontaneous ignition are used, or are stored temporarily. Contents of such containers shall be removed and disposed of daily.

304.3.1 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a *listed* disposal container. Contents of such containers shall be removed and disposed of daily.

304.3.2 Capacity exceeding 5.33 cubic feet. Containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3) shall be provided with lids. Containers and lids shall be constructed of noncombustible materials or of combustible materials with a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation.

Exception: Wastebaskets in Group I-3 occupancies shall comply with Section 808.1.

304.3.3 Capacity exceeding 1.5 cubic yards. Dumpsters and containers with an individual capacity of 1.5 cubic yards [40.5 cubic feet (1.15 m^3)] or more shall not be stored in buildings or placed within 5 feet (1524 mm) of combustible walls, openings or combustible roof eave lines.

Exceptions:

1. Dumpsters or containers in areas protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Storage in a structure shall not be prohibited where the structure is of Type I or IIA construction, located not less than 10 feet (3048 mm) from other buildings and used exclusively for dumpster or container storage.

304.3.4 Capacity of 1 cubic yard or more. Dumpsters with an individual capacity of 1.0 cubic yard [200 gallons (0.76 m^3)] or more shall not be stored in buildings or placed within 5 feet (1524 mm) of combustible walls, openings or combustible roof eave lines unless the dumpsters are constructed of noncombustible materials or of combustible materials

with a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation.

Exceptions:

1. Dumpsters in areas protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Storage in a structure shall not be prohibited where the structure is of Type I or IIA construction, located not less than 10 feet (3048 mm) from other buildings and used exclusively for dumpster or container storage.

SECTION 305
IGNITION SOURCES

305.1 Clearance from ignition sources. Clearance between ignition sources, such as luminaires, heaters, flame-producing devices and combustible materials, shall be maintained in an *approved* manner.

305.2 Hot ashes and spontaneous ignition sources. Hot ashes, cinders, smoldering coals or greasy or oily materials subject to spontaneous ignition shall not be deposited in a combustible receptacle, within 10 feet (3048 mm) of other combustible material including combustible walls and partitions or within 2 feet (610 mm) of openings to buildings.

Exception: The minimum required separation distance to other combustible materials shall be 2 feet (610 mm) where the material is deposited in a covered, noncombustible receptacle placed on a noncombustible floor, ground surface or stand.

305.3 Open-flame warning devices. Open-flame warning devices shall not be used along an excavation, road, or any place where the dislodgment of such device might permit the device to roll, fall or slide on to any area or land containing combustible material.

305.4 Deliberate or negligent burning. It shall be unlawful to deliberately or through negligence set fire to or cause the burning of combustible material in such a manner as to endanger the safety of *persons* or property.

SECTION 306
MOTION PICTURE PROJECTION ROOMS AND FILM

306.1 Motion picture projection rooms. Electric arc, xenon or other light source projection equipment which develops hazardous gases, dust or radiation and the projection of ribbon-type cellulose nitrate film, regardless of the light source used in projection, shall be operated within a motion picture projection room complying with Section 409 of the *California Building Code*.

306.2 Cellulose nitrate film storage. Storage of cellulose nitrate film shall be in accordance with NFPA 40.

SECTION 307
OPEN BURNING, RECREATIONAL FIRES AND PORTABLE OUTDOOR FIREPLACES

307.1 General. A person shall not kindle or maintain or authorize to be kindled or maintained any *open burning* unless conducted and *approved* in accordance with this section.

307.1.1 Prohibited open burning. *Open burning* that is offensive or objectionable because of smoke emissions or when atmospheric conditions or local circumstances make such fires hazardous shall be prohibited.

307.2 Permit required. A permit shall be obtained from the *fire code official* in accordance with Section 105.6 prior to kindling a fire for recognized silvicultural or range or wildlife management practices, prevention or control of disease or pests, or a bonfire. Application for such approval shall only be presented by and permits issued to the *owner* of the land upon which the fire is to be kindled.

307.2.1 Authorization. Where required by state or local law or regulations, *open burning* shall only be permitted with prior approval from the state or local air and water quality management authority, provided that all conditions specified in the authorization are followed.

307.3 Extinguishment authority. The *fire code official* is authorized to order the extinguishment by the permit holder, another person responsible or the fire department of *open burning* that creates or adds to a hazardous or objectionable situation.

307.4 Location. The location for *open burning* shall not be less than 50 feet (15 240 mm) from any structure, and provisions shall be made to prevent the fire from spreading to within 50 feet (15 240 mm) of any structure.

Exceptions:

1. Fires in *approved* containers that are not less than 15 feet (4572 mm) from a structure.
2. The minimum required distance from a structure shall be 25 feet (7620 mm) where the pile size is 3 feet (914 mm) or less in diameter and 2 feet (610 mm) or less in height.

307.4.1 Bonfires. A bonfire shall not be conducted within 50 feet (15 240 mm) of a structure or combustible material unless the fire is contained in a barbecue pit. Conditions which could cause a fire to spread within 50 feet (15 240 mm) of a structure shall be eliminated prior to ignition.

307.4.2 Recreational fires. *Recreational fires* shall not be conducted within 25 feet (7620 mm) of a structure or combustible material. Conditions which could cause a fire to spread within 25 feet (7620 mm) of a structure shall be eliminated prior to ignition.

307.4.3 Portable outdoor fireplaces. Portable outdoor fireplaces shall be used in accordance with the manufacturer's instructions and shall not be operated within 15 feet (3048 mm) of a structure or combustible material.

Exception: Portable outdoor fireplaces used at one- and two-family *dwellings*.

307.5 Attendance. *Open burning*, bonfires, *recreational fires* and use of portable outdoor fireplaces shall be constantly attended until the fire is extinguished. A minimum of one portable fire extinguisher complying with Section 906 with a minimum 4-A rating or other *approved* on-site fire-extinguishing equipment, such as dirt, sand, water barrel, garden hose or water truck, shall be available for immediate utilization.

SECTION 308
OPEN FLAMES

308.1 General. Open flame, fire and burning on all premises shall be in accordance with Sections 308.1.1 through 308.4.1 and with other applicable sections of this code.

308.1.1 Where prohibited. A person shall not take or utilize an open flame or light in a structure, vessel, boat or other place where highly flammable, combustible or explosive material is utilized or stored. Lighting appliances shall be well-secured in a glass globe and wire mesh cage or a similar *approved* device.

[California Code of Regulations, Title 19, Division 1, §3.25(a) and (b)] Open Flame Devices.

(a) Open flame devices shall be prohibited in every Group A, E, I, R-2.1, R-3.1 and R-4 occupancy.

Exceptions:

(1) Fuel burning elements of approved appliances shall not be considered as open flame devices.

(2) Upon approval of the enforcing agency, open flame devices may be used under the following conditions.

(A) When necessary for ceremonial or theatrical purposes under such restrictions as may be deemed necessary to avoid danger of ignition of combustible materials or injury to occupants.

(B) In approved and stable candle holders on individual tables of dining establishments.

(b) Under no circumstances shall hand held open flame devices such as exposed candles be permitted for any purpose in any occupancy within the scope of California Code of Regulations, Title 19, Division 1 regulations.

308.1.2 Throwing or placing sources of ignition. No person shall throw or place, or cause to be thrown or placed, a lighted match, cigar, cigarette, matches, or other flaming or glowing substance or object on any surface or article where it can cause an unwanted fire.

308.1.3 Torches for removing paint. *Persons* utilizing a torch or other flame-producing device for removing paint from a structure shall provide a minimum of one portable fire extinguisher complying with Section 906 and with a minimum 4-A rating, two portable fire extinguishers, each with a minimum 2-A rating, or a water hose connected to the water supply on the premises where such burning is done. The *person* doing the burning shall remain on the premises 1 hour after the torch or flame-producing device is utilized.

308.1.4 Open-flame cooking devices. Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet (3048 mm) of combustible construction**.**

Exceptions:

1. One- and two-family *dwellings*.
2. Where buildings, balconies and decks are protected by an *automatic sprinkler system*.
3. LP-gas cooking devices having LP-gas container with a water capacity not greater than $2^1/_2$ pounds [nominal 1 pound (0.454 kg) LP-gas capacity].

308.1.5 Location near combustibles. Open flames such as from candles, lanterns, kerosene heaters and gas-fired heaters shall not be located on or near decorative material or similar combustible materials.

308.1.6 Open-flame devices. Torches and other devices, machines or processes liable to start or cause fire shall not be operated or used in or upon wildfire risk areas, except by a permit in accordance with Section 105.6 secured from the *fire code official*.

Exception: Use within inhabited premises or designated campsites which are a minimum of 30 feet (9144 mm) from grass-, grain-, brush- or forest-covered areas.

308.1.6.1 Signals and markers. Flame-employing devices, such as lanterns or kerosene road flares, shall not be operated or used as a signal or marker in or upon wildfire risk areas.

Exception: The proper use of fusees at the scenes of emergencies or as required by standard railroad operating procedures.

308.1.6.2 Portable fueled open-flame devices. Portable open-flame devices fueled by flammable or combustible gases or liquids shall be enclosed or installed in such a manner as to prevent the flame from contacting combustible material.

Exceptions:

1. LP-gas-fueled devices used for sweating pipe joints or removing paint in accordance with Chapter 38.
2. Cutting and welding operations in accordance with Chapter 26.
3. Torches or flame-producing devices in accordance with Section 308.4.
4. Candles and open-flame decorative devices in accordance with Section 308.3.

308.1.7 Religious ceremonies. When, in the opinion of the *fire code official*, adequate safeguards have been taken, participants in religious ceremonies are allowed to carry hand-held candles. Hand-held candles shall not be passed from one *person* to another while lighted.

308.1.7.1 Aisles and exits. Candles shall be prohibited in areas where occupants stand, or in an *aisle* or *exit*.

308.1.8 Flaming food and beverage preparation. The preparation of flaming foods or beverages in places of assembly and drinking or dining establishments shall be in accordance with Sections 308.1.8.1 through 308.1.8.5.

308.1.8.1 Dispensing. Flammable or *combustible liquids* used in the preparation of flaming foods or beverages shall be dispensed from one of the following:

1. A 1-ounce (29.6 ml) container; or
2. A container not exceeding 1-quart (946.5 ml) capacity with a controlled pouring device that will limit the flow to a 1-ounce (29.6 ml) serving.

308.1.8.2 Containers not in use. Containers shall be secured to prevent spillage when not in use.

308.1.8.3 Serving of flaming food. The serving of flaming foods or beverages shall be done in a safe manner and shall not create high flames. The pouring, ladling or spooning of liquids is restricted to a maximum height of 8 inches (203 mm) above the receiving receptacle.

308.1.8.4 Location. Flaming foods or beverages shall be prepared only in the immediate vicinity of the table being serviced. They shall not be transported or carried while burning.

308.1.8.5 Fire protection. The *person* preparing the flaming foods or beverages shall have a wet cloth towel immediately available for use in smothering the flames in the event of an emergency.

308.2 Permits required. Permits shall be obtained from the *fire code official* in accordance with Section 105.6 prior to engaging in the following activities involving open flame, fire and burning:

1. Use of a torch or flame-producing device to remove paint from a structure.
2. Use of open flame, fire or burning in connection with Group A or E occupancies.
3. Use or operation of torches and other devices, machines or processes liable to start or cause fire in or upon wildfire risk areas.

308.3 Group A occupancies. Open-flame devices shall not be used in a Group A occupancy.

Exceptions:

1. Open-flame devices are allowed to be used in the following situations, provided *approved* precautions are taken to prevent ignition of a combustible material or injury to occupants:
   1.1. Where necessary for ceremonial or religious purposes in accordance with Section 308.1.7.
   1.2. On stages and platforms as a necessary part of a performance in accordance with Section 308.3.2.
   1.3. Where candles on tables are securely supported on substantial noncombustible bases and the candle flames are protected.
2. Heat-producing equipment complying with Chapter 6 and the *California Mechanical Code*.
3. Gas lights are allowed to be used provided adequate precautions satisfactory to the *fire code official* are taken to prevent ignition of combustible materials.

308.3.1 Open-flame decorative devices. Open-flame decorative devices shall comply with all of the following restrictions:

1. Class I and Class II liquids and LP-gas shall not be used.
2. Liquid- or solid-fueled lighting devices containing more than 8 ounces (237 ml) of fuel must self-extinguish and not leak fuel at a rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.
3. The device or holder shall be constructed to prevent the spillage of liquid fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) when the device or holder is not in an upright position.
4. The device or holder shall be designed so that it will return to the upright position after being tilted to an angle of 45 degrees from vertical.

   Exception: Devices that self-extinguish if tipped over and do not spill fuel or wax at the rate of more than 0.25 teaspoon per minute (1.26 ml per minute) if tipped over.

5. The flame shall be enclosed except where openings on the side are not more than 0.375 inch (9.5 mm) diameter or where openings are on the top and the distance to the top is such that a piece of tissue paper placed on the top will not ignite in 10 seconds.
6. Chimneys shall be made of noncombustible materials and securely attached to the open-flame device.

   Exception: A chimney is not required to be attached to any open-flame device that will self-extinguish if the device is tipped over.

7. Fuel canisters shall be safely sealed for storage.
8. Storage and handling of *combustible liquids* shall be in accordance with Chapter 34.
9. Shades, where used, shall be made of noncombustible materials and securely attached to the open-flame device holder or chimney.
10. Candelabras with flame-lighted candles shall be securely fastened in place to prevent overturning, and shall be located away from occupants using the area and away from possible contact with drapes, curtains or other combustibles.

308.3.2 Theatrical performances. Where *approved*, open-flame devices used in conjunction with theatrical performances are allowed to be used when adequate safety precautions have been taken in accordance with NFPA 160.

308.4 Group R occupancies. Open flame, fire and burning in Group R occupancies shall comply with the requirements of Sections 308.1 through 308.1.6.2 and 308.4.1.

308.4.1 Group R-2 dormitories. Candles, incense and similar open-flame-producing items shall not be allowed in sleeping units in Group R-2 dormitory occupancies.

308.5 Group I, R-2.1, R-3.1, R-4 occupancies or any licensed care facility. *A person shall not utilize or allow to be utilized, an open flame in Group I, R-2.1, R-3.1, R-4 occupancies or any licensed care facilities.*

SECTION 309
POWERED INDUSTRIAL TRUCKS AND EQUIPMENT

309.1 General. Powered industrial trucks and similar equipment including, but not limited to, floor scrubbers and floor buffers, shall be operated and maintained in accordance with this section.

309.2 Battery chargers. Battery chargers shall be of an *approved* type. Combustible storage shall be kept a minimum of 3 feet (915 mm) from battery chargers. Battery charging shall not be conducted in areas accessible to the public.

309.3 Ventilation. Ventilation shall be provided in an *approved* manner in battery-charging areas to prevent a dangerous accumulation of flammable gases.

309.4 Fire extinguishers. Battery-charging areas shall be provided with a fire extinguisher complying with Section 906 having a minimum 4-A:20-B:C rating within 20 feet (6096 mm) of the battery charger.

309.5 Refueling. Powered industrial trucks using liquid fuel, LP-gas or hydrogen shall be refueled outside of buildings or in areas specifically *approved* for that purpose. Fixed fuel-dispensing equipment and associated fueling operations shall be in accordance with Chapter 22. Other fuel-dispensing equipment and operations, including cylinder exchange for LP-gas-fueled vehicles, shall be in accordance with Chapter 34 for flammable and *combustible liquids* or Chapter 38 for LP-gas.

309.6 Repairs. Repairs to fuel systems, electrical systems and repairs utilizing open flame or welding shall be done in *approved* locations outside of buildings or in areas specifically *approved* for that purpose.

SECTION 310
SMOKING

310.1 General. The smoking or carrying of a lighted pipe, cigar, cigarette or any other type of smoking paraphernalia or material is prohibited in the areas indicated in Sections 310.2 through 310.8.

310.2 Prohibited areas. Smoking shall be prohibited where conditions are such as to make smoking a hazard, and in spaces where flammable or combustible materials are stored or handled.

[California Code of Regulations, Title 19, Division 1, §3.32(a) and (b)] Smoking.

(a) Smoking shall not be permitted in any Group E Occupancy as defined in California Code of Regulations, Title 24, Part 2, except as provided in California Code of Regulations, Title 19, Division 1, subsection (b) below.

(b) The governing board of any school district maintaining a community college or high school may adopt rules and regulations permitting the smoking and possession of tobacco on the campus of a community college or high school or while under the authority of school personnel by pupils of the community college or high school; provided that such rules and regulations shall not permit students to smoke in any classroom or other enclosed facility which any student is required to occupy or which is customarily occupied by nonsmoking students. Areas designated for smoking shall be approved by the enforcing agency.

Note: *See Section 48901 of the Education Code relating to the smoking or possession of tobacco by pupils.*

[California Code of Regulations, Title 19, Division 1, §3.32(d)] Smoking.

(d) Smoking shall be prohibited in any patient room of a Group I, R-2.1,R-3.1 or R-4 occupancy utilizing air-induced mattresses. No Smoking – Open Flame signs shall be installed as specified in NFPA 99B, Hypobaric Facilities, 2005 edition.

310.3 "No Smoking" signs. The fire code official is authorized to order the posting of "No Smoking" signs in a conspicuous location in each structure or location in which smoking is prohibited. The content, lettering, size, color and location of required "No Smoking" signs shall be approved.

[California Code of Regulations, Title 19, Division 1, §3.32(c)] Smoking.

(c) Approved no smoking signs shall be posted on all stages and platforms of Group A occupancies. Smoking shall not be permitted on stages or platforms except in approved designated areas and as necessary for theatrical, opera or similar productions.

310.4 Removal of signs prohibited. A posted "No Smoking" sign shall not be obscured, removed, defaced, mutilated or destroyed.

310.5 Compliance with "No Smoking" signs. Smoking shall not be permitted nor shall a *person* smoke, throw or deposit any lighted or smoldering substance in any place where "No Smoking" signs are posted.

310.6 Ash trays. Where smoking is permitted, suitable noncombustible ash trays or match receivers shall be provided on each table and at other appropriate locations.

310.7 Burning objects. Lighted matches, cigarettes, cigars or other burning object shall not be discarded in such a manner that could cause ignition of other combustible material.

310.8 Hazardous environmental conditions. When the *fire code official* determines that hazardous environmental conditions necessitate controlled use of smoking materials, the ignition or use of such materials in mountainous, brush-covered or forest-covered areas or other designated areas is prohibited except in *approved* designated smoking areas.

SECTION 311
VACANT PREMISES

311.1 General. Temporarily unoccupied buildings, structures, premises or portions thereof, including tenant spaces, shall be safeguarded and maintained in accordance with this section.

311.1.1 Abandoned premises. Buildings, structures and premises for which an *owner* cannot be identified or located by dispatch of a certificate of mailing to the last known or registered address, which persistently or repeatedly become unprotected or unsecured, which have been occupied by unauthorized *persons* or for illegal purposes, or which present a danger of structural collapse or fire spread to adjacent properties shall be considered abandoned, declared unsafe and abated by demolition or rehabilitation in accordance with the *International Property Maintenance Code* and the *California Building Code*.

311.1.2 Tenant spaces. Storage and lease plans required by this code shall be revised and updated to reflect temporary or partial vacancies.

311.2 Safeguarding vacant premises. Temporarily unoccupied buildings, structures, premises or portions thereof shall be secured and protected in accordance with this section.

311.2.1 Security. Exterior and interior openings accessible to other tenants or unauthorized *persons* shall be boarded, locked, blocked or otherwise protected to prevent entry by unauthorized individuals. The *fire code official* is authorized to placard, post signs, erect barrier tape or take similar measures as necessary to secure public safety.

311.2.2 Fire protection. Fire alarm, sprinkler and standpipe systems shall be maintained in an operable condition at all times.

Exceptions:

1. When the premises have been cleared of all combustible materials and debris and, in the opinion of the *fire code official*, the type of construction, *fire separation distance* and security of the premises do not create a fire hazard.
2. Where *approved* by the fire chief, buildings that will not be heated and where *fire protection systems* will be exposed to freezing temperatures, fire alarm and sprinkler systems are permitted to be placed out of service and standpipes are permitted to be maintained as dry systems (without an automatic water supply), provided the building has no contents or storage, and windows, doors and other openings are secured to prohibit entry by unauthorized *persons*.

311.2.3 Fire separation. Fire-resistance-rated partitions, *fire barriers* and *fire walls* separating vacant tenant spaces from the remainder of the building shall be maintained. Openings, joints and penetrations in fire-resistance-rated assemblies shall be protected in accordance with Chapter 7.

311.3 Removal of combustibles. *Persons* owning, or in charge or control of, a vacant building or portion thereof, shall remove therefrom all accumulations of combustible materials, flammable or combustible waste or rubbish and shall securely lock or otherwise secure doors, windows and other openings to prevent entry by unauthorized *persons*. The premises shall be maintained clear of waste or hazardous materials.

Exceptions:

1. Buildings or portions of buildings undergoing additions, *alterations*, repairs or change of occupancy in accordance with the *California Building Code*, where waste is controlled and removed as required by Section 304.
2. Seasonally occupied buildings.

311.4 Removal of hazardous materials. *Persons* owning or having charge or control of a vacant building containing hazardous materials regulated by Chapter 27 shall comply with the facility closure requirements of Section 2701.6.

311.5 Placards. Any vacant or abandoned buildings or structures determined to be unsafe pursuant to Section 110 of this code relating to structural or interior hazards shall be marked as required by Sections 311.5.1 through 311.5.5.

311.5.1 Placard location. Placards shall be applied on the front of the structure and be visible from the street. Additional placards shall be applied to the side of each entrance to the structure and on penthouses.

311.5.2 Placard size and color. Placards shall be 24 inches by 24 inches (610 mm by 610 mm) minimum in size with a red background, white reflective stripes and a white reflective border. The stripes and border shall have a 2-inch (51 mm) minimum stroke.

311.5.3 Placard date. Placards shall bear the date of their application to the building and the date of the most recent inspection.

311.5.4 Placard symbols. The design of the placards shall use the following symbols:

1. This symbol shall mean that the structure had normal structural conditions at the time of marking.
2. This symbol shall mean that structural or interior hazards exist and interior fire-fighting or rescue operations should be conducted with extreme caution.
3. This symbol shall mean that structural or interior hazards exist to a degree that consideration should be given to limit fire fighting to exterior operations only, with entry only occurring for known life hazards.
4. Vacant marker hazard identification symbols: The following symbols shall be used to designate known hazards on the vacant building marker. They shall be placed directly above the symbol.

   4.1. R/O—Roof open

   4.2. S/M—Stairs, steps and landing missing

   4.3. F/E—Avoid fire escapes

   4.4. H/F—Holes in floor

311.5.5 Informational use. The use of these symbols shall be informational only and shall not in any way limit the discretion of the on-scene incident commander.

SECTION 312
VEHICLE IMPACT PROTECTION

312.1 General. Vehicle impact protection required by this code shall be provided by posts that comply with Section 312.2 or by other *approved* physical barriers that comply with Section 312.3.

312.2 Posts. Guard posts shall comply with all of the following requirements:

1. Constructed of steel not less than 4 inches (102 mm) in diameter and concrete filled.
2. Spaced not more than 4 feet (1219 mm) between posts on center.
3. Set not less than 3 feet (914 mm) deep in a concrete footing of not less than a 15-inch (381 mm) diameter.
4. Set with the top of the posts not less than 3 feet (914 mm) above ground.
5. Located not less than 3 feet (914 mm) from the protected object.

312.3 Other barriers. Physical barriers shall be a minimum of 36 inches (914 mm) in height and shall resist a force of 12,000 pounds (53 375 N) applied 36 inches (914 mm) above the adjacent ground surface.

SECTION 313
FUELED EQUIPMENT

313.1 General. Fueled equipment including, but not limited to, motorcycles, mopeds, lawn-care equipment, portable generators and portable cooking equipment, shall not be stored, operated or repaired within a building.

Exceptions:

1. Buildings or rooms constructed for such use in accordance with the *California Building Code*.
2. Where allowed by Section 314.
3. Storage of equipment utilized for maintenance purposes is allowed in *approved* locations when the aggregate fuel capacity of the stored equipment does not exceed 10 gallons (38 L) and the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

313.1.1 Removal. The *fire code official* is authorized to require removal of fueled equipment from locations where the presence of such equipment is determined by the *fire code official* to be hazardous.

313.2 Group R occupancies. Vehicles powered by flammable liquids, Class II *combustible liquids* or compressed flammable gases shall not be stored within the living space of Group R buildings.

SECTION 314
INDOOR DISPLAYS

314.1 General. Indoor displays constructed within any occupancy shall comply with Sections 314.2 through 314.4.

314.2 Fixtures and displays. Fixtures and displays of goods for sale to the public shall be arranged so as to maintain free, immediate and unobstructed access to exits as required by Chapter 10.

314.3 Highly combustible goods. The display of highly combustible goods, including but not limited to fireworks, flammable or *combustible liquids*, liquefied flammable gases, oxidizing materials, pyroxylin plastics and agricultural goods, in main *exit access aisles*, *corridors*, covered malls, or within 5 feet (1524 mm) of entrances to *exits* and exterior *exit* doors is prohibited when a fire involving such goods would rapidly prevent or obstruct egress.

314.4 Vehicles. Liquid- or gas-fueled vehicles, boats or other motorcraft shall not be located indoors except as follows:

1. Batteries are disconnected.
2. Fuel in fuel tanks does not exceed one-quarter tank or 5 gallons (19 L) (whichever is least).
3. Fuel tanks and fill openings are closed and sealed to prevent tampering.
4. Vehicles, boats or other motorcraft equipment are not fueled or defueled within the building.

SECTION 315
MISCELLANEOUS COMBUSTIBLE MATERIALS STORAGE

315.1 General. Storage, use and handling of miscellaneous combustible materials shall be in accordance with this section. A permit shall be obtained in accordance with Section 105.6.

315.2 Storage in buildings. Storage of combustible materials in buildings shall be orderly. Storage shall be separated from heaters or heating devices by distance or shielding so that ignition cannot occur.

315.2.1 Ceiling clearance. Storage shall be maintained 2 feet (610 mm) or more below the ceiling in nonsprinklered areas of buildings or a minimum of 18 inches (457 mm) below sprinkler head deflectors in sprinklered areas of buildings.

315.2.2 Means of egress. Combustible materials shall not be stored in exits or exit enclosures.

315.2.3 Equipment rooms. Combustible material shall not be stored in boiler rooms, mechanical rooms or electrical equipment rooms.

315.2.4 Attic, under-floor and concealed spaces. Attic, under-floor and concealed spaces used for storage of combustible materials shall be protected on the storage side as required for 1-hour fire-resistance-rated construction. Openings shall be protected by assemblies that are self-closing and are of noncombustible construction or solid wood core not less than $1^3/_4$ inches (44.5 mm) in thickness. Storage shall not be placed on exposed joists.

Exceptions:

1. Areas protected by *approved automatic sprinkler system*s.

2. Group R-3 and Group U occupancies.

315.3 Outside storage. Outside storage of combustible materials shall not be located within 10 feet (3048 mm) of a property line.

Exceptions:

1. The separation distance is allowed to be reduced to 3 feet (914 mm) for storage not exceeding 6 feet (1829 mm) in height.
2. The separation distance is allowed to be reduced when the *fire code official* determines that no hazard to the adjoining property exists.

315.3.1 Storage beneath overhead projections from buildings. Where buildings are protected by automatic sprinklers, the outdoor storage, display and handling of combustible materials under eaves, canopies or other projections or overhangs is prohibited except where automatic sprinklers are installed under such eaves, canopies or other projections or overhangs.

315.3.2 Height. Storage in the open shall not exceed 20 feet (6096 mm) in height.

315.4 Storage underneath high-voltage transmission lines. Storage located underneath high-voltage transmission lines shall be in accordance with Section 316.5.2.

SECTION 316
HAZARDS TO FIRE FIGHTERS

316.1 Trapdoors to be closed. Trapdoors and scuttle covers, other than those that are within a *dwelling unit* or automatically operated, shall be kept closed at all times except when in use.

316.2 Shaftway markings. Vertical shafts shall be identified as required by this section.

316.2.1 Exterior access to shaftways. Outside openings accessible to the fire department and which open directly on a hoistway or shaftway communicating between two or more floors in a building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible from the outside of the building.

316.2.2 Interior access to shaftways. Door or window openings to a hoistway or shaftway from the interior of the building shall be plainly marked with the word SHAFTWAY in red letters at least 6 inches (152 mm) high on a white background. Such warning signs shall be placed so as to be readily discernible.

Exception: Marking shall not be required on shaftway openings which are readily discernible as openings onto a shaftway by the construction or arrangement.

316.3 Pitfalls. The intentional design or *alteration* of buildings to disable, injure, maim or kill intruders is prohibited. No *person* shall install and use firearms, sharp or pointed objects, razor wire, *explosives*, flammable or *combustible liquid* containers, or dispensers containing highly toxic, toxic, irritant or other hazardous materials in a manner which may passively or actively disable, injure, maim or kill a fire fighter who forcibly enters a building for the purpose of controlling or extinguishing a fire, rescuing trapped occupants or rendering other emergency assistance.

316.4 Security device. Any security device or system that emits any medium that could obscure a *means of egress* in any building, structure or premise shall be prohibited.

316.5 Structures and outdoor storage underneath high-voltage transmission lines. Structures and outdoor storage underneath high-voltage transmission lines shall comply with Sections 316.5.1 and 316.5.2, respectively.

316.5.1 Structures. Structures shall not be constructed within the utility easement underneath high-voltage transmission lines.

Exception: Restrooms and unoccupied telecommunication structures of noncombustible construction less than 15 feet in height.

316.5.2 Outdoor storage. Outdoor storage within the utility easement underneath high-voltage transmission lines shall be limited to noncombustible material. Storage of hazardous materials including, but not limited to, flammable and *combustible liquids* is prohibited.

Exception: Combustible storage, including vehicles and fuel storage for backup power equipment serving public utility equipment, is allowed, provided that a plan indicating the storage configuration is submitted and *approved*.

SECTION 317
LAUNDRY CARTS

317.1 Laundry carts with a capacity of 1 cubic yard or more. Laundry carts with an individual capacity of 1 cubic yard [200 gallons (0.76 m^3)] or more, used in laundries within Group B, F-1, I and R-1 occupancies shall be constructed of noncombustible materials or materials having a peak rate of heat release not exceeding 300 kW/m^2 at a flux of 50 kW/m^2 when tested in a horizontal orientation in accordance with ASTM E 1354.

Exceptions:

1. Laundry carts in areas protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1.
2. Laundry carts in coin-operated laundries.

CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE
CHAPTER 4 – EMERGENCY PLANNING AND PREPAREDNESS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below		**X**																		
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
401		X																		
402		X																		
403		X																		
[T-19 §3.10]			X																	
[T-19 §3.13 (c)(1)]			X																	
[T-19 §3.13 (a)(2)]			X																	
[T-19 §3.13 (b)]			X																	
[T-19 §3.09]			X																	
[T-19 §3.13 (a)(1)]			X																	
[T-19 §3.13 (c)(2 & 3)]			X																	
407		X																		
[T-19 §3.13 (a)(1)]			X																	

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

and the appropriate mitigating actions necessary in the event of a fire, leak or spill. Responsible *persons* shall be designated and trained to be liaison personnel for the fire department. These *persons* shall aid the fire department in preplanning emergency responses and identification of the locations where hazardous materials are located, and shall have access to Material Safety Data Sheets and be knowledgeable in the site emergency response procedures.

407.5 Hazardous Materials Inventory Statement. Where required by the *fire code official*, each application for a permit shall include a Hazardous Materials Inventory Statement (HMIS) in accordance with Section 2701.5.2.

407.6 Hazardous Materials Management Plan. Where required by the *fire code official*, each application for a permit shall include a Hazardous Materials Management Plan (HMMP) in accordance with Section 2701.5.1. The *fire code official* is authorized to accept a similar plan required by other regulations.

407.7 Facility closure plans. The permit holder or applicant shall submit to the *fire code official* a facility closure plan in accordance with Section 2701.6.3 to terminate storage, dispensing, handling or use of hazardous materials.

SECTION 408
USE AND OCCUPANCY-RELATED REQUIREMENTS

408.1 General. In addition to the other requirements of this chapter, the provisions of this section are applicable to specific occupancies listed herein.

408.2 Group A occupancies. Group A occupancies shall comply with the requirements of Sections 408.2.1 and 408.2.2 and Sections 401 through 406.

408.2.1 Seating plan. The fire safety and evacuation plans for assembly occupancies shall include the information required by Section 404.3 and a detailed seating plan, *occupant load* and *occupant load* limit. Deviations from the *approved* plans shall be allowed provided the *occupant load* limit for the occupancy is not exceeded and the *aisles* and exit accessways remain unobstructed.

408.2.2 Announcements. In theaters, motion picture theaters, auditoriums and similar assembly occupancies in Group A used for noncontinuous programs, an audible announcement shall be made not more than 10 minutes prior to the start of each program to notify the occupants of the location of the exits to be used in the event of a fire or other emergency.

Exception: In motion picture theaters, the announcement is allowed to be projected upon the screen in a manner *approved* by the *fire code official*.

408.3 Group E occupancies and Group R-2 college and university buildings. Group E occupancies shall comply with the requirements of Sections 408.3.1 through 408.3.4 and Sections 401 through 406. Group R-2 college and university buildings shall comply with the requirements of Sections 408.3.1 and 408.3.3 and Sections 401 through 406.

[California Code of Regulations, Title 19, Division 1, §3.13(a)(1)] Fire Drills. (Group E Occupancies)

(a) Group E occupancies.

(1) General. Every person and public officer managing, controlling or in charge of any public, private or parochial school shall cause the fire alarm signal to be sounded upon the discovery of fire. Every person and public officer managing, controlling or in charge of any public, private or parochial school, other than a two-year community college, shall cause the fire alarm signal to be sounded not less than once every calendar month at the elementary and intermediate levels, and not less than twice yearly at the secondary level, in the manner prescribed in California Code of Regulations, Title 24, Part 2, Section 907.

A fire drill shall be held at the secondary level not less than twice every school year.

408.3.1 First emergency evacuation drill. The first emergency evacuation drill of each school year shall be conducted within 10 days of the beginning of classes.

408.3.2 Emergency evacuation drill deferral. In severe climates, the *fire code official* shall have the authority to modify the emergency evacuation drill frequency specified in Section 405.2.

408.3.3 Time of day. Emergency evacuation drills shall be conducted at different hours of the day or evening, during the changing of classes, when the school is at assembly, during the recess or gymnastic periods, or during other times to avoid distinction between drills and actual fires. In Group R-2 college and university buildings, one required drill shall be held during hours after sunset or before sunrise.

408.3.4 Assembly points. Outdoor assembly areas shall be designated and shall be located a safe distance from the building being evacuated so as to avoid interference with fire department operations. The assembly areas shall be arranged to keep each class separate to provide accountability of all individuals.

408.4 Group H-5 occupancies. Group H-5 occupancies shall comply with the requirements of Sections 408.4.1 through 408.4.4 and Sections 401 through 407.

408.4.1 Plans and diagrams. In addition to the requirements of Section 404 and Section 407.6, plans and diagrams shall be maintained in *approved* locations indicating the approximate plan for each area, the amount and type of HPM stored, handled and used, locations of shutoff valves for HPM supply piping, emergency telephone locations and locations of exits.

408.4.2 Plan updating. The plans and diagrams required by Section 408.4.1 shall be maintained up to date and the *fire code official* and fire department shall be informed of all major changes.

408.4.3 Emergency response team. Responsible *persons* shall be designated the on-site emergency response team and trained to be liaison personnel for the fire department.

These *persons* shall aid the fire department in preplanning emergency responses, identifying locations where HPM is stored, handled and used, and be familiar with the chemical nature of such material. An adequate number of personnel for each work shift shall be designated.

408.4.4 Emergency drills. Emergency drills of the on-site emergency response team shall be conducted on a regular basis but not less than once every three months. Records of drills conducted shall be maintained.

408.5 Group I-1 occupancies. Group I-1 occupancies shall comply with the requirements of Sections 408.5.1 through 408.5.5 and Sections 401 through 406.

408.5.1 Fire safety and evacuation plan. The fire safety and evacuation plan required by Section 404 shall include special staff actions including fire protection procedures necessary for residents and shall be amended or revised upon admission of any resident with unusual needs.

408.5.2 Staff training. Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Such instruction shall be reviewed by the staff at least every two months. A copy of the plan shall be readily available at all times within the facility.

408.5.3 Resident training. Residents capable of assisting in their own evacuation shall be trained in the proper actions to take in the event of a fire. The training shall include actions to take if the primary escape route is blocked. Where the resident is given rehabilitation or habilitation training, training in fire prevention and actions to take in the event of a fire shall be a part of the rehabilitation training program. Residents shall be trained to assist each other in case of fire to the extent their physical and mental abilities permit them to do so without additional personal risk.

408.5.4 Drill frequency. Emergency evacuation drills shall be conducted at least six times per year, two times per year on each shift. Twelve drills shall be conducted in the first year of operation. Drills are not required to comply with the time requirements of Section 405.4.

408.5.5 Resident participation. Emergency evacuation drills shall involve the actual evacuation of residents to a selected assembly point.

408.6 Group I-2 occupancies. Group I-2 occupancies shall comply with the requirements of Sections 408.6.1 and 408.6.2 and Sections 401 through 406. Drills are not required to comply with the time requirements of Section 405.4.

408.6.1 Evacuation not required. During emergency evacuation drills, the movement of patients to safe areas or to the exterior of the building is not required.

408.6.2 Coded alarm signal. When emergency evacuation drills are conducted after visiting hours or when patients or residents are expected to be asleep, a coded announcement is allowed instead of audible alarms.

408.7 Group I-3 occupancies. Group I-3 occupancies shall comply with the requirements of Sections 408.7.1 through 408.7.4 and Sections 401 through 406.

408.7.1 Employee training. Employees shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment. Training of new staff shall be provided promptly upon entrance on duty. Refresher training shall be provided at least annually.

408.7.2 Staffing. Group I-3 occupancies shall be provided with 24-hour staffing. Staff shall be within three floors or 300 feet (91 440 mm) horizontal distance of the access door of each resident housing area. In Use Conditions 3, 4 and 5, as defined in Chapter 2, the arrangement shall be such that the staff involved can start release of locks necessary for emergency evacuation or rescue and initiate other necessary emergency actions within 2 minutes of an alarm.

Exception: Staff shall not be required to be within three floors or 300 feet (9144 mm) in areas in which all locks are unlocked remotely and automatically in accordance with Section 408.4 of the *California Building Code*.

408.7.3 Notification. Provisions shall be made for residents in Use Conditions 3, 4 and 5, as defined in Chapter 2, to readily notify staff of an emergency.

408.7.4 Keys. Keys necessary for unlocking doors installed in a *means of egress* shall be individually identifiable by both touch and sight.

408.8 Group R-1 occupancies. Group R-1 occupancies shall comply with the requirements of Sections 408.8.1 through 408.8.3 and Sections 401 through 406.

408.8.1 Evacuation diagrams. A diagram depicting two evacuation routes shall be posted on or immediately adjacent to every required egress door from each hotel, motel or dormitory *sleeping unit*.

408.8.2 Emergency duties. Upon discovery of a fire or suspected fire, hotel, motel and dormitory employees shall perform the following duties:

1. Activate the fire alarm system, where provided.
2. Notify the public fire department.
3. Take other action as previously instructed.

408.8.3 Fire safety and evacuation instructions. Information shall be provided in the fire safety and evacuation plan required by Section 404 to allow guests to decide whether to evacuate to the outside, evacuate to an *area of refuge*, remain in place, or any combination of the three.

408.9 Group R-2 occupancies. Group R-2 occupancies shall comply with the requirements of Sections 408.9.1 through 408.9.3 and Sections 401 through 406.

408.9.1 Emergency guide. A fire emergency guide shall be provided which describes the location, function and use of fire protection equipment and appliances accessible to residents, including fire alarm systems, smoke alarms, and portable fire extinguishers. The guide shall also include an emergency evacuation plan for each *dwelling unit*.

408.9.2 Maintenance. Emergency guides shall be reviewed and *approved* in accordance with Section 401.2.

408.9.3 Distribution. A copy of the emergency guide shall be given to each tenant prior to initial occupancy.

CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE
CHAPTER 5 – FIRE SERVICE FEATURES

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire CA chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.05 (a)]			X																	
503.5.2		X																		
[T-19 §3.05 (b)]			X																	
507.3		X																		
507.5		X																		
507.5.1		X																		
507.5.3		X																		
508.1		X																		
508.1.2		X																		
508.1.5		X																		
508.2.1		X																		
510.3		†																		

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

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CHAPTER 5
FIRE SERVICE FEATURES

SECTION 501
GENERAL

501.1 Scope. Fire service features for buildings, structures and premises shall comply with this chapter.

501.2 Permits. A permit shall be required as set forth in Sections 105.6 and 105.7.

501.3 Construction documents. *Construction documents* for proposed fire apparatus access, location of *fire lanes*, security gates across fire apparatus access and *construction documents* and hydraulic calculations for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

501.4 Timing of installation. When fire apparatus access roads or a water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when *approved* alternative methods of protection are provided. Temporary street signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles in accordance with Section 505.2.

SECTION 502
DEFINITIONS

502.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

FIRE APPARATUS ACCESS ROAD. A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as *fire lane*, public street, private street, parking lot lane and access roadway.

FIRE COMMAND CENTER. The principal attended or unattended location where the status of the detection, alarm communications and control systems is displayed, and from which the system(s) can be manually controlled.

FIRE DEPARTMENT MASTER KEY. A limited issue key of special or controlled design to be carried by fire department officials in command which will open key boxes on specified properties.

FIRE LANE. A road or other passageway developed to allow the passage of fire apparatus. A fire lane is not necessarily intended for vehicular traffic other than fire apparatus.

KEY BOX. A secure device with a lock operable only by a fire department master key, and containing building entry keys and other keys that may be required for access in an emergency.

SECTION 503
FIRE APPARATUS ACCESS ROADS

503.1 Where required. Fire apparatus access roads shall be provided and maintained in accordance with Sections 503.1.1 through 503.1.3.

503.1.1 Buildings and facilities. *Approved* fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an *approved* route around the exterior of the building or facility.

Exception: The *fire code official* is authorized to increase the dimension of 150 feet (45 720 mm) where:

1. The building is equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an *approved* alternative means of fire protection is provided.
3. There are not more than two Group R-3 or Group U occupancies.

503.1.2 Additional access. The *fire code official* is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

503.1.3 High-piled storage. Fire department vehicle access to buildings used for *high-piled combustible storage* shall comply with the applicable provisions of Chapter 23.

503.2 Specifications. Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.8.

[California Code of Regulations, Title 19, Division 1, §3.05(a)] Fire Department Access and Egress. (Roads)

(a) Roads. Required access roads from every building to a public street shall be all-weather hard-surfaced (suitable for use by fire apparatus) right-of-way not less than 20 feet (6096 mm) in width. Such right-of-way shall be unobstructed and maintained only as access to the public street.

***Exception:** The enforcing agency may waive or modify this requirement if in his opinion such all-weather hard-surfaced condition is not necessary in the interest of public safety and welfare.*

503.2.1 Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for *approved* security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 13 feet 6 inches (4115 mm).

503.2.2 Authority. The *fire code official* shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.

503.2.3 Surface. Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.

503.2.4 Turning radius. The required turning radius of a fire apparatus access road shall be determined by the *fire code official*.

503.2.5 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) in length shall be provided with an *approved* area for turning around fire apparatus.

503.2.6 Bridges and elevated surfaces. Where a bridge or an elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges when required by the *fire code official*. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, *approved* barriers, *approved* signs or both shall be installed and maintained when required by the *fire code official*.

503.2.7 Grade. The grade of the fire apparatus access road shall be within the limits established by the *fire code official* based on the fire department's apparatus.

503.2.8 Angles of approach and departure. The angles of approach and departure for fire apparatus access roads shall be within the limits established by the *fire code official* based on the fire department's apparatus.

503.3 Marking. Where required by the *fire code official*, *approved* signs or other *approved* notices or markings that include the words NO PARKING—FIRE LANE shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. The means by which *fire lanes* are designated shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.

503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1 shall be maintained at all times.

503.5 Required gates or barricades. The *fire code official* is authorized to require the installation and maintenance of gates or other *approved* barricades across fire apparatus access roads, trails or other accessways, not including public streets, alleys or highways. Electric gate operators, where provided, shall be *listed* in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

503.5.1 Secured gates and barricades. When required, gates and barricades shall be secured in an *approved* manner. Roads, trails and other accessways that have been closed and obstructed in the manner prescribed by Section 503.5 shall not be trespassed on or used unless authorized by the *owner* and the *fire code official*.

Exception: The restriction on use shall not apply to public officers acting within the scope of duty.

503.5.2 Fences and gates. *School grounds may be fenced and gates therein may be equipped with locks, provided that safe dispersal areas based on 3 square feet (0.28 m^2) per occupant are located between the school and the fence. Such required safe dispersal areas shall not be located less than 50 feet (15 240 mm) from school buildings.*

Every public and private school shall conform with Section 32020 of the Education Code, which states:

The governing board of every public school district, and the governing authority of every private school, which maintains any building used for the instruction or housing of school pupils on land entirely enclosed (except for building walls) by fences of walls, shall, through cooperation with the local law enforcement and fire-protection agencies having jurisdiction of the area, make provision for the erection of gates in such fences or walls. The gates shall be of sufficient size to permit the entrance of the ambulances, police equipment and fire-fighting apparatus used by the law enforcement and fire-protection agencies. There shall be no less than one such access gate and there shall be as many such gates as needed to assure access to all major buildings and ground areas. If such gates are to be equipped with locks, the locking devices shall be designed to permit ready entrance by the use of the chain or bolt-cutting devices with which the local law enforcement and fire-protection agencies may be equipped.

503.6 Security gates. The installation of security gates across a fire apparatus access road shall be *approved* by the fire chief. Where security gates are installed, they shall have an *approved* means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be *listed* in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

SECTION 504
ACCESS TO BUILDING OPENINGS AND ROOFS

504.1 Required access. Exterior doors and openings required by this code or the *California Building Code* shall be maintained readily accessible for emergency access by the fire

department. An *approved* access walkway leading from fire apparatus access roads to exterior openings shall be provided when required by the *fire code official*.

[California Code of Regulations, Title 19, Division 1, §3.05(b)] Fire Department Access and Egress. (Roofs)

(b) Roofs. No person shall install or maintain any security barrier such as barbed wire fencing, razor wire fencing, chain link fencing or any other fencing material, cable, aerial, antenna or other obstruction on the roof of any commercial establishment in such a manner as to obstruct or render egress or access hazardous in the event of fire or other emergency.

***Exception:** Guy wire, rods and aerial antenna masts may be attached to a roof structure having a slope of less than 30 degrees provided there is full clearance of seven feet or more between the roof and said obstruction. Guy wire or rods required to support aerial or antenna masts may be attached to a roof structure a lateral distance from the mast not in excess of one-sixth the height of the mast.*

504.2 Maintenance of exterior doors and openings. Exterior doors and their function shall not be eliminated without prior approval. Exterior doors that have been rendered nonfunctional and that retain a functional door exterior appearance shall have a sign affixed to the exterior side of the door with the words THIS DOOR BLOCKED. The sign shall consist of letters having a principal stroke of not less than $^3/_4$ inch (19.1 mm) wide and at least 6 inches (152 mm) high on a contrasting background. Required fire department access doors shall not be obstructed or eliminated. *Exit* and *exit access* doors shall comply with Chapter 10. Access doors for *high-piled combustible storage* shall comply with Section 2306.6.1.

504.3 Stairway access to roof. New buildings four or more stories above grade plane, except those with a roof slope greater than four units vertical in 12 units horizontal (33.3-percent slope), shall be provided with a *stairway* to the roof. *Stairway* access to the roof shall be in accordance with Section 1009.13. Such *stairway* shall be marked at street and floor levels with a sign indicating that the *stairway* continues to the roof. Where roofs are used for roof gardens or for other purposes, *stairways* shall be provided as required for such occupancy classification.

SECTION 505
PREMISES IDENTIFICATION

505.1 Address identification. New and existing buildings shall have *approved* address numbers, building numbers or *approved* building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (101.6 mm) high with a minimum stroke width of 0.5 inch (12.7 mm). Where access is by means of a private road and the building cannot be viewed from the *public way*, a monument, pole or other sign or means shall be used to identify the structure.

505.2 Street or road signs. Streets and roads shall be identified with *approved* signs. Temporary signs shall be installed at each street intersection when construction of new roadways allows passage by vehicles. Signs shall be of an *approved* size, weather resistant and be maintained until replaced by permanent signs.

SECTION 506
KEY BOXES

506.1 Where required. Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the *fire code official* is authorized to require a key box to be installed in an *approved* location. The key box shall be of an *approved* type and shall contain keys to gain necessary access as required by the *fire code official*.

506.1.1 Locks. An *approved* lock shall be installed on gates or similar barriers when required by the *fire code official*.

506.2 Key box maintenance. The operator of the building shall immediately notify the *fire code official* and provide the new key when a lock is changed or rekeyed. The key to such lock shall be secured in the key box.

SECTION 507
FIRE PROTECTION WATER SUPPLIES

507.1 Required water supply. An *approved* water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.

507.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

507.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 *as amended in Chapter 47*.

507.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with NFPA 22.

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an *approved* method *or Appendix B*.

507.4 Water supply test. The *fire code official* shall be notified prior to the water supply test. Water supply tests shall be witnessed by the *fire code official* or *approved* documentation of the test shall be provided to the *fire code official* prior to final approval of the water supply system.

507.5 Fire hydrant systems. Fire hydrant systems shall comply with Sections 507.5.1 through 507.5.6 *and Appendix C or by an approved method*.

507.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on

a fire apparatus access road, as measured by an *approved* route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the *fire code official*.

Exception: For Group R-3 and Group U occupancies, *equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3*, the distance requirement shall be *not more than* 600 feet (183 m).

507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the *fire code official*. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, *alterations* and servicing shall comply with *approved* standards.

507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5.*

507.5.4 Obstruction. Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.

507.5.5 Clear space around hydrants. A 3-foot (914 mm) clear space shall be maintained around the circumference of fire hydrants except as otherwise required or *approved*.

507.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other *approved* means shall comply with Section 312.

SECTION 508
FIRE COMMAND CENTER

508.1 General. Where required by other sections of this code and in all buildings classified as high-rise buildings by the *California Building Code and Group I-2 occupancies having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access,* a fire command center for fire department operations shall be provided and shall comply with Sections 508.1.1 through 508.1.5.

508.1.1 Location and access. The location and accessibility of the *fire command center* shall be *approved* by the fire chief.

508.1.2 Separation. The *fire command center* shall be separated from the remainder of the building by not less than a 1-hour *fire barrier* constructed in accordance with Section 707 of the *California Building Code* or *horizontal assembly* constructed in accordance with Section 712 of the *California Building Code*, or both.

508.1.3 Size. The *fire command center* shall be a minimum of 200 square feet (19 m^2) in area with a minimum dimension of 10 feet (3048 mm).

508.1.4 Layout approval. A layout of the *fire command center* and all features required by this section to be contained therein shall be submitted for approval prior to installation.

508.1.5 Required features. The *fire command center* shall comply with NFPA 72 and shall contain the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air distribution systems.
6. The fire-fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking *stairway* doors simultaneously.
8. Sprinkler valve and water-flow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, *means of egress*, *fire protection systems*, fire-fighting equipment and fire department access, and the location of *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions.
13. Work table.
14. Generator supervision devices, manual start and transfer features.
15. Public address system, where specifically required by other sections of this code.
16. Elevator fire recall switch in accordance with *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.*
17. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Fire Command Centers shall not be used for the housing of any boiler, heating unit, generator, combustible storage, or similar hazardous equipment or storage.

SECTION 509
FIRE PROTECTION EQUIPMENT IDENTIFICATION AND ACCESS

509.1 Identification. Fire protection equipment shall be identified in an *approved* manner. Rooms containing controls for air-conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be identified for the use of the fire department. *Approved* signs required to identify fire protection equipment and equipment location

shall be constructed of durable materials, permanently installed and readily visible.

509.2 Equipment access. *Approved* access shall be provided and maintained for all fire protection equipment to permit immediate safe operation and maintenance of such equipment. Storage, trash and other materials or objects shall not be placed or kept in such a manner that would prevent such equipment from being readily accessible.

SECTION 510
EMERGENCY RESPONDER RADIO COVERAGE

510.1 Emergency responder radio coverage in buildings. All buildings shall have *approved* radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where *approved* by the building official and the *fire code official*, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an *approved* radio coverage system.
2. Where it is determined by the *fire code official* that the radio coverage system is not needed.

510.2 Radio signal strength. The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements of Sections 510.2.1 and 510.2.2.

510.2.1 Minimum signal strength into the building. A minimum signal strength of -95 dBm shall be receivable within the building.

510.2.2 Minimum signal strength out of the building. A minimum signal strength of -100 dBm shall be received by the agency's radio system when transmitted from within the building.

510.3 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building shall be equipped with such coverage according to one of the following:

1. Wherever existing wired communication system cannot be repaired or is being replaced, or where not *approved* in accordance with Section 510.1, Exception 1.
2. Within a time frame established by the adopting authority.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 6 – BUILDING SERVICES AND SYSTEMS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.17 (a)(b)]			X																	
[T-19 §3.20]			X																	
604.2.14		X																		
604.2.14.1.1		X																		
604.2.14.1.3		X																		
604.2.14.3		X																		
603.4		X																		
607.1		X																		
607.5 – 607.5.5		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

vides a redundant means of stopping compressors in an overpressure condition, high-pressure cutout sensors associated with compressors shall not be used as a basis for determining operation of a crossover valve.

606.10.2.2 Overpressure in low-pressure zone. The lowest pressure zone in a refrigeration system shall be provided with a dedicated means of determining a rise in system pressure to within 90 percent of the set point for emergency pressure relief devices. Activation of the overpressure sensing device shall cause all compressors on the affected system to immediately stop.

606.11 Storage, use and handling. Flammable and combustible materials shall not be stored in machinery rooms for refrigeration systems having a refrigerant circuit containing more than 220 pounds (100 kg) of Group A1 or 30 pounds (14 kg) of any other group refrigerant. Storage, use or handling of extra refrigerant or refrigerant oils shall be as required by Chapters 27, 30, 32 and 34.

Exception: This provision shall not apply to spare parts, tools and incidental materials necessary for the safe and proper operation and maintenance of the system.

606.12 Termination of relief devices. Pressure relief devices, fusible plugs and purge systems for refrigeration systems containing more than 6.6 pounds (3 kg) of flammable, toxic or highly toxic refrigerants shall be provided with an *approved* discharge system as required by Sections 606.12.1, 606.12.2 and 606.12.3. Discharge piping and devices connected to the discharge side of a fusible plug or rupture member shall have provisions to prevent plugging the pipe in the event of the fusible plug or rupture member functions.

606.12.1 Flammable refrigerants. Systems containing flammable refrigerants having a density equal to or greater than the density of air shall discharge vapor to the atmosphere only through an *approved* treatment system in accordance with Section 606.12.4 or a flaring system in accordance with Section 606.12.5. Systems containing flammable refrigerants having a density less than the density of air shall be permitted to discharge vapor to the atmosphere provided that the point of discharge is located outside of the structure at not less than 15 feet (4572 mm) above the adjoining grade level and not less than 20 feet (6096 mm) from any window, ventilation opening or *exit*.

606.12.2 Toxic and highly toxic refrigerants. Systems containing toxic or highly toxic refrigerants shall discharge vapor to the atmosphere only through an *approved* treatment system in accordance with Section 606.12.4 or a flaring system in accordance with Section 606.12.5.

606.12.3 Ammonia refrigerant. Systems containing ammonia refrigerant shall discharge vapor to the atmosphere through an *approved* treatment system in accordance with Section 606.12.4, a flaring system in accordance with Section 606.12.5, or through an *approved* ammonia diffusion system in accordance with Section 606.12.6, or by other *approved* means.

Exceptions:

1. Ammonia/water absorption systems containing less than 22 pounds (10 kg) of ammonia and for which the ammonia circuit is located entirely outdoors.
2. When the *fire code official* determines, on review of an engineering analysis prepared in accordance with Section 104.7.2, that a fire, health or environmental hazard would not result from discharging ammonia directly to the atmosphere.

606.12.4 Treatment systems. Treatment systems shall be designed to reduce the allowable discharge concentration of the refrigerant gas to not more than 50 percent of the IDLH at the point of exhaust. Treatment systems shall be in accordance with Chapter 37.

606.12.5 Flaring systems. Flaring systems for incineration of flammable refrigerants shall be designed to incinerate the entire discharge. The products of refrigerant incineration shall not pose health or environmental hazards. Incineration shall be automatic upon initiation of discharge, shall be designed to prevent blowback and shall not expose structures or materials to threat of fire. Standby fuel, such as LP gas, and standby power shall have the capacity to operate for one and one-half the required time for complete incineration of refrigerant in the system.

606.12.6 Ammonia diffusion systems. Ammonia diffusion systems shall include a tank containing 1 gallon of water for each pound of ammonia (4 L of water for each 1 kg of ammonia) that will be released in 1 hour from the largest relief device connected to the discharge pipe. The water shall be prevented from freezing. The discharge pipe from the pressure relief device shall distribute ammonia in the bottom of the tank, but no lower than 33 feet (10 058 mm) below the maximum liquid level. The tank shall contain the volume of water and ammonia without overflowing.

606.13 Discharge location for refrigeration machinery room ventilation. Exhaust from mechanical ventilation systems serving refrigeration machinery rooms containing flammable, toxic or highly toxic refrigerants, other than ammonia, capable of exceeding 25 percent of the LFL or 50 percent of the IDLH shall be equipped with *approved* treatment systems to reduce the discharge concentrations to those values or lower.

606.14 Notification of refrigerant discharges. The *fire code official* shall be notified immediately when a discharge becomes reportable under state, federal or local regulations in accordance with Section 2703.3.1.

606.15 Records. A written record shall be kept of refrigerant quantities brought into and removed from the premises. Such records shall be available to the *fire code official*.

606.16 Electrical equipment. Where refrigerants of Groups A2, A3, B2 and B3, as defined in the *California Mechanical Code*, are used, refrigeration machinery rooms shall conform to the Class I, Division 2 hazardous location classification requirements of the *California Electrical Code.*

Exception: Ammonia machinery rooms that are provided with ventilation in accordance with the *California Mechanical Code*.

SECTION 607
ELEVATOR RECALL AND MAINTENANCE

607.1 Emergency operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more shall comply with the requirements in Chapter 46. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders.*

[B] 607.2 Emergency signs. An *approved* pictorial sign of a standardized design shall be posted adjacent to each elevator call station on all floors instructing occupants to use the *exit stairways* and not to use the elevators in case of fire. The sign shall read: IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRS.

Exceptions:

1. The emergency sign shall not be required for elevators that are part of an accessible *means of egress* complying with Section 1007.4.
2. The emergency sign shall not be required for elevators that are used for occupant self-evacuation in accordance with Section 3008 of the *California Building Code*.

607.3 Fire service access elevator lobbies. Where fire service access elevators are required by Section 3007 of the *California Building Code,* fire service access elevator lobbies shall be maintained free of storage and furniture.

607.4 Elevator keys. Keys for the elevator car doors and fire-fighter service keys shall be kept in an *approved* location for immediate use by the fire department.

607.5 Shunt trip. *Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 21.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply.*

SECTION 608
STATIONARY STORAGE BATTERY SYSTEMS

608.1 Scope. Stationary storage battery systems having an electrolyte capacity of more than 50 gallons (189 L) for flooded lead-acid, nickel cadmium (Ni-Cd) and valve-regulated lead-acid (VRLA), or 1,000 pounds (454 kg) for lithium-ion and lithium metal polymer, used for facility standby power, emergency power or uninterrupted power supplies shall comply with this section and Table 608.1.

TABLE 608.1
BATTERY REQUIREMENTS

	NONRECOMBINANT BATTERIES		RECOMBINANT BATTERIES		OTHER
REQUIREMENT	Flooded Lead Acid Batteries	Flooded Nickel-Cadmium (Ni-Cd) Batteries	Valve Regulated Lead-Acid (VRLA) Batteries	Lithium-Ion Batteries	Lithium Metal Polymer
Safety caps	Venting caps (608.2.1)	Venting caps (608.2.1)	Self-resealing flame-arresting caps (608.2.2)	No caps	No caps
Thermal runaway management	Not required	Not required	Required (608.3)	Not required	Required (608.3)
Spill control	Required (608.5)	Required (608.5)	Not required	Not required	Not required
Neutralization	Required (608.5.1)	Required (608.5.1)	Required (608.5.2)	Not required	Not required
Ventilation	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Not required	Not required
Signage	Required (608.7)	Required (608.7)	Required (608.7)	Required (608.7)	Required (608.7)
Seismic protection	Required (608.8)	Required (608.8)	Required (608.8)	Required (608.8)	Required (608.8)
Smoke detection	Required (608.9)	Required (608.9)	Required (608.9)	Required (608.9)	Required (608.9)

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 7 – FIRE-RESISTANCE-RATED CONSTRUCTION

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CHAPTER 7
FIRE-RESISTANCE-RATED CONSTRUCTION

SECTION 701
GENERAL

701.1 Scope. The provisions of this chapter shall specify the requirements for and the maintenance of fire-resistance-rated construction. New buildings shall comply with the *California Building Code*.

701.2 Unsafe conditions. Where any components in this chapter are not maintained and do not function as intended or do not have the *fire resistance* required by the code under which the building was constructed, remodeled or altered, such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 110.1.1. Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed, remodeled, altered or this chapter, as deemed appropriate by the *fire code official*.

Where the extent of the conditions of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the *fire code official* shall act in accordance with Section 110.2.

SECTION 702
DEFINITIONS

702.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

[B] 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.

[B] FIRE-RESISTANT JOINT SYSTEM. An assemblage of specific materials or products that are designed, tested and fire-resistance rated in accordance with either ASTM E 1966 or UL 2079 to resist for a prescribed period of time the passage of fire through joints made in or between fire-resistance-rated assemblies.

[B] FIREBLOCKING. Building materials, or materials *approved* for use as fireblocking, installed to resist the free passage of flame to other areas of the building through concealed spaces.

SECTION 703
FIRE-RESISTANCE-RATED CONSTRUCTION

703.1 Maintenance. The required *fire-resistance rating* of fire-resistance-rated construction (including walls, firestops, shaft enclosures, partitions, *smoke barriers*, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems) shall be maintained. Such elements shall be visually inspected by the *owner* annually and properly repaired, restored or replaced when damaged, altered, breached or penetrated. Where concealed, such elements shall not be required to be visually inspected by the *owner* unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with *approved* methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of *approved* construction meeting the fire protection requirements for the assembly.

703.1.1 Fireblocking and draftstopping. Required *fireblocking* and draftstopping in combustible concealed spaces shall be maintained to provide continuity and integrity of the construction.

703.1.2 Smoke barriers and smoke partitions. Required *smoke barriers* and smoke partitions shall be maintained to prevent the passage of smoke. All openings protected with *approved* smoke barrier doors or smoke dampers shall be maintained in accordance with NFPA 105.

703.1.3 Fire walls, fire barriers and fire partitions. Required *fire walls*, *fire barriers* and *fire partitions* shall be maintained to prevent the passage of fire. All openings protected with *approved* doors or fire dampers shall be maintained in accordance with NFPA 80.

703.2 Opening protectives. Opening protectives shall be maintained in an operative condition in accordance with NFPA 80. Fire doors and *smoke barrier* doors shall not be blocked or obstructed or otherwise made inoperable. Fusible links shall be replaced promptly whenever fused or damaged. Fire door assemblies shall not be modified.

703.2.1 Signs. Where required by the *fire code official*, a sign shall be permanently displayed on or near each fire door in letters not less than 1 inch (25 mm) high to read as follows:

1. For doors designed to be kept normally open: FIRE DOOR—DO NOT BLOCK.
2. For doors designed to be kept normally closed: FIRE DOOR—KEEP CLOSED.

703.2.2 Hold-open devices and closers. Hold-open devices and automatic door closers, where provided, shall be maintained. During the period that such device is out of service for repairs, the door it operates shall remain in the closed position.

703.2.3 Door operation. Swinging fire doors shall close from the full-open position and latch automatically. The door closer shall exert enough force to close and latch the door from any partially open position.

703.3 Ceilings. The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are part of a fire-resistance-rated floor/ceiling or roof/ceiling assembly, shall be prohibited.

703.4 Testing. Horizontal and vertical sliding and rolling fire doors shall be inspected and tested annually to confirm proper operation and full closure. A written record shall be maintained and be available to the *fire code official*.

SECTION 704
FLOOR OPENINGS AND SHAFTS

704.1 Enclosure. Interior vertical shafts, including but not limited to *stairways*, elevator hoistways, service and utility shafts, that connect two or more stories of a building shall be enclosed or protected as required in Chapter 46. New floor openings in existing buildings shall comply with the *California Building Code*.

704.2 Opening protectives. When openings are required to be protected, opening protectives shall be maintained self-closing or automatic-closing by smoke detection. Existing fusible-link-type automatic door-closing devices are permitted if the fusible link rating does not exceed 135ºF (57ºC).

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 8 – INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §1172]			X																	
[T-19 §1173]			X																	
[T-19 §1174]			X																	
[T-19 §1191]			X																	
[T-19 §1196]			X																	
[T-19 §1201]			X																	
[T-19 §1202]			X																	
Table 803.3		X																		
[T-19 §3.21(a)(b)]			X																	
804.1		X																		
805		†																		
806		†																		
806.2		X																		
[T-19 §3.08]			X																	
807		†																		
807.1		X																		
807.1.2		X																		
[T-19 §3.08]			X																	
[T-19 §1273.1]			X																	
[T-19 §1273.2]			X																	
[T-19 §1321.1]			X																	
[T-19 §1324]			X																	
[T-19 §1325]			X																	
[T-19 §1326]			X																	
[T-19 §1327]			X																	
807.4.2.4		X																		
807.4.2.4.1		X																		
807.4.5		X																		
807.4.5.1		X																		
808		†																		
[T-19 §3.19 (b)(c)]			X																	

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

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 9 – FIRE PROTECTION SYSTEMS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
901.4.1		X																		
901.4.2		X																		
[T-19 §1.14]			X																	
[T-19 §3.24]			X																	
[T-19 §904 (a)]			X																	
[T-19 §904 (a)(1)]			X																	
[T-19 §904 (b)]			X																	
[T-19 §904.2 (a)]			X																	
[T-19 §904.2 (b)]			X																	
[T-19 §904.2 (h)]			X																	
[T-19 §904.2 (i)]			X																	
901.6.1		X																		
Table 901.6.1		X																		
[T-19 §904.1 (a)]			X																	
[T-19 §904.2 (g)]			X																	
[T-19 §904.1 (b)]			X																	
[T-19 §904.2 (c)]			X																	
[T-19 §904.2 (j)]			X																	
[T-19 §904.1 (c)]			X																	
[T-19 §904.2 (d)]			X																	
[T-19 §904.2 (e)]			X																	
[T-19 §904.2 (f)]			X																	
902.1		X																		
[T-19 §902.4 (b)]			X																	
Fire Appliance		X																		
[T-19 §902.9 (a)]			X																	
[T-19 §902.12 (a)]			X																	
[T-19 §902.15 (a)]			X																	
[T-19 §902.18 (a)]			X																	
[T-19 §902.19 (a)]			X																	
903.2		X																		
903.2.1.2		X																		
903.2.1.3		X																		
903.2.10		X																		
903.2.11.4		X																		
Table 903.2.11.6		X																		
903.2.13		X																		
903.2.14		X																		
903.2.14.1		X																		
903.2.14.2		X																		
903.2.15		X																		
903.2.15.1		X																		
903.2.16		X																		
903.2.16.1		X																		

continued

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
903.2.17		X																		
903.2.17.1		X																		
903.2.17.2		X																		
903.2.17.2.1		X																		
903.2.17.2.2		X																		
903.2.17.2.3		X																		
903.2.17.2.4		X																		
903.2.17.2.5		X																		
903.2.17.2.6		X																		
903.2.18		X																		
903.2.3		X																		
903.2.3.1		X																		
903.2.3.1.1		X																		
903.2.3.1.1.1		X																		
903.2.3.1.2		X																		
903.2.3.1.3		X																		
903.2.4.1		X																		
903.2.5.2		X																		
903.2.5.4		X																		
903.2.6		X																		
903.2.6.1		X																		
903.2.6.2		X																		
903.2.7		X																		
903.2.8		X																		
903.2.9.1		X																		
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903.3.1.2		X																		
903.3.2		X																		
903.3.5		X																		
903.3.5.2		X																		
903.3.8		X																		
903.4.2		X																		
903.4.3		X																		
903.6		X																		
[T-19 §904 (a)(2)]			X																	
[T-19 §904 (c)]			X																	
[T-19 §904.7 (a-c)]			X																	
904.10		X																		
904.11		X																		
904.11.5		X																		
[T-19 §573 (a-c)]			X																	
904.11.5.2		X																		

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CHAPTER 9 – FIRE PROTECTION SYSTEMS — (Continued)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
904.11.6		X																		
904.2.1		X																		
904.3.1		X																		
904.5		X																		
904.6		X																		
904.7		X																		
904.7.1		X																		
904.8		X																		
904.9		X																		
905.2		X																		
905.3.1		X																		
905.3.10		X																		
905.3.10.1		X																		
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905.3.9		X																		
905.4		X																		
905.5		X																		
906.1		X																		
[T-19 §3.29 (a-d)]			X																	
[T-19 §565 (a)]			X																	
906.2		X																		
[T-19 §565.1 (a-c)]			X																	
[T-19 §565.2 (a-e)]			X																	
[T-19 §566 (a-f)]			X																	
[T-19 §567.8]			X																	
[T-19 §574.1]			X																	
[T-19 §574.2]			X																	
[T-19 §567.1]			X																	
[T-19 §574.3]			X																	
[T-19 §574.4]			X																	
[T-19 §575.10]			X																	
[T-19 §591.5]			X																	
[T-19 §596.7 (a)(b)]			X																	
[T-19 §574.5 (a-c)]			X																	
[T-19 §567 (a-k)]			X																	
[T-19 §568 (a-e)]			X																	
[T-19 §569 (a-c)]			X																	
[T-19 §570 (a-e)]			X																	
[T-19 §571 (a)]			X																	
Table 906.3(1)		X																		
Table 906.3(2)		X																		
906.3.4		X																		

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CHAPTER 9 – FIRE PROTECTION SYSTEMS — (Continued)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
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[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §573 (a-c)]			X																	
[T-19 §567.5]			X																	
[T-19 §567.3]			X																	
[T-19 §567.4]			X																	
[T-19 §567.6]			X																	
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907.2.25.1		X																		
907.2.25.2		X																		

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CHAPTER 9 – FIRE PROTECTION SYSTEMS — (Continued)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.12]				X																
907.2.26		X																		
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907.2.6.3.3		X																		
907.2.6.3.4		X																		

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CHAPTER 9 – FIRE PROTECTION SYSTEMS — (Continued)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
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[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
907.2.6.4		X																		
907.2.7		X																		
907.2.8		X																		
907.2.9		X																		
907.2.9.1		X																		
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909.10.5		X																		

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CHAPTER 9 – FIRE PROTECTION SYSTEMS — (Continued)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
909.11		X																		
909.12		X																		
909.12.1		X																		
909.16		X																		
909.16.1		X																		
909.16.3		X																		
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914.3.7		X																		
914.3.7.1		X																		
914.3.7.2		X																		
914.5.3		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

area of the garage and/or carport, but not to exceed two sprinklers for hydraulic calculation purposes. Garage doors shall not be considered obstructions with respect to sprinkler placement.

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

903.3 Installation requirements. *Automatic sprinkler systems* shall be designed and installed in accordance with Sections 903.3.1 through 903.3.7.

903.3.1 Standards. Sprinkler systems shall be designed and installed in accordance with Section 903.3.1.1, unless otherwise permitted by Sections 903.3.1.2 and 903.3.1.3.

903.3.1.1 NFPA 13 sprinkler systems. Where the provisions of this code require that a building or portion thereof be equipped throughout with an *automatic sprinkler system* in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 *as amended in Chapter 47* except as provided in Section 903.3.1.1.1.

903.3.1.1.1 Exempt locations. *In other than Group I-2, I-2.1 and I-3 occupancies*, automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an *approved* automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when *approved* by the *fire code official*.
3. *Elevator hoistways, elevator machine rooms, elevator machinery spaces, elevator control spaces or elevator control rooms in accordance with 3006.4.1 of the California Building Code.*
4. *Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, and associated electrical power distribution equipment, provided those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than 1-hour fire barriers constructed in accordance with Section 707 of the California Building Code or not less than 2-hour horizontal assemblies constructed in accordance with Section 712 of the California Building Code, or both.*

903.3.1.2 NFPA 13R sprinkler systems. *Automatic sprinkler systems* in Group R occupancies up to and including four stories in height shall be permitted to be installed throughout in accordance with NFPA 13R *as amended in Chapter 47.*

903.3.1.2.1 Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of *dwelling units* where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

903.3.1.3 NFPA 13D sprinkler systems. *Automatic sprinkler systems* installed in one- and two-family *dwellings* and *townhouses* shall be permitted to be installed throughout in accordance with NFPA 13D.

903.3.2 Quick-response and residential sprinklers. Where *automatic sprinkler systems* are required by this code, quick-response or residential automatic sprinklers shall be installed in the following areas in accordance with Section 903.3.1 and their listings:

1. Throughout all spaces within a smoke compartment containing patient *sleeping units* in Group I-2 in accordance with the *California Building Code.*
2. *Dwelling units* and *sleeping units* in Group R occupancies.
3. Light-hazard occupancies as defined in NFPA 13.

903.3.3 Obstructed locations. Automatic sprinklers shall be installed with due regard to obstructions that will delay activation or obstruct the water distribution pattern. Automatic sprinklers shall be installed in or under covered kiosks, displays, booths, concession stands or equipment that exceeds 4 feet (1219 mm) in width. Not less than a 3-foot (914 mm) clearance shall be maintained between automatic sprinklers and the top of piles of *combustible fibers*.

Exception: Kitchen equipment under exhaust hoods protected with a fire-extinguishing system in accordance with Section 904.

903.3.4 Actuation. *Automatic sprinkler systems* shall be automatically actuated unless specifically provided for in this code.

903.3.5 Water supplies. Water supplies for *automatic sprinkler systems* shall comply with this section and the standards referenced in Section 903.3.1. The potable water supply shall be protected against backflow in accordance with *Health and Safety Code Section 13114.7.*

903.3.5.1 Domestic services. Where the domestic service provides the water supply for the *automatic sprinkler system*, the supply shall be in accordance with this section.

903.3.5.1.1 Limited area sprinkler systems. Limited area sprinkler systems serving fewer than 20 sprinklers on any single connection are permitted to be connected to the domestic service where a wet automatic standpipe is not available. Limited area sprinkler systems connected to domestic water supplies shall comply with each of the following requirements:

1. Valves shall not be installed between the domestic water riser control valve and the sprinklers.

   Exception: An *approved* indicating control valve supervised in the open position in accordance with Section 903.4.

2. The domestic service shall be capable of supplying the simultaneous domestic demand and the sprinkler demand required to be hydraulically calculated by NFPA 13, NFPA 13R or NFPA 13D.

903.3.5.1.2 Residential combination services. A single combination water supply shall be allowed provided that the domestic demand is added to the sprinkler demand as required by NFPA 13R.

903.3.5.2 Secondary water supply. A secondary on-site water supply shall be provided for high-rise buildings *and Group I-2 occupancies having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access* in Seismic Design Category C, D, E or F as determined by this code. The secondary water supply shall *have a usable capacity of not less than the hydraulically calculated sprinkler demand plus 100 gpm (0.006 m³/s) for the inside hose stream allowance, for* a duration of not less than 30 minutes *or* as determined by the *sprinkler system design occupancy* hazard classification in accordance with NFPA 13*, whichever is greater. The Class I standpipe system demand shall not be required to be included in the secondary on-site water supply calculations. In no case shall the secondary on-site water supply be less than 15,000 gallons (56.8 m³).*

Exception: Existing buildings.

903.3.6 Hose threads. Fire hose threads and fittings used in connection with *automatic sprinkler systems* shall be as prescribed by the *fire code official*.

903.3.7 Fire department connections. The location of fire department connections shall be *approved* by the *fire code official*.

903.3.8 Floor control valves. *Floor control valves and waterflow detection assemblies shall be installed at each floor where any of the following occur:*

1. *Buildings where the floor level of the highest story is located more than 30 feet (9144 mm) above the lowest level of fire department vehicle access*
2. *Buildings that are four or more stories in height*
3. *Buildings that are two or more stories below the highest level of fire department vehicle access*

Exception: *Group R-3 and R-3.1 occupancies floor control valves and waterflow detection assemblies shall not be required.*

903.4 Sprinkler system supervision and alarms. All valves controlling the water supply for *automatic sprinkler systems*, pumps, tanks, water levels and temperatures, critical air pressures and water-flow switches on all sprinkler systems shall be electrically supervised by a *listed* fire alarm control unit.

Exceptions:

1. *Automatic sprinkler systems* protecting one- and two-family *dwellings*.
2. Limited area systems serving fewer than 20 sprinklers.
3. *Automatic sprinkler systems* installed in accordance with NFPA 13R where a common supply main is used to supply both domestic water and the *automatic sprinkler system*, and a separate shutoff valve for the *automatic sprinkler system* is not provided.
4. Jockey pump control valves that are sealed or locked in the open position.
5. Control valves to commercial kitchen hoods, paint spray booths or dip tanks that are sealed or locked in the open position.
6. Valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position.
7. Trim valves to pressure switches in dry, preaction and deluge sprinkler systems that are sealed or locked in the open position.

903.4.1 Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an *approved* supervising station or, when *approved* by the *fire code official*, shall sound an audible signal at a constantly attended location.

Exceptions:

1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
2. Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

903.4.2 Alarms. *One exterior* approved audible device shall be connected to every automatic sprinkler system *in an approved location*. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Where a *building* fire alarm system is installed, actuation of the automatic sprinkler system shall actuate the building fire alarm system. *Visible alarm notification appliances shall not be required except when required by Section 907.*

other and public or common areas by at least 1-hour *fire partitions* and each *dwelling unit* or *sleeping unit* has an *exit* directly to a *public way*, *exit 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 1026.6, Exception 4.

907.2.9.2 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.

907.2.9.3 Licensed Group R-2.1 occupancies. *Licensed Group R-2.1 occupancies housing more than six non-ambulatory, elderly clients shall be provided with an approved manual and automatic fire alarm system.*

Exceptions: *Buildings housing non-ambulatory 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 initiate the fire alarm system to notify all occupants.*
2. *A manual fire alarm system.*
3. *Smoke alarms required by Section 907.2.11.*

907.2.10 Group R-4. Fire alarm systems and smoke alarms shall be installed in Group R-4 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.

907.2.10.1 Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-4 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 at least 1-hour *fire partitions* and each individual *sleeping unit* has an *exit* directly to a *public way*, *exit court* or yard.
2. Manual fire alarm boxes are not required throughout the building when 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; and
   2.3. At least one manual fire alarm box is installed at an *approved* location.
3. Manual fire alarm boxes in resident or patient sleeping areas shall not be required at *exits* where located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2.1 are not exceeded.

907.2.10.2 Automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.6 shall be installed in *corridors*, waiting areas open to *corridors* and *habitable spaces* other than *sleeping units* and kitchens.

Exceptions:

1. Smoke detection in *habitable spaces* is not required where the facility is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. 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.

907.2.10.3 Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.

907.2.11 Single- and multiple-station smoke alarms. *Listed* single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with Sections 907.2.11.1 through 907.2.11.4 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.*

907.2.11.1 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.

907.2.11.2 Groups R-2, *R-2.1*, R-3, *R-3.1 and* R-4. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, *R-2.1*, 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.

   Exception: Single- or multiple-station smoke alarms in Group I-1 shall not be required where smoke detectors are provided in the sleeping rooms as part of an automatic smoke detection system.

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 occupancy, in addition to the above, smoke alarms shall be provided throughout the habitable areas of the dwelling unit except kitchens.*

907.2.11.2.1 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.*

907.2.11.2.2 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 panel, or be electrically supervised or provided with emergency power.*

907.2.11.3 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling unit* or *sleeping unit* in Group R-1, R-2, R-3, *R-3.1* or R-4, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

907.2.11.4 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 back-up shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection. <

Exception: Smoke alarms are not required to be equipped with battery backup where they are connected to an emergency electrical system.

907.2.12 Special amusement buildings. An automatic smoke detection system shall be provided in special amusement buildings in accordance with Sections 907.2.12.1 through 907.2.12.3.

907.2.12.1 Alarm. Activation of any single smoke detector, the *automatic sprinkler system* or any other automatic fire detection device shall immediately sound an 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 907.2.12.2.

907.2.12.2 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:

1. Cause illumination of the *means of egress* with light of not less than 1 foot-candle (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; and
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 which is distinctive from other sounds used during normal operation.

907.2.12.3 Emergency voice/alarm communication system. An emergency voice/alarm communication system, which is also allowed to serve as a public address system, shall be installed in accordance with Section 907.6.2.2 and be audible throughout the entire special amusement building.

907.2.13 High-rise buildings *and Group I-2 occupancies having occupied floors located more than 75 feet (22 860 mm) 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 (22 860*

fire alarm. Such audible appliance or audible appliances 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, all audible appliances and fire alarm signals as required by this section shall be of the same type as that used in the automatic system.

907.2.26 Fixed guideway transits 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 a 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 containing Group L occupancies. When Group L occupancies are located in mixed use buildings, at least one manual fire alarm shall be located in the Group L occupancy.*

907.2.28.1 Group L occupancies located above the 10th story. *Manual fire alarm boxes shall be required on each side of the 2-hour fire-smoke barrier and at each exit above the 10th story.*

907.3 Where required in existing buildings and structures. An *approved* fire alarm system shall be installed in existing buildings and structures where required in Chapter 46.

907.4 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.

907.4.1 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 when a fire alarm system is *installed*. 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*. Duct smoke detectors 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.

907.4.2 Delayed egress locks. Where delayed egress locks *or devices* are installed on *means of egress* doors in accordance with Section 1008.1.9.7, an automatic smoke detection system shall be installed as required by this section *and Section 1008.1.9.7*.

907.4.2.1 *In other than Group I, R-2.1 and Group R-4 occupancies for single-story buildings 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.*

907.4.2.2 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.*

907.4.2.3 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.*

907.4.3 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..

907.4.4 Wiring. The wiring to the auxiliary devices and equipment used to accomplish the above fire safety functions shall be monitored for integrity in accordance with NFPA 72.

907.5 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 907.5.1 through 907.5.3.1.

907.5.1 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 smoke detector, a *heat detector* shall be permitted.

907.5.2 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 907.5.2.1 through 907.5.2.5.

907.5.2.1 Location. Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each *exit*. Additional manual fire alarm boxes shall be located so that travel distance 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.*

907.5.2.2 Height. The height of the manual fire alarm boxes shall be a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1372 mm) measured vertically, from the floor level to the activating handle or lever of the box.

907.5.2.3 Color. Manual fire alarm boxes shall be red in color.

907.5.2.4 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.

907.5.2.5 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.

907.5.2.6 Operation. *Manual fire alarm boxes shall be operable with one hand including boxes with protective covers.*

907.5.3 Automatic smoke detection. Where an automatic smoke detection system is required it shall utilize smoke detectors unless ambient conditions prohibit such an installation. In spaces where smoke detectors cannot be utilized due to ambient conditions, *approved* automatic *heat detectors* shall be permitted.

907.5.3.1 Automatic sprinkler system. For conditions other than specific fire safety functions noted in Section 907.4, in areas where ambient conditions prohibit the installation of smoke detectors, an *automatic sprinkler system* installed in such areas in accordance with Section 903.3.1.1 or 903.3.1.2 and that is connected to the fire alarm system shall be *approved* as automatic heat detection.

3. Fans, dampers and other operating equipment in their on or open status—GREEN.
4. Fans, dampers and other operating equipment in a fault status—YELLOW/AMBER.

909.16.2 Smoke control panel. The fire-fighter's control panel shall provide control capability over the complete smoke-control system equipment within the building as follows:

1. ON-AUTO-OFF control over each individual piece of operating smoke control equipment that can also be controlled from other sources within the building. This includes *stairway* pressurization fans; smoke exhaust fans; supply, return and exhaust fans; elevator shaft fans; and other operating equipment used or intended for smoke control purposes.
2. OPEN-AUTO-CLOSE control over individual dampers relating to smoke control and that are also controlled from other sources within the building.
3. ON-OFF or OPEN-CLOSE control over smoke control and other critical equipment associated with a fire or smoke emergency and that can only be controlled from the fire-fighter's control panel.

   Exceptions:

   1. Complex systems, where *approved*, where the controls and indicators are combined to control and indicate all elements of a single smoke zone as a unit.
   2. Complex systems, where *approved*, where the control is accomplished by computer interface using *approved*, plain English commands.

909.16.3 Control action and priorities. The fire-fighter's control panel actions shall be as follows:

1. ON-OFF and OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire-fighter's control panel, no automatic or manual control from any other control point within the building shall contradict the control action. Where automatic means are provided to interrupt normal, nonemergency equipment operation or produce a specific result to safeguard the building or equipment (i.e., duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices), such means shall be capable of being overridden by the fire-fighter's control panel. The last control action as indicated by each fire-fighter's control panel switch position shall prevail. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

   Exception: Power disconnects required by *this code or the California Electrical Code.*
2. Only the AUTO position of each three-position fire-fighter's control panel switch shall allow automatic or manual control action from other control points within the building. The AUTO position shall be the NORMAL, nonemergency, building control position. Where a fire-fighter's control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall continue to be indicated by the status indicator described above. When directed by an automatic signal to assume an emergency condition, the NORMAL position shall become the emergency condition for that device or group of devices within the zone. In no case shall control actions require the smoke control system to assume more than one configuration at any one time.

909.17 System response time. Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as dampers and fans) in the sequence necessary to prevent physical damage to the fans, dampers, ducts and other equipment. For purposes of smoke control, the fire-fighter's control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for detection, shutdown of operating equipment and smoke control system startup, shall allow for full operational mode to be achieved before the conditions in the space exceed the design smoke condition. The system response time for each component and their sequential relationships shall be detailed in the required rational analysis and verification of their installed condition reported in the required final report.

909.18 Acceptance testing. Devices, equipment, components and sequences shall be individually tested. These tests, in addition to those required by other provisions of this code, shall consist of determination of function, sequence and, where applicable, capacity of their installed condition.

909.18.1 Detection devices. Smoke or fire detectors that are a part of a smoke control system shall be tested in accordance with Chapter 9 in their installed condition. When applicable, this testing shall include verification of airflow in both minimum and maximum conditions.

909.18.2 Ducts. Ducts that are part of a smoke control system shall be traversed using generally accepted practices to determine actual air quantities.

909.18.3 Dampers. Dampers shall be tested for function in their installed condition.

909.18.4 Inlets and outlets. Inlets and outlets shall be read using generally accepted practices to determine air quantities.

909.18.5 Fans. Fans shall be examined for correct rotation. Measurements of voltage, amperage, revolutions per minute and belt tension shall be made.

909.18.6 Smoke barriers. Measurements using inclined manometers or other *approved* calibrated measuring devices shall be made of the pressure differences across *smoke barriers*. Such measurements shall be conducted for each possible smoke control condition.

909.18.7 Controls. Each smoke zone equipped with an automatic-initiation device shall be put into operation by the actuation of one such device. Each additional device within

the zone shall be verified to cause the same sequence without requiring the operation of fan motors in order to prevent damage. Control sequences shall be verified throughout the system, including verification of override from the fire-fighter's control panel and simulation of standby power conditions.

909.18.8 Special inspections for smoke control. Smoke control systems shall be tested by a special inspector.

909.18.8.1 Scope of testing. Special inspections shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

909.18.8.2 Qualifications. Special inspection agencies for smoke control shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

909.18.8.3 Reports. A complete report of testing shall be prepared by the special inspector or special inspection agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or mark. The report shall be reviewed by the responsible registered design professional and, when satisfied that the design intent has been achieved, the responsible registered design professional shall seal, sign and date the report.

909.18.8.3.1 Report filing. A copy of the final report shall be filed with the *fire code official* and an identical copy shall be maintained in an *approved* location at the building.

909.18.9 Identification and documentation. Charts, drawings and other documents identifying and locating each component of the smoke control system, and describing their proper function and maintenance requirements, shall be maintained on file at the building as an attachment to the report required by Section 909.18.8.3. Devices shall have an *approved* identifying tag or mark on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

909.19 System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the *fire code official* determines that the provisions of this section have been fully complied with and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system.

Exception: In buildings of phased construction, a temporary certificate of occupancy, as *approved* by the *fire code official*, shall be allowed, provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

909.20 Maintenance. Smoke control systems shall be maintained to ensure to a reasonable degree that the system is capable of controlling smoke for the duration required. The system shall be maintained in accordance with the manufacturer's instructions and Sections 909.20.1 through 909.20.5.

909.20.1 Schedule. A routine maintenance and operational testing program shall be initiated immediately after the smoke control system has passed the acceptance tests. A written schedule for routine maintenance and operational testing shall be established.

909.20.2 Written record. A written record of smoke control system testing and maintenance shall be maintained on the premises. The written record shall include the date of the maintenance, identification of the servicing personnel and notification of any unsatisfactory condition and the corrective action taken, including parts replaced.

909.20.3 Testing. Operational testing of the smoke control system shall include all equipment such as initiating devices, fans, dampers, controls, doors and windows.

909.20.4 Dedicated smoke control systems. Dedicated smoke control systems shall be operated for each control sequence semiannually. The system shall also be tested under standby power conditions.

909.20.5 Nondedicated smoke control systems. Nondedicated smoke control systems shall be operated for each control sequence annually. The system shall also be tested under standby power conditions.

SECTION 910
SMOKE AND HEAT VENTS

910.1 General. Where required by this code or otherwise installed, smoke and heat vents or mechanical smoke exhaust systems and draft curtains shall conform to the requirements of this section.

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an *approved automatic sprinkler system*.
2. *Automatic smoke and heat vents or mechanical smoke exhaust systems are not required within areas of buildings equipped with early suppression fast-response (ESFR) sprinklers unless any of the following conditions exist:*
   - *2.1. The building is a state institution,*
   - *2.2. The building is a state-owned or state-occupied building,*
   - *2.3. The building is any of the applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, or*
   - *2.4. The area of a Group F-1 or S-1 occupancy protected with the early suppression fast- response*

(ESFR) sprinklers has an exit access travel distance of more than 250 feet (76 200 mm).

910.2 Where required. Smoke and heat vents *or mechanical smoke exhaust systems* shall be installed in the roofs of one-story buildings or portions thereof occupied for the uses set forth in Sections 910.2.1 and 910.2.2.

910.2.1 Group F-1 or S-1. Buildings and portions thereof used as a Group F-1 or S-1 occupancy having more than 50,000 square feet (4645 m^2) of undivided area.

Exception: *Group F-1 aircraft manufacturing buildings and* Group S-1 aircraft repair hangars.

910.2.2 High-piled combustible storage. Buildings and portions thereof containing high-piled combustible stock or rack storage in any occupancy group when required by Section 2306.7.

910.3 Design and installation. The design and installation of smoke and heat vents and draft curtains shall be as specified in Sections 910.3.1 through 910.3.5.2 and Table 910.3.

910.3.1 Design. Smoke and heat vents shall be *listed* and *labeled* to indicate compliance with *FM 4430, ICC ES AC 331, or* UL 793.

910.3.2 Vent operation. Smoke and heat vents shall be capable of being operated by *approved* automatic and manual means. Automatic operation of smoke and heat vents shall conform to the provisions of Sections 910.3.2.1 through 910.3.2.3.

910.3.2.1 Gravity-operated drop out vents. Automatic smoke and heat vents containing heat-sensitive glazing designed to shrink and drop out of the vent opening when exposed to fire shall fully open within 5 minutes after the vent cavity is exposed to a simulated fire represented by a time-temperature gradient that reaches an air temperature of 500°F (260°C) within 5 minutes.

910.3.2.2 Sprinklered buildings. Where installed in buildings equipped with an *approved automatic sprinkler system*, smoke and heat vents shall be designed *in accordance with Sections 910.3.2.2.1 through 910.3.2.2.3.*

910.3.2.2.1 Automatic operation. *Smoke and heat vents shall be designed to operate automatically.*

910.3.2.2.2 Control mode sprinkler system. *Smoke and heat vents installed in areas of buildings with a control mode sprinkler system shall have operating elements with a higher temperature classification than the automatic fire sprinklers in accordance with NFPA 13.*

910.3.2.2.3 Early suppression fast-response (ESFR) sprinkler system. *Smoke and heat vents installed in areas of buildings with early suppression fast-response (ESFR) sprinklers shall be equipped with a standard-response operating mechanism with a minimum temperature rating of 360ºF (182ºC) or 100ºF (56ºC) above the operating temperature of the sprinklers, whichever is higher.*

TABLE 910.3
REQUIREMENTS FOR DRAFT CURTAINS AND SMOKE AND HEAT VENTS[a]

OCCUPANCY GROUP AND COMMODITY CLASSIFICATION	DESIGNATED STORAGE HEIGHT (feet)	MINIMUM DRAFT CURTAIN DEPTH (feet)	MAXIMUM AREA FORMED BY DRAFT CURTAINS (square feet)	VENT-AREA-TO FLOOR-AREA RATIO[c]	MAXIMUM SPACING OF VENT CENTERS (feet)	MAXIMUM DISTANCE FROM VENTS TO WALL OR DRAFT CURTAIN[b] (feet)
Group F-1 and S-1	—	$0.2 \times H^d$ but ≥ 4	50,000	1:100	120	60
High-piled storage (see Section 910.2.2) Class I-IV Commodities (Option 1)	≤ 20	6	10,000	1:100	100	60
	> 20 ≤ 40	6	8,000	1:75	100	55
High-piled storage (see Section 910.2.2) Class I-IV Commodities (Option 2)	≤ 20	4	3,000	1:75	100	55
	> 20 ≤ 40	4	3,000	1:50	100	50
High-piled storage (see Section 910.2.2) High-hazard Commodities (Option 1)	≤ 20	6	6,000	1:50	100	50
	> 20 ≤ 30	6	6,000	1:40	90	45
High-piled storage (see Section 910.2.2) High-hazard Commodities (Option 2)	≤ 20	4	4,000	1:50	100	50
	> 20 ≤ 30	4	2,000	1:30	75	40

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2.

a. Additional requirements for rack storage heights in excess of those indicated shall be in accordance with Chapter 23. For solid-piled storage heights in excess of those indicated, an approved engineered design shall be used.

b. Vents adjacent to walls or draft curtains shall be located within a horizontal distance not greater than the maximum distance specified in this column as measured perpendicular to the wall or draft curtain that forms the perimeter of the draft curtained area.

c. Where draft curtains are not required, the vent area to floor area ratio shall be calculated based on a minimum draft curtain depth of 6 feet (Option 1).

d. "H" is the height of the vent, in feet, above the floor.

910.3.2.3 Nonsprinklered buildings. Where installed in buildings not equipped with an *approved automatic sprinkler system*, smoke and heat vents shall operate automatically by actuation of a heat-responsive device rated at between 100°F (56°C) and 220°F (122°C) above ambient.

Exception: Gravity-operated drop out vents complying with Section 910.3.2.1.

910.3.3 Vent dimensions. The effective venting area shall not be less than 16 square feet (1.5 m^2) with no dimension less than 4 feet (1219 mm), excluding ribs or gutters having a total width not exceeding 6 inches (152 mm).

910.3.4 Vent locations. Smoke and heat vents shall be located 20 feet (6096 mm) or more from adjacent *lot lines* and *fire walls* and 10 feet (3048 mm) or more from *fire barriers*. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2, with consideration given to roof pitch, draft curtain location, sprinkler location and structural members.

910.3.5 Draft curtains. Where required by Table 910.3, draft curtains shall be installed on the underside of the roof in accordance with this section.

Exception: Where areas of buildings are equipped with ESFR sprinklers, draft curtains shall not be provided within these areas. Draft curtains shall only be provided at the separation between the ESFR sprinklers and the non-ESFR sprinklers.

910.3.5.1 Construction. Draft curtains shall be constructed of sheet metal, lath and plaster, gypsum board or other *approved* materials that provide equivalent performance to resist the passage of smoke. Joints and connections shall be smoke tight.

910.3.5.2 Location and depth. The location and minimum depth of draft curtains shall be in accordance with Table 910.3.

> **910.4 Mechanical smoke exhaust.** *E*ngineered mechanical smoke exhaust *systems* shall be an acceptable alternative to smoke and heat vents.

> **910.4.1 Location.** Exhaust fans shall be uniformly spaced and the maximum distance between fans shall not be greater than 100 feet (30 480 mm).

910.4.2 Size. Fans shall have a maximum individual capacity of 30,000 cfm (14.2 m^3/s). *For sprinklered buildings, the aggregate capacity of smoke exhaust fans shall provide a minimum of two complete air changes per hour based on the volume of the building or portions thereof without deduction for any commodity storage. For nonsprinklered buildings, t*he aggregate capacity of smoke exhaust fans shall be determined by the equation:

$$C = A \times 300 \qquad \textbf{(Equation 9-4)}$$

where:

C = Capacity of mechanical ventilation required, in cubic feet per minute (m^3/s).

A = Area of roof vents provided in square feet (m^2) in accordance with Table 910.3.

910.4.3 Operation. Mechanical smoke exhaust fans shall be automatically activated by the *automatic sprinkler system* or by *heat detectors* having operating characteristics equivalent to those described in Section 910.3.2. Individual manual controls for each fan unit shall also be provided.

910.4.4 Wiring and control. Wiring for operation and control of smoke exhaust fans shall be connected ahead of the main disconnect and protected against exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes. Controls shall be located so as to be immediately accessible to the fire service from the exterior of the building and protected against interior fire exposure by not less than 1-hour *fire barriers* constructed in accordance with Section 707 of the *California Building Code* or *horizontal assemblies* constructed in accordance with Section 712 of the *California Building Code*, or both.

910.4.5 Supply air. Supply air for exhaust fans shall be provided at or near the floor level and shall be sized to provide a minimum of 50 percent of required exhaust. Openings for supply air shall be uniformly distributed around the periphery of the area served.

910.4.6 Interlocks. On combination comfort air-handling/smoke removal systems or independent comfort air-handling systems, fans shall be controlled to shut down in accordance with the *approved* smoke control sequence.

SECTION 911
EXPLOSION CONTROL

911.1 General. Explosion control shall be provided in the following locations:

1. Where a structure, room or space is occupied for purposes involving explosion hazards as identified in Table 911.1.
2. Where quantities of hazardous materials specified in Table 911.1 exceed the maximum allowable quantities in Table 2703.1.1(1).

Such areas shall be provided with explosion (*deflagration*) venting, explosion (*deflagration*) prevention systems, or *barricades* in accordance with this section and NFPA 69, or NFPA 495 as applicable. *Deflagration* venting shall not be utilized as a means to protect buildings from *detonation* hazards.

911.2 Required deflagration venting. Areas that are required to be provided with *deflagration* venting shall comply with the following:

1. Walls, ceilings and roofs exposing surrounding areas shall be designed to resist a minimum internal pressure of 100 pounds per square foot (psf) (4788 Pa). The minimum internal design pressure shall not be less than five times the maximum internal relief pressure specified in Section 911.2, Item 5.
2. *Deflagration* venting shall be provided only in exterior walls and roofs.

   Exception: Where sufficient exterior wall and roof venting cannot be provided because of inadequate

exterior wall or roof area, *deflagration* venting shall be allowed by specially designed shafts vented to the exterior of the building.

3. *Deflagration* venting shall be designed to prevent unacceptable structural damage. Where relieving a *deflagration*, vent closures shall not produce projectiles of sufficient velocity and mass to cause life threatening injuries to the occupants or other *persons* on the property or adjacent *public ways*.
4. The aggregate clear area of vents and venting devices shall be governed by the pressure resistance of the construction assemblies specified in Item 1 of this section and the maximum internal pressure allowed by Item 5 of this section.
5. Vents shall be designed to withstand loads in accordance with the *California Building Code*. Vents shall consist of any one or any combination of the following to relieve at a maximum internal pressure of 20 pounds per square foot (958 Pa), but not less than the loads required by the *California Building Code*:
   5.1. *Exterior walls* designed to release outward.
   5.2. Hatch covers.
   5.3. Outward swinging doors.
   5.4. Roofs designed to uplift.
   5.5. Venting devices *listed* for the purpose.

Text continues on page 167.

914.8.2 Fire suppression. Aircraft hangars shall be provided with a fire suppression system designed in accordance with NFPA 409, based upon the classification for the hangar given in Table 914.8.2.

Exception: When a fixed base operator has separate repair facilities on site, Group II hangars operated by a fixed base operator used for storage of transient aircraft only shall have a fire suppression system, but the system shall be exempt from foam requirements.

914.8.2.1 Hazardous operations. Any Group III aircraft hangar according to Table 914.8.2 that contains hazardous operations including, but not limited to, the following shall be provided with a Group I or II fire suppression system in accordance with NFPA 409 as applicable:

1. Doping.
2. Hot work including, but not limited to, welding, torch cutting and torch soldering.
3. Fuel transfer.
4. Fuel tank repair or maintenance not including defueled tanks in accordance with NFPA 409, inerted tanks or tanks that have never been fueled.
5. Spray finishing operations.
6. Total fuel capacity of all aircraft within the unsprinklered single *fire area* in excess of 1,600 gallons (6057 L).
7. Total fuel capacity of all aircraft within the maximum single *fire area* in excess of 7,500 gallons (28 390 L) for a hangar equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.

914.8.2.2 Separation of maximum single fire areas. Maximum single *fire areas* established in accordance with hangar classification and construction type in Table 914.8.2 shall be separated by 2-hour *fire walls* constructed in accordance with Section 706 of the *California Building Code*.

914.8.3 Finishing. The process of "doping," involving the use of a volatile flammable solvent, or of painting shall be carried on in a separate detached building equipped with automatic fire-extinguishing equipment in accordance with Section 903.

914.8.4 Residential aircraft hangar smoke alarms. Smoke alarms shall be provided within residential aircraft hangars in accordance with Section 907.2.21.

914.8.5 Aircraft paint hangar fire suppression. Aircraft paint hangars shall be provided with fire suppression as required by NFPA 409.

914.9 Application of flammable finishes. An automatic fire-extinguishing system shall be provided in all spray, dip and immersing spaces and storage rooms, and shall be installed in accordance with Chapter 9.

914.10 Drying rooms. Drying rooms designed for high-hazard materials and processes, including special occupancies as provided for in Chapter 4 of the *California Building Code*, shall be protected by an *approved* automatic fire-extinguishing system complying with the provisions of Chapter 9.

914.11 Group B ambulatory health care facilities. Occupancies classified as Group B ambulatory health care facilities shall comply with Sections 914.11.1 through 914.11.3.

914.11.1 Automatic sprinkler systems. An *automatic sprinkler system* shall be provided for Group B ambulatory health care facilities in accordance with Section 903.2.2.

914.11.2 Manual fire alarm systems. A manual fire alarm system shall be provided for Group B ambulatory care facilities in accordance with Section 907.2.2.

914.11.3 Fire alarm systems. An automatic smoke detection system shall be provided for Group B ambulatory care facilities in accordance with Section 907.2.2.1.

TABLE 914.8.2
HANGAR FIRE SUPPRESSION REQUIREMENTS [a, b, c]

MAXIMUM SINGLE FIRE AREA, SQUARE FEET	*CALIFORNIA* BUILDING CODE TYPE OF CONSTRUCTION								
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
> 40,001	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I	Group I
40,000	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II
30,000	Group III	Group II	Group II	Group II	Group II	Group II	Group II	Group II	Group II
20,000	Group III	Group III	Group II	Group II	Group II	Group II	Group II	Group II	Group II
15,000	Group III	Group III	Group III	Group II	Group III	Group II	Group III	Group II	Group II
12,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II	Group II
8,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group II
5,000	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III	Group III

For SI: 1 square foot = 0.0929 m^2, 1 foot = 304.8 mm.

a. Aircraft hangars with a door height greater than 28 feet shall be provided with fire suppression for a Group I hangar regardless of maximum fire area.

b. Groups shall be as classified in accordance with NFPA 409.

c. Membrane structures complying with Section 3102 of the *California Building Code* shall be classified as a Group IV hangar.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 10 – MEANS OF EGRESS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
1001.1		X																		
1002		X																		
[T-19 §4.1 (a)]			X																	
[T-19 §4.1 (b)]			X																	
1003.1		X																		
1003.2		X																		
1003.3		X																		
1003.3.3.1		X																		
1003.3.4		X																		
1003.5		X																		
[T-19 §3.31]			X																	
[T-19 §3.27]			X																	
Table 1004.1.1		X																		
[T-19 §3.30]			X																	
1005.1		X																		
1005.3		X																		
1006.1		X																		
1006.3		X																		
1007.1		X																		
1007.2		X																		
1007.4		X																		
1007.5		X																		
1007.6.2		X																		
1007.7		X																		
1007.12		X																		
1008.1.1		X																		
1008.1.1.1		X																		
1008.1.2		X																		
1008.1.4.3		X																		
1008.1.4.4		X																		
1008.1.4.6		X																		
1008.1.4.7		X																		
1008.1.7		X																		
1008.1.9.1		X																		
1008.1.9.6		X																		
1008.1.9.7		X																		

continued

CHAPTER 10 – MEANS OF EGRESS — (Continued)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
1008.1.9.9			X																	
1008.1.9.10		X																		
1008.1.10		X																		
1009.1		X																		
1009.4.2		X																		
1009.5		X																		
1009.12		X																		
1009.13.1		X																		
1011.1		X																		
1011.3		X																		
1011.4		X																		
1011.5.3		X																		
1011.6		X																		
1011.7		X																		
1012.1		X																		
1012.8		X																		
1013.1		X																		
1013.1.1		X																		
1013.3		X																		
1014.2		X																		
1014.2.2		X																		
1014.2.2.1		X																		
1014.2.7		X																		
1014.3		X																		
[T-19 §3.06 (a)]			X																	
[T-19 §3.06 (b)]			X																	
1015.1		X																		
Table 1015.1		X																		
1015.5		X																		
1015.7		X																		
Table 1016.1		X																		
1016.3			X																	
1017.2		X																		
1018.1		X																		
Table 1018.1		X																		

continued

CHAPTER 10 – MEANS OF EGRESS — (Continued)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
1018.2		X																		
1018.4		X																		
1018.5		X																		
1018.5.1		X																		
1018.6		X																		
1021.2		X																		
Table 1021.2		X																		
1022.1		X																		
1022.3		X																		
1022.4		X																		
1022.5		X																		
1022.6		X																		
1022.8		X																		
1022.8.1		X																		
1022.9		X																		
1022.9.1		X																		
1022.9.2		X																		
1023.2		X																		
1026.2		X																		
1027.6		X																		
1028.1		X																		
1028.2		X																		
1028.3		X																		
1028.3.1		X																		
1028.6.1		X																		
1028.10		X																		
1028.6.4		X																		
1028.9.1		X																		
[T-19 §3.06 (a)]			X																	
1029.4		X																		
[T-19 §4.2]			X																	
[T-19 §4.3 (a-c)]			X																	
[T-19 §4.4]			X																	
[T-19 §4.5 (a)]			X																	
[T-19 §4.6 (a)(b)]			X																	
1029.1		X																		
[T-19 §3.11 (a-d)]			X																	

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

6. *Horizontal exits* complying with Section 1025.
7. *Ramps* complying with Section 1010.
8. *Areas of refuge* complying with Section 1007.6.

Exceptions:

1. Where the *exit discharge* is not *accessible*, an exterior area for assisted rescue must be provided in accordance with Section 1007.7.
2. Where the *exit stairway* is open to the exterior, the *accessible means of egress* shall include either an *area of refuge* in accordance with Section 1007.6 or an exterior area for assisted rescue in accordance with Section 1007.7.

1007.2.1 Elevators required. In buildings where a required *accessible* floor is four or more stories above or below a *level of exit discharge*, at least one required *accessible means of egress* shall be an elevator complying with Section 1007.4.

Exceptions:

1. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a *horizontal exit* and located at or above the *levels of exit discharge*.
2. In buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a ramp conforming to the provisions of Section 1010.

1007.3 Stairways. In order to be considered part of an *accessible means of egress*, an *exit access stairway* as permitted by Section 1016.1 or *exit stairway* shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an *area of refuge* within an enlarged floor-level landing or shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*.

Exceptions:

1. The *area of refuge* is not required at open *exit access* or *exit stairways* as permitted by Sections 1016.1 and 1022.1 in buildings that are equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. The clear width of 48 inches (1219 mm) between *handrails* is not required at *exit access stairway* as permitted by Section 1016.1 or *exit stairways* in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. *Areas of refuge* are not required at *exit stairways* in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
4. The clear width of 48 inches (1219 mm) between *handrails* is not required for *exit stairways* accessed from a *horizontal exit*.
5. *Areas of refuge* are not required at *exit stairways* serving *open parking garages*.
6. *Areas of refuge* are not required for smoke protected seating areas complying with Section 1028.6.2.
7. The *areas of refuge* are not required in Group R-2 occupancies.

1007.4 Elevators. In order to be considered part of an *accessible means of egress*, an elevator shall comply with the emergency operation and signaling device requirements of *California Code of Regulations, Title 8, Division 1, Chapter 4, Subchapter 6, Elevator Safety Orders*. Standby power shall be provided in accordance with Section 604.2.5 of this code and Section 3003 of the *California Building Code*. The elevator shall be accessed from either an *area of refuge* complying with Section 1007.6 or a *horizontal exit*.

Exceptions:

1. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* in *open parking garages*.
2. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* in buildings and facilities equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.
3. Elevators not required to be located in a shaft in accordance with Section 708.2 of the *California Building Code* are not required to be accessed from an *area of refuge* or *horizontal exit*.
4. Elevators are not required to be accessed from an *area of refuge* or *horizontal exit* for smoke-protected seating areas complying with Section 1028.6.2.

1007.5 Platform lifts. Platform (wheelchair) lifts shall not serve as part of an *accessible means of egress*, except where allowed as part of a required *accessible route* in Section 1109.7, Items 1 through 9, of the *California Building Code*. Standby power shall be provided in accordance with Section 604.2.6 of this code for platform lifts permitted to serve as part of a *means of egress*.

1007.5.1 Openness. Platform lifts on an *accessible means of egress* shall not be installed in a fully enclosed hoistway.

1007.6 Areas of refuge. Every required *area of refuge* shall be *accessible* from the space it serves by an *accessible means of egress*. The maximum travel distance from any *accessible* space to an *area of refuge* shall not exceed the travel distance permitted for the occupancy in accordance with Section 1016.1. Every required *area of refuge* shall have direct access to a *stairway* within an *exit enclosure* complying with Sections 1007.3 and 1022 or an elevator complying with Section 1007.4. Where an elevator lobby is used as an *area of refuge*, the shaft and lobby shall comply with Section 1022.9 for *smokeproof enclosures* except where the elevators are in an *area of refuge* formed by a *horizontal exit* or *smoke barrier.*

Exceptions:

1. A *stairway* serving an *area of refuge* is not required to be enclosed where permitted in Sections 1016.1 and 1022.1.

2. *Smokeproof enclosure* is not required for an elevator lobby used as an *area of refuge* not required to be enclosed.

1007.6.1 Size. Each *area of refuge* shall be sized to accommodate *two wheelchair spaces that are not less than* 30 inches by 48 inches (762 mm by1219 mm). *The total number of such 30-inch by 48-inch (762 mm by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge*. Such wheelchair spaces shall not reduce the required *means of egress* width. Access to any of the required *wheelchair spaces* in an *area of refuge* shall not be obstructed by more than one adjoining *wheelchair space*.

Exception: *The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches on floors where the occupant load is less than 200.*

1007.6.2 Separation. Each *area of refuge* shall be separated from the remainder of the story by a *smoke barrier* complying with Section 710 of the *California Building Code* or a *horizontal exit* complying with Section 1025. Each *area of refuge* shall be designed to minimize the intrusion of smoke.

Exception: *Areas of refuge* located within an *exit enclosure*.

1007.6.3 Two-way communication. *Areas of refuge* shall be provided with a two-way communication system complying with Sections 1007.8.1 and 1007.8.2.

1007.7 Exterior area for assisted rescue. The exterior area for assisted rescue must be open to the outside air and meet the requirements of Section 1007.6.1. Separation walls shall comply with the requirements of Section 705 of the *California Building Code* for *exterior walls*. Where walls or openings are between the area for assisted rescue and the interior of the building, the building *exterior walls* within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a *fire-resistance rating* of not less than 1 hour. Openings within such *exterior walls* shall be protected by opening protectives having a *fire protection rating* of not less than $^3/_4$ hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower.

1007.7.1 Openness. The exterior area for assisted rescue shall be at least 50 percent open, and the open area above the guards shall be so distributed as to minimize the accumulation of smoke or toxic gases.

1007.7.2 Exterior exit stairway. *Exterior exit stairways* that are part of the *means of egress* for the exterior area for assisted rescue shall provide a clear width of 48 inches (1219 mm) between handrails.

1007.8 Two-way communication. A two-way communication system shall be provided at the elevator landing on each *accessible* floor that is one or more stories above or below the *story* of *exit discharge* complying with Sections 1007.8.1 and 1007.8.2.

Exceptions:

1. Two-way communication systems are not required at the elevator landing where the two-way communication system is provided within *areas of refuge* in accordance with Section 1007.6.3.
2. Two-way communication systems are not required on floors provided with *exit ramps* conforming to the provisions of Section 1010.

1007.8.1 System requirements. Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location *approved* by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location or 911. The two-way communication system shall include both audible and visible signals.

1007.8.2 Directions. Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location shall be posted adjacent to the two-way communication system.

1007.9 Signage. Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an *area of refuge* from an adjacent floor area shall be identified by a sign stating: AREA OF REFUGE.
2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with the ICC A117.1 requirements for visual characters and include the International Symbol of Accessibility. Where exit sign illumination is required by Section 1011.2, the signs shall be illuminated. Additionally, tactile signage complying with ICC A117.1 shall be located at each door to an *area of refuge* and exterior area for assisted rescue in accordance with Section 1011.3.

1007.10 Directional signage. Direction signage indicating the location of the other *means of egress* and which are *accessible means of egress* shall be provided at the following:

1. At *exits* serving a required *accessible* space but not providing an *approved accessible means of egress*.
2. At elevator landings.
3. Within *areas of refuge*.

1007.11 Instructions. In *areas of refuge* and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. The instructions shall include all of the following:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.

1010.5 Minimum dimensions. The minimum dimensions of *means of egress ramps* shall comply with Sections 1010.5.1 through 1010.5.3.

1010.5.1 Width. The minimum width of a *means of egress ramp* shall not be less than that required for *corridors* by Section 1018.2. The clear width of a *ramp* between *handrails*, if provided, or other permissible projections shall be 36 inches (914 mm) minimum.

1010.5.2 Headroom. The minimum headroom in all parts of the *means of egress ramp* shall not be less than 80 inches (2032 mm).

1010.5.3 Restrictions. *Means of egress ramps* shall not reduce in width in the direction of egress travel. Projections into the required *ramp* and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches (1067 mm).

1010.6 Landings. *Ramps* shall have landings at the bottom and top of each *ramp*, points of turning, entrance, exits and at doors. Landings shall comply with Sections 1010.6.1 through 1010.6.5.

1010.6.1 Slope. Landings shall have a slope not steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Changes in level are not permitted.

1010.6.2 Width. The landing shall be at least as wide as the widest *ramp* run adjoining the landing.

1010.6.3 Length. The landing length shall be 60 inches (1525 mm) minimum.

Exceptions:

1. In Group R-2 and R-3 individual dwelling and sleeping units that are not required to be *Accessible units*, *Type A units* or *Type B units* in accordance with Section 1107 of the *California Building Code*, landings are permitted to be 36 inches (914 mm) minimum.
2. Where the *ramp* is not a part of an *accessible route*, the length of the landing shall not be required to be more than 48 inches (1220 mm) in the direction of travel.

1010.6.4 Change in direction. Where changes in direction of travel occur at landings provided between *ramp* runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

Exception: In Group R-2 and R-3 individual dwelling or sleeping units that are not required to be *Accessible units*, *Type A units* or *Type B units* in accordance with Section 1107 of the *California Building Code*, landings are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

1010.6.5 Doorways. Where doorways are located adjacent to a *ramp* landing, maneuvering clearances required by ICC A117.1 are permitted to overlap the required landing area.

1010.7 Ramp construction. All *ramps* 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. *Ramps* used as an *exit* shall conform to the applicable requirements of Sections 1022.1 through 1022.6 for *exit enclosures*.

1010.7.1 Ramp surface. The surface of *ramps* shall be of slip-resistant materials that are securely attached.

1010.7.2 Outdoor conditions. Outdoor *ramps* and outdoor approaches to *ramps* shall be designed so that water will not accumulate on walking surfaces.

1010.8 Handrails. *Ramps* with a rise greater than 6 inches (152 mm) shall have handrails on both sides. *Handrails* shall comply with Section 1012.

Exception: *Handrails* for ramped *aisles* are not required where permitted by Section 1028.13.

1010.9 Edge protection. Edge protection complying with Section 1010.9.1 or 1010.9.2 shall be provided on each side of *ramp* runs and at each side of *ramp* landings.

Exceptions:

1. Edge protection is not required on *ramps* that are not required to have *handrails*, provided they have flared sides that comply with the ICC A117.1 curb ramp provisions.
2. Edge protection is not required on the sides of ramp landings serving an adjoining *ramp* run or *stairway*.
3. Edge protection is not required on the sides of *ramp* landings having a vertical drop off of not more than $^1/_2$ inch (12.7 mm) within 10 inches (254 mm) horizontally of the required landing area.
4. In assembly spaces with fixed seating, edge protection is not required on the sides of *ramps* where the *ramps* provide access to the adjacent seating and *aisle accessways*.

1010.9.1 Curb, rail, wall or barrier. A curb, rail, wall or barrier shall be provided to serve as edge protection. A curb must be a minimum of 4 inches (102 mm) in height. Barriers must be constructed so that the barrier prevents the passage of a 4-inch-diameter (102 mm) sphere, where any portion of the sphere is within 4 inches (102 mm) of the floor or ground surface.

1010.9.2 Extended floor or ground surface. The floor or ground surface of the *ramp* run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a *handrail* complying with Section 1012.

1010.10 Guards. *Guards* shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013.

[B] SECTION 1011
EXIT SIGNS

1011.1 Where required. *Exits* and *exit access* doors shall be marked by an *approved exit* sign readily visible from any direction of egress travel. The path of egress travel to *exits* and within *exits* shall be marked by readily visible *exit* signs to clearly indicate the direction of egress travel in cases where the *exit* or the path of egress travel is not immediately visible to the occupants. Intervening *means of egress* doors within *exits* shall

be marked by *exit* signs. *Exit* sign placement shall be such that no point in an *exit access corridor* or *exit passageway* is more than 100 feet (30 480 mm) or the *listed* viewing distance for the sign, whichever is less, from the nearest visible *exit* sign.

Exceptions:

1. *Exit* signs are not required in rooms or areas that require only one *exit* or *exit access*.
2. Main exterior *exit* doors or gates that are obviously and clearly identifiable as *exits* need not have *exit* signs where *approved* by the building official.
3. *Exit* signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2, R-3 *or R-3.1*.
4. *Exit* signs are not required *where inmates are housed, or held* in occupancies in Group I-3.
5. In occupancies in Groups A-4 and A-5, *exit* signs are not required on the seating side of vomitories or openings into seating areas where *exit* signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

1011.2 Illumination. *Exit* signs shall be internally or externally illuminated.

Exception: Tactile signs required by Section 1011.3 need not be provided with illumination.

> **1011.3 Tactile exit signs.** *Tactile exit signs shall be required at the following locations:*

1. *Each grade-level exterior exit door that is required to comply with Section 1011.1, shall be identified by a tactile exit sign with the word, "EXIT."*
2. *Each exit door that is required to comply with Section 1011.1, and that leads directly to a grade-level exterior exit by means of a stairway or ramp shall be identified by a tactile exit sign with the following words as appropriate:*
   - *2.1. "EXIT STAIR DOWN"*
   - *2.2. "EXIT RAMP DOWN"*
   - *2.3. "EXIT STAIR UP"*
   - *2.4. "EXIT RAMP UP"*
3. *Each exit door that is required to comply with Section 1011.1, and that leads directly to a grade-level exterior exit by means of an exit enclosure that does not utilize a stair or ramp, or an exit passageway shall be identified by a tactile exit sign with the words, "EXIT ROUTE."*
4. *Each exit access door from an interior room or area that is required to comply with Section 1011.1, shall be identified by a tactile exit sign with the words, "EXIT ROUTE."*
5. *Each exit door through a horizontal exit that is required to comply with Section 1011.1, shall be identified by a tactile exit sign with the words, "TO EXIT."*

For the purposes of this Section "tactile exit signs" shall comply with Section 1117B.5.1 Item 1 of the California Building Code.

1011.4 Internally illuminated exit signs. Electrically powered, *self-luminous* and *photoluminescent exit* signs shall be *listed* and labeled in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and Chapter 27 of the *California Building Code*. *Exit* signs shall be illuminated at all times.

1011.5 Externally illuminated exit signs. Externally illuminated *exit* signs shall comply with Sections 1011.5.1 through 1011.5.3.

1011.5.1 Graphics. Every *exit* sign and directional *exit* sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than $^3/_4$ inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than $^3/_8$ inch (9.5 mm). Signs larger than the minimum established in this section shall have letter widths, strokes and spacing in proportion to their height.

The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of *exit* sign illumination is or is not energized. If a chevron directional indicator is provided as part of the *exit* sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.

1011.5.2 Exit sign illumination. The face of an *exit* sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux).

1011.5.3 Power source. *Exit* signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27 of the *California Building Code*.

Exception: *Approved exit* sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.

1011.6 Floor-level exit signs. *Where exit signs are required by Chapter 10, additional approved low-level exit signs which are internally or externally illuminated photoluminescent or self-luminous, shall be provided in all interior corridors of Group A, E, I and R-2.1 occupancies and in all interior rated exit corridors serving guest rooms of hotels in Group R, Division 1 occupancies.*

Exceptions:

1. *Group A occupancies that are protected throughout by an approved supervised fire sprinkler system.*
2. *Group E occupancies where direct exits have been provided from each classroom.*

3. *Group I and R-2.1 occupancies which are provided with smoke barriers constructed in accordance with Section 407.4.*

4. *Group I-3 occupancies.*

The bottom of the sign shall not be less than 6 inches (152 mm) or more than 8 inches (203 mm) above the floor level and shall indicate the path of exit travel. For exit and exit-access doors, the sign shall be on the door or adjacent to the door with the closest edge of the sign or marker within 4 inches (102 mm) of the door frame.

***Note:** Pursuant to Health and Safety Code Section 13143, this California amendment applies to all newly constructed buildings or structures subject to this section for which a building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.*

***1011.7 Path marking.** When exit signs are required by Chapter 10, in addition to approved floor-level exit signs, approved path marking shall be installed at floor level or no higher than 8 inches (203 mm) above the floor level in all interior rated exit corridors of unsprinklered Group A, R-1 and R-2 occupancies.*

Such marking shall be continuous except as interrupted by door-ways, corridors or other such architectural features in order to provide a visible delineation along the path of travel.

***Note:** Pursuant to Health and Safety Code Section 13143, the California amendments of this section shall apply to all newly constructed buildings or structures subject to this section for which a building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.*

[B] SECTION 1012 HANDRAILS

1012.1 Where required. *Handrails* for *stairways* and *ramps* shall be adequate in strength and attachment in accordance with Section 1607.7 of the *California Building Code*. *Handrails* required for *stairways* by Section 1009.12 shall comply with Sections 1012.2 through 1012.9. *Handrails* required for *ramps* by Section 1010.8 shall comply with Sections 1012.2 through 1012.8.

1012.2 Height. *Handrail* height, measured above *stair* tread *nosings*, or finish surface of *ramp* slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm). *Handrail* height of *alternating tread devices* and ship ladders, measured above tread *nosings*, shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

1012.3 Handrail graspability. All required *handrails* shall comply with Section 1012.3.1 or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; handrails shall be Type I in accordance with Section 1012.3.1, Type II in accordance with Section 1012.3.2 or shall provide equivalent graspability.

1012.3.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of at least $1^1/_4$ inches (32 mm) and not greater than 2 inches (51 mm). If the *handrail* is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than $6^1/_4$ inches (160 mm) with a maximum cross-section dimension of $2^1/_4$ inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1012.3.2 Type II. *Handrails* with a perimeter greater than $6^1/_4$ inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of $^3/_4$ inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least $^5/_{16}$ inch (8 mm) within $^7/_8$ inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least $^3/_8$ inch (10 mm) to a level that is not less than $1^3/_4$ inches (45 mm) below the tallest portion of the profile. The minimum width of the *handrail* above the recess shall be $1^1/_4$ inches (32 mm) to a maximum of $2^3/_4$ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1012.4 Continuity. *Handrail*-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

Exceptions:

1. *Handrails* within dwelling units are permitted to be interrupted by a newel post at a turn or landing.
2. Within a dwelling unit, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. *Handrail* brackets or balusters attached to the bottom surface of the *handrail* that do not project horizontally beyond the sides of the *handrail* within $1^1/_2$ inches (38 mm) of the bottom of the *handrail* shall not be considered obstructions. For each $^1/_2$ inch (12.7 mm) of additional *handrail* perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of $1^1/_2$ inches (38 mm) shall be permitted to be reduced by $^1/_8$ inch (3 mm).
4. Where *handrails* are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the *handrail* gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.

1012.5 Fittings. *Handrails* shall not rotate within their fittings.

1012.6 Handrail extensions. *Handrails* shall return to a wall, *guard* or the walking surface or shall be continuous to the handrail of an adjacent *stair flight* or ramp run. Where *handrails* are not continuous between *flights,* the *handrails* shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At *ramps* where *handrails* are not continuous between runs, the *handrails* shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of *ramp* runs. The extensions of *handrails* shall be in the same direction of the *stair flights* at *stairways* and the *ramp* runs at *ramps*.

Exceptions:

1. *Handrails* within a dwelling unit that is not required to be *accessible* need extend only from the top riser to the bottom riser.

2. *Aisle handrails* in Group A and E occupancies in accordance with Section 1028.13.
3. *Handrails* for *alternating tread devices* and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. Handrails for *alternating tread devices* and ship ladders are not required to be continuous between *flights* or to extend beyond the top or bottom risers.

1012.7 Clearance. Clear space between a *handrail* and a wall or other surface shall be a minimum of $1^1/_2$ inches (38 mm). A *handrail* and a wall or other surface adjacent to the *handrail* shall be free of any sharp or abrasive elements.

1012.8 Projections. On ramps, the clear width between *handrails* shall be 36 inches (914 mm) minimum. Projections into the required width of *stairways* and *ramps* at each *handrail* shall not exceed $4^1/_2$ inches (114 mm) at or below the *handrail* height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1009.2.

In Group I-2 occupancy ramps required for exit access shall not be less than 8 feet (2438 mm) in width and handrails are permitted to protrude $3^1/_2$ inches (89 mm) from the wall on both sides. Ramps used as exits and stairways used for the movement of bed and litter patients, the clear width between handrails shall be 44 inches (1118 mm) minimum.

1012.9 Intermediate handrails. *Stairways* shall have intermediate *handrails* located in such a manner that all portions of the *stairway* width required for egress capacity are within 30 inches (762 mm) of a *handrail*. On monumental *stairs*, *handrails* shall be located along the most direct path of egress travel.

[B] SECTION 1013 GUARDS

1013.1 Where required. *Guards* shall be located along open-sided walking surfaces, including *mezzanines*, *equipment platforms*, *stairs*, *ramps* and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. *Guards* shall be adequate in strength and attachment in accordance with Section 1607.7 of the *California Building Code*.

Exception: *Guards* are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including steps leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating where *guards* in accordance with Section 1028.14 are permitted and provided.

1013.1.1 Glazing. Where glass is used to provide a *guard* or as a portion of the *guard* system, the *guard* shall also comply with Section 2407 of the *California Building Code*. Where the glazing provided does not meet the strength and attachment requirements in Section 1607.7 of the *California Building Code*, complying *guards* shall also be located along glazed sides of open-sided walking surfaces.

1013.2 Height. Required *guards* shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, adjacent fixed seating or the line connecting the leading edges of the treads.

Exceptions:

1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, *guards* on the open sides of *stairs* shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the *guard* also serves as a *handrail* on the open sides of *stairs*, the top of the *guard* shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
3. The height in assembly seating areas shall be in accordance with Section 1028.14.
4. Along *alternating tread devices* and ship ladders, *guards* whose top rail also serves as a *handrail*, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread *nosing*.

1013.3 Opening limitations. Required *guards* shall not have openings which allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required *guard* height.

Exceptions:

1. From a height of 36 inches (914 mm) to 42 inches (1067 mm), *guards* shall not have openings which allow passage of a sphere $4^3/_8$ inches (111 mm) in diameter.
2. The triangular openings at the open sides of a *stair*, formed by the riser, tread and bottom rail shall not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, *guards* shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for *alternating tread devices* and ship ladders, *guards* shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.

5. In assembly seating areas, *guards* at the end of *aisles* where they terminate at a fascia of boxes, balconies and galleries shall not have openings which allow passage of a sphere 4 inches in diameter (102 mm) up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, *guards* shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter.
6. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, *guards* on the open sides of *stairs* shall not have openings which allow passage of a sphere $4^3/_8$ (111 mm) inches in diameter.
7. *Lifeguard towers not open to the public, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.*

1013.4 Screen porches. Porches and decks which are enclosed with insect screening shall be provided with *guards* where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

1013.5 Mechanical equipment. *Guards* shall be provided where appliances, equipment, fans, roof hatch openings or other components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. The *guard* shall extend not less than 30 inches (762 mm) beyond each end of such appliance, equipment, fan or component.

1013.6 Roof access. *Guards* shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The *guard* shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.

[B] SECTION 1014
EXIT ACCESS

1014.1 General. The *exit access* shall comply with the applicable provisions of Sections 1003 through 1013. *Exit access* arrangement shall comply with Sections 1014 through 1019.

1014.2 Egress through intervening spaces. Egress through intervening spaces shall comply with this section.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an *exit*.

   Exception: *Means of egress* are not prohibited through adjoining or intervening rooms or spaces in a Group H, S or F occupancy when the adjoining or intervening rooms or spaces are the same or a lesser hazard occupancy group.

2. An *exit access* shall not pass through a room that can be locked to prevent egress.
3. *Means of egress* from dwelling units or sleeping areas shall not lead through other sleeping areas, toilet rooms or bathrooms.
4. Egress shall not pass through kitchens, storage rooms, closets or spaces used for similar purposes.

   Exceptions:

   1. *Means of egress* are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.
   2. *Means of egress* are not prohibited through stockrooms in Group M occupancies when 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; and

      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.

   3. *Exits shall not pass through any room subject to locking except in Group I-3 occupancies classified as detention facilities.*

1014.2.1 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 discernable 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.

1014.2.2 Group I-2. Habitable rooms or *suites* in Group I-2 occupancies shall have an *exit access* door leading directly to a *corridor.*

Exception: Rooms with *exit* doors opening directly to the outside at ground level.

1014.2.2.1 Basement exits. *All rooms below grade shall have not less than one exit access that leads directly to an exterior exit door opening directly to an exit discharge at grade plane or the public way.*

1014.2.3 Suites in patient sleeping areas. Patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into *suites* with one intervening room if one of the following conditions is met:

1. The intervening room within the *suite* is not used as an *exit access* for more than eight patient beds.
2. The arrangement of the *suite* allows for direct and constant visual supervision by nursing personnel.

1014.2.3.1 Area. *Suites* of sleeping rooms shall not exceed 5,000 square feet (465 m^2).

1014.2.3.2 Exit access. Any patient sleeping room, or any *suite* that includes patient sleeping rooms, of more than 1,000 square feet (93 m^2) shall have at least two *exit access* doors remotely located from each other.

1014.2.3.3 Travel distance. The travel distance between any point in a *suite* of sleeping rooms and an *exit access* door of that *suite* shall not exceed 100 feet (30 480 mm).

1014.2.4 Suites in areas other than patient sleeping areas. Areas other than patient sleeping areas in Group I-2 occupancies shall be permitted to be divided into *suites*.

1014.2.4.1 Area. *Suites* of rooms, other than patient sleeping rooms, shall not exceed 10,000 square feet (929 m^2).

1014.2.4.2 Exit access. Any room or *suite* of rooms, other than patient sleeping rooms, of more than 2,500 square feet (232 m^2) shall have at least two *exit access* doors remotely located from each other.

1014.2.4.3 One intervening room. For rooms other than patient sleeping rooms, *suites* of rooms are *permitted* to have one intervening room if the travel distance within the *suite* to the *exit access* door is not greater than 100 feet (30 480 mm).

1014.2.4.4 Two intervening rooms. For rooms other than patient sleeping rooms located within a *suite*, *exit access* travel from within the *suite* shall be permitted through two intervening rooms where the travel distance to the *exit access* door is not greater than 50 feet (15 240 mm).

1014.2.5 Exit access through suites. *Exit access* from all other portions of a building not classified as a *suite* in a Group I-2 occupancy shall not pass through a *suite*.

1014.2.6 Travel distance. The travel distance between any point in a Group I-2 occupancy patient sleeping room and an *exit access* door in that room shall not exceed 50 feet (15 240 mm).

1014.2.7 Separation. *Suites* in Group I-2 occupancies shall be separated from other portions of the building by *not less than a one-hour fire barrier complying with Section 707* of the *California Building Code*. *Each suite of rooms shall be separated from the remainder of the building by not less than a one-hour fire barrier.*

1014.3 Common path of egress travel. In occupancies other than Groups H-1, H-2 and H-3, the *common path of egress travel* shall not exceed 75 feet (22 860 mm). In Group H-1, H-2 and H-3 occupancies, the *common path of egress travel* shall not exceed 25 feet (7620 mm). For *common path of egress travel* in Group A occupancies and assembly occupancies accessory to Group E occupancies having fixed seating, see Section 1028.8.

Exceptions:

1. The length of a *common path of egress travel* in Group B, F and S occupancies shall not be more than 100 feet (30 480 mm), provided that the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Where a tenant space in Group B, S and U occupancies has an *occupant load* of not more than 30, the length of a *common path of egress travel* shall not be more than 100 feet (30 480 mm).
3. The length of a *common path of egress travel* in a Group I-3 occupancy shall not be more than 100 feet (30 480 mm).
4. The length of a common path of egress travel in a Group R-2 occupancy shall not be more than 125 feet (38 100 mm), provided that the building is protected throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
5. *Suites in a Group I-2 occupancy constructed in accordance with Section 1014.2.3 or 1014.2.4.*

1014.4 Aisles. *Aisles serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section. Aisles shall be provided from all occupied portions of the exit access which contain seats, tables, furnishings, displays and similar fixtures or equipment. Aisles serving assembly areas, other than seating at tables, shall comply with Section 1025. Aisles serving reviewing stands, grandstands and bleachers shall also comply with Section 1025.*

The required width of aisles shall be unobstructed.

Exception: *Doors, when fully opened, and handrails 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. Other nonstructural projections such as trim and similar decorative features are permitted to prject into the required width 1.5 inches (38 mm) for each side.*

[California Code of Regulations, Title 19, Division 1, §3.06(a)] Bonding of Chairs and Spacing of Tables.

(a) Bonding of chairs. In every Group A and Group E occupancy, all loose seats, folding chairs or similar seating facilities that are not fixed to the floor shall be bonded together in groups of not less than three.

Exceptions:

(1) When not more than 200 such seats, chairs or facilities are provided, bonding thereof may be deleted.

1015.7 Large family day-care home. *Every story or basement of a large family day-care home shall be provided with two exits which are remotely located from each other. Every required exit shall be of a size to permit the installation of a door not less than 32 inches (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 1021.1 and 1021.2 are not applicable to this occupancy classification.

[B] SECTION 1016
EXIT ACCESS TRAVEL DISTANCE

1016.1 Travel distance limitations. *Exits* shall be so located on each *story* such that the maximum length of *exit access* travel, measured from the most remote point within a *story* along the natural and unobstructed path of egress travel to an *exterior exit* door at the *level of exit discharge*, an entrance to a vertical *exit enclosure*, an *exit passageway*, a *horizontal exit*, an *exterior exit stairway* or an exterior *exit ramp*, shall not exceed the distances given in Table 1016.1.

Exceptions:

1. Travel distance in *open parking garages* is permitted to be measured to the closest riser of open *exit stairways*.
2. In outdoor facilities with open *exit access* components and open *exterior exit stairways* or *exit ramps*, travel distance is permitted to be measured to the closest riser of an *exit stairway* or the closest slope of the *exit ramp*.
3. In other than occupancy Groups H and I, the *exit access* travel distance to a maximum of 50 percent of the *exits* is permitted to be measured from the most remote point within a building to an *exit* using unenclosed *exit access stairways* or *ramps* when connecting a maximum of two stories. The two connected stories shall be provided with at least two *means of egress*. Such interconnected stories shall not be open to other stories.
4. In other than occupancy Groups H and I, *exit access* travel distance is permitted to be measured from the most remote point within a building to an *exit* using unenclosed *exit access stairways* or *ramps* in the first and second stories above *grade plane* in buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1. The first and second stories above *grade plane* shall be provided with at least two *means of egress*. Such interconnected stories shall not be open to other stories.

Where applicable, travel distance on unenclosed *exit access stairways* or *ramps* and on connecting stories shall also be included in the 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 *stairway.*

TABLE 1016.1
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A, E, F-1, M, R, S-1	200	250[b]
R-2.1	Not Permitted	250[c]
B	200	300[c]
F-2, S-2, U	300	400[c]
H-1	Not Permitted	75[c]
H-2	Not Permitted	100[c]
H-3	Not Permitted	150[c]
H-4	Not Permitted	175[c]
H-5	Not Permitted	200[c]
I-2, *I-2.1,* I-3[d], I-4	Not Permitted	200[c]
L	*Not Permitted*	*200[c]*

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:
   Section 402.4 of the *California Building Code*: For the distance limitation in malls.
   Section 404.9 of the *California Building Code*: For the distance limitation through an atrium space.
   Section 407.4 of the *California Building Code*: For the distance limitation in Group I-2.
   Sections 408.6.1 and 408.8.1 of the *California Building Code*: For the distance limitations in Group I-3.
   Section 411.4 of the *California Building Code*: For the distance limitation in special amusement buildings.
   Section 1014.2.2: For the distance limitation in Group I-2 hospital suites.
   Section 1015.4: For the distance limitation in refrigeration machinery rooms.
   Section 1015.5: For the distance limitation in refrigerated rooms and spaces.
   Section 1016.3: For increased limitation in Groups F-1 and S-1.
   Section 1021.2: For buildings with one exit.
   Section 1028.7: For increased limitation in assembly seating.
   Section 1028.7: For increased limitation for assembly open-air seating.
   Section 3103.4 of the *California Building Code*: For temporary structures.
   Section 3104.9 of the *California Building Code*: 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. Not permitted in nonsprinklered Group I-3 occupancies.

1016.2 Exterior egress balcony increase. Travel distances specified in Section 1016.1 shall be increased up to an additional 100 feet (30 480 mm) provided the last portion of the *exit access* leading to the *exit* occurs on an exterior egress balcony constructed in accordance with Section 1019. The length of such balcony shall not be less than the amount of the increase taken.

1016.3 Group 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 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), and*
3. *The building is equipped throughout with an automatic fire sprinkler system in accordance with Section 903.3.1.1.*

[B] SECTION 1017 AISLES

1017.1 General. *Aisles* serving as a portion of the *exit access* in the *means of egress* system shall comply with the requirements of this section. *Aisles* shall be provided from all occupied portions of the *exit access* which contain seats, tables, furnishings, displays and similar fixtures or equipment. *Aisles* serving assembly areas shall comply with Section 1028. *Aisles* serving reviewing stands, *grandstands* and *bleachers* shall also comply with Section 1028. The required width of *aisles* shall be unobstructed.

Exception: Doors complying with Section 1005.2.

1017.2 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 not be less than 36 inches (914 mm).

Exception: Nonpublic *aisles* serving less than 50 people and not required to be *accessible* by Chapter 11 of the *California Building Code* need not exceed 28 inches (711 mm) in width.

1017.3 Aisle accessways in Group M. An *aisle accessway* shall be provided on at least 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 provide a path to an adjacent *aisle* or *aisle accessway*. The common path of 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 travel shall not exceed 75 feet (22 880 mm).

1017.4 Seating at tables. Where seating is located at a table or counter and is adjacent to an *aisle* or *aisle accessway*, the measurement of required clear width of the *aisle* or *aisle accessway* shall be made to a line 19 inches (483 mm) away from and parallel to the edge of the table or counter. The 19-inch (483 mm) distance shall be measured perpendicular to the side of the table or counter. In the case of other side boundaries for *aisle* or *aisle accessways*, the clear width shall be measured to walls, edges of seating and tread edges, except that *handrail* projections are permitted.

Exception: Where tables or counters are served by fixed seats, the width of the *aisle accessway* shall be measured from the back of the seat.

1017.4.1 Aisle accessway for tables and seating. *Aisle accessways* serving arrangements of seating at tables or counters shall have sufficient clear width to conform to the capacity requirements of Section 1005.1 but shall not have less than the appropriate minimum clear width specified in Section 1017.4.2.

1017.4.2 Table and seating accessway width. *Aisle accessways* shall provide a minimum of 12 inches (305 mm) of width plus $^1/_2$ inch (12.7 mm) of width for each additional 1 foot (305 mm), or fraction thereof, beyond 12 feet (3658 mm) of *aisle accessway* length measured from the center of the seat farthest from an *aisle*.

Exception: Portions of an *aisle accessway* having a length not exceeding 6 feet (1829 mm) and used by a total of not more than four persons.

1017.4.3 Table and seating aisle accessway length. The length of travel along the *aisle accessway* shall not exceed 30 feet (9144 mm) from any seat to the point where a person has a choice of two or more paths of egress travel to separate *exits*.

[B] SECTION 1018 CORRIDORS

1018.1 Construction. *Corridors* shall be fire-resistance rated in accordance with Table 1018.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 709 of the *California Building Code* for *fire partitions*.

Exceptions:

1. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required *means of egress* doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. A *fire-resistance rating* is not required for *corridors* contained within a dwelling or sleeping unit in an occupancy in Group R.
3. A *fire-resistance rating* is not required for *corridors* in *open parking garages*.
4. A *fire-resistance rating* is not required for *corridors* in an occupancy in Group B which is a space requiring only a single *means of egress* complying with Section 1015.1.
5. *A fire-resistance rating is not required for corridors within suites in a Group I-2 occupancy constructed in accordance with Section 1014.2.3 or 1014.2.4.*

1018.2 Corridor width. The minimum *corridor* width shall be as determined in Section 1005.1, but not less than 44 inches (1118 mm).

Exceptions:

1. Twenty-four inches (610 mm)—For access to and utilization of electrical, mechanical or plumbing systems or equipment.
2. Thirty-six inches (914 mm)—With a required occupant capacity of less than 50.
3. Thirty-six inches (914 mm)—Within a dwelling unit.

1024.2.6.2 Door hardware markings. Door hardware shall be marked with no less than 16 square inches (406 mm^2) of luminous material. This marking shall be located behind, immediately adjacent to or on the door handle and/or escutcheon. Where a panic bar is installed, such material shall be no less than 1 inch (25 mm) wide for the entire length of the actuating bar or touchpad.

1024.2.6.3 Door frame markings. The top and sides of the door frame shall be marked with a solid and continuous 1-inch to 2-inch-wide (25 mm to 51 mm) stripe. Where the door molding does not provide sufficient flat surface on which to locate the stripe, the stripe shall be permitted to be located on the wall surrounding the frame.

1024.3 Uniformity. Placement and dimensions of markings shall be consistent and uniform throughout the same *exit enclosure*.

1024.4 Self-luminous and photoluminescent. Luminous egress path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but are not limited to, *self-luminous* materials and *photoluminescent* materials. Materials shall comply with either:

1. UL 1994; or
2. ASTM E 2072, except that the charging source shall be 1 foot-candle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 millicandelas per square meter at 10 minutes and 5 millicandelas per square meter after 90 minutes.

1024.5 Illumination. *Exit enclosures* where photoluminescent exit path markings are installed shall be provided with the minimum *means of egress* illumination required by Section 1006 for at least 60 minutes prior to periods when the building is occupied.

[B] SECTION 1025 HORIZONTAL EXITS

1025.1 Horizontal exits. *Horizontal exits* serving as an *exit* in a *means of egress* system shall comply with the requirements of this section. A *horizontal exit* shall not serve as the only *exit* from a portion of a building, and where two or more *exits* are required, not more than one-half of the total number of *exits* or total *exit* width shall be *horizontal exits*.

Exceptions:

1. *Horizontal exits* are permitted to comprise two-thirds of the required *exits* from any building or floor area for occupancies in Group I-2.
2. *Horizontal exits* are permitted to comprise 100 percent of the *exits* required for occupancies in Group I-3. At least 6 square feet (0.6 m^2) of accessible space per occupant shall be provided on each side of the *horizontal exit* for the total number of people in adjoining compartments.

1025.2 Separation. The separation between buildings or refuge areas connected by a *horizontal exit* shall be provided by a *fire wall* complying with Section 706 of the *California Building Code*; or it shall be provided by a *fire barrier* complying with Section 707 of the *California Building Code* or a *horizontal assembly* complying with Section 712 of the *California Building Code*, or both. The minimum *fire-resistance rating* of the separation shall be 2 hours. Opening protectives in *horizontal exits* shall also comply with Section 715 of the *California Building Code*. Duct and air transfer openings in a *fire wall* or *fire barrier* that serves as a *horizontal exit* shall also comply with Section 716 of the *California Building Code*. The *horizontal exit* separation shall extend vertically through all levels of the building unless floor assemblies have a *fire-resistance rating* of not less than 2 hours with no unprotected openings.

Exception: A *fire-resistance rating* is not required at *horizontal exits* between a building area and an above-grade *pedestrian walkway* constructed in accordance with Section 3104 of the *California Building Code*, provided that the distance between connected buildings is more than 20 feet (6096 mm).

Horizontal exits constructed as *fire barriers* shall be continuous from *exterior wall* to *exterior wall* so as to divide completely the floor served by the *horizontal exit*.

1025.3 Opening protectives. *Fire doors* in *horizontal exits* shall be self-closing or automatic-closing when activated by a *smoke detector* in accordance with Section 715.4.8.3 of the *California Building Code*. Doors, where located in a cross-corridor condition, shall be automatic-closing by activation of a *smoke detector* installed in accordance with Section 715.4.8.3 of the *California Building Code*.

1025.4 Capacity of refuge area. The refuge area of a *horizontal exit* shall be a space occupied by the same tenant or a public area and each such refuge area shall be adequate to accommodate the original *occupant load* of the refuge area plus the *occupant load* anticipated from the adjoining compartment. The anticipated *occupant load* from the adjoining compartment shall be based on the capacity of the *horizontal exit* doors entering the refuge area. The capacity of the refuge area shall be computed based on a net floor area allowance of 3 square feet (0.2787 m^2) for each occupant to be accommodated therein.

Exception: The net floor area allowable per occupant shall be as follows for the indicated occupancies:

1. Six square feet (0.6 m^2) per occupant for occupancies in Group I-3.
2. Fifteen square feet (1.4 m^2) per occupant for ambulatory occupancies in Group I-2.
3. Thirty square feet (2.8 m^2) per occupant for nonambulatory occupancies in Group I-2.

The refuge area into which a *horizontal exit* leads shall be provided with *exits* adequate to meet the occupant requirements of this chapter, but not including the added *occupant load* imposed by persons entering it through *horizontal exits* from other areas. At least one refuge area *exit* shall lead directly to the exterior or to an *exit enclosure*.

Exception: The adjoining compartment shall not be required to have a *stairway* or door leading directly outside, provided the refuge area into which a *horizontal exit* leads

has stairways or doors leading directly outside and are so arranged that egress shall not require the occupants to return through the compartment from which egress originates.

[B] SECTION 1026
EXTERIOR EXIT RAMPS AND STAIRWAYS

1026.1 Exterior exit ramps and stairways. *Exterior exit ramps* and *stairways* serving as an element of a required *means of egress* shall comply with this section.

Exception: *Exterior exit ramps* and *stairways* for outdoor stadiums complying with Section 1022.1, Exception 2.

1026.2 Use in a means of egress. *Exterior exit stairways* shall not be used as an element of a required *means of egress* for Group I-2 occupancies. For occupancies in other than Group I-2, *exterior exit ramps* and *stairways* shall be permitted as an element of a required *means of egress* for buildings not exceeding six stories above *grade plane or buildings defined as a high-rise* or *Group I-2 occupancies* having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

Exceptions:

1. In assembly occupancies where there is no well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building provided that the total width of egress is not less than 100 percent of the required width. *At least one exit shall discharge on a street or an unoccupied space of not less than 20 feet (6096 mm) in width that adjoins a street or public way.*
2. *Smoke-protected seating complying with Section 1028.6.2.*

1026.3 Open side. *Exterior exit ramps* and *stairways* serving as an element of a required *means of egress* shall be open on at least one side. An open side shall have a minimum of 35 square feet (3.3 m^2) of aggregate open area adjacent to each floor level and the level of each intermediate landing. The required open area shall be located not less than 42 inches (1067 mm) above the adjacent floor or landing level.

1026.4 Side yards. The open areas adjoining *exterior exit ramps* or *stairways* shall be either *yards*, *courts* or *public ways*; the remaining sides are permitted to be enclosed by the *exterior walls* of the building.

1026.5 Location. *Exterior exit ramps* and *stairways* shall be located in accordance with Section 1027.3.

1026.6 Exterior ramps and stairway protection. *Exterior exit ramps* and *stairways* shall be separated from the interior of the building as required in Section 1022.1. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above *grade plane* where a *level of exit discharge* serving such occupancies is the first *story above grade plane*.
2. Separation from the interior of the building is not required where the *exterior ramp* or *stairway* is served by an exterior *ramp* or balcony that connects two remote *exterior stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an *exterior ramp* or *stairway* located in a building or structure that is permitted to have unenclosed *interior stairways* in accordance with Section 1022.1.
4. Separation from the interior of the building is not required for *exterior ramps* or *stairways* connected to open-ended *corridors*, provided that Items 4.1 through 4.4 are met:
   - 4.1. The building, including *corridors* and *ramps* and *stairs*, shall be equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 4.2. The open-ended *corridors* comply with Section 1018.
   - 4.3. The open-ended *corridors* are connected on each end to an *exterior exit ramp* or *stairway* complying with Section 1026.
   - 4.4. At any location in an open-ended *corridor* where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an *exterior ramp* or *stairway* shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

[B] SECTION 1027
EXIT DISCHARGE

1027.1 General. *Exits* shall discharge directly to the exterior of the building. The *exit discharge* shall be at grade or shall provide direct access to grade. The *exit discharge* shall not reenter a building. The combined use of Exceptions 1 and 2 below shall

ment shall be made with seats in the raised position. Where any chair in the row does not have an automatic or self-rising seat, the measurements shall be made with the seat in the down position. For seats with folding tablet arms, row spacing shall be determined with the tablet arm in the used position.

Exception: For seats with folding tablet arms, row spacing is permitted to be determined with the tablet arm in the stored position where the tablet arm when raised manually to vertical position in one motion automatically returns to the stored position by force of gravity.

1028.10.1 Dual access. For rows of seating served by *aisles* or doorways at both ends, there shall not be more than 100 seats per row. The minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14 seats, but the minimum clear width is not required to exceed 22 inches (559 mm).

Exception: For *smoke-protected assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1028.10.1.

TABLE 1028.10.1
SMOKE-PROTECTED ASSEMBLY AISLE ACCESSWAYS

TOTAL NUMBER OF SEATS IN THE SMOKE- PROTECTED ASSEMBLY OCCUPANCY	MAXIMUM NUMBER OF SEATS PER ROW PERMITTED TO HAVE A MINIMUM 12-INCH CLEAR WIDTH AISLE ACCESSWAY	
	Aisle or doorway at both ends of row	Aisle or doorway at one end of row only
Less than 4,000	14	7
4,000	15	7
7,000	16	8
10,000	17	8
13,000	18	9
16,000	19	9
19,000	20	10
22,000 and greater	21	11

For SI: 1 inch = 25.4 mm.

1028.10.2 Single access. For rows of seating served by an *aisle* or doorway at only one end of the row, the minimum clear width of 12 inches (305 mm) between rows shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven seats, but the minimum clear width is not required to exceed 22 inches (559 mm).

Exception: For *smoke-protected assembly seating*, the row length limits for a 12-inch-wide (305 mm) *aisle accessway*, beyond which the *aisle accessway* minimum clear width shall be increased, are in Table 1028.10.1.

1028.11 Assembly aisle walking surfaces. *Aisles* with a slope not exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a *ramp* having a slip-resistant walking surface. *Aisles* with a slope exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a series of risers and treads that extends across the full width of *aisles* and complies with Sections 1028.11.1 through 1028.11.3.

1028.11.1 Treads. Tread depths shall be a minimum of 11 inches (279 mm) and shall have dimensional uniformity.

Exception: The tolerance between adjacent treads shall not exceed 0.188 inch (4.8 mm).

1028.11.2 Risers. Where the gradient of *aisle stairs* is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each *flight*.

Exceptions:

1. Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 0.188 inch (4.8 mm) between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the *nosing* or leading edge adjacent to the nonuniform risers. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide. The edge marking stripe shall be distinctively different from the contrasting marking stripe.
2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

1028.11.3 Tread contrasting marking stripe. A contrasting marking stripe shall be provided on each tread at the *nosing* or leading edge such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide.

Exception: The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

1028.12 Seat stability. In places of assembly, the seats shall be securely fastened to the floor.

Exceptions:

1. In places of assembly or portions thereof without ramped or tiered floors for seating and with 200 or fewer seats, the seats shall not be required to be fastened to the floor.
2. In places of assembly or portions thereof with seating at tables and without ramped or tiered floors for seating, the seats shall not be required to be fastened to the floor.
3. In places of assembly or portions thereof without ramped or tiered floors for seating and with greater than 200 seats, the seats shall be fastened together in groups of not less than three or the seats shall be securely fastened to the floor.
4. In places of assembly where flexibility of the seating arrangement is an integral part of the design and func-

tion of the space and seating is on tiered levels, a maximum of 200 seats shall not be required to be fastened to the floor. Plans showing seating, tiers and *aisles* shall be submitted for approval.

5. Groups of seats within a place of assembly separated from other seating by railings, *guards*, partial height walls or similar barriers with level floors and having no more than 14 seats per group shall not be required to be fastened to the floor.
6. Seats intended for musicians or other performers and separated by railings, *guards*, partial height walls or similar barriers shall not be required to be fastened to the floor.

[California Code of Regulations, Title 19, Division 1, §3.06(a)] Bonding of Chairs and Spacing of Tables.

(a) Bonding of chairs. In every Group A and Group E occupancy, all loose seats, folding chairs or similar seating facilities that are not fixed to the floor shall be bonded together in groups of not less than three.

Exceptions:

(1) When not more than 200 such seats, chairs or facilities are provided, bonding thereof may be deleted.

(2) The bonding of chairs shall not be required when tables are provided as when the occupancy is used for dining or similar purposes.

(3) Upon approval of the enforcing agency, the bonding of chairs shall not be required when the placement and location of such chairs do not obstruct any required exit or any line of egress toward required exits and do not constitute a fire hazard as defined in California Code of Regulations, Title 19, Division 1, Section 3.14.

1028.13 Handrails. Ramped *aisles* having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and *aisle stairs* shall be provided with *handrails* located either at the side or within the *aisle* width.

Exceptions:

1. *Handrails* are not required for ramped *aisles* having a gradient no greater than one unit vertical in eight units horizontal (12.5-percent slope) and seating on both sides.
2. *Handrails* are not required if, at the side of the *aisle*, there is a *guard* that complies with the graspability requirements of *handrails*.
3. *Handrail* extensions are not required at the top and bottom of *aisle stairs* and *aisle ramp* runs to permit crossovers within the *aisles*.

1028.13.1 Discontinuous handrails. Where there is seating on both sides of the *aisle*, the *handrails* shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the *aisle* to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the *handrail* shall have rounded terminations or bends.

1028.13.2 Intermediate handrails. Where *handrails* are provided in the middle of *aisle stairs*, there shall be an additional intermediate *handrail* located approximately 12 inches (305 mm) below the main *handrail*.

1028.14 Assembly guards. Assembly *guards* shall comply with Sections 1028.14.1 through 1028.14.3.

1028.14.1 Cross aisles. Cross *aisles* located more than 30 inches (762 mm) above the floor or grade below shall have *guards* in accordance with Section 1013.

Where an elevation change of 30 inches (762 mm) or less occurs between a cross *aisle* and the adjacent floor or grade below, *guards* not less than 26 inches (660 mm) above the *aisle* floor shall be provided.

Exception: Where the backs of seats on the front of the cross *aisle* project 24 inches (610 mm) or more above the adjacent floor of the *aisle*, a *guard* need not be provided.

1028.14.2 Sightline-constrained guard heights. Unless subject to the requirements of Section 1028.14.3, a fascia or railing system in accordance with the *guard* requirements of Section 1013 and having a minimum height of 26 inches (660 mm) shall be provided where the floor or footboard elevation is more than 30 inches (762 mm) above the floor or grade below and the fascia or railing would otherwise interfere with the sightlines of immediately adjacent seating. At *bleachers*, a *guard* must be provided where required by ICC 300.

1028.14.3 Guards at the end of aisles. A fascia or railing system complying with the *guard* requirements of Section 1013 shall be provided for the full width of the *aisle* where the foot of the *aisle* is more than 30 inches (762 mm) above the floor or grade below. The fascia or railing shall be a minimum of 36 inches (914 mm) high and shall provide a minimum 42 inches (1067 mm) measured diagonally between the top of the rail and the *nosing* of the nearest tread.

1028.15 Bench seating. Where bench seating is used, the number of persons shall be based on one person for each 18 inches (457 mm) of length of the bench.

[B] SECTION 1029
EMERGENCY ESCAPE AND RESCUE

1029.1 General. In addition to the *means of egress* required by this chapter, provisions shall be made for emergency escape and rescue in Group R occupancies. Basements and sleeping rooms below the fourth *story above grade plane* shall have at least one exterior *emergency escape and rescue opening* in accordance with this section. Where basements contain one or more sleeping rooms, *emergency escape and rescue openings* shall be required in each sleeping room, but shall not be required in adjoining areas of the basement. Such openings shall open directly into a *public way* or to a *yard* or *court* that opens to a *public way.*

Exceptions:

1. *In Groups R-1 and R-2 occupancies constructed of Type I, Type IIA, Type IIIA or Type IV construction* equipped throughout with an approved automatic

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 11 – AVIATION FACILITIES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CHAPTER 11
AVIATION FACILITIES

SECTION 1101
GENERAL

1101.1 Scope. Airports, heliports, helistops and aircraft hangars shall be in accordance with this chapter.

1101.2 Regulations not covered. Regulations not specifically contained herein pertaining to airports, aircraft maintenance, aircraft hangars and appurtenant operations shall be in accordance with nationally recognized standards.

1101.3 Permits. For permits to operate aircraft-refueling vehicles, application of flammable or combustible finishes and hot work, see Section 105.6.

SECTION 1102
DEFINITIONS

1102.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

AIRCRAFT OPERATION AREA (AOA). Any area used or intended for use for the parking, taxiing, takeoff, landing or other ground-based aircraft activity.

AIRPORT. An area of land or structural surface that is used, or intended for use, for the landing and taking off of aircraft with an overall length greater than 39 feet (11 887 mm) and an overall exterior fuselage width greater than 6.6 feet (2012 mm), and any appurtenant areas that are used or intended for use for airport buildings and other airport facilities.

HELIPORT. An area of land or water or a structural surface that is used, or intended for use, for the landing and taking off of helicopters, and any appurtenant areas which are used, or intended for use, for heliport buildings and other heliport facilities.

HELISTOP. The same as "Heliport," except that no fueling, defueling, maintenance, repairs or storage of helicopters is permitted.

SECTION 1103
GENERAL PRECAUTIONS

1103.1 Sources of ignition. Open flames, flame-producing devices and other sources of ignition shall not be permitted in a hangar, except in *approved* locations or in any location within 50 feet (15 240 mm) of an aircraft-fueling operation.

1103.2 Smoking. Smoking shall be prohibited in aircraft-refueling vehicles, aircraft hangars and aircraft operation areas used for cleaning, paint removal, painting operations or fueling. "No Smoking" signs shall be provided in accordance with Section 310.

Exception: Designated and *approved* smoking areas.

1103.3 Housekeeping. The aircraft operation area (AOA) and related areas shall be kept free from combustible debris at all times.

1103.4 Fire department access. Fire apparatus access roads shall be provided and maintained in accordance with Chapter 5. Fire apparatus access roads and aircraft parking positions shall be designed in a manner so as to preclude the possibility of fire vehicles traveling under any portion of a parked aircraft.

1103.5 Dispensing of flammable and combustible liquids. The dispensing, transferring and storage of flammable and *combustible liquids* shall be in accordance with this chapter and Chapter 34. Aircraft motor vehicle fuel-dispensing facilities shall be in accordance with Chapter 22.

1103.6 Combustible storage. Combustible materials stored in aircraft hangars shall be stored in *approved* locations and containers.

1103.7 Hazardous material storage. Hazardous materials shall be stored in accordance with Chapter 27.

SECTION 1104
AIRCRAFT MAINTENANCE

1104.1 Transferring flammable and combustible liquids. Flammable and *combustible liquids* shall not be dispensed into or removed from a container, tank, vehicle or aircraft except in *approved* locations.

1104.2 Application of flammable and combustible liquid finishes. The application of flammable or Class II *combustible liquid* finishes is prohibited unless both of the following conditions are met:

1. The application of the liquid finish is accomplished in an *approved* location.
2. The application methods and procedures are in accordance with Chapter 15.

1104.3 Cleaning parts. Class IA flammable liquids shall not be used to clean aircraft, aircraft parts or aircraft engines. Cleaning with other flammable and *combustible liquids* shall be in accordance with Section 3405.3.6.

1104.4 Spills. This section shall apply to spills of flammable and *combustible liquids* and other hazardous materials. Fuel spill control shall also comply with Section 1106.11.

1104.4.1 Cessation of work. Activities in the affected area not related to the mitigation of the spill shall cease until the spilled material has been removed or the hazard has been mitigated.

1104.4.2 Vehicle movement. Aircraft or other vehicles shall not be moved through the spill area until the spilled material has been removed or the hazard has been mitigated.

1104.4.3 Mitigation. Spills shall be reported, documented and mitigated in accordance with the provisions of this chapter and Section 2703.3.

1104.5 Running engines. Aircraft engines shall not be run in aircraft hangars except in *approved* engine test areas.

1104.6 Open flame. Repairing of aircraft requiring the use of open flames, spark-producing devices or the heating of parts above 500°F (260°C) shall only be done outdoors or in an area complying with the provisions of the *California Building Code* for a Group F-1 occupancy.

SECTION 1105
PORTABLE FIRE EXTINGUISHERS

1105.1 General. Portable fire extinguishers suitable for flammable or *combustible liquid* and electrical-type fires shall be provided as specified in Sections 1105.2 through 1105.6 and Section 906. Extinguishers required by this section shall be inspected and maintained in accordance with Section 906.

1105.2 On towing vehicles. Vehicles used for towing aircraft shall be equipped with a minimum of one *listed* portable fire extinguisher complying with Section 906 and having a minimum rating of 20-B:C.

1105.3 On welding apparatus. Welding apparatus shall be equipped with a minimum of one *listed* portable fire extinguisher complying with Section 906 and having a minimum rating of 2-A:20-B:C.

1105.4 On aircraft fuel-servicing tank vehicles. Aircraft fuel-servicing tank vehicles shall be equipped with a minimum of two *listed* portable fire extinguishers complying with Section 906, each having a minimum rating of 20-B:C. A portable fire extinguisher shall be readily accessible from either side of the vehicle.

1105.5 On hydrant fuel-servicing vehicles. Hydrant fuel-servicing vehicles shall be equipped with a minimum of one *listed* portable fire extinguisher complying with Section 906, and having a minimum rating of 20-B:C.

1105.6 At fuel-dispensing stations. Portable fire extinguishers at fuel-dispensing stations shall be located such that pumps or dispensers are not more than 75 feet (22 860 mm) from one such extinguisher. Fire extinguishers shall be provided as follows:

1. Where the open-hose discharge capacity of the fueling system is not more than 200 gallons per minute (13 L/s), a minimum of two *listed* portable fire extinguishers complying with Section 906 and having a minimum rating of 20-B:C shall be provided.
2. Where the open-hose discharge capacity of the fueling system is more than 200 gallons per minute (13 L/s) but not more than 350 gallons per minute (22 L/s), a minimum of one *listed* wheeled extinguisher complying with Section 906 and having a minimum extinguishing rating of 80-B:C, and a minimum agent capacity of 125 pounds (57 kg), shall be provided.
3. Where the open-hose discharge capacity of the fueling system is more than 350 gallons per minute (22 L/s), a minimum of two *listed* wheeled extinguishers complying with Section 906 and having a minimum rating of 80-B:C each, and a minimum capacity agent of 125 pounds (57 kg) of each, shall be provided.

1105.7 Fire extinguisher access. Portable fire extinguishers required by this chapter shall be accessible at all times. Where necessary, provisions shall be made to clear accumulations of snow, ice and other forms of weather-induced obstructions.

1105.7.1 Cabinets. Cabinets and enclosed compartments used to house portable fire extinguishers shall be clearly marked with the words FIRE EXTINGUISHER in letters at least 2 inches (51 mm) high. Cabinets and compartments shall be readily accessible at all times.

1105.8 Reporting use. Use of a fire extinguisher under any circumstances shall be reported to the manager of the airport and the *fire code official* immediately after use.

SECTION 1106
AIRCRAFT FUELING

1106.1 Aircraft motor vehicle fuel-dispensing facilities. Aircraft motor vehicle fuel-dispensing facilities shall be in accordance with Chapter 22.

1106.2 Airport fuel systems. Airport fuel systems shall be designed and constructed in accordance with NFPA 407.

1106.3 Construction of aircraft-fueling vehicles and accessories. Aircraft-fueling vehicles shall comply with this section and shall be designed and constructed in accordance with NFPA 407.

1106.3.1 Transfer apparatus. Aircraft-fueling vehicles shall be equipped and maintained with an *approved* transfer apparatus.

1106.3.1.1 Internal combustion type. Where such transfer apparatus is operated by an individual unit of the internal-combustion-motor type, such power unit shall be located as remotely as practicable from pumps, piping, meters, air eliminators, water separators, hose reels and similar equipment, and shall be housed in a separate compartment from any of the aforementioned items. The fuel tank in connection therewith shall be suitably designed and installed, and the maximum fuel capacity shall not exceed 5 gallons (19 L) where the tank is installed on the engine. The exhaust pipe, muffler and tail pipe shall be shielded.

1106.3.1.2 Gear operated. Where operated by gears or chains, the gears, chains, shafts, bearings, housing and all parts thereof shall be of an *approved* design and shall be installed and maintained in an *approved* manner.

1106.3.1.3 Vibration isolation. Flexible connections for the purpose of eliminating vibration are allowed if the material used therein is designed, installed and main-

1106.8 Loading and unloading. Aircraft-fueling vehicles shall be loaded only at an *approved* loading rack. Such loading racks shall be in accordance with Section 3406.5.1.12.

Exceptions:

1. Aircraft-refueling units may be loaded from the fuel tanks of an aircraft during defueling operations.
2. Fuel transfer between tank vehicles is allowed to be performed in accordance with Section 3406.6 when the operation is at least 200 feet (60 960 mm) from an aircraft.

The fuel cargo of such units shall be unloaded only by *approved* transfer apparatus into the fuel tanks of aircraft, underground storage tanks or *approved* gravity storage tanks.

1106.9 Passengers. Passenger traffic is allowed during the time fuel transfer operations are in progress, provided the following provisions are strictly enforced by the *owner* of the aircraft or the *owner*'s authorized employee:

1. Smoking and producing an open flame in the cabin of the aircraft or the outside thereof within 50 feet (15 240 mm) of such aircraft shall be prohibited.

   A qualified employee of the aircraft *owner* shall be responsible for seeing that the passengers are not allowed to smoke when remaining aboard the aircraft or while going across the ramp from the gate to such aircraft, or vice versa.
2. Passengers shall not be permitted to linger about the plane, but shall proceed directly between the loading gate and the aircraft.
3. Passenger loading stands or walkways shall be left in loading position until all fuel transfer operations are completed.
4. Fuel transfer operations shall not be performed on the main *exit* side of any aircraft containing passengers except when the *owner* of such aircraft or a capable and qualified employee of such *owner* remains inside the aircraft to direct and assist the escape of such passengers through regular and emergency *exits* in the event fire should occur during fuel transfer operations.

1106.10 Sources of ignition. Smoking and producing open flames within 50 feet (15 240 mm) of a point where fuel is being transferred shall be prohibited. Electrical and motor-driven devices shall not be connected to or disconnected from an aircraft at any time fueling operations are in progress on such aircraft.

1106.11 Fuel spill prevention and procedures. Fuel spill prevention and the procedures for handling spills shall comply with Sections 1106.11.1 through 1106.11.7.

1106.11.1 Fuel-service equipment maintenance. Aircraft fuel-servicing equipment shall be maintained and kept free from leaks. Fuel-servicing equipment that malfunctions or leaks shall not be continued in service.

1106.11.2 Transporting fuel nozzles. Fuel nozzles shall be carried utilizing appropriate handles. Dragging fuel nozzles along the ground shall be prohibited.

1106.11.3 Drum fueling. Fueling from drums or other containers having a capacity greater than 5 gallons (19 L) shall be accomplished with the use of an *approved* pump.

1106.11.4 Fuel spill procedures. The fueling-system operator shall establish procedures to follow in the event of a fuel spill. These procedures shall be comprehensive and shall provide for at least all of the following:

1. Upon observation of a fuel spill, the aircraft-fueling operator shall immediately stop the delivery of fuel by releasing hand pressure from the fuel flow-control valve.
2. Failure of the fuel control valve to stop the continued spillage of fuel shall be cause for the activation of the appropriate emergency fuel shutoff device.
3. A supervisor for the fueling-system operator shall respond to the fuel spill area immediately.

1106.11.5 Notification of the fire department. The fire department shall be notified of any fuel spill which is considered a hazard to people or property or which meets one or more of the following criteria:

1. Any dimension of the spill is greater than 10 feet (3048 mm).
2. The spill area is greater than 50 square feet (4.65 m^2).
3. The fuel flow is continuous in nature.

1106.11.6 Investigation required. An investigation shall be conducted by the fueling-system operator of all spills requiring notification of the fire department. The investigation shall provide conclusive proof of the cause and verification of the appropriate use of emergency procedures. Where it is determined that corrective measures are necessary to prevent future incidents of the same nature, they shall be implemented immediately.

1106.11.7 Multiple fuel delivery vehicles. Simultaneous delivery of fuel from more than one aircraft-fueling vehicle to a single aircraft-fueling manifold is prohibited unless proper backflow prevention devices are installed to prevent fuel flow into the tank vehicles.

1106.12 Aircraft engines and heaters. Operation of aircraft onboard engines and combustion heaters shall be terminated prior to commencing fuel service operations and shall remain off until the fuel-servicing operation is completed.

Exception: In an emergency, a single jet engine is allowed to be operated during fuel servicing where all of the following conditions are met:

1. The emergency shall have resulted from an onboard failure of the aircraft's auxiliary power unit.
2. Restoration of auxiliary power to the aircraft by ground support services is not available.
3. The engine to be operated is either at the rear of the aircraft or on the opposite side of the aircraft from the fuel service operation.
4. The emergency operation is in accordance with a written procedure *approved* by the *fire code official*.

1106.13 Vehicle and equipment restrictions. During aircraft-fueling operations, only the equipment actively involved in the fueling operation is allowed within 50 feet (15 240 mm) of the aircraft being fueled. Other equipment shall be prohibited in this area until the fueling operation is complete.

Exception: Aircraft-fueling operations utilizing single-point refueling with a sealed, mechanically locked fuel line connection and the fuel is not a Class I flammable liquid.

A clear space of at least 10 feet (3048 mm) shall be maintained between aircraft fuel-system vent openings and any part or portion of aircraft-servicing vehicles or equipment.

1106.13.1 Overwing fueling. Vehicles or equipment shall not be allowed beneath the trailing edge of the wing when aircraft fueling takes place over the wing and the aircraft fuel-system vents are located on the upper surface of the wing.

1106.14 Electrical equipment. Electrical equipment, including but not limited to, battery chargers, ground or auxiliary power units, fans, compressors or tools, shall not be operated, nor shall they be connected or disconnected from their power source, during fuel service operations.

1106.14.1 Other equipment. Electrical or other spark-producing equipment shall not be used within 10 feet (3048 mm) of fueling equipment, aircraft fill or vent points, or spill areas unless that equipment is intrinsically safe and *approved* for use in an explosive atmosphere.

1106.15 Open flames. Open flames and open-flame devices are prohibited within 50 feet (15 240 mm) of any aircraft fuel-servicing operation or fueling equipment.

1106.15.1 Other areas. The *fire code official* is authorized to establish other locations where open flames and open-flame devices are prohibited.

1106.15.2 Matches and lighters. Personnel assigned to and engaged in fuel-servicing operations shall not carry matches or lighters on or about their person. Matches or lighters shall be prohibited in, on or about aircraft-fueling equipment.

1106.16 Lightning procedures. The *fire code official* is authorized to require the airport authority and the fueling-system operator to establish written procedures to follow when lightning flashes are detected on or near the airport. These procedures shall establish criteria for the suspension and resumption of aircraft-fueling operations.

1106.17 Fuel-transfer locations. Aircraft fuel-transfer operations shall be prohibited indoors.

Exception: In aircraft hangars built in accordance with the provisions of the *California Building Code* for Group F-1 occupancies, aircraft fuel-transfer operations are allowed where:

1. Necessary to accomplish aircraft fuel-system maintenance operations. Such operations shall be performed in accordance with nationally recognized standards; or
2. The fuel being used has a *flash point* greater than 100°F (37.8°C).

1106.17.1 Position of aircraft. Aircraft being fueled shall be positioned such that any fuel system vents and other fuel tank openings are a minimum of:

1. Twenty-five feet (7620 mm) from buildings or structures other than jet bridges; and
2. Fifty feet (15 240 mm) from air intake vents for boiler, heater or incinerator rooms.

1106.17.2 Fire equipment access. Access for fire service equipment to aircraft shall be maintained during fuel-servicing operations.

1106.18 Defueling operations. The requirements for fueling operations contained in this section shall also apply to aircraft defueling operations. Additional procedures shall be established by the fueling-system operator to prevent overfilling of the tank vehicle used in the defueling operation.

1106.19 Maintenance of aircraft-fueling hose. Aircraft-fueling hoses shall be maintained in accordance with Sections 1106.19.1 through 1106.19.4.

1106.19.1 Inspections. Hoses used to fuel or defuel aircraft shall be inspected periodically to ensure their serviceability and suitability for continued service. The fuel-service operator shall maintain records of all tests and inspections performed on fueling hoses. Hoses found to be defective or otherwise damaged shall be immediately removed from service.

1106.19.1.1 Daily inspection. Each hose shall be inspected daily. This inspection shall include a complete visual scan of the exterior for evidence of damage, blistering or leakage. Each coupling shall be inspected for evidence of leaks, slippage or misalignment.

1106.19.1.2 Monthly inspection. A more thorough inspection, including pressure testing, shall be accomplished for each hose on a monthly basis. This inspection shall include examination of the fuel delivery inlet screen for rubber particles, which indicates problems with the hose lining.

1106.19.2 Damaged hose. Hose that has been subjected to severe abuse shall be immediately removed from service. Such hoses shall be hydrostatically tested prior to being returned to service.

1106.19.3 Repairing hose. Hoses are allowed to be repaired by removing the damaged portion and recoupling the undamaged end. When recoupling hoses, only couplings designed and *approved* for the size and type of hose in question shall be used. Hoses repaired in this manner shall be visually inspected and hydrostatically tested prior to being placed back in service.

1106.19.4 New hose. New hose shall be visually inspected prior to being placed into service.

1106.20 Aircraft fuel-servicing vehicles parking. Unattended aircraft fuel-servicing vehicles shall be parked in areas that provide for both the unencumbered dispersal of vehicles in the event of an emergency and the control of leakage such that

adjacent buildings and storm drains are not contaminated by leaking fuel.

1106.20.1 Parking area design. Parking areas for tank vehicles shall be designed and utilized such that a clearance of 10 feet (3048 mm) is maintained between each parked vehicle for fire department access. In addition, a minimum clearance of 50 feet (15 240 mm) shall be maintained between tank vehicles and parked aircraft and structures other than those used for the maintenance and/or garaging of aircraft fuel-servicing vehicles.

1106.21 Radar equipment. Aircraft fuel-servicing operations shall be prohibited while the weather-mapping radar of that aircraft is operating.

Aircraft fuel-servicing or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 300 feet (91 440 mm) of an operating aircraft surveillance radar.

Aircraft fuel-servicing operations shall not be conducted within 300 feet (91 440 mm) of airport flight traffic surveillance radar equipment.

Aircraft fuel-servicing or other operations in which flammable liquids, vapors or mists may be present shall not be conducted within 100 feet (30 480 mm) of airport ground traffic surveillance radar equipment.

1106.21.1 Direction of radar beams. The beam from ground radar equipment shall not be directed toward fuel storage or loading racks.

Exceptions:

1. Fuel storage and loading racks in excess of 300 feet (91 440 mm) from airport flight traffic surveillance equipment.
2. Fuel storage and loading racks in excess of 100 feet (30 480 mm) from airport ground traffic surveillance equipment.

SECTION 1107
HELISTOPS AND HELIPORTS

1107.1 General. Helistops and heliports shall be maintained in accordance with Sections 1107.2 through 1107.8. Helistops and heliports on buildings shall be constructed in accordance with the *California Building Code*.

1107.2 Clearances. The touchdown area shall be surrounded on all sides by a clear area having minimum average width at roof level of 15 feet (4572 mm) but no width less than 5 feet (1524 mm). The clear area shall be maintained.

1107.3 Flammable and Class II combustible liquid spillage. Landing areas on structures shall be maintained so as to confine flammable or Class II *combustible liquid* spillage to the landing area itself, and provisions shall be made to drain such spillage away from *exits* or *stairways* serving the helicopter landing area or from a structure housing such *exit* or *stairway.*

1107.4 Exits. *Exits* and *stairways* shall be maintained in accordance with Section 412.7 of the *California Building Code*.

1107.5 Standpipe systems. Where a building with a rooftop helistop or heliport is equipped with a standpipe system, the system shall be extended to the roof level on which the helistop or heliport is located. All portions of the helistop and heliport area shall be within 150 feet (45 720 mm) of a $2^1/_2$-inch (63.5 mm) outlet on a Class I or III standpipe.

1107.6 Foam protection. Foam fire-protection capabilities shall be provided for rooftop heliports. Such systems shall be designed, installed and maintained in accordance with the applicable provisions of Sections 903, 904 and 905.

1107.7 Fire extinguishers. A minimum of one portable fire extinguisher having a minimum 80-B:C rating shall be provided for each permanent takeoff and landing area and for the aircraft parking areas. Installation, inspection and maintenance of these extinguishers shall be in accordance with Section 906.

1107.8 Federal approval. Before operating helicopters from helistops and heliports, approval shall be obtained from the Federal Aviation Administration.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 12 – DRY CLEANING

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
1201.1.1		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CHAPTER 12
DRY CLEANING

SECTION 1201
GENERAL

1201.1 Scope. Dry cleaning plants and their operations shall comply with the requirements of this chapter.

1201.1.1 Compliance alternate for dry cleaning plants. *Dry cleaning plants shall be permitted to comply with the provisions of NFPA 32 in its entirety as an acceptable alternative to the requirements of this chapter.*

1201.2 Permit required. Permits shall be required as set forth in Section 105.6.

SECTION 1202
DEFINITIONS

1202.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

DRY CLEANING. The process of removing dirt, grease, paints and other stains from such items as wearing apparel, textiles, fabrics and rugs by use of nonaqueous liquids (solvents).

DRY CLEANING PLANT. A facility in which dry cleaning and associated operations are conducted, including the office, receiving area and storage rooms.

DRY CLEANING ROOM. An occupiable space within a building used for performing dry cleaning operations, the installation of solvent-handling equipment or the storage of dry cleaning solvents.

DRY CLEANING SYSTEM. Machinery or equipment in which textiles are immersed or agitated in solvent or in which dry cleaning solvent is extracted from textiles.

SOLVENT OR LIQUID CLASSIFICATIONS. A method for classifying solvents or liquids according to the following classes:

Class I solvents. Liquids having a *flash point* below 100°F (38°C).

Class II solvents. Liquids having a *flash point* at or above 100°F (38°C) and below 140°F (60°C).

Class IIIA solvents. Liquids having a *flash point* at or above 140°F (60°C) and below 200°F (93°C).

Class IIIB solvents. Liquids having a *flash point* at or above 200°F (93°C).

Class IV solvents. Liquids classified as nonflammable.

SECTION 1203
CLASSIFICATIONS

1203.1 Solvent classification. Dry cleaning solvents shall be classified according to their *flash point*s as follows:

1. Class I solvents are liquids having a *flash point* below 100°F (38°C).
2. Class II solvents are liquids having a *flash point* at or above 100°F (38°C) and below 140°F (60°C).
3. Class IIIA solvents are liquids having a *flash point* at or above 140°F (60°C) and below 200°F (93°C).
4. Class IIIB solvents are liquids having a *flash point* at or above 200°F (93°C).
5. Class IV solvents are liquids classified as nonflammable.

1203.2 Classification of dry cleaning plants and systems. Dry cleaning plants and systems shall be classified based on the solvents used as follows:

1. Type I—systems using Class I solvents.
2. Type II—systems using Class II solvents.
3. Type III-A—systems using Class IIIA solvents.
4. Type III-B—systems using Class IIIB solvents.
5. Type IV—systems using Class IV solvents in which dry cleaning is not conducted by the public.
6. Type V—systems using Class IV solvents in which dry cleaning is conducted by the public.

Spotting and pretreating operations conducted in accordance with Section 1206 shall not change the type of the dry cleaning plant.

1203.2.1 Multiple solvents. Dry cleaning plants using more than one class of solvent for dry cleaning shall be classified based on the numerically lowest solvent class.

1203.3 Design. The occupancy classification, design and construction of dry cleaning plants shall comply with the applicable requirements of the *California Building Code*. ||

SECTION 1204
GENERAL REQUIREMENTS

1204.1 Prohibited use. Type I dry cleaning plants shall be prohibited. Limited quantities of Class I solvents stored and used in accordance with this section shall not be prohibited in dry cleaning plants.

1204.2 Building services. Building services and systems shall be designed, installed and maintained in accordance with this section and Chapter 6.

1204.2.1 Ventilation. Ventilation shall be provided in accordance with Section 502 of the *California Mechanical Code* and DOL 29 CFR Part 1910.1000, where applicable.

1204.2.2 Heating. In Type II dry cleaning plants, heating shall be by indirect means using steam, hot water or hot oil only.

1204.2.3 Electrical wiring and equipment. Electrical wiring and equipment in dry cleaning rooms or other locations subject to flammable vapors shall be installed in accordance with NFPA 70.

1204.2.4 Bonding and grounding. Storage tanks, treatment tanks, filters, pumps, piping, ducts, dry cleaning units, stills, tumblers, drying cabinets and other such equipment, where not inherently electrically conductive, shall be bonded together and grounded. Isolated equipment shall be grounded.

SECTION 1205
OPERATING REQUIREMENTS

1205.1 General. The operation of dry cleaning systems shall comply with the requirements of Sections 1205.1.1 through 1205.3.

1205.1.1 Written instructions. Written instructions covering the proper installation and safe operation and use of equipment and solvent shall be given to the buyer.

1205.1.1.1 Type II, III-A, III-B and IV systems. In Type II, III-A, III-B and IV dry cleaning systems, machines shall be operated in accordance with the operating instructions furnished by the machinery manufacturer. Employees shall be instructed as to the hazards involved in their departments and in the work they perform.

1205.1.1.2 Type V systems. Operating instructions for customer use of Type V dry cleaning systems shall be conspicuously posted in a location near the dry cleaning unit. A telephone number shall be provided for emergency assistance.

1205.1.2 Equipment identification. The manufacturer shall provide nameplates on dry cleaning machines indicating the class of solvent for which each machine is designed.

1205.1.3 Open systems prohibited. Dry cleaning by immersion and agitation in open vessels shall be prohibited.

1205.1.4 Prohibited use of solvent. The use of solvents with a *flash point* below that for which a machine is designed or *listed* shall be prohibited.

1205.1.5 Equipment maintenance and housekeeping. Proper maintenance and operating practices shall be observed in order to prevent the leakage of solvent or the accumulation of lint. The handling of waste material generated by dry cleaning operations and the maintenance of facilities shall comply with the provisions of this section.

1205.1.5.1 Floors. Class I and II liquids shall not be used for cleaning floors.

1205.1.5.2 Filters. Filter residue and other residues containing solvent shall be handled and disposed of in covered metal containers.

1205.1.5.3 Lint. Lint and refuse shall be removed from traps daily, deposited in *approved* waste cans, removed from the premises, and disposed of safely. At all other times, traps shall be held securely in place.

1205.1.5.4 Customer areas. In Type V dry cleaning systems, customer areas shall be kept clean.

1205.2 Type II systems. Special operating requirements for Type II dry cleaning systems shall comply with the provisions of Sections 1205.2.1 through 1205.2.3.

1205.2.1 Inspection of materials. Materials to be dry cleaned shall be searched thoroughly and foreign materials, including matches and metallic substances, shall be removed.

1205.2.2 Material transfer. In removing materials from the washer, provisions shall be made for minimizing the dripping of solvent on the floor. Where materials are transferred from a washer to a drain tub, a nonferrous metal drip apron shall be placed so that the apron rests on the drain tub and the cylinder of the washer.

1205.2.3 Ventilation. A mechanical ventilation system which is designed to exhaust 1 cubic foot of air per minute for each square foot of floor area [0.0058 $m^3/(s \cdot m^2)$] shall be installed in dry cleaning rooms and in drying rooms. The ventilation system shall operate automatically when the dry cleaning equipment is in operation and shall have manual controls at an *approved* location.

1205.3 Type IV and V systems. Type IV and V dry cleaning systems shall be provided with an automatically activated exhaust ventilation system to maintain a minimum of 100 feet per minute (0.51 m/s) air velocity through the loading door when the door is opened. Such systems for dry cleaning equipment shall comply with the *California Mechanical Code*.

Exception: Dry cleaning units are not required to be provided with exhaust ventilation where an exhaust hood is installed immediately outside of and above the loading door which operates at an airflow rate as follows:

$$Q = 100 \times A_{LD} \qquad \textbf{(Equation 12-1)}$$

where:

Q = flow rate exhausted through the hood, cubic feet per minute (m^3/s).

A_{LD} = area of the loading door, square feet (m^2).

SECTION 1206
SPOTTING AND PRETREATING

1206.1 General. Spotting and pretreating operations and equipment shall comply with the provisions of Sections 1206.2 through 1206.5.

1206.2 Type I solvents. The maximum quantity of Type I solvents permitted at any work station shall be 1 gallon (4 L). Class I solvents shall be stored in *approved* safety cans or in

sealed DOTn-approved metal shipping containers of not more than 1-gallon (4 L) capacity. Dispensing shall be from *approved* safety cans.

1206.3 Type II and III solvents. Scouring, brushing, and spotting and pretreating shall be conducted with Class II or III solvents. The maximum quantity of Type II or III solvents permitted at any work station shall be 1 gallon (4 L). In other than a Group H-2 occupancy, the aggregate quantities of solvents shall not exceed the *maximum allowable quantity per control area* for use-*open system*.

1206.3.1 Spotting tables. Scouring, brushing or spotting tables on which articles are soaked in solvent shall have a liquid-tight top with a curb on all sides not less than 1 inch (25 mm) high. The top of the table shall be pitched to ensure thorough draining to a $1^1/_2$-inch (38 mm) drain connected to an *approved* container.

1206.3.2 Special handling. When *approved*, articles that cannot be washed in the usual washing machines are allowed to be cleaned in scrubbing tubs. Scrubbing tubs shall comply with the following:

1. Only Class II or III liquids shall be used.
2. The total amount of solvent used in such open containers shall not exceed 3 gallons (11 L).
3. Scrubbing tubs shall be secured to the floor.
4. Scrubbing tubs shall be provided with permanent $1^1/_2$-inch (38 mm) drains. Such drain shall be provided with a trap and shall be connected to an *approved* container.

1206.3.3 Ventilation. Scrubbing tubs, scouring, brushing or spotting operations shall be located such that solvent vapors are captured and exhausted by the ventilating system.

1206.3.4 Bonding and grounding. Metal scouring, brushing and spotting tables and scrubbing tubs shall be permanently and effectively bonded and grounded.

1206.4 Type IV systems. Flammable and *combustible liquids* used for spotting operations shall be stored in *approved* safety cans or in sealed DOTn-*approved* metal shipping containers of not more than 1 gallon (4 L) in capacity. Dispensing shall be from *approved* safety cans. Aggregate amounts shall not exceed 10 gallons (38 L).

1206.5 Type V systems. Spotting operations using flammable or *combustible liquids* are prohibited in Type V dry cleaning systems.

SECTION 1207
DRY CLEANING SYSTEMS

1207.1 General equipment requirements. Dry cleaning systems, including dry cleaning units, washing machines, stills, drying cabinets, tumblers and their appurtenances, including pumps, piping, valves, filters and solvent coolers, shall be installed and maintained in accordance with NFPA 32. The construction of buildings in which such systems are located shall comply with the requirements of this section and the *California Building Code*.

1207.2 Type II systems. Type II dry cleaning and solvent tank storage rooms shall not be located below grade or above the lowest floor level of the building and shall comply with Sections 1207.2.1 through 1207.2.3.

Exception: Solvent storage tanks installed underground, in vaults or in special enclosures in accordance with Chapter 34.

1207.2.1 Fire-fighting access. Type II dry cleaning plants shall be located so that access is provided and maintained from one side for fire-fighting and fire control purposes in accordance with Section 503.

1207.2.2 Number of means of egress. Type II dry cleaning rooms shall have not less than two *means of egress* doors located at opposite ends of the room, at least one of which shall lead directly to the outside.

1207.2.3 Spill control and secondary containment. Curbs, drains or other provisions for spill control and secondary containment shall be provided in accordance with Section 2704.2 to collect solvent leakage and fire protection water and direct it to a safe location.

1207.3 Solvent storage tanks. Solvent storage tanks for Class II, IIIA and IIIB liquids shall conform to the requirements of Chapter 34 and be located underground or outside, above ground.

Exception: As provided in NFPA 32 for inside storage or treatment tanks.

SECTION 1208
FIRE PROTECTION

1208.1 General. Where required by this section, *fire protection systems*, devices and equipment shall be installed, inspected, tested and maintained in accordance with Chapter 9.

1208.2 Automatic sprinkler system. An *automatic sprinkler system* shall be installed in accordance with Section 903.3.1.1 throughout dry cleaning plants containing Type II, Type III-A or Type III-B dry cleaning systems.

1208.3 Automatic fire-extinguishing systems. Type II dry cleaning units, washer-extractors, and drying tumblers in Type II dry cleaning plants shall be provided with an *approved* automatic fire-extinguishing system installed and maintained in accordance with Chapter 9.

Exception: Where *approved*, a manual steam jet not less than $^3/_4$ inch (19 mm) with a continuously available steam supply at a pressure not less than 15 pounds per square inch gauge (psig) (103 kPa) is allowed to be substituted for the automatic fire-extinguishing system.

1208.4 Portable fire extinguishers. Portable fire extinguishers shall be selected, installed and maintained in accordance with this section and Section 906. A minimum of two 2-A:10-B:C portable fire extinguishers shall be provided near the doors inside dry cleaning rooms containing Type II, Type III-A and Type III-B dry cleaning systems.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 13 – COMBUSTIBLE DUST-PRODUCING OPERATIONS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 14 – FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 15 – FLAMMABLE FINISHES

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
1507.2		X																		

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 16 – FRUIT AND CROP RIPENING
(Not adopted by the State Fire Marshal)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CHAPTER 16
FRUIT AND CROP RIPENING

SECTION 1601
GENERAL

1601.1 Scope. Ripening processes where ethylene gas is introduced into a room to promote the ripening of fruits, vegetables and other crops shall comply with this chapter.

Exception: Mixtures of ethylene and one or more inert gases in concentrations which prevent the gas from reaching greater than 25 percent of the lower explosive limit (LEL) when released to the atmosphere.

1601.2 Permits. Permits shall be required as set forth in Section 105.6.

1601.3 Ethylene generators. *Approved* ethylene generators shall be operated and maintained in accordance with Section 1606.

SECTION 1602
DEFINITIONS

1602.1 Terms defined in Chapter 2. Words and terms used in this chapter and defined in Chapter 2 shall have the meanings ascribed to them as defined therein.

SECTION 1603
ETHYLENE GAS

1603.1 Location. Ethylene gas shall be discharged only into *approved* rooms or enclosures designed and constructed for this purpose.

1603.2 Dispensing. Valves controlling discharge of ethylene shall provide positive and fail-closed control of flow and shall be set to limit the concentration of gas in air below 1,000 parts per million (ppm).

SECTION 1604
SOURCES OF IGNITION

1604.1 Ignition prevention. Sources of ignition shall be controlled or protected in accordance with this section and Chapter 3.

1604.2 Electrical wiring and equipment. Electrical wiring and equipment, including luminaires, shall be *approved* for use in Class I, Division 2, Group C hazardous (classified) locations.

1604.3 Static electricity. Containers, piping and equipment used to dispense ethylene shall be bonded and grounded to prevent the discharge of static sparks or arcs.

1604.4 Lighting. Lighting shall be by *approved* electric lamps or luminaires only.

1604.5 Heating. Heating shall be by indirect means utilizing low-pressure steam, hot water or warm air.

Exception: Electric or fuel-fired heaters *approved* for use in hazardous (classified) locations which are installed and operated in accordance with the applicable provisions of NFPA 70, the *California Mechanical Code*. <

SECTION 1605
COMBUSTIBLE WASTE

1605.1 Housekeeping. Empty boxes, cartons, pallets and other combustible waste shall be removed from ripening rooms or enclosures and disposed of at regular intervals in accordance with Chapter 3.

SECTION 1606
ETHYLENE GENERATORS

1606.1 Ethylene generators. Ethylene generators shall be *listed* and *labeled* by an *approved* testing laboratory, *approved* by the *fire code official* and used only in *approved* rooms in accordance with the ethylene generator manufacturer's instructions. The listing evaluation shall include documentation that the concentration of ethylene gas does not exceed 25 percent of the lower explosive limit (LEL).

1606.2 Ethylene generator rooms. Ethylene generators shall be used in rooms having a volume of not less than 1,000 cubic feet (28 m^3). Rooms shall have air circulation to ensure even distribution of ethylene gas and shall be free from sparks, open flames or other ignition sources.

SECTION 1607
WARNING SIGNS

1607.1 When required. *Approved* warning signs indicating the danger involved and necessary precautions shall be posted on all doors and entrances to the premises.

CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 17 – FUMIGATION AND THERMAL INSECTICIDAL FOGGING
(Not adopted by the State Fire Marshal)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 18 – SEMICONDUCTOR FABRICATION FACILITIES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 19 – LUMBER YARDS AND WOODWORKING FACILITIES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 20 – MANUFACTURE OF ORGANIC COATINGS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 21 – INDUSTRIAL OVENS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
2106.3		X																		

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CALIFORNIA FIRE CODE- MATRIX ADOPTION TABLE
CHAPTER 22 – MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
2203.1.1		X																		
2206.7.6		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 23 – HIGH-PILED COMBUSTIBLE STORAGE

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
Table 2306.2			X																	

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

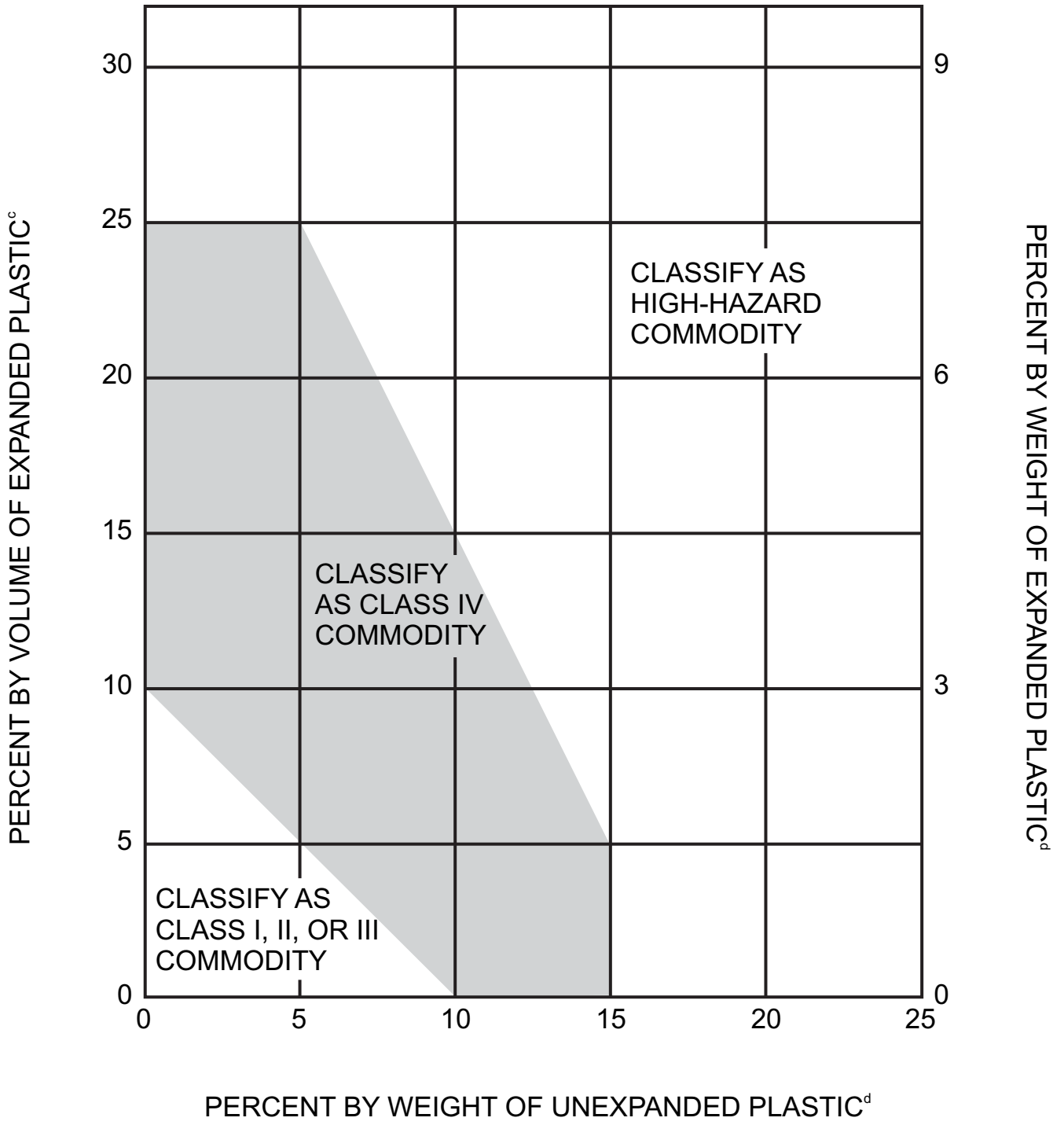

FIGURE 2303.7.4
MIXED COMMODITIES[a, b]

a. This figure is intended to determine the commodity classification of a mixed commodity in a package, carton or on a pallet where plastics are involved.

b. The following is an example of how to apply the figure: A package containing a Class III commodity has 12-percent Group A expanded plastic by volume. The weight of the unexpanded Group A plastic is 10 percent. This commodity is classified as a Class IV commodity. If the weight of the unexpanded plastic is increased to 14 percent, the classification changes to a high-hazard commodity.

c. $\text{Percent by volume} = \dfrac{\text{Volume of plastic in pallet load}}{\text{Total volume of pallet load, including pallet}}$

d. $\text{Percent by weight} = \dfrac{\text{Weight of plastic in pallet load}}{\text{Total weight of pallet load, including pallet}}$

TABLE 2306.2
GENERAL FIRE PROTECTION AND LIFE SAFETY REQUIREMENTS

COMMODITY CLASS	SIZE OF HIGH-PILED STORAGE AREA[a] (square feet) (see Sections 2306.2 and 2306.4)	ALL STORAGE AREAS (See Sections 2306, 2307 and 2308)[b]					SOLID-PILED STORAGE, SHELF STORAGE AND PALLETIZED STORAGE (see Section 2307.3)		
		Automatic fire-extinguishing system (see Section 2306.4)	Fire detection system (see Section 2306.5)	Building access (see Section 2306.6)	Smoke and heat removal (see Section 2306.7)	Draft curtains (see Section 2306.7)	Maximum pile dimension[c] (feet)	Maximum permissible storage height[d] (feet)	Maximum pile volume (cubic feet)
I-IV	0-500	Not Required[a]	Not Required	Not Required[e]	Not Required	Not Required	Not Required	Not Required	Not Required
	501-2,500	Not Required[a]	Yes[i]	Not Required[e]	Not Required	Not Required	100	40	100,000
	2,501-12,000 Public accessible	Yes	Not Required	Not Required[e]	Not Required	Not Required	100	40	400,000
	2,501-12,000 Nonpublic accessible (Option 1)	Yes	Not Required	Not Required[e]	Not Required	Not Required	100	40	400,000
	2,501-12,000 Nonpublic accessible (Option 2)	Not Required[a]	Yes	Yes	Yes[j]	Yes[j]	100	30[f]	200,000
	12,001-20,000	Yes	Not Required	Yes	Yes[j]	Not Required	100	40	400,000
	20,001-500,000	Yes	Not Required	Yes	Yes[j]	Not Required	100	40	400,000
	Greater than 500,000[g]	Yes	Not Required	Yes	Yes[j]	Not Required	100	40	400,000
High hazard	0-500	Not Required[a]	Not Required	Not Required[e]	Not Required	Not Required	50	Not Required	Not Required
	501-2,500 Public accessible	Yes	Not Required	Not Required[e]	Not Required	Not Required	50	30	75,000
	501-2,500 Nonpublic accessible (Option 1)	Yes	Not Required	Not Required[e]	Not Required	Not Required	50	30	75,000
	501-2,500 Nonpublic accessible (Option 2)	Not Required[a]	Yes	Yes	Yes[j]	Yes[j]	50	20	50,000
	2,501-300,000	Yes	Not Required	Yes	Yes[j]	Not Required	50	30	75,000
	300,001-500,000[g, h]	Yes	Not Required	Yes	Yes[j]	Not Required	50	30	75,000

For SI: 1 foot = 304.8 mm, 1 cubic foot = 0.02832 m^3, 1 square foot = 0.0929 m^2.

a. When automatic sprinklers are required for reasons other than those in Chapter 23, the portion of the sprinkler system protecting the high-piled storage area shall be designed and installed in accordance with Sections 2307 and 2308.

b. For aisles, see Section 2306.9.

c. Piles shall be separated by aisles complying with Section 2306.9.

d. For storage in excess of the height indicated, special fire protection shall be provided in accordance with Note g when required by the fire code official. See also Chapters 28 and 34 for special limitations for aerosols and flammable and combustible liquids, respectively.

e. Section 503 shall apply for fire apparatus access.

f. For storage exceeding 30 feet in height, Option 1 shall be used.

g. Special fire protection provisions including, but not limited to, fire protection of exposed steel columns; increased sprinkler density; additional in-rack sprinklers, without associated reductions in ceiling sprinkler density; or additional fire department hose connections shall be provided when required by the fire code official.

h. High-piled storage areas shall not exceed 500,000 square feet. A 2-hour fire wall constructed in accordance with the *California Building Code* shall be used to divide high-piled storage exceeding 500,000 square feet in area.

i. Not required when an automatic fire-extinguishing system is designed and installed to protect the high-piled storage area in accordance with Sections 2307 and 2308.

j. Not required when storage areas *with an exit access travel distance of 250 feet (76 200 mm) or less* are protected by early suppression fast-response (ESFR) sprinkler systems installed in accordance with *Section 903.3.1.1. This footnote shall not apply to any state institution or state-owned or state-occupied buildings or other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal.*

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 24 – TENTS AND OTHER MEMBRANE STRUCTURES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DPH	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		**X**																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
2401.1		X																		
[T-19 §303 (a)(b)]			X																	
2401.2		X																		
2401.3		X																		
[T-19 §310 (a-c)]			X																	
2403.8.2		X																		
[T-19 §312]			X																	
[T-19 §340]			X																	
[T-19 §341]			X																	
[T-19 §321]			X																	
[T-19 §315 (a)]			X																	
[T-19 §332 (a)]			X																	
2404.2		X																		
[T-19 §334]			X																	
[T-19 §335 (a)(b)]			X																	
[T-19 §315 (d)]			X																	
[T-19 §315 (b)]			X																	
[T-19 §326 (b)]			X																	
[T-19 §316]			X																	
[T-19 §317]			X																	
2404.12		X																		
[T-19 §319 (a-c]			X																	
[T-19 §319 (d)(e)]			X																	
[T-19 §325]			X																	
[T-19 §324 (a)(b)]			X																	
[T-19 §320]			X																	
[T-19 §326 (a)]			X																	
[T-19 §326 (c)]			X																	
2404.23		X																		

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CHAPTER 24
TENTS AND OTHER MEMBRANE STRUCTURES

SECTION 2401
GENERAL

2401.1 Scope. Tents and membrane structures shall comply with this chapter. The provisions of Section 2403 are applicable only to temporary tents and membrane structures. The provisions of Section 2404 are applicable to temporary and permanent tents and membrane structures.

These building standards govern the use of tents, awnings or other fabric enclosures, including membrane (air-supported and air-inflated) structures and places of assemblage, in or under which 10 or more persons may gather for any lawful purpose.

Exceptions:

1. *Tents, awnings or other fabric enclosures used to cover or enclose private swimming pools and similar facilities on the premises of private one- and two-family dwellings.*
2. *Tents used to conduct committal services on the ground of a cemetery.*
3. *Tents, awnings or other fabric enclosures erected and used within a sound stage, or other similar structural enclosure which is equipped with an overhead automatic sprinkler system.*
4. *Tensioned membrane roof materials supported by rigid frames or installed on a mast and cable system provided such structures conform to the requirements of one of the types of construction as described in these regulations.*
5. *Fabric structures which are part of mobile homes, recreational vehicles, or commercial coaches governed by the provisions of Division 13, Part 2, Health and Safety Code (Department of Housing and Community Development).*

[California Code of Regulations, Title 19, Division 1, §303.(a) and (b)] Scope.

(a) The provisions of California Code of Regulations, Title 19, Division 1, Chapter 2 apply to the sale, offering for sale, manufacture for sale, rental and use of tents within this state.

(b) For building standards relating to tents and membrane structures, see California Code of Regulations, Title 24, Part 9.

2401.2 Alternate means of protection. *When approved by the enforcing agency, exceptions to the provisions of these building standards may be permitted, provided alternate means of protection which are at least equal to these regulations in quality, strength, effectiveness, fire resistance, durability and safety are provided.*

2401.3 Labor camps. *Tents used in labor camps for the housing of employees shall have tight wooden floors raised at least 4 inches (102 mm) above ground level having baseboards on all sides to a height of at least 6 inches (152 mm) or shall have concrete slabs with finished surface at least 4 inches (102 mm) above grade having baseboards on all sides to a height of at least 6 inches (152 mm).*

Electrical installations serving and installed within tents shall comply with the applicable requirements of the California Electrical Code.

Tents shall not be considered suitable sleeping places when it is found necessary to provide heating facilities in order to maintain a minimum temperature of 60°F (33.3°C) within such tent during the period of occupancy.

Note: *See Section 17008 of the Health and Safety Code for definition of labor camp.*

SECTION 2402
DEFINITIONS

2402.1 Definitions. The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

[B] AIR-INFLATED STRUCTURE. A building where the shape of the structure is maintained by air pressurization of cells or tubes to form a barrel vault over the usable area. Occupants of such a structure do not occupy the pressurized areas used to support the structure.

AIR-SUPPORTED STRUCTURE. A structure wherein the shape of the structure is attained by air pressure, and occupants of the structure are within the elevated pressure area.

MEMBRANE STRUCTURE. An air-inflated, air-supported, cable or frame-covered structure as defined by the *California Building Code* and not otherwise defined as a tent. See Chapter 31 of the *California Building Code*.

TENT. A structure, enclosure or shelter, with or without sidewalls or drops, constructed of fabric or pliable material supported by any manner except by air or the contents that it protects.

[California Code of Regulations, Title 19, Division 1, §310.(a) through (c)] Definitions.

(a) Tent. A shelter, structure or enclosure made of fabric or similar pliable material.

(b) Large tent. A tent designed for use by 10 or more people.

(c) Small tent. A tent designed for use by less than 10 people.

SECTION 2403
TEMPORARY TENTS AND MEMBRANE STRUCTURES

2403.1 General. All temporary tents and membrane structures shall comply with this section.

2403.2 Approval required. Tents and membrane structures having an area in excess of 400 square feet (37 m^2) shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the *fire code official*.

Exceptions:

1. Tents used exclusively for recreational camping purposes.
2. Tents open on all sides which comply with all of the following:
   - 2.1. Individual tents having a maximum size of 700 square feet (65 m^2).
   - 2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding 700 square feet (65 m^2) total.
   - 2.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

2403.3 Place of assembly. For the purposes of this chapter, a place of assembly shall include a circus, carnival, tent show, theater, skating rink, dance hall or other place of assembly in or under which *persons* gather for any purpose.

2403.4 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

2403.5 Use period. Temporary tents, air-supported, air-inflated or tensioned membrane structures shall not be erected for a period of more than 180 days within a 12-month period on a single premises.

2403.6 Construction documents. A detailed site and floor plan for tents or membrane structures with an *occupant load* of 50 or more shall be provided with each application for approval. The tent or membrane structure floor plan shall indicate details of the *means of egress* facilities, seating capacity, arrangement of the seating and location and type of heating and electrical equipment.

2403.7 Inspections. The entire tent, air-supported, air-inflated or tensioned membrane structure system shall be inspected at regular intervals, but not less than two times per permit use period, by the permittee, *owner* or agent to determine that the installation is maintained in accordance with this chapter.

Exception: Permit use periods of less than 30 days.

2403.7.1 Inspection report. When required by the *fire code official*, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

2403.8 Access, location and parking. Access, location and parking for temporary tents and membrane structures shall be in accordance with this section.

2403.8.1 Access. Fire apparatus access roads shall be provided in accordance with Section 503.

2403.8.2 Location. Tents or membrane structures shall not be located within 20 feet (6096 mm) of *lot lines*, buildings, other tents or membrane structures, parked vehicles or internal combustion engines. For the purpose of determining required distances, support ropes and guy wires shall be considered as part of the temporary membrane structure or tent.

Exceptions:

1. Separation distance between membrane structures and tents not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet (1394 m^2).
2. Membrane structures or tents need not be separated from buildings when all of the following conditions are met:
   - 2.1. The aggregate floor area of the membrane structure or tent shall not exceed 10,000 square feet (929 m^2).
   - 2.2. The aggregate floor area of the building and membrane structure or tent shall not exceed the allowable floor area including increases as indicated in the *California Building Cod*e.
   - 2.3. Required *means of egress* are provided for both the building and the membrane structure or tent including travel distances.
   - 2.4. Fire apparatus access roads are provided in accordance with Section 503.
3. *When approved by the enforcing agency, tents may be located in or on permanent buildings provided such use does not constitute an undue hazard.*

[California Code of Regulations, Title 19, Division 1, §312.] Parking of Vehicles.

Vehicles necessary to the operation of the establishment shall be parked at least 20 feet (6096 mm) from any tent. No other vehicle shall be parked less than 100 feet (30 480 mm) from any tent except vehicles parked on a public street shall park at least 20 feet (6096 mm) from any tent.

2403.8.3 Location of structures in excess of 15,000 square feet in area. Membrane structures having an area of 15,000 square feet (1394 m^2) or more shall be located not less than 50 feet (15 240 mm) from any other tent or structure as measured from the sidewall of the tent or membrane structure unless joined together by a corridor.

2403.8.4 Membrane structures on buildings. Membrane structures that are erected on buildings, balconies, decks or other structures shall be regulated as permanent membrane structures in accordance with Section 3102 of the *California Building Code*.

2403.8.5 Connecting corridors. Tents or membrane structures are allowed to be joined together by means of corridors. *Exit* doors shall be provided at each end of such corridor. On each side of such corridor and approximately opposite each other, there shall be provided openings not less than 12 feet (3658 mm) wide.

2403.8.6 Fire break. An unobstructed fire break passageway or fire road not less than 12 feet (3658 mm) wide and free from guy ropes or other obstructions shall be maintained on all sides of all tents and membrane structures unless otherwise *approved* by the *fire code official*.

2403.9 Anchorage required. Tents or membrane structures and their appurtenances shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. Documentation of structural stability shall be furnished to the *fire code official* on request.

2403.10 Temporary air-supported and air-inflated membrane structures. Temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 2403.10.1 through 2403.10.4.

2403.10.1 Door operation. During high winds exceeding 50 miles per hour (22 m/s) or in snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open.

2403.10.2 Fabric envelope design and construction. Air-supported and air-inflated structures shall have the design and construction of the fabric envelope and the method of anchoring in accordance with Architectural Fabric Structures Institute ASI 77.

2403.10.3 Blowers. An air-supported structure used as a place of assembly shall be furnished with not less than two blowers, each of which has adequate capacity to maintain full inflation pressure with normal leakage. The design of the blower shall be so as to provide integral limiting pressure at the design pressure specified by the manufacturer.

2403.10.4 Auxiliary power. Places of public assembly for more than 200 *persons* shall be furnished with either a fully automatic auxiliary engine-generator set capable of powering one blower continuously for 4 hours, or a supplementary blower powered by an internal combustion engine which shall be automatic in operation.

2403.11 Seating arrangements. Seating in tents or membrane structures shall be in accordance with Chapter 10.

2403.12 Means of egress. *Means of egress* for temporary tents and membrane structures shall be in accordance with Sections 2403.12.1 through 2403.12.8.

2403.12.1 Distribution. *Exits* shall be spaced at approximately equal intervals around the perimeter of the tent or membrane structure, and shall be located such that all points are 100 feet (30 480 mm) or less from an *exit*.

2403.12.2 Number. Tents, or membrane structures or a usable portion thereof shall have at least one *exit* and not less than the number of *exits* required by Table 2403.12.2. The total width of *means of egress* in inches (mm) shall not be less than the total *occupant load* served by a *means of egress* multiplied by 0.2 inches (5 mm) per *person*.

TABLE 2403.12.2
MINIMUM NUMBER OF MEANS OF EGRESS AND MEANS OF EGRESS WIDTHS FROM TEMPORARY MEMBRANE STRUCTURES AND TENTS

OCCUPANT LOAD	MINIMUM NUMBER OF MEANS OF EGRESS	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)	MINIMUM WIDTH OF EACH MEANS OF EGRESS (inches)
		Tent	Membrane Structure
10 to 199	2	72	36
200 to 499	3	72	72
500 to 999	4	96	72
1,000 to 1,999	5	120	96
2,000 to 2,999	6	120	96
Over 3,000[a]	7	120	96

For SI: 1 inch = 25.4 mm.

a. When the occupant load exceeds 3,000, the total width of means of egress (in inches) shall not be less than the total occupant load multiplied by 0.2 inches per person.

2403.12.3 Exit openings from tents. *Exit* openings from tents shall remain open unless covered by a flame-resistant curtain. The curtain shall comply with the following requirements:

1. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches (2032 mm) above the floor level at the *exit*. The curtains shall be so arranged that, when open, no part of the curtain obstructs the *exit*.
2. Curtains shall be of a color, or colors, that contrasts with the color of the tent.

2403.12.4 Doors. *Exit* doors shall swing in the direction of *exit* travel. To avoid hazardous air and pressure loss in air-supported membrane structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall not exceed 15 pounds (66 N).

2403.12.5 Aisle. The width of *aisles* without fixed seating shall be in accordance with the following:

1. In areas serving employees only, the minimum *aisle* width shall be 24 inches (610 mm) but not less than the width required by the number of employees served.
2. In public areas, smooth-surfaced, unobstructed *aisles* having a minimum width of not less than 44 inches (1118 mm) shall be provided from seating areas, and *aisles* shall be progressively increased in width to provide, at all points, not less than 1 foot (305 mm) of *aisle* width for each 50 *persons* served by such *aisle* at that point.

2403.12.5.1 Arrangement and maintenance. The arrangement of *aisles* shall be subject to approval by the *fire code official* and shall be maintained clear at all times during occupancy.

2403.12.6 Exit signs. *Exits* shall be clearly marked. *Exit* signs shall be installed at required *exit* doorways and where otherwise necessary to indicate clearly the direction of egress when the *exit* serves an *occupant load* of 50 or more.

2403.12.6.1 Exit sign illumination. *Exit* signs shall be either *listed* and *labeled* in accordance with UL 924 as the internally illuminated type and used in accordance with the listing or shall be externally illuminated by luminaires supplied in the following manner:

1. Two separate circuits, one of which shall be separate from all other circuits, for *occupant loads* of 300 or less; or
2. Two separate sources of power, one of which shall be an *approved* emergency system, shall be provided when the *occupant load* exceeds 300. Emergency systems shall be supplied from storage batteries or from the on-site generator set, and the system shall be installed in accordance with *the California Electrical Code*. The emergency system provided shall have a minimum duration of 90 minutes when operated at full design demand.

2403.12.7 Means of egress illumination. *Means of egress* shall be illuminated with light having an intensity of not less than 1 foot-candle (11 lux) at floor level while the structure is occupied. Fixtures required for *means of egress* illumination shall be supplied from a separate circuit or source of power.

2403.12.8 Maintenance of means of egress. The required width of *exits*, *aisles* and passageways shall be maintained at all times to a *public way.* Guy wires, guy ropes and other support members shall not cross a *means of egress* at a height of less than 8 feet (2438 mm). The surface of *means of egress* shall be maintained in an *approved* manner.

SECTION 2404
TEMPORARY AND PERMANENT TENTS AND MEMBRANE STRUCTURES

2404.1 General. All tents and membrane structures, both temporary and permanent, shall be in accordance with this section. Permanent tents and membrane structures shall also comply with the *California Building Code*.

[California Code of Regulations, Title 19, Division 1, §340.] Existing Small Tents.

Existing small tents are exempt from California Code of Regulations, Title 19, Division 1, Chapter 2.

[California Code of Regulations, Title 19, Division 1, §341.] Existing Membrane Structures and Other (Large) Existing Tents.

Existing membranes of membrane structures and large (10 or more capacity) existing tents may continue to be used provided evidence of satisfactory flame resistance is available to the enforcing authority. Such evidence may be in the form of certification that the fabric passes the standard small scale flame resistance test as set forth in California Code of Regulations, Title 19, Division 1, Chapter 8 regulations or through passage of effective field tests.

[California Code of Regulations, Title 19, Division 1, §321.] Abatement of Fire or Panic Hazards.

Any condition that presents a fire hazard, would contribute to the rapid spread of fire, interfere with the rapid exit of persons from the tents, or interfere with or delay the extinguishment of a fire, shall be immediately corrected as ordered by the enforcing authority.

[California Code of Regulations, Title 19, Division 1, §315.(a)] Flame Resistance Standards.

(a) All tent fabrics and all interior decorative fabrics or materials shall be flame resistant in accordance with appropriate standards set forth in California Code of Regulations, Title 19, Division 1, Chapter 8.

Tent tops and sidewalls shall be made either from fabric which has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal.

[California Code of Regulations, Title 19, Division 1, §332.(a)] Flame Resistance.

(a) All tents manufactured for sale, sold, rented, offered for sale, or used in California shall be made from nonflammable material or one of the following flame resistant fabrics or material approved by the State Fire Marshal:

(1) Fabrics complying with the State Fire Marshal's requirements for flame resistance for exterior use, as set forth in California Code of Regulations, Title 19, Division 1, Chapter 8; or

(2) Fabrics complying with the flame resistance requirements set forth in "A Specification for Flame Resistance Materials Used in Camping Tentage" published in 1975 by Canvas Products Association International, hereinafter referred to as CPAI-84.

Exceptions:

(1) Tents used for committal services at cemeteries

(2) Tents or similar fabric enclosures used within a sound stage or equivalent enclosure equipped with an overhead automatic fire extinguishing system

2404.2 Flame propagation performance treatment. Before a permit is granted, the *owner* or agent shall file with the *fire code official* a certificate executed by an *approved* testing laboratory certifying that the tents and membrane structures and their appurtenances; sidewalls, drops and tarpaulins; floor coverings, bunting and combustible decorative materials and effects, including sawdust when used on floors or passageways, are *flame resistant in accordance with appropriate standards set forth in CCR, Title 19, Division 1, Chapter 8. Tops and sidewalls shall be made either from fabric which has been flame resistant treated with an approved exterior chemical process by an approved application concern, or from inherently flame resistant fabric approved and listed by the State Fire Marshal (see CCR, Title 19, Division 1, Chapter 8).*

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 25 – TIRE REBUILDING AND TIRE STORAGE

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
2501.1		X																		
2503.1		X																		
2504.2		X																		
2505.1		X																		
2505.4		X																		
2505.7		X																		
2505.8		X																		
2505.9		X																		
2506.1		X																		
2508.1		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 26 – WELDING AND OTHER HOT WORK

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 27 – HAZARDOUS MATERIALS—GENERAL PROVISIONS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
2701.2.2.1		X																		
2701.5.1		X																		
2701.5.2		X																		
Table 2703.1.1(1)		X																		
Table 2703.1.1(2)		X																		
2703.10		X																		
2703.10.2		X																		
2703.10.2.1		X																		
2703.10.2.2		X																		
2703.10.4		X																		
2703.10.4.1		X																		
2703.10.4.2		X																		
2703.10.4.3		X																		
2703.10.4.4		X																		
2704.3.1		X																		

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TABLE 2704.2.2
REQUIRED SECONDARY CONTAINMENT—HAZARDOUS MATERIAL SOLIDS AND LIQUIDS STORAGE

MATERIAL		INDOOR STORAGE		OUTDOOR STORAGE	
		Solids	Liquids	Solids	Liquids
1. Physical-hazard materials					
Combustible liquids	Class II	Not Applicable	See Chapter 34	Not Applicable	See Chapter 34
	Class IIIA		See Chapter 34		See Chapter 34
	Class IIIB		See Chapter 34		See Chapter 34
Cryogenic fluids			See Chapter 32		See Chapter 32
Explosives		See Chapter 33		See Chapter 32	
Flammable liquids	Class IA	Not Applicable	See Chapter 34	Not Applicable	See Chapter 34
	Class IB		See Chapter 34		See Chapter 34
	Class IC		See Chapter 34		See Chapter 34
Flammable solids		Not Required	Not Applicable	Not Required	Not Applicable
Organic peroxides	Unclassified Detonable	Required	Required	Not Required	Not Required
	Class I				
	Class II				
	Class III				
	Class IV				
	Class V	Not Required	Not Required	Not Required	Not Required
Oxidizers	Class 4	Required	Required	Not Required	Not Required
	Class 3				
	Class 2				
	Class 1	Not Required	Not Required	Not Required	Not Required
Pyrophorics		Not Required	Required	Not Required	Required
Unstable (reactives)	Class 4	Required	Required	Required	Required
	Class 3				
	Class 2				
	Class 1	Not Required	Not Required	Not Required	Not Required
Water reactives	Class 3	Required	Required	Required	Required
	Class 2				
	Class 1	Not Required	Not Required	Not Required	Not Required
2. Health-hazard materials					
Corrosives		Not Required	Required	Not Required	Required
Highly toxics		Required	Required	Required	Required
Toxics					

and containers and cylinders not exceeding 25 pounds (11 kg), which are hand carried.

4. Solid hazardous materials not exceeding 100 pounds (45 kg), which are transported by *approved* hand trucks, and a single container not exceeding 50 pounds (23 kg), which is hand carried.

2703.10.2.1 Above the 10th story. *Above the 10th story of any occupancy, all vertical handling and transportation of hazardous materials in the building shall be in approved carts.*

2703.10.2.2 Transportation of hazardous materials above the 10th story. *The handling and transportation of hazardous materials above the 10th story shall be limited to 5 percent of the maximum allowable quantities of Tables 2703.1(1) (2.) Quantities are permitted to be increased 100 percent in buildings with an approved automatic sprinkler system in accordance with 903.3.1.1. Materials where Foot Note G applies shall not be increased.*

2703.10.3 Carts and trucks. Carts and trucks required by Section 2703.10.2 to be used to transport hazardous materials shall be in accordance with Sections 2703.10.3.1 through 2703.10.3.6.

2703.10.3.1 Design. Carts and trucks used to transport hazardous materials shall be designed to provide a stable base for the commodities to be transported and shall have a means of restraining containers to prevent accidental dislodgement. *Compressed gas* cylinders placed on carts and trucks shall be individually restrained.

2703.10.3.2 Speed-control devices. Carts and trucks shall be provided with a device that will enable the operator to control safely movement by providing stops or speed-reduction devices.

2703.10.3.3 Construction. Construction materials for hazardous material carts or trucks shall be compatible with the material transported. The cart or truck shall be of substantial construction.

2703.10.3.4 Spill control. Carts and trucks transporting liquids shall be capable of containing a spill from the largest single container transported.

2703.10.3.5 Attendance. Carts and trucks used to transport materials shall not obstruct or be left unattended within any part of a *means of egress*.

2703.10.3.6 Incompatible materials. *Incompatible materials* shall not be transported on the same cart or truck.

2703.10.4 Elevators utilized to transport hazardous materials.

2703.10.4.1. *When transporting hazardous materials, elevators shall have no other passengers other than the individual(s) handling the chemical transport cart.*

2703.10.4.2. *Hazardous materials liquid containers shall have maximum capacity of 5.28 gallons (20 liters).*

2703.10.4.3. *Toxic and highly-toxic gases shall be limited to a container of a maximum water capacity of 1 pound (0.454 kg).*

2703.10.4.4. *Means shall be provided to prevent the elevator from being summoned to other floors.*

2703.11 Group M storage and display and Group S storage. The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single *control area* of a Group M occupancy, or an outdoor *control area*, or stored in a single *control area* of a Group S occupancy, is allowed to exceed the *maximum allowable quantity per control area* indicated in Section 2703.1 when in accordance with Sections 2703.11.1 through 2703.11.3.10.

2703.11.1 Maximum allowable quantity per control area in Group M or S occupancies. The aggregate amount of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single *control area* of a Group M occupancy or stored in a single *control area* of a Group S occupancy shall not exceed the amounts set forth in Table 2703.11.1.

2703.11.2 Maximum allowable quantity per outdoor control area in Group M or S occupancies. The aggregate amount of nonflammable solid and nonflammable or noncombustible liquid hazardous materials stored and displayed within a single outdoor *control area* of a Group M occupancy shall not exceed the amounts set forth in Table 2703.11.1.

2703.11.3 Storage and display. Storage and display shall be in accordance with Sections 2703.11.3.1 through 2703.11.3.10.

2703.11.3.1 Density. Storage and display of solids shall not exceed 200 pounds per square foot (976 kg/m^2) of floor area actually occupied by solid merchandise. Storage and display of liquids shall not exceed 20 gallons per square foot (0.50 L/m^2) of floor area actually occupied by liquid merchandise.

2703.11.3.2 Storage and display height. Display height shall not exceed 6 feet (1829 mm) above the finished floor in display areas of Group M occupancies. Storage height shall not exceed 8 feet (2438 mm) above the finished floor in storage areas of Group M and Group S occupancies.

2703.11.3.3 Container location. Individual containers less than 5 gallons (19 L) or less than 25 pounds (11 kg) shall be stored or displayed on pallets, racks or shelves.

2703.11.3.4 Racks and shelves. Racks and shelves used for storage or display shall be in accordance with Section 2703.9.9.

2703.11.3.5 Container type. Containers shall be *approved* for the intended use and identified as to their content.

2703.11.3.6 Container size. Individual containers shall not exceed 100 pounds (45 kg) for solids or 10 gallons (38 L) for liquids in storage and display areas.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 28 – AEROSOLS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 29 – COMBUSTIBLE FIBERS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
2903.5		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 30 – COMPRESSED GASES

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
[T-19 §3.18 (a)(b)]			X																	

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

across all parts of the vault ceiling for gases having a density less than air. Supply ducts shall extend to within 3 inches (76 mm), but not more than 12 inches (305 mm), of the floor. Exhaust ducts shall extend to within 3 inches (76 mm), but not more than 12 inches (305 mm) of the floor or ceiling, for heavier-than-air or lighter-than-air gases, respectively. The exhaust system shall be installed in accordance with the *California Mechanical Code*.

3003.16.10 Monitoring and detection. Vaults shall be provided with *approved* vapor and liquid detection systems and equipped with on-site audible and visual warning devices with battery backup. Vapor detection systems shall sound an alarm when the system detects vapors that reach or exceed 25 percent of the lower explosive limit (LEL) or one-half the immediately dangerous to life and health (IDLH) concentration for the gas in the vault. Vapor detectors shall be located no higher than 12 inches (305 mm) above the lowest point in the vault for heavier-than-air gases and no lower than 12 inches (305 mm) below the highest point in the vault for lighter-than-air gases. Liquid detection systems shall sound an alarm upon detection of any liquid, including water. Liquid detectors shall be located in accordance with the manufacturers' instructions. Activation of either vapor or liquid detection systems shall cause a signal to be sounded at an *approved*, constantly attended location within the facility served by the tanks or at an *approved* location. Activation of vapor detection systems shall also shut off gas-handling equipment in the vault and dispensers.

3003.16.11 Liquid removal. Means shall be provided to recover liquid from the vault. Where a pump is used to meet this requirement, it shall not be permanently installed in the vault. Electric-powered portable pumps shall be suitable for use in Class I, Division 1 locations, as defined in *the California Electrical Code*.

3003.16.12 Relief vents. Vent pipes for equipment in the vault shall terminate at least 12 feet (3658 mm) above ground level.

3003.16.13 Accessway. Vaults shall be provided with an *approved* personnel accessway with a minimum dimension of 30 inches (762 mm) and with a permanently affixed, nonferrous ladder. Accessways shall be designed to be nonsparking. Travel distance from any point inside a vault to an accessway shall not exceed 20 feet (6096 mm). At each entry point, a warning sign indicating the need for procedures for safe entry into confined spaces shall be posted. Entry points shall be secured against unauthorized entry and vandalism.

3003.16.14 Classified area. The interior of a vault containing a flammable gas shall be designated a Class I, Division 1 location, as defined in *the California Electrical Code*.

SECTION 3004
STORAGE OF COMPRESSED GASES

3004.1 Upright storage. *Compressed gas* containers, cylinders and tanks, except those designed for use in a horizontal position, and all *compressed gas* containers, cylinders and tanks containing nonliquefied gases, shall be stored in an upright position with the valve end up. An upright position shall include conditions where the container, cylinder or tank axis is inclined as much as 45 degrees (0.80 rad) from the vertical.

Exceptions:

1. *Compressed gas* containers with a water volume less than 1.3 gallons (5 L) are allowed to be stored in a horizontal position.
2. Cylinders, containers and tanks containing nonflammable gases or cylinders, containers and tanks containing nonliquefied flammable gases, which have been secured to a pallet for transportation purposes.

3004.2 Material-specific regulations. In addition to the requirements of this section, indoor and outdoor storage of *compressed gases* shall comply with the material-specific provisions of Chapters 31, 35 and 37 through 44.

SECTION 3005
USE AND HANDLING OF COMPRESSED GASES

3005.1 Compressed gas systems. *Compressed gas* systems shall be suitable for the use intended and shall be designed by *persons* competent in such design. *Compressed gas* equipment, machinery and processes shall be *listed* or *approved*.

3005.2 Controls. *Compressed gas* system controls shall be designed to prevent materials from entering or leaving process or reaction systems at other than the intended time, rate or path. Automatic controls shall be designed to be fail safe.

3005.3 Piping systems. Piping, including tubing, valves, fittings and pressure regulators, shall comply with this section and Chapter 27. Piping, tubing, pressure regulators, valves and other apparatus shall be kept gas tight to prevent leakage.

3005.4 Valves. Valves utilized on *compressed gas* systems shall be suitable for the use intended and shall be accessible. Valve handles or operators for required shutoff valves shall not be removed or otherwise altered to prevent access.

3005.5 Venting. Venting of gases shall be directed to an *approved* location. Venting shall comply with the *California Mechanical Code*.

3005.6 Upright use. *Compressed gas* containers, cylinders and tanks, except those designed for use in a horizontal position, and all *compressed gas* containers, cylinders and tanks containing nonliquefied gases, shall be used in an upright position with the valve end up. An upright position shall include conditions where the container, cylinder or tank axis is inclined as much as 45 degrees (0.80 rad) from the vertical. Use of nonflammable liquefied gases in the inverted position when the liquid phase is used shall not be prohibited provided that the container, cylinder or tank is properly secured and the dispensing apparatus is designed for liquefied gas use.

Exception: *Compressed gas* containers, cylinders and tanks with a water volume less than 1.3 gallons (5 L) are allowed to be used in a horizontal position.

3005.7 Transfer. Transfer of gases between containers, cylinders and tanks shall be performed by qualified personnel using equipment and operating procedures in accordance with CGA P-1.

Exception: Fueling of vehicles with compressed natural gas (CNG).

3005.8 Use of compressed gas for inflation. Inflatable equipment, devices or balloons shall only be pressurized or filled with compressed air or inert gases.

3005.9 Material-specific regulations. In addition to the requirements of this section, indoor and outdoor use of *compressed gases* shall comply with the material-specific provisions of Chapters 31, 35 and 37 through 44.

3005.10 Handling. The handling of *compressed gas* containers, cylinders and tanks shall comply with Sections 3005.10.1 and 3005.10.2.

3005.10.1 Carts and trucks. Containers, cylinders and tanks shall be moved using an *approved* method. Where containers, cylinders or tanks are moved by hand cart, hand truck or other mobile device, such carts, trucks or devices shall be designed for the secure movement of containers, cylinders or tanks. Carts and trucks utilized for transport of *compressed gas* containers, cylinders and tanks within buildings shall comply with Section 2703.10. Carts and trucks utilized for transport of *compressed gas* containers, cylinders and tanks exterior to buildings shall be designed so that the containers, cylinders and tanks will be secured against dropping or otherwise striking against each other or other surfaces.

3005.10.2 Lifting devices. Ropes, chains or slings shall not be used to suspend *compressed gas* containers, cylinders and tanks unless provisions at time of manufacture have been made on the container, cylinder or tank for appropriate lifting attachments, such as lugs.

SECTION 3006
MEDICAL GAS SYSTEMS

3006.1 General. *Compressed gases* at hospitals and similar facilities intended for inhalation or sedation including, but not limited to, analgesia systems for dentistry, podiatry, veterinary and similar uses shall comply with Sections 3006.2 through 3006.4 in addition to other requirements of this chapter.

3006.2 Interior supply location. Medical gases shall be stored in areas dedicated to the storage of such gases without other storage or uses. Where containers of medical gases in quantities greater than the permit amount are located inside buildings, they shall be in a 1-hour exterior room, a 1-hour interior room or a gas cabinet in accordance with Section 3006.2.1, 3006.2.2 or 3006.2.3, respectively. Rooms or areas where medical gases are stored or used in quantities exceeding the *maximum allowable quantity per control area* as set forth in Section 2703.1 shall be in accordance with the *California Building Code* for high-hazard Group H occupancies.

3006.2.1 One-hour exterior rooms. A 1-hour exterior room shall be a room or enclosure separated from the remainder of the building by *fire barriers* with a *fire-resistance rating* of not less than 1 hour. Openings between the room or enclosure and interior spaces shall be self-closing smoke- and draft-control assemblies having a *fire protection rating* of not less than 1 hour. Rooms shall have at least one exterior wall that is provided with at least two vents. Each vent shall not be less than 36 square inches (0.023 m^2) in area. One vent shall be within 6 inches (152 mm) of the floor and one shall be within 6 inches (152 mm) of the ceiling. Rooms shall be provided with at least one automatic sprinkler to provide container cooling in case of fire.

3006.2.2 One-hour interior room. When an exterior wall cannot be provided for the room, automatic sprinklers shall be installed within the room. The room shall be exhausted through a duct to the exterior. Supply and exhaust ducts shall be enclosed in a 1-hour-rated shaft enclosure from the room to the exterior. *Approved* mechanical ventilation shall comply with the *California Mechanical Code* and be provided at a minimum rate of 1 cubic foot per minute per square foot [0.00508 $m^3/(s \cdot m^2)$] of the area of the room.

3006.2.3 Gas cabinets. Gas cabinets shall be constructed in accordance with Section 2703.8.6 and the following:

1. The average velocity of ventilation at the face of access ports or windows shall not be less than 200 feet per minute (1.02 m/s) with a minimum of 150 feet per minute (0.76 m/s) at any point of the access port or window.
2. They shall be connected to an exhaust system.
3. They shall be internally sprinklered.

3006.3 Exterior supply locations. Oxidizer medical gas systems located on the exterior of a building with quantities greater than the permit amount shall be located in accordance with Section 4004.2.1.

3006.4 Medical gas systems. Medical gas systems including, but not limited to, distribution piping, supply manifolds, connections, pressure regulators and relief devices and valves, shall comply with NFPA 99 and the general provisions of this chapter.

SECTION 3007
COMPRESSED GASES NOT OTHERWISE REGULATED

3007.1 General. *Compressed gases* in storage or use not regulated by the material-specific provisions of Chapters 6, 31, 35 and 37 through 44, including asphyxiant, irritant and radioactive gases, shall comply with this section in addition to other requirements of this chapter.

3007.2 Ventilation. Indoor storage and use areas and storage buildings shall be provided with mechanical exhaust ventilation or natural ventilation in accordance with the requirements of Section 2704.3 or 2705.1.9. When mechanical ventilation is provided, the systems shall be operational during such time as the building or space is occupied.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 31 – CORROSIVE MATERIALS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
3104.2.1			X																	

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 32 – CRYOGENIC FLUIDS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 33 – EXPLOSIVES AND FIREWORKS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
3301.1		X																		
3308.1		X																		
3308.1.1		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 34 – FLAMMABLE AND COMBUSTIBLE LIQUIDS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.15]			X																	
3404.2.1																				
3404.2.9.2.2			X																	
3406.5.1.11			X																	

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 35 – FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 36 – FLAMMABLE SOLIDS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 37 – HIGHLY TOXIC AND TOXIC MATERIALS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 38 – LIQUEFIED PETROLEUM GASES

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.22 (a)(c)]			X																	
[T-19 §3.22 (b)]			X																	

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 39 – ORGANIC PEROXIDES

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 40 – OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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room or a wall and a secure furnishing or object such as a desk.

4006.3.5 Container handling. Containers shall be handled by use of a cart or hand truck designed for such use.

Exceptions:

1. Liquid oxygen home care containers equipped with a roller base.
2. Liquid oxygen ambulatory containers are allowed to be hand carried.

4006.3.6 Filling of containers. The filling of containers shall be in accordance with Sections 4006.3.6.1 through 4006.3.6.3.

4006.3.6.1 Filling location. Liquid oxygen home care containers and ambulatory containers shall be filled outdoors.

Exception: Liquid oxygen ambulatory containers are allowed to be filled indoors where the supply container is specifically designed for filling such containers and written instructions are provided by the container manufacturer.

4006.3.6.2 Incompatible surfaces. A drip pan compatible with liquid oxygen shall be provided under home care container fill and vent connections during the filling process in order to protect against liquid oxygen spillage from coming into contact with combustible surfaces, including asphalt.

4006.3.6.3 Open flames and high-temperature devices. The use of open flames and high-temperature devices shall be in accordance with Section 2703.7.2.

4006.4 Maximum aggregate quantity. The maximum aggregate quantity of liquid oxygen allowed in storage and in use in each *dwelling unit* shall be 31.6 gallons (120 L).

Exceptions:

1. The maximum aggregate quantity of liquid oxygen allowed in Group I-4 occupancies shall be limited by the maximum allowable quantity set forth in Table 2703.1.1(1).
2. Where individual sleeping rooms are separated from the remainder of the *dwelling unit* by *fire barriers* constructed in accordance with Section 707 of the *California Building Code*, and *horizontal assemblies* constructed in accordance with Section 712 of the *California Building Code*, or both, having a minimum *fire-resistance rating* of 1 hour, the maximum aggregate quantity per *dwelling unit* shall be increased to allow a maximum of 31.6 gallons (120 L) of liquid oxygen per sleeping room.

4006.5 Smoking prohibited. Smoking shall be prohibited in rooms or areas where liquid oxygen is in use.

4006.6 Signs. Warning signs for occupancies using home health care liquid oxygen shall be in accordance with Sections 4006.6.1 and 4006.6.2.

4006.6.1 No smoking sign. A sign stating "OXYGEN—NO SMOKING" shall be posted in each room or area where liquid oxygen containers are stored, used or filled.

4006.6.2 Premises signage. Where required by the *fire code official*, each *dwelling unit* or *sleeping unit* shall have an *approved* sign indicating that the unit contains liquid oxygen home care containers.

4006.7 Fire department notification. Where required by the *fire code official*, the liquid oxygen seller shall notify the fire department of the locations of liquid oxygen home care containers.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 41 – PYROPHORIC MATERIALS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 42 – PYROXYLIN (CELLULOSE NITRATE) PLASTICS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 43 – UNSTABLE (REACTIVE) MATERIALS

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 44 – WATER-REACTIVE SOLIDS AND LIQUIDS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 45 – MARINAS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 46 – CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below		**X**																		
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
4603.6		X																		
4603.6.3		X																		
4603.6.3.1		X																		
4603.6.8 - 4603.6.8.2		X																		
4603.6.9 - 4603.6.9.10		X																		
4603.7 - 4603.7.5.3		X																		
4606		X																		

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CHAPTER 46
CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

SECTION 4601
GENERAL

4601.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code.

4601.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to *persons* occupying existing buildings by providing for *alterations* to such buildings that do not comply with the minimum requirements of the *California Building Code*.

4601.3 Permits. Permits shall be required as set forth in Section 105.7 and the *California Building Code* and this code.

4601.4 Owner notification. Where a building is found to be in noncompliance, the *fire code official* shall duly notify the *owner* of the building. Upon receipt of such notice, the *owner* shall, subject to the following time limits, take necessary actions to comply with the provisions of this chapter.

4601.4.1 Construction documents. *Construction documents* for the necessary *alterations* shall be completed within a time schedule *approved* by the *fire code official*.

4601.4.2 Completion of work. Work on the required *alterations* to the building shall be completed within a time schedule *approved* by the *fire code official*.

4601.4.3 Extension of time. The *fire code official* is authorized to grant necessary extensions of time when it can be shown that the specified time periods are not physically practical or pose an undue hardship. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of an acceptable systematic plan of correction with the *fire code official*.

SECTION 4602
DEFINITIONS

4602.1 Definition. The following word and term shall, for the purpose of this chapter and as used elsewhere in this code, have the meaning shown herein.

EXISTING. Buildings, facilities or conditions that are already in existence, constructed or officially authorized prior to the adoption of this code.

SECTION 4603
FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

4603.1 Required construction. Existing buildings shall comply with not less than the minimum provisions specified in Table 4603.1 and as further enumerated in Sections 4603.2 through 4603.7.3.

The provisions of this chapter shall not be construed to allow the elimination of *fire protection systems* or a reduction in the level of fire safety provided in buildings constructed in accordance with previously adopted codes.

Exception: Group U occupancies.

4603.2 Elevator operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3.

4603.3 Vertical openings. Interior vertical shafts, including but not limited to *stairways*, elevator hoistways, service and utility shafts, that connect two or more stories of a building, shall be enclosed or protected as specified in Sections 4603.3.1 through 4603.3.7.

4603.3.1 Group I occupancies. In Group I occupancies, interior vertical openings connecting two or more stories shall be protected with 1-hour fire-resistance-rated construction.

4603.3.2 Three to five stories. In other than Group I occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistance-rated construction or an *automatic sprinkler system* shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection for escalators shall be in accordance with Section 4603.3.5, 4603.3.6 or 4603.3.7.

4603.3.3 More than five stories. In other than Group I occupancies, interior vertical openings connecting more than five stories shall be protected by 1-hour fire-resistance-rated construction.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.
2. Vertical opening protection is not required for open parking garages and ramps.
3. Vertical opening protection for escalators shall be in accordance with Section 4603.3.5, 4603.3.6 or 4603.3.7.

TABLE 4603.1
OCCUPANCY AND USE REQUIREMENTS

	USE			OCCUPANCY CLASSIFICATION																	
SECTION	HIgh rise	Atrium and covered mall	Under-ground building	A	B	E	F	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M	R-1	R-2	R-3	R-4	S
4603.2	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
4603.3.1	R	—	R	—	—	—	—	—	—	—	—	—	R	R	R	R	—	—	—	—	—	—
4603.3.2	R	—	R	R	R	R	R	R	R	R	R	R	—	—	—	—	R	R	R	—	R	R
4603.3.3	R	—	R	R	R	R	R	R	R	R	R	R	—	—	—	—	R	R	R	—	R	R
4603.3.4	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4603.3.5	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—
4603.3.6	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R
4603.3.7	—	—	—	R	—	R	R	R	R	R	R	R	R	R	R	R	—	R	R	R	R	R
4603.4	—	—	—	R	—	—	R	—	R	R	—	—	—	R	—	—	R	—	—	—	—	—
4603.5	R	—	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	—	R	R
4603.6.1	—	—	—	—	—	R	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4603.6.2	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—	—	—
4603.6.3	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—	—
4603.6.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—	—	—	—
4603.6.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—	—
4603.6.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—	—	—
4603.6.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	—
4603.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	R	R	R	R	—
4604.4	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R

R = The building is required to comply.

Group R-4 residential care/assisted living facilities in accordance with Section 907.2.10.

Exceptions:

1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.11 and there is at least one manual fire alarm box per floor arranged to continuously sound the smoke alarms.
2. Other manually activated, continuously sounding alarms *approved* by the *fire code official*.

4603.6.8 Existing Group R 1 and Group R 2 High-rise. *Notwithstanding the provisions of Section 3412.23 of the California Building Code, every existing high-rise building used for the housing of a Group R-1 or Group R-2 Occupancies shall have installed therein a fire alarm system conforming to this subsection.*

4603.6.8.1 General. *Every apartment house and every hotel shall have installed therein an automatic or manually operated fire alarm system. Such fire alarm systems shall be so designed that all occupants of the building may be warned simultaneously.*

4603.6.8.2 Installation. *The installation of all fire alarm equipment shall be in accordance with this Code.*

4603.6.9 Existing high-rise buildings.

4603.6.9.1 Fire alarm system. *Every existing high-rise building shall be provided with an approved fire alarm system. In department stores, retail sales stores and similar occupancies where the general public is admitted, such systems shall be of a type capable of alerting staff and employees. In office buildings and all other high-rise buildings, such systems shall be of a type capable of alerting all occupants simultaneously.*

Exceptions:

1. *In areas of public assemblage, the type and location of audible appliances shall be as determined by the enforcing agency.*
2. *When acceptable to the enforcing agency, the occupant voice notification system required by California Building Code Section 3412.21 may be used in lieu of the fire alarm system.*

4603.6.9.2 Existing systems. *Existing fire alarm systems, when acceptable to the enforcing agency, shall be deemed as conforming to the provisions of these regulations.*

4603.6.9.3 Annunciation. *When a new fire alarm system is installed, it shall be connected to an annunciator panel installed in a location approved by the enforcing agency.*

For purposes of annunciation, zoning shall be in accordance with Section 907.7.3.1.

4603.6.9.4 Monitoring. *Shall be in accordance with section 907.7.5.*

4603.6.9.5 Systems Interconnection. *When an automatic fire detection system or automatic extinguishing system is installed, activation of such system shall cause the sounding of the fire alarm notification appliances at locations designated by the enforcing agency.*

4603.6.9.6 Manual fire alarm boxes. *A manual fire alarm box shall be provided in the locations designated by the enforcing agency. Such locations shall be where boxes are readily accessible and visible and in normal paths of daily travel by occupants of the building.*

4603.6.9.7 Emergency voice/alarm communication system. *An approved emergency voice/alarm commutation system shall be provided in every existing high-rise building which exceeds 150 feet (45720 mm) in height measured in the manner set forth in Section 403 of the California Building Code. Such system shall provide communication from a location available to and designated by the enforcing agency to not less than all public areas.*

The emergency voice/alarm commutation system may be combined with a fire alarm system provide the combined system has been approved and listed by the State Fire Marshal. The sounding of a fire alarm signal in any given area or floor shall not prohibit voice communication to other areas of floors. Combination systems shall be designed to permit voice transmission to override the fire alarm signal, but the fire alarm signal shall not terminate in less than three minutes.

4603.6.9.8 Fire department system. *When it is determined by test that portable fire department communication equipment is ineffective, a communication system acceptable to the enforcing agency shall be installed within the building to permit emergency communication between fire-suppression personnel.*

4603.6.9.9 Smoke control systems. *Existing air-circulation systems shall be provided with an override switch in a location approved by the enforcing agency which will allow for the manual control of shutdown of the systems.*

Exception: *Systems which serve only a single floor, or portion thereof, without any penetration by ducts or other means into adjacent floors.*

4603.6.9.10 Elevator recall smoke detection. *Smoke detection for emergency operation of elevators shall be provided in accordance with Section 907.4.3.*

4603.7 Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be installed in existing Group R occupancies and in *dwellings* not classified as Group R occupancies in accordance with Sections 4603.7.1 through 4603.7.3.

4603.7.1 Where required. Existing Group R *and Group I-1* occupancies and *dwellings* not classified as Group R occupancies not already provided with single-station smoke alarms shall be provided with single-station smoke alarms. Installation shall be in accordance with Section 907.2.11, except as provided in Sections 4603.7.2 and 4603.7.3.

Exception: *See Section 4603.7.5.*

4603.7.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual *dwelling* or *sleeping unit,* the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm

shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

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

4603.7.3 Power source. Single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exceptions:

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

4603.7.4 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 panel, or be electrically supervised or provided with emergency power.*

4603.7.5 Additional provisions for existing Group R occupancies.

4603.7.5.1 *Existing Buildings housing Group R Occupancies established prior to the effective date of these regulations may have their use continued if they conform or are made to conform to provisions of these regulations to the extent that reasonable and adequate life safety against the hazards of fire, panic and explosion is substantially provided. Additional means of egress, the installation of automatic sprinkler systems, automatic fire alarm system or other life safety measures, may be required to provide reasonable and adequate safety.*

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

4603.7.5.2 *For purposes of clarification, Health and Safety Code section 13113.7 is repeated.*

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

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

(2) For all other dwelling units intended for human occupancy on or after January 1, 1987.

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

fied in the rule, regulation, or ordinance shall, but only with respect to the dwelling units specified in this section, take precedence over the dates specified in this section.

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

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

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

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

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

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

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

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

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

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

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

4603.7.5.3 *For purposes of clarification, Health and Safety Code section 13113.8 is repeated.*

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

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

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

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

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

(2) Transfers pursuant to court order, including, but not limited to, transfers ordered by a probate court in the administration of an estate, transfers pursuant to a writ of execution, transfers by a trustee in bankruptcy, transfers by eminent

domain, or transfers resulting from a decree for specific performance.

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

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

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

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

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

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

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

(e) No liability shall arise, nor any action be brought or maintained against, any agent of any party to a transfer of title, including any person or entity acting in the capacity of an escrow, for any error, inaccuracy, or omission relating to the disclosure required to be made by a transferor pursuant to this section.

However, this subdivision does not apply to a licensee, as defined in Section 10011 of the Business and Professions Code, where the licensee participates in the making of the disclosure required to be made pursuant to this section with actual knowledge of the falsity of the disclosure.

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

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

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

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

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

SECTION 4604
MEANS OF EGRESS FOR EXISTING BUILDINGS

4604.1 General. *Means of egress* in existing buildings shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.23, and the building code that applied at the time of construction. Where the provisions conflict, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements when specified in Table 4603.1 as further enumerated in Sections 4604.2 through 4604.23 and, in addition, shall have a life safety evaluation prepared, consistent with the requirements of Section 104.7.2. The life safety evaluation shall identify any changes to the *means of egress* that are necessary to provide safe egress to occupants and shall be subject to review and approval by the *fire code official*. The building shall be modified to comply with the recommendations set forth in the *approved* evaluation.

4604.2 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required *means of egress*.

Exceptions:

1. Elevators used as an *accessible means of egress* where allowed by Section 1007.4.
2. Previously *approved* escalators and moving walks in existing buildings.

4604.3 Exit sign illumination. *Exit* signs shall be internally or externally illuminated. The face of an *exit* sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux). Internally illuminated signs shall provide equivalent luminance and be *listed* for the purpose.

Exception: *Approved* self-luminous signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/m^2).

4604.4 Power source. Where emergency illumination is required in Section 4604.5, *exit* signs shall be visible under emergency illumination conditions.

Exception: *Approved* signs that provide continuous illumination independent of external power sources are not required to be connected to an emergency electrical system.

4604.5 Illumination emergency power. The power supply for *means of egress* illumination shall normally be provided by the premises' electrical supply. In the event of power supply failure, illumination shall be automatically provided from an emergency system for the following occupancies where such occupancies require two or more *means of egress*:

1. Group A having 50 or more occupants.

   Exception: Assembly occupancies used exclusively as a place of worship and having an *occupant load* of less than 300.

2. Group B buildings three or more stories in height, buildings with 100 or more occupants above or below a *level of exit discharge* serving the occupants or buildings with 1,000 or more total occupants.

3. Group E in interior stairs, *corridors*, windowless areas with student occupancy, shops and laboratories.

4. Group F having more than 100 occupants.

   Exception: Buildings used only during daylight hours which are provided with windows for natural light in accordance with the *California Building Code*.

5. Group I.

6. Group M.

   Exception: Buildings less than 3,000 square feet (279 m^2) in gross sales area on one story only, excluding mezzanines.

7. Group R-1.

   Exception: Where each *sleeping unit* has direct access to the outside of the building at grade.

8. Group R-2.

   Exception: Where each *dwelling unit* or *sleeping unit* has direct access to the outside of the building at grade.

9. Group R-4.

   Exception: Where each *sleeping unit* has direct access to the outside of the building at ground level.

4604.5.1 Emergency power duration and installation. In other than Group I-2, the emergency power system shall provide power for not less than 60 minutes and consist of storage batteries, unit equipment or an on-site generator. In Group I-2, the emergency power system shall provide power for not less than 90 minutes and consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Section 604.

4604.6 Guards. Guards complying with this section shall be provided at the open sides of *means of egress* that are more than 30 inches (762 mm) above the floor or grade below.

4604.6.1 Height of guards. Guards shall form a protective barrier not less than 42 inches (1067 mm) high.

Exceptions:

1. Existing guards on the open side of stairs shall be not less than 30 inches (760 mm) high.
2. Existing guards within *dwelling units* shall be not less than 36 inches (910 mm) high.
3. Existing guards in assembly seating areas.

4604.6.2 Opening limitations. Open guards shall have balusters or ornamental patterns such that a 6-inch-diameter (152 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm).

Exceptions:

1. At elevated walking surfaces for access to, and use of, electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.
2. In occupancies in Group I-3, F, H or S, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21 inches (533 mm).
3. *Approved* existing open guards.

4604.7 Minimum required egress width. The means of egress width shall not be less than as required by the code under which constructed but not less than as required by this section. 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 the factors in Table 4604.7 and not less than specified elsewhere in this section. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

TABLE 4604.7
EGRESS WIDTH PER OCCUPANT SERVED

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM[a]	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.2	0.15
Hazardous: H-1, H-2, H-3 and H-4	Not permitted	Not permitted	0.3	0.2
Institutional: I-2	Not permitted	Not permitted	0.3	0.2

For SI: 1 inch = 25.4 mm.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.

4604.8 Size of doors. The minimum width of each door opening shall be sufficient for the *occupant load* thereof and shall provide a clear width of not less than 28 inches (711 mm). Where this section requires a minimum clear width of 28 inches (711 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 28 inches (711 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. *Means of egress* doors in an occupancy in Group I-2 used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). The height of doors shall not be less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required *means of egress* in occupancies in Groups R-2 and R-3.
2. Door openings to storage closets less than 10 square feet (0.93 m^2) in area shall not be limited by the minimum width.
3. Width of door leafs in revolving doors that comply with Section 1008.1.4.1 shall not be limited.
4. Door openings within a *dwelling unit* shall not be less than 78 inches (1981 mm) in height.
5. Exterior door openings in *dwelling units*, other than the required *exit* door, shall not be less than 76 inches (1930 mm) in height.
6. *Exit access* doors serving a room not larger than 70 square feet (6.5 m^2) shall be not less than 24 inches (610 mm) in door width.

4604.9 Opening force for doors. The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a force of not more than 15 pounds (66 N). The door shall be set in motion when subjected to a force not exceeding 30 pounds (133 N). The door shall swing to a full-open position when subjected to a force of not more than 50 pounds (222 N). Forces shall be applied to the latch side.

4604.10 Revolving doors. Revolving doors shall comply with the following:

1. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.
2. The revolutions per minute for a revolving door shall not exceed those shown in Table 4604.10.
3. Each revolving door shall have a conforming side-hinged swinging door in the same wall as the revolving door and within 10 feet (3048 mm).

Exceptions:

1. A revolving door is permitted to be used without an adjacent swinging door for street-floor elevator lobbies provided a stairway, escalator or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between elevators and a street.
2. Existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 20 feet (6096 mm).

TABLE 4604.10
REVOLVING DOOR SPEEDS

INSIDE DIAMETER	POWER-DRIVEN-TYPE SPEED CONTROL(RPM)	MANUAL-TYPE SPEED CONTROL (RPM)
6′ 6″	11	12
7′ 0″	10	11
7′ 6″	9	11
8′ 0″	9	10
8′ 6″	8	9
9′ 0″	8	9
9′ 6″	7	8
10′ 0″	7	8

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

4604.10.1 Egress component. A revolving door used as a component of a *means of egress* shall comply with Section 4604.10 and all of the following conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
2. Each revolving door shall be credited with not more than a 50-person capacity.
3. Revolving doors shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

4604.11 Stair dimensions for existing stairs. Existing stairs in buildings shall be permitted to remain if the rise does not exceed $8^1/_4$ inches (210 mm) and the run is not less than 9 inches (229 mm). Existing stairs can be rebuilt.

Exception: Other stairs *approved* by the *fire code official*.

4604.11.1 Dimensions for replacement stairs. The replacement of an existing *stairway* in a structure shall not be required to comply with the new *stairway* requirements of Section 1009 where the existing space and construction will not allow a reduction in pitch or slope.

4604.12 Winders. Existing winders shall be allowed to remain in use if they have a minimum tread depth of 6 inches (152 mm) and a minimum tread depth of 9 inches (229 mm) at a point 12 inches (305 mm) from the narrowest edge.

4604.13 Circular stairways. Existing circular stairs shall be allowed to continue in use provided the minimum depth of tread is 10 inches (254 mm) and the smallest radius shall not be less than twice the width of the *stairway.*

4604.14 Stairway handrails. *Stairways* shall have handrails on at least one side. Handrails shall be located so that all portions of the *stairway* width required for egress capacity are within 44 inches (1118 mm) of a handrail.

Exception: *Aisle* stairs provided with a center handrail are not required to have additional handrails.

4604.1.4.1 Height. Handrail height, measured above stair tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 42 inches (1067 mm).

4604.15 Slope of ramps. Ramp runs utilized as part of a *means of egress* shall have a running slope not steeper than one unit vertical in 10 units horizontal (10-percent slope). The slope of other ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

4604.16 Width of ramps. Existing ramps are permitted to have a minimum width of 30 inches (762 mm) but not less than the width required for the number of occupants served as determined by Section 1005.1.

4604.17 Fire escape stairs. Fire escape stairs shall comply with Sections 4604.17.1 through 4604.17.7.

4604.17.1 Existing means of egress. Fire escape stairs shall be permitted in existing buildings but shall not constitute more than 50 percent of the required *exit* capacity.

4604.17.2 Protection of openings. Openings within 10 feet (3048 mm) of fire escape stairs shall be protected by fire door assemblies having a minimum $^3/_4$-hour *fire-resistance rating*.

Exception: In buildings equipped throughout with an *approved automatic sprinkler system*, opening protection is not required.

4604.17.3 Dimensions. Fire escape stairs shall meet the minimum width, capacity, riser height and tread depth as specified in Section 4604.11.

4604.17.4 Access. Access to a fire escape from a *corridor* shall not be through an intervening room. Access to a fire escape stair shall be from a door or window meeting the criteria of Section 1005.1. Access to a fire escape stair shall be directly to a balcony, landing or platform. These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.

4604.17.5 Materials and strength. Components of fire escape stairs shall be constructed of noncombustible materials. Fire escape stairs and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m^2). Fire escape stairs and balconies shall be provided with a top and intermediate handrail on each side. The *fire code official* is authorized to require testing or other satisfactory evidence that an existing fire escape stair meets the requirements of this section.

4604.17.6 Termination. The lowest balcony shall not be more than 18 feet (5486 mm) from the ground. Fire escape stairs shall extend to the ground or be provided with counterbalanced stairs reaching the ground.

Exception: For fire escape stairs serving 10 or fewer occupants, an *approved* fire escape ladder is allowed to serve as the termination.

4604.17.7 Maintenance. Fire escapes shall be kept clear and unobstructed at all times and shall be maintained in good working order.

4604.18 Corridors. *Corridors* serving an *occupant load* greater than 30 and the openings therein shall provide an effective barrier to resist the movement of smoke. Transoms, louvers, doors and other openings shall be kept closed or self-closing.

Exceptions:

1. *Corridors* in occupancies other than in Group H, which are equipped throughout with an *approved automatic sprinkler system*.
2. Patient room doors in *corridors* in occupancies in Group I-2 where *smoke barriers* are provided in accordance with the *California Building Code*.
3. *Corridors* in occupancies in Group E where each room utilized for instruction or assembly has at least one-half of the required *means of egress* doors opening directly to the exterior of the building at ground level.
4. *Corridors* that are in accordance with the *California Building Code*.

4604.18.1 Corridor openings. Openings in *corridor* walls shall comply with the requirements of the *California Building Code*.

Exceptions:

1. Where 20-minute fire door assemblies are required, solid wood doors at least 1.75 inches (44 mm) thick or insulated steel doors are allowed.
2. Openings protected with fixed wire glass set in steel frames.
3. Openings covered with 0.5-inch (12.7 mm) gypsum wallboard or 0.75-inch (19.1 mm) plywood on the room side.
4. Opening protection is not required when the building is equipped throughout with an *approved automatic sprinkler system*.

4604.18.2 Dead ends. Where more than one *exit* or *exit access* doorway is required, the *exit access* shall be arranged such that dead ends do not exceed the limits specified in Table 4604.18.2.

Exception: A dead-end passageway or *corridor* shall not be limited in length where the length of the dead-end passageway or *corridor* is less than 2.5 times the least width of the dead-end passageway or *corridor.*

4604.18.3 Exit access travel distance. *Exits* shall be located so that the maximum length of *exit access* travel, measured from the most remote point to an *approved exit* along the natural and unobstructed path of egress travel, does not exceed the distances given in Table 4604.18.2.

TABLE 4604.18.2
COMMON PATH, DEAD-END AND TRAVEL DISTANCE LIMITS (by occupancy)

OCCUPANCY	COMMON PATH LIMIT		DEAD-END LIMIT		TRAVEL DISTANCE LIMIT	
	Unsprinklered (feet)	Sprinklered (feet)	Unsprinklered (feet)	Sprinklered feet)	Unsprinklered (feet)	Sprinklered (feet)
Group A	20/75[a]	20/75[a]	20[b]	20[b]	200	250
Group B	75	100	50	50	200	250
Group E	75	75	20	50	200	250
Group F-1, S-1[d]	75	100	50	50	200	250
Group F-2, S-2[d]	75	100	50	50	300	400
Group H-1	25	25	0	0	75	75
Group H-2	50	100	0	0	75	100
Group H-3	50	100	20	20	100	150
Group H-4	75	75	20	20	150	175
Group H-5	75	75	20	20	150	200
Group I-1	75	75	20	50	200	250
Group I-2 (Health Care)	NR[e]	NR[e]	NR	NR	150	200[c]
Group I-3 (Detention and Correctional—Use Conditions II, III, IV, V)	100	100	NR	NR	150[c]	200[c]
Group I-4 (Day Care Centers)	NR	NR	20	20	200	250
Group M (Covered Mall)	75	100	50	50	200	400
Group M (Mercantile)	75	100	50	50	200	250
Group R-1 (Hotels)	75	75	50	50	200	250
Group R-2 (Apartments)	75	75	50	50	200	250
Group R-3 (One- and Two- Family)	NR	NR	NR	NR	NR	NR
Group R-4 (Residential Care/Assisted Living)	NR	NR	NR	NR	NR	NR
Group U	75	75	20	50	200	250

For SI: 1 foot = 304.8 mm.

a. 20 feet for common path serving 50 or more persons; 75 feet for common path serving less than 50 persons.

b. See Section 1028.9.5 for dead-end aisles in Group A occupancies.

c. This dimension is for the total travel distance, assuming incremental portions have fully utilized their allowable maximums. For travel distance within the room, and from the room exit access door to the exit, see the appropriate occupancy chapter.

d. See the *California Building Code* for special requirements on spacing of doors in aircraft hangars.

e. Any patient sleeping room, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (93 m^2) shall have at least two exit access doors placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the patient sleeping room or suite to be served, measured in a straight line between exit access doors.

NR = No requirements.

4604.18.4 Common path of egress travel. The *common path of egress travel* shall not exceed the distances given in Table 4604.18.2.

4604.19 Stairway discharge identification. A *stairway* in an *exit* enclosure which continues below its *level of exit discharge* shall be arranged and marked to make the direction of egress to a *public way* readily identifiable.

Exception: Stairs that continue one-half story beyond their *levels of exit discharge* need not be provided with barriers where the *exit discharge* is obvious.

4604.20 Exterior stairway protection. Exterior *exit* stairs shall be separated from the interior of the building as required in Section 1026.6. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for buildings that are two stories or less above grade where the *level of exit discharge* serving such occupancies is the first story above grade.
2. Separation from the interior of the building is not required where the exterior *stairway* is served by an exterior balcony that connects two remote exterior *stairways* or other *approved exits*, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the opening not less than 7 feet (2134 mm) above the top of the balcony.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER 47 – REFERENCED STANDARDS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
ASME BPE-2009		X																		
FM3260-00		X																		
FM3011-99		X																		
FM4430-80		X																		
ICC ES AC 331		X																		
ICC ES AC 77		X																		
NFPA 13-10		X																		
NFPA 13D-10		X																		
NFPA 13R-10		X																		
NFPA 14-07		X																		
NFPA 24-10		X																		
NFPA 32-07		X																		
NFPA 37-06		X																		
NFPA 54-09		X																		
NFPA 59A-06		X																		
NFPA 72-10		X																		
NFPA 92a-09		X																		
NFPA 2001-08		X																		
SFM 12-3		X																		
SFM 12-7-3		X																		
SFM 12-7A-1		X																		
SFM 12-7A-2		X																		
SFM 12-7A-3		X																		
SFM 12-7A-4		X																		
SFM 12-7A-4A		X																		
SFM 12-7A-5		X																		
SFM 12-8-100		X																		
SFM 12-10-1		X																		
SFM 12-10-2		X																		
SFM 12-10-3		X																		

continued

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
UL 13-96		X																		
UL 38-99		X																		
UL 193-04		X																		
UL 199-95		X																		
UL 217-06		X																		
UL 228-97		X																		
UL 260-04		X																		
UL 262-04		X																		
UL 268A-98		X																		
UL 312-04		X																		
UL 346-05		X																		
UL 464-03		X																		
UL 497B-04		X																		
UL 521-99		X																		
UL 539-00		X																		
UL 632-00		X																		
UL 753-04		X																		
UL 813-96		X																		
UL 864-03		X																		

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CHAPTER 47
REFERENCED STANDARDS

This chapter lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in Section 102.7.

AASHTO

American Association of State Highway and Transportation Officials
444 North Capitol Street, Northwest, #249
Washington, DC 20001

Standard reference number	Title	Referenced in code section number
HB-17—2002	Specification for Highway Bridges, 17th Edition 2002	503.2.6

AFSI

Architectural Fabric Structures Institute
c/o Industrial Fabric Association International
1801 County Road B West
Roseville, MN 55113

Standard reference number	Title	Referenced in code section number
ASI—77	Design and Standard Manual	2403.10.2

API

American Petroleum Institute
1220 L Street, Northwest
Washington, DC 20005

Standard reference number	Title	Referenced in code section number
Spec 12P—(1995) (Reaffirmed 2000)	Specification for Fiberglass Reinforced Plastic Tanks	3404.2.13.1.5
RP 651—(1997)	Cathodic Protection of Aboveground Petroleum Storage Tanks	3406.7, 3406.7.1
Std 653—(2001)	Tank Inspection, Repair, Alteration and Reconstruction	3406.7
RP 752—(2003)	Management of Hazards Associated with Location of Process Plant Buildings, CMA Managers Guide	3406.7
RP 1604—(1996)	Closure of Underground Petroleum Storage Tanks	3404.2.13
RP 1615—(1996)	Installation of Underground-petroleum Storage Systems	3404.2.13.1.5, 3406.7
Std 2000—(1998)	Venting Atmosphere and Low-pressure Storage Tanks: Nonrefrigerated and Refrigerated	3404.2.7.3.6
RP 2001—(2005)	Fire Protection in Refineries, 8th Edition	3406.7
RP 2003—(1998)	Protection Against Ignitions Arising out of Static, Lightning and Stray Currents	3406.7
Publ 2009—(2002)	Safe Welding and Cutting Practices in Refineries, Gas Plants and Petrochemical Plants	3406.7
Std 2015—(2001)	Safe Entry and Clearing of Petroleum Storage Tanks	3406.7, 3406.7.2
RP 2023—(2001)	Guide for Safe Storage and Handling of Heated Petroleum-derived Asphalt Products and Crude-oil Residue	3406.7, 3406.7.3
Publ 2028—(2002)	Flame Arrestors in Piping Systems	3404.2.7.3.2
Publ 2201—(2003)	Procedures for Welding or Hot Tapping on Equipment in Service	3406.7
RP 2350—(2005)	Overfill Protection for Storage Tanks in Petroleum Facilities, 3rd Edition	3404.2.7.5.8, 3406.4.6, 3406.7

ASME

The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Standard reference number	Title	Referenced in code section number
A13.1—96 (Reaffirmed 2002)	Scheme for the Identification of Piping Systems	2609.3, 2703.2.2.1, 3003.4.3, 3203.4.5, 3403.5.2

ASME—continued

A17.3—2005	Safety Code for Existing Elevators	4603.2
A18.1—2005	Safety Standard for Platform Lifts and Stairway Chair Lifts	604.2.6
B16.18—2001 (Reaffirmed 2005)	Cast Copper Alloy Solder Joint Pressure Fittings	909.13.1
B16.22—2001 (Reaffirmed 2005)	Wrought Copper and Copper Alloy Solder-joint Pressure Fittings	909.13.1
B31.1—2004	Power Piping	Table 3403.6.2
B31.3—2004	Process Piping	2209.5.4.3.1, 2703.2.2.2, Table 3403.6.2
B31.4—2006	Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids	Table 3403.6.2
B31.9—2004	Building Services Piping	Table 3403.6.2, 3403.6.3, 3403.6.11
BPE—2009	*Bio-processing Equipment Standard*	
BPVC—2004	ASME Boiler and Pressure Vessel Code (Sections I, II, IV, V & VI, VIII)	2209.5.4.2, 2703.2.1, 3003.2, 3003.3.2, 3203.4.3, 3203.7, 3404.2.13.1.5, 3506.3.1, 3506.4.1, 3506.4.8

ASTM

ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959

Standard reference number	Title	Referenced in code section number
B 42—02e01	Specification for Seamless Copper Pipe, Standard Sizes	909.13.1
B 43—98(2004)	Specification for Seamless Red Brass Pipe, Standard Sizes	909.13.1
B 68—02	Specification for Seamless Copper Tube, Bright Annealed	909.13.1
B 88—03	Specification for Seamless Copper Water Tube	909.13.1
B 251—02e01	Specification for General Requirements for Wrought Seamless Copper and Copper-alloy Tube	909.13.1
B 280—03	Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	909.13.1
D 56—05	Test Method for Flash Point by Tag Closed Tester	3402.1
D 86—07a	Test Method for Distillation of Petroleum Products at Atmospheric Pressure	2702.1
D 92—05a	Test Method for Flash and Fire Points by Cleveland Open Cup	1501.2, 3401.2, 3402.1
D 93—07	Test Method for Flash Point by Pensky-Martens Closed Up Tester	3402.1
D 323—06	Test Method for Vapor Pressure of Petroleum Products (Reid Method)	2702.1
D 3278—(2004)e01	Test Methods for Flash Point of Liquids by Small Scale Closed-cup Apparatus	3402.1
E 84—07	Test Method for Surface Burning Characteristics of Building Materials	802.1, 803.1, 803.1.1, 803.1.2, 803.5.1, 803.6.2, 803.9, 804.1, 804.1.1, 804.2.4
E 681—04	Test Method for Concentration Limits of Flammability of Chemicals (Vapors and Gases)	3502.1
E 1354—04a	Standard Test Method for Heat and Visible Smoke Release Rates forMaterials and Products Using an Oxygen Consumption Calorimeter	304.3.2, 304.3.4, 317.1, 808.1
E 1529—06	Test Method for Determining Effects of Large Hydrocarbon Pool Fires on Structural Members and Assemblies	3404.2.9.2.3
E 1537—07	Test Method for Fire Testing of Upholstered Furniture	805.1.1.2, 805.2.1.2, 805.3.1.2, 805.4.1.2
E 1590—07	Test Method for Fire Testing of Mattresses	805.1.2.2, 805.2.2.2, 805.3.2.2, 805.4.2.2
E 1966—01	Test Method for Fire-resistant Joint Systems	702.1
E 2072—04	Standard Specification for Pholuminescent (Phosphorescent) Safety Markings	1024.4
E 2404—07a	Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics	803.6.2
E 2573—07	Standard Practice for Specimen Preparation and Mounting of Site-fabricated Stretch Systems to Assess Surface Burning Characteristics	803.9
F 2200—05	Standard Specification for Automated Vehicular Gate Construction	503.5, 503.6, D103.5

BHMA

Builders Hardware Manufacturers' Association
355 Lexington Avenue, 17th Floor
New York, NY 10017-6603

Standard reference number	Title	Referenced in code section number
A156.10—05	American National Standard for Power-operated Pedestrian Doors	1008.1.4.2
A156.19—02	American National Standard for Power Assist and Low-energy Power-operated Doors	1008.1.4.2

EPA

Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Standard reference number	Title	Referenced in code section number
40 CFR Part 355—2008	Emergency Planning and Notification	H101.4

FCC

Federal Communications Commission
Wireless Telecommunications Bureau (WTB)
445 12th Street, SW
Washington, DC 20554

Standard reference number	Title	Referenced in code section number
47 CFR Part 90.219—2007	Private Land Mobile Radio Services—Use of Signal Boosters	J103.2.5

FM

Factory Mutual
Standards Laboratories Department
1151 Boston-Providence Turnpike
Norwood, MA 02062

Standard reference number	Title	Referenced in code section number
3260—00	*Radiant Energy-Sensing Fire Detectors for Automatic Fire Alarm Signaling*	
3011—99	*Approval Standard for Central Station Service for Fire Alarm and Protective Equipment Supervision*	*907.7.5.2*
4430—80	*Acceptance Criteria for Smoke and Heat Vents*	*910.3.1*

ICC

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

Standard reference number	Title	Referenced in code section number
ICC 300—07	Standard on Bleachers, Folding and Telescopic Seating and Grandstands	1028.1.1
ICC ES AC 331	*Acceptance Criteria for Smoke and Heat Vents*	*910.3.1*
ICC ES AC 77	*Acceptance Criteria for Smoke Containment Systems Used with Fire-resistance-rated Elevator Hoistway Doors and Frames*	*707.14.1*
IWUIC—09	International Wildland-Urban Interface Code®	B103.3

ISO

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

Standard reference number	Title	Referenced in code section number
ISO 8115—86	Cotton Bales—Dimensions and Density	Table 1804.2.2.1, Table 2703.1.1(1)

NEMA

National Electrical Manufacturer's Association
1300 N. 17th Street, Suite 1752
Rosslyn, VA 22209

Standard reference number	Title	Referenced in code section number
250—2003	Enclosures for Electrical Equipment (1,000 Volt Maximum)	3705.2

NFPA

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

Standard reference number	Title	Referenced in code section number
10—07	Portable Fire Extinguishers	Table 901.6.1, 906.2, 906.3, Table 906.3(1), Table 906.3(2), 906.3.2, 906.3.4, 2106.3, I101.1
11—05	Low-, Medium- and High-expansion Foam	904.7, 3404.2.9.2.2
12—05	Carbon Dioxide Extinguishing Systems	Table 901.6.1, 904.8, 904.11
12A—04	Halon 1301 Fire Extinguishing Systems	Table 901.6.1, 904.9
13—*10*	Installation of Sprinkler Systems *as amended**	903.3.1.1, 903.3.2, 903.3.5.1.1, 903.3.5.2, 904.11, 905.3.4, 907.7.3, 2301.1, 2304.2, Table 2306.2, 2306.9, 2307.2, 2307.2.1, 2308.2.2, 2308.2.2.1, 2308.4, 2310.1, 2501.1, 2804.1, 2806.5.7, 3404.3.3.9, Table 3404.3.6.3(7), 3404.3.7.5.1, 3404.3.8.4

NFPA 13, Amended Sections as follows:
Revise Section 2.2 and add publications as follows:
2.2 NFPA Publications.

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems, 2006 California* edition.

Add a new definition as 3.4.1.1 to read as follows:

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

Revise 7.6.1.5 to read as follows:

7.6.1.5 A placard shall be placed on the antifreeze system main valve that indicates the manufacture type and brand of the antifreeze solution, the concentration by volume of the antifreeze solution used, and the volume of the antifreeze solution used in the system.

Revise 7.6.2.1 to read as follows:

7.6.2.1* Antifreeze solutions shall be limited to premixed antifreeze solutions of glycerin (chemically pure or United States Pharmacopoeia 96.5 percent) at a maximum concentration of 50 percent by volume, or propylene glycol at a maximum concentration of 40 percent by volume.

Add a new 7.6.2.1.1 to read:

7.6.2.1.1 Premixed antifreeze solutions of propylene glycol exceeding 40 percent concentration by volume shall be permitted for use with ESFR sprinklers where the ESFR sprinklers are listed for such use in a specific application.

Add new 7.6.2.1.2 to read as follows:

7.6.2.1.2 Premixed antifreeze solutions other than those described in 7.6.2.1 that are listed for use in sprinkler systems shall be permitted to be used.

Add a new 7.6.2.1.3 to read as follows:

7.6.2.1.3 All premixed antifreeze solutions shall be provided with a certificate from the manufacturer indicating the type of antifreeze, concentration by volume, and freezing point.

Delete current Table 7.6.2.2 and replace it with the following table in the annex renumbered as Table A.7.6.2.1

A.7.6.2.1 See Table A.7.6.2.1.

TABLE A.7.6.2.1 PROPERTIES OF GLYCERIN AND PROPYLENE GLYCOL

MATERIAL	SOLUTION (by volume)	SPECIFIC GRAVITY AT 77°F (25°C)	FREEZING POINT	
			°F	°C
Glycerin (C.P. or U.S.P. grade)	0%	1.000	32	0
	5	1.014	31	-0.5
	10	1.029	28	-2.2
	15	1.043	25	-3.9
	20	1.059	20	-6.7
	25	1.071	16	-8.9
	30	1.087	10	-12
	35	1.100	4	-15.5
	40	1.114	-2	-19
	45	1.130	-11	-24
	50%	1.141	-19	-28
Propylene glycol	0%	1.000	32	0
	5	1.004	26	-3
	10	1.008	25	-4
	15	1.012	22	-6
	20	1.016	19	-7
	25	1.020	15	-10
	30	1.024	11	-12
	35	1.028	2	-17
	40%	1.032	-6	-21

C.P.: Chemically Pure; U.S.P.: United States Pharmacopoeia 96.5%.

NFPA—continued

Delete 7.6.2.3 and Table 7.6.2.3.

Revise 7.6.2.4 to read as follows:

7.6.2.4 A premix antifreeze solution with a freezing point below the expected minimum temperature for the locality shall be provided.

Delete existing 7.6.2.5 as well as the Figures 7.6.2.5(a), 7.6.2.5(b), and 7.6.2.5(c) and Annex A.7.6.2.5.

Delete 7.6.2.6.

Add an asterisk to Section 7.6 and a new Annex A.7.6 to read as follows:

A.7.6 In cold climates and areas where the potential for freezing of pipes is a concern, options other than antifreeze are available. Such options include installing the pipe in warm spaces, tenting insulation over the piping (as illustrated in NFPA 13D), listed heat tracing, and the use of dry pipe systems and preaction systems.

In A.7.6.2, delete the second paragraph.

A.7.6.2 Listed CPVC sprinkler pipe and fittings should be protected from freezing with glycerine only. The use of diethylene, ethylene, or propylene glycols is specifically prohibited. Laboratory testing shows that glycol-based antifreeze solutions present a chemical environment detrimental to CPVC.

Delete existing A.7.6.2.4 and Figure A.7.6.2.4.

Revise Section 8.15.1.2.15 as follows:

8.15.1.2.15 Exterior columns under 10 ft^2 (0.93 m^2) in total area, formed by studs or wood joist, with no sources of ignition within the column, supporting exterior canopies that are fully protected with a sprinkler system, shall not require sprinkler protection.

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

Revise Section 8.15.7.1* as follows:

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

Revise Section 8.15.7.2* as follows:

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

Delete Section A.8.15.7.2 of Annex

Revise Section 8.15.7.3

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

(1) Combustible concealed spaces filled entirely with noncombustible insulation

(2) Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists so as to create enclosed joist spaces 160 ft^3 (4.5 m^3) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered attic *[See 11.2.3.1.4(4)(d)].*

(3) Concealed spaces over isolated small roofs, or canopies not exceeding 55 ft^2 (5.1 m^2)

Delete language to section 8.15.7.4 and reserve section number.

8.15.7.4

Revise Annex Section A.8.15.7.5 as follows:

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

Add new Sections 8.16.1.1.1.4 and 8.16.1.1.1.5 as follows:

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

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

NFPA—continued

Revise Section 8.16.1.5.1 as follows:

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

Add new Sections 8.16.1.5.1.1, 8.16.1.5.1.2 and 8.16.1.5.1.3 as follows:

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

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

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

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

Revise Section 8.16.1.5.2 as follows:

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

Add new Section 9.1.3.9.1.1 as follows:

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

Revise Section 9.3.5.8.3 as follows:

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

Replace Section 9.3.5.9.4 as follows:

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

Add language to the beginning of Section 9.3.5.9.6 as follows:

9.3.5.9.6 *Fastening methods other than those identified in Section 9.3.5.9* shall not apply to other fastening methods, which shall be acceptable for use if certified by a registered professional engineer to support the loads determined in accordance with the criteria in 9.3.5.6. Calculations shall be submitted to the authority having jurisdiction.

Revise Section 9.3.5.9.7.2* as follows:

9.3.5.9.7.2* Concrete anchors other than those shown in Figure 9.3.5.9.1 *and identified in Section 9.3.5.8.10* shall be acceptable for use where designed in accordance with the requirements of the building code and certified by a registered professional engineer.

Revise Section 9.3.6.1(3) as follows:

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

Revise Section 10.6.5 as follows:

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

Exceptions:

1. Where allowed in accordance with Section 10.6.2

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

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

11.2.3.1.4(4)(i) Exterior columns under 10 ft^2 (0.93 m^2) in *total* area, formed by studs or wood joist, *with no sources of ignition within the column,* supporting exterior canopies that are fully protected with a sprinkler system.

Revise Section 11.2.3.2.3.1 as follows:

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

(1) Wet pipe system
(2) Light hazard occupancy

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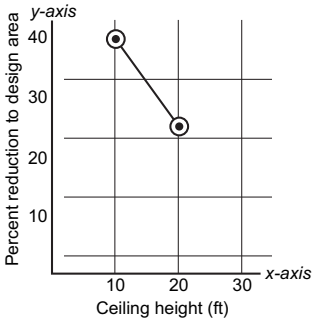

(3) 20 ft (6.1 m) maximum ceiling height

(4) There are no unprotected ceiling pockets as allowed by 8.6.7 and 8.8.7 exceeding 32 ft^2 (3 m^2)

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

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

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

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

For SI units, 1 ft = 0.31 m.

FIGURE 11.2.3.2.3.1 Design Area Reduction for Quick-Response Sprinklers.

Revise Section 11.2.3.2.3.2 as follows:

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

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

Add Section 24.1(5)

24.1 Approval of Sprinkler Systems and Private Fire Service Mains.

The installing contractor shall do the following:

(1) Notify the authority having jurisdiction and the property owner or property owner's authorized representative of the time and date testing will be performed.

(2) Perform all required testing *(see Section 24.2)*

(3) Complete and sign the appropriate contractor's material and test certificate(s) *(see Figure 24.1)*

(4) Remove all caps and straps prior to placing the sprinkler system in service

(5) Upon system acceptance by the authority having jurisdiction a label prescribed by Title 19 California Code of Regulations, Chapter 5 shall be affixed to each system riser.

Revise Section 24.4(2) and add Section 24.4(3) as follows:
24.4 Instructions.

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

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

(2) *NFPA 25, Standard for the Inspection, testing, and maintenance of Water-Based Fire Protection Systems, 2006 California Edition*

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

Add sentence at the end of Section 24.5.1 as follows:

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

Revise Section 24.5.2(3) and add Sections 24.5.2(7) to (14) as follows:

24.5.2 The sign shall include the following information:

(3) Required flow and pressure of the system at the base of the riser

(7) Required flow and pressure of the system at the water supply source.

(8) Required flow and pressure of the system at the discharge side of the fire pump where a fire pump is installed.

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(9) Type or types and number of sprinklers or nozzles installed including the orifice size, temperature rating, orientation, K-Factor, sprinkler identification number (SIN) for sprinkler heads when applicable, and response type.

(10) The minimum discharge flow rate and pressure required from the hydraulically most demanding sprinkler.

(11) The required pressure settings for pressure reducing valves.

(12) For deluge sprinkler systems, the required flow and pressure at the hydraulically most demanding sprinkler or nozzle.

(13) The protection area per sprinkler based on the hydraulic calculations.

(14) The edition of NFPA 13 to which the system was designed and installed.

Revise Section 24.6.1 as follows:

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

13D—*10* Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes *as amended** 903.3.1.3, 903.3.5.1.1

NFPA 13D, Amended Sections as follows:
Add a new definition as 3.3.9.1.1 and related annex note to read as follows:

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

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

Revise 4.1.4 and related annex note to read as follows:

4.1.4* Antifreeze Systems.

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

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

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

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

4.1.4.1 Annual Antifreeze Solution Test and Replacement Procedure.

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

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

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

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

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

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

A.4.1.4.1.1.3 In the past, for some existing systems subject to extremely low temperatures, antifreeze solutions with concentrations greater than what is now permitted by NFPA 13D were used. Such high concentrations of antifreeze are no longer permitted. In situations where extremely low temperatures are anticipated, refilling the fire sprinkler system with a concentration of antifreeze solution currently permitted by the standard might not provide sufficient freeze protection without additional measures. Such measures might include converting the antifreeze system to another type of sprinkler system.

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

6.2* Water Supply Sources. *When the requirements of Section 6.2.2 are met,* the following water supply sources shall be considered to be acceptable by this standard:

(1) A connection to a reliable waterworks system with or without an automatically operated pump

(2) An elevated tank

(3) A pressure tank designed to American Society of Mechanical Engineers (ASME) standards for a pressure vessel with a reliable pressure source

(4) A stored water source with an automatically operated pump

(5) A well with a pump of sufficient capacity and pressure to meet the sprinkler system demand. The stored water requirement of 6.1.2 or 6.1.3 shall be permitted to be a combination of the water in the well (including the refill rate) plus the water in the holding tank if such tank can supply the sprinkler system.

6.2.2 Where a *well*, pump, tank or *combination thereof* is the source of supply for a fire sprinkler system, *the water supply shall serve both domestic and fire sprinkler systems, and* the following shall be met:

(1) A test connection shall be provided downstream of the pump that creates a flow of water equal to the smallest sprinkler on the system. The connection shall return water to the tank.

(2) Any disconnecting means for the pump shall be approved.

(3) A method for refilling the tank shall be piped to the tank.

(4) A method of seeing the water level in the tank shall be provided without having to open the tank.

(5) The pump shall not be permitted to sit directly on the floor.

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

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

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

8.3.3* Antifreeze Systems.

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

Revise 8.3.3.2.1 to read as follows:

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

Add a new 8.3.3.2.1.1 to read as follows:

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

Delete 8.3.3.2.2 and 8.3.3.2.3 and related Annex material A.8.3.3.2.3.

TABLE A.8.3.3.2.1 PROPERTIES OF GLYCERINE AND PROPYLENE GLYCOL

MATERIAL	SOLUTION (by volume)	SPECIFIC GRAVITY AT 60°F (15.6°C)	FREEZING POINT	
			°F	°C
Glycerine (C.P. or U.S.P. grade)	50% water	1.145	-20.9	-29.4
Hydrometer scale 1.000 to 1.200				
Propylene glycol	60% water	1.034	-6	-21.1
Hydrometer scale 1.000 to 1.200 (subdivisions 0.002)				

C.P.: Chemically Pure; U.S.P.: United States Pharmacopoeia 96.5%.

Move Table 8.3.3.2.3 to the annex and renumber as Table A.8.3.3.2.1 while deleting the rows in the table dealing with glycerine and 40 percent water, glycerine and 30 percent water, propylene glycol and 50 percent water and propylene glycol and 40 percent water. Add an annex note so that the annex and Table would appear as follows:

A.8.3.3.2.1 See Table A.8.3.3.2.1.

Renumber 8.3.3.2.3.1 to 8.3.3.2.2.

8.3.3.2.2 The concentration of antifreeze solutions shall be limited to the minimum necessary for the anticipated minimum temperature.

Delete 8.3.3.2.4, 8.3.3.2.5 and Table 8.3.3.2.5.

Renumber 8.3.3.2.6 as 8.3.3.2.3 and renumber A.8.3.3.2.6 as A.8.3.3.2.3. Also renumber Figure A.8.3.3.2.6 as Figure A.8.3.3.2.3.

8.3.3.2.3* An antifreeze solution with a freezing point below the expected minimum temperature for the locality shall be installed.

A.8.3.3.2.3 Beyond certain limits, an increased proportion of antifreeze does not lower the freezing point of the solution (*see Figure A.8.3.3.2.3*). Glycerine, diethylene glycol, ethylene glycol, and propylene glycol never should be used without mixing with water in the proper proportions, because these materials tend to thicken near 32°F (0°C).

Renumber 8.3.3.2.7 as 8.3.3.2.4 and revise to read as follows:

8.3.3.2.4 The specific gravity of the antifreeze shall be checked by a hydrometer with a scale having 0.002 subdivisions in accordance with Figure 8.3.3.2.4(a) and 8.3.3.2.4(b).

Renumber Figure 8.3.3.2.3(a) as Figure 8.3.3.2.4(a) and delete the 50 percent curve.

Renumber Figure 8.3.3.2.3(b) as Figure 8.3.3.2.4(b) and delete the 60 percent and 70 percent curves.

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

13R—10 Installation of Sprinkler Systems in Residential Occupancies Up to and Including Four Stories in Height as amended* 903.3.1.2, 903.3.5.1.1, 903.3.5.1.2, 903.4

NFPA 13R, Amended Sections as follows:

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

NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems,* 2006 California edition.

Add Section 6.3.5 as follows:
6.3.5 Instructions.

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

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

(2) NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems 2006 California Edition and Title 19, California Code of Regulations, Chapter 5.

(3) Once the system is accepted by the authority having jurisdiction a label as prescribed by Title 19, California Code of Regulations, Chapter 5, shall be affixed to each system riser.

14—07 Installation of Standpipe and Hose Systems *as amended** 905.2, 905.3.4, 905.4.2, 905.6.2, 905.8

NFPA 14, Amended Sections as follows:

Replace Section 6.3.7.1

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

(1) Where a building has a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:

(a) a central station, proprietary, or remote supervising station, or

(b) a local signaling service that initiates an audible signal at a constantly attended location.

(2) Where a building does not have a fire alarm system or a sprinkler monitoring system installed, the valve shall be supervised by:

(a) Locking the valves in the open position, or

(b) Sealing of valves and a approved weekly recorded inspection where valves are located within fenced enclosures under the control of the owner.

15—07 Water Spray Fixed Systems for Fire Protection 3404.2.9.2.3

16—07 Installation of Foam-water Sprinkler and Foam-water Spray Systems 904.7, 904.11

17—02 Dry Chemical Extinguishing Systems . . . . . Table 901.6.1, 904.6, 904.11

17A—02 Wet Chemical Extinguishing Systems . . . . . Table 901.6.1, 904.5, 904.11

20—07 Installation of Stationary Pumps for Fire Protection 913.1, 913.2, 913.5.1

22—03 Water Tanks for Private Fire Protection 507.2.2

24—*10* Installation of Private Fire Service Mains and Their Appurtenances *as amended** 507.2.1, 1909.5

NFPA—continued

NFPA 24, Amended Sections as follows:

Amend Section 4.2.1

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

Revise Section 4.2.2 as follows:

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

Add Section 4.2.2.1 as follows:

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

Revise Section 5.9.1.2 as follows:

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

Revise Section 5.9.5.1 as follows:

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

Revise Section 6.5.1 as follows:

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

Add Section 6.5.2.1 – 6.5.2.3

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

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

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

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

Revise Section 6.6.2 as follows:

6.6.2 A sectional valve shall be provided at the following locations:

(1) On each bank where a main crosses a body of water

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

Revise Section 10.6.5 as follows:

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

Exceptions:

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

Revise Section 10.9.1 as follows:

10.9.1 *Backfill shall be well tamped in layers or puddle under and around pipes to prevent settlement or lateral movement.* Backfill shall consist of clean fill sand or pea gravel to a minimum 6" below and to a minimum of 12" above the pipe *and shall contain no ashes, cinders, refuse, organic matter, or other corrosive materials. Other backfill materials and methods are permitted where designed by a registered professional engineer and approved by the enforcing agency.*

25—*06CA*	*California NFPA 25 Edition (Based on the 2002 Edition)* Inspection, Testing and Maintenance of Water-based Fire Protection Systems	507.5.3, Table 901.6.1, 904.7.1, 912.6, 913.5, I101.1
30—08	Flammable and Combustible Liquids Code	3403.6.2, 3403.6.2.1, 3404.2.7, 3404.2.7.1, 3404.2.7.2, 3404.2.7.3.6, 3404.2.7.4, 3404.2.7.6, 3404.2.7.7, 3404.2.7.8, 3404.2.7.9, 3404.2.9.3, 3404.2.9.4, 3404.2.9.6.1.1, 3404.2.9.6.1.2, 3404.2.9.6.1.3, 3404.2.9.6.1.4, 3404.2.9.6.1.5, 3404.2.9.6.2, 3404.2.9.7.4, 3404.2.10.2, 3404.2.11.4, 3404.2.11.5.2, 3404.2.12.1, 3404.3.1, 3404.3.6, Table 3404.3.6.3(1), Table 3404.3.6.3(2), Table 3404.3.6.3(3), 3404.3.7.2.3, 3404.3.8.4, 3406.8.3
30A—08	Code for Motor Fuel-dispensing Facilities and Repair Garages	2201.4, 2201.5, 2201.6, 2206.6.3, 2210.1
30B—07	Manufacture and Storage of Aerosol Products.	2801.1, 2803.1, 2804.1, Table 2804.3.1, Table 2804.3.2, Table 2804.3.2.2, 2804.4.1, 2804.5.2, 2804.6, 2806.2.3, 2806.3.2, Table 2806.4, 2806.5.1, 2806.5.6, 2807.1
31—06	Installation of Oil-burning Equipment	603.1.7, 603.3.1, 603.3.3
32—07	Dry Cleaning Plants *as amended**	*1201.1.1,* 1207.1, 1207.3

NFPA—continued

NFPA 32, Amended Sections as follows:

2.2 NFPA Publications.

4.4.1.1 General building and structure design and construction shall be in accordance with *California Building* Code.

4.4.4 Means of Egress. Means of egress shall conform with the provisions of *California Building Code.*

4.6.2 Automatic Sprinkler Systems. Where required by this standard, automatic sprinkler systems shall be installed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems,* and periodically inspected, tested, and maintained in accordance with *California Code of Regulations, Title 19, Division 1, Chapter 5.*

4.6.4 Portable Fire Extinguishers. Suitable numbers and types of portable fire extinguishers shall be installed and maintained throughout the drycleaning plant in accordance *California Code of Regulations, Title 19, Division 1, Chapter 3.*

7.3.2 Electrical Installations. Electrical equipment and wiring in a Type II drycleaning room shall comply with the provisions of *California Electrical Code,* for use in Class I, Division 2 hazardous locations.

33—07	Spray Application Using Flammable or Combustible Materials	1504.3.2
34—07	Dipping and Coating Processes Using Flammable or Combustible Liquids	1505.3, 1505.4.1.1
35—05	Manufacture of Organic Coatings	2001.3, 2005.4
37—06	*Installation and Use of Stationary Combustion Engines and Gas Turbines*	
40—07	Storage and Handling of Cellulose Nitrate Film	306.2
51—07	Design and Installation of Oxygen-fuel Gas Systems for Welding, Cutting and Allied Processes	2601.5, 2607.1, 2609.1
51A—06	Acetylene Cylinder Charging Plants	2608.1
52—06	Vehicular Fuel System Code	3001.1
54—09	*National Fuel Gas Code*	
55—05	Standard for the Storage, Use and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationery Containers Cylinders and Tanks	2209.2.1, 3201.1, 3501.1, 4001.1
58—08	Liquefied Petroleum Gas Code	603.4.2.1.1, 3801.1, 3803.1, 3803.2.1, 3803.2.1.2, 3803.2.1.7, 3803.2.2, 3804.1, 3804.3.1, 3804.4, 3806.2, 3806.3, 3807.2, 3808.1, 3808.2, 3809.11.2, 3811.3
59A—*06*	Production, Storage and Handling of Liquefied Natural Gas (LNG)	3001.1, 3201.1
61—08	Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities	Table 1304.1
69—08	Explosion Prevention Systems	911.1, 911.3, Table 1304.1
70—08	National Electrical Codc	603.1.3, 603.1.7, 603.5.2, 604.2.15.1, 605.3, 605.4, 605.9, 606.16, 904.3.1, 907.1, 909.11, 909.12.1, 909.16.3, 1106.3.4, 1204.2.3, Table 1304.1, 1404.7, 1503.2.1, 1503.2.1.1, 1503.2.1.4, 1503.2.5, 1504.9.4, 1604.5, 1703.2, 1803.7.1, 1803.7.2, 1803.7.3, 1903.4, 2004.1, 2205.4, 2208.8.1.2.4, 2209.2.3, 2211.3.1, 2211.8.1.2.4, 2403.12.6.1, 2404.15.7, 2606.4, 2703.7.3, 3003.7.6, 3003.8, 3003.16.11, 3003.16.14, 3203.6, 3203.7.2, 3403.1, Table 3403.1.1, 3403.1.3, 3404.2.8.12, 3404.2.8.17, 3406.2.8, 3503.1.5, 3503.1.5.1, 3507.1.10, 3606.5.5, 3606.5.6, 3704.2.2.8
72—*10*	National Fire Alarm Code, as amended*	901.6, 903.4.1, 904.3.5, 907.2, 907.2.5, 907.2.11, 907.2.13.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2, 907.5.2.2, 907.6, 907.6.1, 907.6.5, 907.7, 907.7.1, 907.7.2, 911.1.5, 3006.5, 3007.6

NFPA 72, Amended Sections as follows:

10.3.1 Equipment constructed and installed in conformity with this code shall be listed for the purpose for which it is used. *Fire alarm systems and components shall be California State Fire Marshal approved and listed in accordance with California Code of Regulations, Title 19, Division 1.*

10.3.3 All devices and appliances that receive their power from the initiating device circuit or signaling line circuit of a control unit shall be *California State Fire Marshal* listed for use with the control unit.

10.6.1 *Where approved by the authority having jurisdiction,* ECS priority signals when evaluated by stakeholders through risk analysis in accordance with 24.4.2.2 shall be permitted to take precedence over all other signals.

14.4.7.1 Testing. Household fire alarm systems shall be tested *in accordance with the manufacturer's published instructions* according to the methods of Table 14.4.2.2.

17.15 Fire Extinguisher Monitoring Device. A fire extinguisher monitoring device shall indicate those conditions for a specific fire extinguisher required by *California Code of Regulations, Title 19,* Division 1, *Chapter 1, Section* 574.2(c) *and California Fire Code to a fire alarm control unit.*

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

23.4.2.2 (4) Where the vertically run conductors are contained in a 2-hour rated cable assembly, or enclosed (installed) in a 2-hour rated enclosure or a listed circuit integrity (C.I.) cable, which meets or exceeds a 2-hour fire resistive rating.

23.8.5.1.2 Where connected to a supervising station, fire alarm systems employing automatic fire detectors or waterflow detection devices shall include a manual fire alarm box to initiate a signal to the supervising station.

Exception: Fire alarm systems dedicated to elevator recall control, supervisory service *and fire sprinkler monitoring.*

23.8.5.4.1 Systems equipped with alarm verification features shall be permitted under the following conditions:

(1) The alarm verification feature is not initially enabled unless conditions or occupant activities that are expected to cause nuisance alarms are anticipated in the area that is protected by the smoke detectors. Enabling of the alarm verification feature shall be protected by password or limited access.

(2) A smoke detector that is continuously subjected to a smoke concentration above alarm threshold does not delay the system functions of Sections 10.6 through 10.13, 23.8.1.1, or 21.2.1 by more than *30 seconds.*

(3) Actuation of an alarm-initiating device other than a smoke detector causes the system functions of 4.4.3, 6.8.1.1, or 6.16.2.1 without additional delay.

(4) The current status of the alarm verification feature is shown on the record of completion *(see Figure 4.5.2.1, item 10).*

(5) Operation of a patient room smoke detector in I-2 and R-2.1 *Occupancies shall not include an alarm verification feature.*

29.3.1 All devices, combinations of devices, and equipment to be installed in conformity with this chapter shall be approved or listed by the California State Fire Marshal the for the purposes for which they are intended.

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

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

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

80—07	Fire Doors and Other Opening Protectives	703.1.3, 1008.1.3.3
85—07	Boiler and Combustion System Hazards Code	Table 1304.1
86—07	Ovens and Furnaces	2101.1
92A—09	*Standard for Smoke-Control Systems Utilizing Barriers and Pressure Differences*	
92B—05	Smoke Management Systems in Malls, Atria and Large Spaces	909.8
99—05	Health Care Facilities	3006.4
101—06	Life Safety Code	1028.6.2
105—07	Installation of Smoke Door Assemblies and Other Opening Protectives	703.1.2
110—05	Emergency and Standby Power Systems	604.1, 604.3, 604.4, 913.5.2, 913.5.3
111—05	Stored Electrical Energy Emergency and Standby Power Systems	604.1, 604.3, 604.4
120—04	Coal Preparation Plants	Table 1304.1
160—06	Flame Effects Before an Audience	308.3.2
170—06	*Standard for Fire Safety and Emergency Symbols*	*907.1.2*
211—06	Chimneys, Fireplaces, Vents and Solid Fuel-burning Appliances	603.2
241—04	Safeguarding Construction, Alteration and Demolition Operations	1401.1
253—06	Standard Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source	804.3
260—03	Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture	805.1.1.1, 805.2.1.1, 805.3.1.1, 805.4.1.1
261—03	Method of Test for Determining Resistance of Mock-up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes	805.2.1.1, 805.3.1.1, 805.4.1.1
265—07	Method of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings in Full Height Panels and Walls	803.5.1, 803.5.1.1, 803.5.1.2, 805.4.1.1
286—06	Standard Method of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth	803.1, 803.1.2, 803.1.2.1, 803.5.1
303—06	Fire Protection Standard for Marinas and Boatyards	905.3.7, 4503.5, 4503.6, 4504.2
385—07	Tank Vehicles for Flammable and Combustible Liquids	3406.5.4.5, 3406.6, 3406.6.1
407—07	Aircraft Fuel Servicing	1106.2, 1106.3

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER *48 – MOTION PICTURE AND TELEVISION PRODUCTION STUDIO SOUND STAGES, APPROVED PRODUCTION FACILITIES AND PRODUCTION LOCATIONS*

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
CHAPTER *49 – REQUIREMENTS FOR WILDLAND-URBAN INTERFACE FIRE AREAS*

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX CHAPTER 4 – SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
[T-19 §3.23]			X																	
[T-19 §3.26]			X																	

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APPENDIX CHAPTER 4

SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

SECTION 425
SPECIAL PROVISIONS FOR LICENSED 24-HOUR CARE FACILITIES IN GROUPS R-2.1, R-3.1 AND R-4

425.1 Scope. *The provisions of this chapter shall apply to 24-hour care facilities in a Group R-2.1, R-3.1 or R-4 occupancy licensed by a governmental agency.*

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

425.2.1 *Restraint shall not be practiced in Group R-2.1, R-3.1 or R-4 occupancies.*

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

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

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

425.3 Building height and area provisions.

[California Code of Regulations, Title 19, Division 1, §3.23] Nonambulatory Housing in Group R-2.1, R-3.1 and R-4 occupancies. *Nonambulatory persons in Group R-2.1, R-3.1 and R-4 occupancies shall not be housed above the first floor unless the building is of Type IA or Type IIA construction.*

425.3.1 *Group R-2.1, R-3.1, and R-4 shall be constructed in accordance with Table 503 of the California Building Code.*

[California Code of Regulations, Title 19, Division 1, §3.26] Operators Statement – Group I, R-2.1, R-3.1 and R-4 occupancies. *Every person, firm or corporation maintaining or operating any Group I or R-2.1, R-3.1 or R-4 occupancy shall provide an operators statement in accordance with Section 13132 of the Health and Safety Code which reads as follows:*

"13132. Every person, firm or corporation maintaining or operating any facility for the care of the mentally handicapped shall file a statement with the fire authority having jurisdiction within five days of the admission or readmission of a patient stating that such patient is an ambulatory or a nonambulatory person and enumerating the reasons for such classification. Such a statement shall also be filed for each existing patient within 30 days of the effective date of this section.

Any statement required to be filed pursuant to this section shall be certified as to its correctness by the person attending such patient.

It shall be unlawful for any person, firm, or corporation required to file a statement pursuant to this section to include false statements therein. Any such act shall be in violation of this section and subject to the provisions of Section 13112."

425.3.2 Limitations six or less clients. *Group R-3.1 occupancies where nonambulatory clients are housed above the first story, having more than two stories in height or having more than 3,000 square feet (279 m^2) of floor area above the first story shall not be of less than one-hour fire-resistance-rated construction throughout.*

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

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

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

425.3.3 Limitations seven or more clients. *Group R-4 occupancies where nonambulatory clients are housed above the first story and there is more than 3,000 square feet (279 m^2) of floor area above the first story or housing more than 16 clients above the first story shall be constructed of not less than one-hour fire-resistance-rated construction throughout.*

425.3.4 Nonambulatory elderly clients. *Group R-4 occupancies housing nonambulatory elderly clients shall be of not less than one-hour fire-resistance-rated construction throughout.*

425.4 Type of construction provisions.

425.4.1 *Group R-2.1, occupancies are not permitted in nonfire-resistance-rated construction, see Health and Safety Code Section 13131.5.*

425.5 Fire-resistance-rated construction provisions.

425.5.1 Smoke barriers required. *Group R-2.1 and R-4 occupancies licensed as a Residential Care Facility (RCF) with individual floor areas over 6,000 square feet (557 m^2) per floor, shall be provided with smoke barriers, constructed in accordance with Section 710 of the California Building Code.*

Group R-2.1 occupancies housing bedridden clients shall be provided with smoke barriers constructed in accordance with Section 710 of the California Building Code regardless of the number of clients.

When smoke barriers are required, the area within a smoke compartment shall not exceed 22,500 square feet (2090 m^2) nor shall its travel distance exceed 200 feet (60 960 mm). Such smoke barriers shall divide the floor as equally as possible.

425.5.2 Smoke partitions. *Group R-2.1 occupancies where smoke partitions are required, framing shall be covered with noncombustible materials having an approved thermal barrier with an index of not less than 15 in accordance with FM 4880, UL 1040, NFPA 286 or UL 1715.*

425.5.3 Independent egress. *At least two means of egress shall be provided from each smoke compartment created by smoke barriers. Means of egress may pass through adjacent compartments provided it does not return through the smoke compartment from which means of egress originated.*

425.6 Interior finish provisions.

425.6.1 Interior wall and ceiling finish. *Group R-3.1 occupancies housing a bedridden client shall comply with Interior Wall and Ceiling Finish requirements specified for Group I-2 occupancies in Table 903.3 of the California Building Code.*

425.7 Fire Protection system provisions.

425.7.1 Automatic sprinkler systems in Group R-2.1, R-3.1 and R-4 occupancies. *An automatic sprinkler system shall be installed where required in Section 903.*

425.7.2 Fire alarm systems in Group R-2.1 and R-4 occupancies. *An approved fire alarm system shall be installed where required in Section 907.*

425.7.3 Smoke alarms in Groups R-2.1, R-3.1 and R-4 occupancies. *Smoke alarms shall be installed where required in Section 907.2.11.*

425.7.4 Hearing impaired. *See Section 907.6.2.3.*

425.8 Means of egress provisions.

425.8.1 General. *In addition to the general means of egress requirements of Chapter 10, this section shall apply to Group R-2.1, R-3.1 and R-4 occupancies.*

425.8.2 Number of exits.

425.8.2.1 *Group R-2.1, R-3.1 and R-4 occupancies shall have a minimum of two exits.*

Exception: *Ancillary use areas or occupancies shall have egress as required by Section 1021.*

425.8.3 Egress arrangements.

425.8.3.1 *Egress through adjoining dwelling units shall not be permitted.*

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

1. *Egress through a hallway or area into a bedroom in the immediate area which has an exit directly to the exterior and the corridor/hallway is constructed consistent with the dwelling unit interior walls. The hallway shall be separated from common areas by a solid wood door not less than $1^3/_8$ inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 715.4.8 of the California Building Code.*
2. *Egress through a hallway which has an exit directly to the exterior. The hallway shall be separated from the rest of the house by a wall constructed consistent with the dwelling unit interior walls and opening protected by a solid wood door not less than $1^3/_8$ inch (35 mm) in thickness, maintained self-closing or shall be automatic closing by actuation of a smoke detector installed in accordance with Section 715.4.8 of the California Building Code.*
3. *Direct exit from the bedroom to the exterior, shall be of a size as to permit the installation of a door not less than 3 feet (914 mm) in width and not less than 6 feet 8 inches (2032 mm) in height. When installed, doors shall be capable of opening at least 90 degrees and shall be so mounted that the clear width of the exit way is not less than 32 inches (813 mm).*
4. *Egress through an adjoining bedroom which exits to the exterior.*

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

1. *In Group R-3.1 occupancies housing a bedridden client, a direct exit to the exterior of the residence shall be provided from the client sleeping room.*
2. *Doors to a bedridden client's sleeping room shall be of a self-closing, positive latching $1^3/_8$-inch solid wood door. Such doors shall be provided with a gasket so installed as to provide a seal where the door meets the jam on both sides and across the top. Doors shall be maintained*

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX A – BOARD OF APPEALS
(Not adopted by the State Fire Marshal)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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APPENDIX A
BOARD OF APPEALS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION A101
GENERAL

A101.1 Scope. A board of appeals shall be established within the jurisdiction for the purpose of hearing applications for modification of the requirements of the *California Fire Code* pursuant to the provisions of Section 108 of the *California Fire Code*. The board shall be established and operated in accordance with this section, and shall be authorized to hear evidence from appellants and the *fire code official* pertaining to the application and intent of this code for the purpose of issuing orders pursuant to these provisions.

A101.2 Membership. The membership of the board shall consist of five voting members having the qualifications established by this section. Members shall be nominated by the *fire code official* or the chief administrative officer of the jurisdiction, subject to confirmation by a majority vote of the governing body. Members shall serve without remuneration or compensation, and shall be removed from office prior to the end of their appointed terms only for cause.

A101.2.1 Design professional. One member shall be a practicing design professional registered in the practice of engineering or architecture in the state in which the board is established.

A101.2.2 Fire protection engineering professional. One member shall be a qualified engineer, technologist, technician or safety professional trained in fire protection engineering, fire science or fire technology. Qualified representatives in this category shall include fire protection contractors and certified technicians engaged in *fire protection system* design.

A101.2.3 Industrial safety professional. One member shall be a registered industrial or chemical engineer, certified hygienist, certified safety professional, certified hazardous materials manager or comparably qualified specialist experienced in chemical process safety or industrial safety.

A101.2.4 General contractor. One member shall be a contractor regularly engaged in the construction, *alteration*, maintenance, repair or remodeling of buildings or building services and systems regulated by the code.

A101.2.5 General industry or business representative. One member shall be a representative of business or industry not represented by a member from one of the other categories of board members described above.

A101.3 Terms of office. Members shall be appointed for terms of four years. No member shall be reappointed to serve more than two consecutive full terms.

A101.3.1 Initial appointments. Of the members first appointed, two shall be appointed for a term of 1 year, two for a term of 2 years, one for a term of 3 years.

A101.3.2 Vacancies. Vacancies shall be filled for an unexpired term in the manner in which original appointments are required to be made. Members appointed to fill a vacancy in an unexpired term shall be eligible for reappointment to two full terms.

A101.3.3 Removal from office. Members shall be removed from office prior to the end of their terms only for cause. Continued absence of any member from regular meetings of the board shall, at the discretion of the applicable governing body, render any such member liable to immediate removal from office.

A101.4 Quorum. Three members of the board shall constitute a quorum. In varying the application of any provisions of this code or in modifying an order of the *fire code official*, affirmative votes of the majority present, but not less than three, shall be required.

A101.5 Secretary of board. The *fire code official* shall act as secretary of the board and shall keep a detailed record of all its proceedings, which shall set forth the reasons for its decisions, the vote of each member, the absence of a member and any failure of a member to vote.

A101.6 Legal counsel. The jurisdiction shall furnish legal counsel to the board to provide members with general legal advice concerning matters before them for consideration. Members shall be represented by legal counsel at the jurisdiction's expense in all matters arising from service within the scope of their duties.

A101.7 Meetings. The board shall meet at regular intervals, to be determined by the chairman. In any event, the board shall meet within 10 days after notice of appeal has been received.

A101.8 Conflict of interest. Members with a material or financial interest in a matter before the board shall declare such interest and refrain from participating in discussions, deliberations and voting on such matters.

A101.9 Decisions. Every decision shall be promptly filed in writing in the office of the *fire code official* and shall be open to public inspection. A certified copy shall be sent by mail or otherwise to the appellant, and a copy shall be kept publicly posted in the office of the *fire code official* for 2 weeks after filing.

A101.10 Procedures. The board shall be operated in accordance with the Administrative Procedures Act of the state in which it is established or shall establish rules and regulations for its own procedure not inconsistent with the provisions of this code and applicable state law.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX B – FIRE-FLOW REQUIREMENTS FOR BUILDINGS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)		X																		
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				
B105.2		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX BB – FIRE-FLOW REQUIREMENTS FOR BUILDINGS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX C – FIRE HYDRANT LOCATIONS AND DISTRIBUTION

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		**X**																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]			X																	
Chapter/Section																				
C101.1		X																		

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX CC – FIRE HYDRANT LOCATIONS AND DISTRIBUTION

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX D – FIRE APPARATUS ACCESS ROADS
(Not adopted by the State Fire Marshal)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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APPENDIX D

FIRE APPARATUS ACCESS ROADS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION D101 GENERAL

D101.1 Scope. Fire apparatus access roads shall be in accordance with this appendix and all other applicable requirements of the *California Fire Code*.

SECTION D102 REQUIRED ACCESS

D102.1 Access and loading. Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an *approved* fire apparatus access road with an asphalt, concrete or other *approved* driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34 050 kg).

SECTION D103 MINIMUM SPECIFICATIONS

D103.1 Access road width with a hydrant. Where a fire hydrant is located on a fire apparatus access road, the minimum road width shall be 26 feet (7925 mm), exclusive of shoulders (see Figure D103.1).

D103.2 Grade. Fire apparatus access roads shall not exceed 10 percent in grade.

Exception: Grades steeper than 10 percent as *approved* by the fire chief.

D103.3 Turning radius. The minimum turning radius shall be determined by the *fire code official*.

D103.4 Dead ends. Dead-end fire apparatus access roads in excess of 150 feet (45 720 mm) shall be provided with width and turnaround provisions in accordance with Table D103.4.

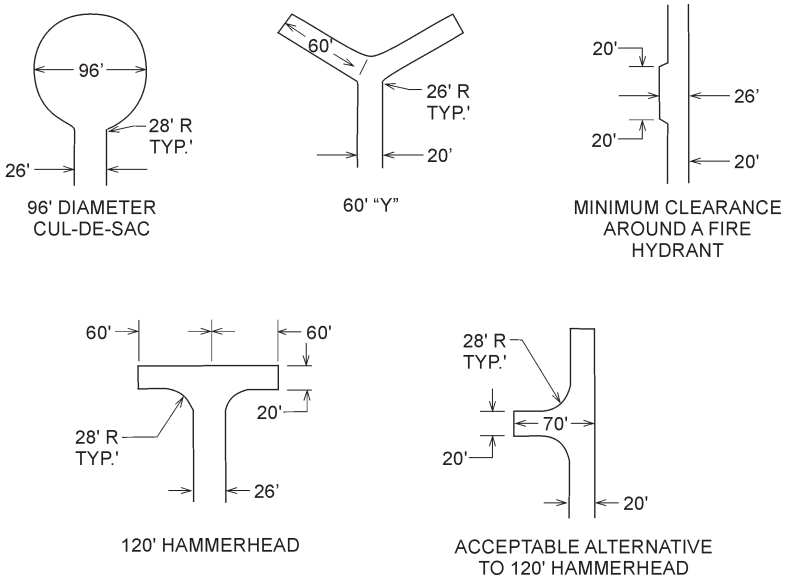
TABLE D103.4
REQUIREMENTS FOR DEAD-END FIRE APPARATUS ACCESS ROADS

LENGTH (feet)	WIDTH (feet)	TURNAROUNDS REQUIRED
0–150	20	None required
151–500	20	120-foot Hammerhead, 60-foot "Y" or 96-foot-diameter cul-de-sac in accordance with Figure D103.1
501–750	26	120-foot Hammerhead, 60-foot "Y" or 96-foot-diameter cul-de-sac in accordance with Figure D103.1
Over 750	Special approval required	

For SI: 1 foot = 304.8 mm.

D103.5 Fire apparatus access road gates. Gates securing the fire apparatus access roads shall comply with all of the following criteria:

1. The minimum gate width shall be 20 feet (6096 mm).
2. Gates shall be of the swinging or sliding type.



For SI: 1 foot = 304.8 mm.

FIGURE D103.1
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

3. Construction of gates shall be of materials that allow manual operation by one *person*.
4. Gate components shall be maintained in an operative condition at all times and replaced or repaired when defective.
5. Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. Emergency opening devices shall be *approved* by the *fire code official*.
6. Manual opening gates shall not be locked with a padlock or chain and padlock unless they are capable of being opened by means of forcible entry tools or when a key box containing the key(s) to the lock is installed at the gate location.
7. Locking device specifications shall be submitted for approval by the *fire code official*.
8. Electric gate operators, where provided, shall be *listed* in accordance with UL 325.
9. Gates intended for automatic operation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

D103.6 Signs. Where required by the *fire code official*, fire apparatus access roads shall be marked with permanent NO PARKING—FIRE LANE signs complying with Figure D103.6. Signs shall have a minimum dimension of 12 inches (305 mm) wide by 18 inches (457 mm) high and have red letters on a white reflective background. Signs shall be posted on one or both sides of the fire apparatus road as required by Section D103.6.1 or D103.6.2.

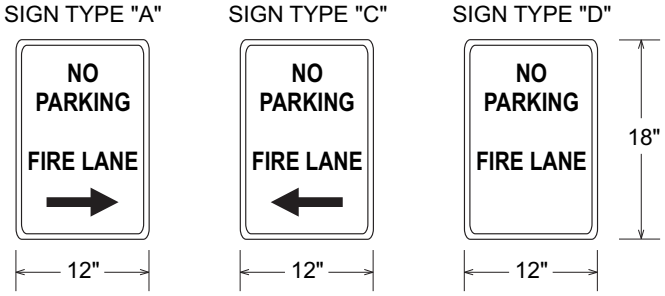


FIGURE D103.6
FIRE LANE SIGNS

D103.6.1 Roads 20 to 26 feet in width. Fire apparatus access roads 20 to 26 feet wide (6096 to 7925 mm) shall be posted on both sides as a *fire lane*.

D103.6.2 Roads more than 26 feet in width. Fire apparatus access roads more than 26 feet wide (7925 mm) to 32 feet wide (9754 mm) shall be posted on one side of the road as a *fire lane*.

SECTION D104
COMMERCIAL AND INDUSTRIAL DEVELOPMENTS

D104.1 Buildings exceeding three stories or 30 feet in height. Buildings or facilities exceeding 30 feet (9144 mm) or three stories in height shall have at least two means of fire apparatus access for each structure.

D104.2 Buildings exceeding 62,000 square feet in area. Buildings or facilities having a gross *building area* of more than 62,000 square feet (5760 m^2) shall be provided with two separate and *approved* fire apparatus access roads.

Exception: Projects having a gross *building area* of up to 124,000 square feet (11 520 m^2) that have a single *approved* fire apparatus access road when all buildings are equipped throughout with *approved automatic sprinkler systems.*

D104.3 Remoteness. Where two access roads are required, 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 property or area to be served, measured in a straight line between accesses.

SECTION D105
AERIAL FIRE APPARATUS ACCESS ROADS

D105.1 Where required. Buildings or portions of buildings or facilities exceeding 30 feet (9144 mm) in height above the lowest level of fire department vehicle access shall be provided with *approved* fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway.

D105.2 Width. Aerial fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925 mm), exclusive of shoulders, in the immediate vicinity of any building or portion of building more than 30 feet (9144 mm) in height.

D105.3 Proximity to building. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572 mm) and a maximum of 30 feet (9144 mm) from the building, and shall be positioned parallel to one entire side of the building.

SECTION D106
MULTIPLE-FAMILY RESIDENTIAL DEVELOPMENTS

D106.1 Projects having more than 100 dwelling units. Multiple-family residential projects having more than 100 *dwelling units* shall be equipped throughout with two separate and *approved* fire apparatus access roads.

Exception: Projects having up to 200 *dwelling units* may have a single *approved* fire apparatus access road when all buildings, including nonresidential occupancies, are equipped throughout with *approved automatic sprinkler systems* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

D106.2 Projects having more than 200 dwelling units. Multiple-family residential projects having more than 200 *dwelling units* shall be provided with two separate and *approved* fire apparatus access roads regardless of whether they are equipped with an *approved automatic sprinkler system*.

SECTION D107
ONE- OR TWO-FAMILY RESIDENTIAL DEVELOPMENTS

D107.1 One- or two-family dwelling residential developments. Developments of one- or two-family *dwellings* where the number of *dwelling units* exceeds 30 shall be provided with separate and *approved* fire apparatus access roads and shall meet the requirements of Section D104.3.

Exceptions:

1. Where there are more than 30 *dwelling units* on a single public or private fire apparatus access road and all *dwelling units* are equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 of the *California Fire Code*, access from two directions shall not be required.
2. The number of *dwelling units* on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the *fire code official*.

D108
REFERENCED STANDARDS

ASTM	F 2200-05	Standard Specification for Automated Vehicular Gate Construction	D103.5
ICC	IFC-09	*California* Fire Code	D101.5, D107.1
UL	325-02	Door, Drapery, Gate, Louver, and Window Operators and Systems, with revisions through February 2006	D103.5

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX E – HAZARD CATEGORIES
(Not adopted by the State Fire Marshal)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

APPENDIX E
HAZARD CATEGORIES

This appendix is for information purposes and is not intended for adoption.

SECTION E101
GENERAL

E101.1 Scope. This appendix provides information, explanations and examples to illustrate and clarify the hazard categories contained in Chapter 27 of the *California Fire Code*. The hazard categories are based upon the DOL 29 CFR. Where numerical classifications are included, they are in accordance with nationally recognized standards.

This appendix should not be used as the sole means of hazardous materials classification.

SECTION E102
HAZARD CATEGORIES

E102.1 Physical hazards. Materials classified in this section pose a *physical hazard*.

E102.1.1 Explosives and blasting agents. The current UN/DOT classification system recognized by international authorities, the Department of Defense and others classifies all *explosives* as Class 1 materials. They are then divided into six separate divisions to indicate their relative hazard. There is not a direct correlation between the designations used by the old DOT system and those used by the current system nor is there correlation with the system (high and low) established by the Bureau of Alcohol, Tobacco and Firearms (BATF). Table 3304.3 of the *California Fire Code* provides some guidance with regard to the current categories and their relationship to the old categories. Some items may appear in more than one division, depending on factors such as the degree of confinement or separation, by type of packaging, storage configuration or state of assembly.

In order to determine the level of hazard presented by *explosive materials*, testing to establish quantitatively their *explosive* nature is required. There are numerous test methods that have been used to establish the character of an *explosive material*. Standardized tests, required for finished goods containing *explosives* or *explosive materials* in a packaged form suitable for shipment or storage, have been established by UN/DOT and BATF. However, these tests do not consider key elements that should be examined in a manufacturing situation. In manufacturing operations, the condition and/or the state of a material may vary within the process. The in-process material classification and classification requirements for materials used in the manufacturing process may be different from the classification of the same material when found in finished goods depending on the stage of the process in which the material is found. A classification methodology must be used that recognizes the hazards commensurate with the application to the variable physical conditions as well as potential variations of physical character and type of *explosive* under consideration.

Test methods or guidelines for hazard classification of energetic materials used for in-process operations shall be *approved* by the *fire code official*. Test methods used shall be DOD, BATF, UN/DOT or other *approved* criteria. The results of such testing shall become a portion of the files of the jurisdiction and be included as an independent section of any Hazardous Materials Management Plan (HMMP) required by Section 3305.2.1 of the *California Fire Code.* Also see Section 104.7.2 of the *California Fire Code.*

Examples of materials in various Divisions are as follows:

1. Division 1.1 (High *Explosives*). Consists of *explosives* that have a mass explosion hazard. A mass explosion is one which affects almost the entire pile of material instantaneously. Includes substances that, when tested in accordance with *approved* methods, can be caused to detonate by means of a blasting cap when unconfined or will transition from *deflagration* to a *detonation* when confined or unconfined. Examples: dynamite, TNT, nitroglycerine, C-3, HMX, RDX, encased *explosives*, military ammunition.
2. Division 1.2 (Low *Explosives*). Consists of *explosives* that have a projection hazard, but not a mass explosion hazard. Examples: nondetonating encased *explosives*, military ammunition and the like.
3. Division 1.3 (Low *Explosives*). Consists of *explosives* that have a fire hazard and either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard. The major hazard is radiant heat or violent burning, or both. Can be deflagrated when confined. Examples: smokeless powder, propellant *explosives*, display fireworks.
4. Division 1.4. Consists of *explosives* that pose a minor explosion hazard. The *explosive* effects are largely confined to the package and no projection of fragments of appreciable size or range is expected. An internal fire must not cause virtually instantaneous explosion of almost the entire contents of the package. Examples: squibs (nondetonating igniters), *explosive* actuators, *explosive* trains (low-level detonating cord).
5. Division 1.5 (Blasting Agents). Consists of very insensitive *explosives*. This division is comprised of substances which have a mass explosion hazard, but are so insensitive that there is very little probability of initiation or of transition from burning to *detonation* under normal conditions of transport. Materials are not cap sensitive; however, they are mass detonating when provided with sufficient input. Examples: oxi-

dizer and liquid fuel slurry mixtures and gels, ammonium nitrate combined with fuel oil.

6. Division 1.6. Consists of extremely insensitive articles which do not have a mass *explosive* hazard. This division is comprised of articles which contain only extremely insensitive detonating substances and which demonstrate a negligible probability of accidental initiation or propagation. Although this category of materials has been defined, the primary application is currently limited to military uses. Examples: Low vulnerability military weapons.

Explosives in each division are assigned a compatibility group letter by the Associate Administrator for Hazardous Materials Safety (DOT) based on criteria specified by DOTn 49 CFR. Compatibility group letters are used to specify the controls for the transportation and storage related to various materials to prevent an increase in hazard that might result if certain types of *explosives* were stored or transported together. Altogether, there are 35 possible classification codes for *explosives*, e.g., 1.1A, 1.3C, 1.4S, etc.

E102.1.2 Compressed gases. Examples include:

1. Flammable: acetylene, carbon monoxide, ethane, ethylene, hydrogen, methane. Ammonia will ignite and burn although its flammable range is too narrow for it to fit the definition of "Flammable gas."

   For binary mixtures where the hazardous component is diluted with a nonflammable gas, the mixture shall be categorized in accordance with CGA P-23.

2. Oxidizing: oxygen, ozone, oxides of nitrogen, chlorine and fluorine. Chlorine and fluorine do not contain oxygen but reaction with flammables is similar to that of oxygen.
3. *Corrosive*: ammonia, hydrogen chloride, fluorine.
4. Highly toxic: arsine, cyanogen, fluorine, germane, hydrogen cyanide, nitric oxide, phosphine, hydrogen selenide, stibine.
5. Toxic: chlorine, hydrogen fluoride, hydrogen sulfide, phosgene, silicon tetrafluoride.
6. Inert (chemically unreactive): argon, helium, krypton, neon, nitrogen, xenon.
7. Pyrophoric: diborane, dichloroborane, phosphine, silane.
8. Unstable (reactive): butadiene (unstabilized), ethylene oxide, vinyl chloride.

E102.1.3 Flammable and combustible liquids. Examples include:

1. Flammable liquids.

   Class IA liquids shall include those having *flash points* below 73°F (23°C) and having a *boiling point* at or below 100°F (38°C).

   Class IB liquids shall include those having *flash points* below 73°F (23°C) and having a *boiling point* at or above 100°F (38°C).

   Class IC liquids shall include those having *flash points* at or above 73°F (23°C) and below 100°F (38°C).

2. *Combustible liquids*.

   Class II liquids shall include those having *flash points* at or above 100°F (38°C) and below 140°F (60°C).

   Class IIIA liquids shall include those having *flash points* at or above 140°F (60°C) and below 200°F (93°C).

   Class IIIB liquids shall include those liquids having *flash points* at or above 200°F (93°C).

E102.1.4 Flammable solids. Examples include:

1. Organic solids: camphor, cellulose nitrate, naphthalene.
2. Inorganic solids: decaborane, lithium amide, phosphorous heptasulfide, phosphorous sesquisulfide, potassium sulfide, anhydrous sodium sulfide, sulfur.
3. Combustible metals (except dusts and powders): cesium, magnesium, zirconium.

E102.1.5 Combustible dusts and powders. Finely divided solids which may be dispersed in air as a dust cloud: wood sawdust, plastics, coal, flour, powdered metals (few exceptions).

E102.1.6 Combustible fibers. See Section 2902.1.

E102.1.7 Oxidizers. Examples include:

1. Gases: oxygen, ozone, oxides of nitrogen, fluorine and chlorine (reaction with flammables is similar to that of oxygen).
2. Liquids: bromine, hydrogen peroxide, nitric acid, perchloric acid, sulfuric acid.
3. Solids: chlorates, chromates, chromic acid, iodine, nitrates, nitrites, perchlorates, peroxides.

E102.1.7.1 Examples of liquid and solid oxidizers according to hazard.

Class 4: ammonium perchlorate (particle size greater than 15 microns), ammonium permanganate, guanidine nitrate, hydrogen peroxide solutions more than 91 percent by weight, perchloric acid solutions more than 72.5 percent by weight, potassium superoxide, tetranitromethane.

Class 3: ammonium dichromate, calcium hypochlorite (over 50 percent by weight), chloric acid (10 percent maximum concentration), hydrogen peroxide solutions (greater than 52 percent up to 91 percent), mono-(trichloro)-tetra-(monopotassium dichloro)-penta-s-triazinetrione, nitric acid, (fuming —more than 86 percent concentration), perchloric

acid solutions (60 percent to 72 percent by weight), potassium bromate, potassium chlorate, potassium dichloro-s-triazinetrione (potassium dichloro-isocyanurate), sodium bromate, sodium chlorate, sodium chlorite (over 40 percent by weight) and sodium dichloro-s-triazinetrione (sodium dichloro-isocyanurate).

Class 2: barium bromate, barium chlorate, barium hypochlorite, barium perchlorate, barium permanganate, 1-bromo-3-chloro-5, 5-dimethylhydantoin, calcium chlorate, calcium chlorite, calcium hypochlorite (50 percent or less by weight), calcium perchlorate, calcium permanganate, chromium trioxide (chromic acid), copper chlorate, halane (1, 3-dichloro-5, 5-dimethylhydantoin), hydrogen peroxide (greater than 27.5 percent up to 52 percent), lead perchlorate, lithium chlorate, lithium hypochlorite (more than 39 percent available chlorine), lithium perchlorate, magnesium bromate, magnesium chlorate, magnesium perchlorate, mercurous chlorate, nitric acid (more than 40 percent but less than 86 percent), perchloric acid solutions (more than 50 percent but less than 60 percent), potassium perchlorate, potassium permanganate, potassium peroxide, potassium superoxide, silver peroxide, sodium chlorite (40 percent or less by weight), sodium perchlorate, sodium perchlorate monohydrate, sodium permanganate, sodium peroxide, strontium chlorate, strontium perchlorate, thallium chlorate, trichloro-s-triazinetrione (trichloroisocyanuric acid), urea hydrogen peroxide, zinc bromate, zinc chlorate and zinc permanganate.

Class 1: all inorganic nitrates (unless otherwise classified), all inorganic nitrites (unless otherwise classified), ammonium persulfate, barium peroxide, calcium peroxide, hydrogen peroxide solutions (greater than 8 percent up to 27.5 percent), lead dioxide, lithium hypochlorite (39 percent or less available chlorine), lithium peroxide, magnesium peroxide, manganese dioxide, nitric acid (40 percent concentration or less), perchloric acid solutions (less than 50 percent by weight), potassium dichromate, potassium percarbonate, potassium persulfate, sodium carbonate peroxide, sodium dichloro-s-triazinetrione dihydrate, sodium dichromate, sodium perborate (anhydrous), sodium perborate monohydrate, sodium perborate tetrahydrate, sodium percarbonate, sodium persulfate, strontium peroxide and zinc peroxide.

E102.1.8 Organic peroxides. Organic peroxides contain the double oxygen or peroxy (-o-o) group. Some are flammable compounds and subject to explosive decomposition. They are available as:

1. Liquids.
2. Pastes.
3. Solids (usually finely divided powers).

E102.1.8.1 Classification of organic peroxides according to hazard.

Unclassified: Unclassified organic peroxides are capable of *detonation* and are regulated in accordance with Chapter 33 of the *California Fire Code*.

Class I: acetyl cyclohexane sulfonyl 60-65 percent concentration by weight, fulfonyl peroxide, benzoyl peroxide over 98 percent concentration, t-butyl hydroperoxide 90 percent, t-butyl peroxyacetate 75 percent, t-butyl peroxyisopropylcarbonate 92 percent, diisopropyl peroxydicarbonate 100 percent, di-n-propyl peroxydicarbonate 98 percent, and di-n-propyl peroxydicarbonate 85 percent.

Class II: acetyl peroxide 25 percent, t-butyl hydroperoxide 70 percent (with DTBP and t-BuOH diluents), t-butyl peroxybenzoate 98 percent, t-butyl peroxy-2-ethylhexanoate 97 percent, t-butyl peroxyisobutyrate 75 percent, t-butyl peroxyisopropyl-carbonate 75 percent, t-butyl peroxypivalate 75 percent, dybenzoyl peroxydicarbonate 85 percent, di-sec-butyl peroxydicarbonate 98 percent, di-sec-butyl peroxydicarbonate 75 percent, 1,1-di-(t-butylperoxy)-3,5,5-trimethyecyclohexane 95 percent, di-(2-ethythexyl) peroxydicarbonate 97 percent, 2,5-dymethyl-2-5 di (benzoylperoxy) hexane 92 percent, and peroxyacetic acid 43 percent.

Class III: acetyl cyclohexane sulfonal peroxide 29 percent, benzoyl peroxide 78 percent, benzoyl peroxide paste 55 percent, benzoyl peroxide paste 50 percent peroxide/50 percent butylbenzylphthalate diluent, cumene hydroperoxide 86 percent, di-(4-butylcyclohexyl) peroxydicarbonate 98 percent, t-butyl peroxy-2-ethylhexanoate 97 percent, t-butyl peroxyneodecanoate 75 percent, decanoyl peroxide 98.5 percent, di-t-butyl peroxide 99 percent, 1,1-di-(t-butylperoxy)3,5,5-trimethylcyclohexane 75 percent, 2,4-dichlorobenzoyl peroxide 50 percent, diisopropyl peroxydicarbonate 30 percent, 2,-5-dimethyl-2,5-di-(2-ethylhexanolyperoxy)-hexane 90 percent, 2,5-dimethyl-2,5-di-(t-butylperoxy) hexane 90 percent and methyl ethyl ketone peroxide 9 percent active oxygen diluted in dimethyl phthalate.

Class IV: benzoyl peroxide 70 percent, benzoyl peroxide paste 50 percent peroxide/15 percent water/35 percent butylphthalate diluent, benzoyl peroxide slurry 40 percent, benzoyl peroxide powder 35 percent, t-butyl hydroperoxide 70 percent, (with water diluent), t-butyl peroxy-2-ethylhexanoate 50 percent, decumyl peroxide 98 percent, di-(2-ethylhexal) peroxydicarbonate 40 percent, laurel peroxide 98 percent, p-methane hydroperoxide 52.5 percent, methyl ethyl ketone peroxide 5.5 percent active oxygen and

methyl ethyl ketone peroxide 9 percent active oxygen diluted in water and glycols.

Class V: benzoyl peroxide 35 percent, 1,1-di-t-butyl peroxy 3,5,5-trimethylcyclohexane 40 percent, 2,5-di-(t-butyl peroxy) hexane 47 percent and 2,4-pentanedione peroxide 4 percent active oxygen.

E102.1.9 Pyrophoric materials. Examples include:

1. Gases: diborane, phosphine, silane.
2. Liquids: diethylaluminum chloride, diethylberyllium, diethylphosphine, diethylzinc, dimethylarsine, triethylaluminum etherate, triethylbismuthine, triethylboron, trimethylaluminum, trimethylgallium.
3. Solids: cesium, hafnium, lithium, white or yellow phosphorous, plutonium, potassium, rubidium, sodium, thorium.

E102.1.10 Unstable (reactive) materials. Examples include:

Class 4: acetyl peroxide, dibutyl peroxide, dinitrobenzene, ethyl nitrate, peroxyacetic acid and picric acid (dry) trinitrobenzene.

Class 3: hydrogen peroxide (greater than 52 percent), hydroxylamine, nitromethane, paranitroaniline, perchloric acid and tetrafluoroethylene monomer.

Class 2: acrolein, acrylic acid, hydrazine, methacrylic acid, sodium perchlorate, styrene and vinyl acetate.

Class 1: acetic acid, hydrogen peroxide 35 percent to 52 percent, paraldehyde and tetrahydrofuran.

E102.1.11 Water-reactive materials. Examples include:

Class 3: aluminum alkyls such as triethylaluminum, isobutylaluminum and trimethylaluminum; bromine pentafluoride, bromine trifluoride, chlorodiethylaluminium and diethylzinc.

Class 2: calcium carbide, calcium metal, cyanogen bromide, lithium hydride, methyldichlorosilane, potassium metal, potassium peroxide, sodium metal, sodium peroxide, sulfuric acid and trichlorosilane.

Class 1: acetic anhydride, sodium hydroxide, sulfur monochloride and titanium tetrachloride.

E102.1.12 Cryogenic fluids. The cryogenics listed will exist as *compressed gases* when they are stored at ambient temperatures.

1. Flammable: carbon monoxide, deuterium (heavy hydrogen), ethylene, hydrogen, methane.
2. Oxidizing: fluorine, nitric oxide, oxygen.
3. *Corrosive*: fluorine, nitric oxide.
4. Inert (chemically unreactive): argon, helium, krypton, neon, nitrogen, xenon.
5. Highly toxic: fluorine, nitric oxide.

E102.2 Health hazards. Materials classified in this section pose a *health hazard*.

E102.2.1 Highly toxic materials. Examples include:

1. Gases: arsine, cyanogen, diborane, fluorine, germane, hydrogen cyanide, nitric oxide, nitrogen dioxide, ozone, phosphine, hydrogen selenide, stibine.
2. Liquids: acrolein, acrylic acid, 2-chloroethanol (ethylene chlorohydrin), hydrazine, hydrocyanic acid, 2-methylaziridine (propylenimine), 2-methylacetonitrile (acetone cyanohydrin), methyl ester isocyanic acid (methyl isocyanate), nicotine, tetranitromethane and tetraethylstannane (tetraethyltin).
3. Solids: (aceto) phenylmercury (phenyl mercuric acetate), 4-aminopyridine, arsenic pentoxide, arsenic trioxide, calcium cyanide, 2-chloroacetophenone, aflatoxin B, decaborane(14), mercury (II) bromide (mercuric bromide), mercury (II) chloride (*corrosive* mercury chloride), pentachlorophenol, methyl parathion, phosphorus (white) and sodium azide.

E102.2.2 Toxic materials. Examples include:

1. Gases: boron trichloride, boron trifluoride, chlorine, chlorine trifluoride, hydrogen fluoride, hydrogen sulfide, phosgene, silicon tetrafluoride.
2. Liquids: acrylonitrile, allyl alcohol, alpha-chlorotoluene, aniline, 1-chloro- 2,3-epoxypropane, chloroformic acid (allyl ester), 3-chloropropene (allyl chloride), o-cresol, crotonaldehyde, dibromomethane, diisopropylamine, diethyl ester sulfuric acid, dimethyl ester sulfuric acid, 2-furaldehyde (furfural), furfural alcohol, phosphorus chloride, phosphoryl chloride (phosphorus oxychloride) and thionyl chloride.
3. Solids: acrylamide, barium chloride, barium (II) nitrate, benzidine, p-benzoquinone, beryllium chloride, cadmium chloride, cadmium oxide, chloroacetic acid, chlorophenylmercury (phenyl mercuric chloride), chromium (VI) oxide (chromic acid, solid), 2,4-dinitrotoluene, hydroquinone, mercury chloride (calomel), mercury (II) sulfate (mercuric sulfate), osmium tetroxide, oxalic acid, phenol, P-phenylenediamine, phenylhydrazine, 4-phenylmorpholine, phosphorus sulfide, potassium fluoride, potassium hydroxide, selenium (IV) disulfide and sodium fluoride.

E102.2.3 Corrosives. Examples include:

1. Acids: Examples: chromic, formic, hydrochloric (muriatic) greater than 15 percent, hydrofluoric, nitric (greater than 6 percent, perchloric, sulfuric (4 percent or more).
2. Bases (alkalis): hydroxides—ammonium (greater than 10 percent), calcium, potassium (greater than 1 percent), sodium (greater than 1 percent); certain carbonates—potassium.

3. Other *corrosives*: bromine, chlorine, fluorine, iodine, ammonia.

Note: *Corrosives* that are oxidizers, e.g., nitric acid, chlorine, fluorine; or are *compressed gases*, e.g., ammonia, chlorine, fluorine; or are water-reactive, e.g., concentrated sulfuric acid, sodium hydroxide, are *physical hazards* in addition to being *health hazards*.

SECTION E103
EVALUATION OF HAZARDS

E103.1 Degree of hazard. The degree of hazard present depends on many variables which should be considered individually and in combination. Some of these variables are as shown in Sections E103.1.1 through E103.1.5.

E103.1.1 Chemical properties of the material. Chemical properties of the material determine self reactions and reactions which may occur with other materials. Generally, materials within subdivisions of hazard categories will exhibit similar chemical properties. However, materials with similar chemical properties may pose very different hazards. Each individual material should be researched to determine its hazardous properties and then considered in relation to other materials that it might contact and the surrounding environment.

E103.1.2 Physical properties of the material. Physical properties, such as whether a material is a solid, liquid or gas at ordinary temperatures and pressures, considered along with chemical properties will determine requirements for containment of the material. Specific gravity (weight of a liquid compared to water) and vapor density (weight of a gas compared to air) are both physical properties which are important in evaluating the hazards of a material.

E103.1.3 Amount and concentration of the material. The amount of material present and its concentration must be considered along with physical and chemical properties to determine the magnitude of the hazard. Hydrogen peroxide, for example, is used as an antiseptic and a hair bleach in low concentrations (approximately 8 percent in water solution). Over 8 percent, hydrogen peroxide is classed as an oxidizer and is toxic. Above 90 percent, it is a Class 4 oxidizer "that can undergo an explosive reaction when catalyzed or exposed to heat, shock or friction," a definition which incidentally also places hydrogen peroxide over 90-percent concentration in the unstable (reactive) category. Small amounts at high concentrations may present a greater hazard than large amounts at low concentrations.

E103.1.3.1 Mixtures. Gases—toxic and highly toxic gases include those gases that have an LC_{50} of 2,000 parts per million (ppm) or less when rats are exposed for a period of 1 hour or less. To maintain consistency with the definitions for these materials, exposure data for periods other than 1 hour must be normalized to 1 hour. To classify mixtures of *compressed gases* that contain one or more toxic or highly toxic components, the LC_{50} of the mixture must be determined. Mixtures that contain only two components are binary mixtures. Those that contain more than two components are multicomponent mixtures. When two or more hazardous substances (components) having an LC_{50} below 2,000 ppm are present in a mixture, their combined effect, rather than that of the individual substance components, must be considered. In the absence of information to the contrary, the effects of the hazards present must be considered as additive. Exceptions to the above rule may be made when there is a good reason to believe that the principal effects of the different harmful substances (components) are not additive.

For binary mixtures where the hazardous component is diluted with a nontoxic gas such as an inert gas, the LC_{50} of the mixture is estimated by use of the methodology contained in CGA P-20. The hazard zones specified in CGA P-20 are applicable for DOTn purposes and shall not be used for hazard classification.

E103.1.4 Actual use, activity or process involving the material. The definition of handling, storage and use in *closed systems* refers to materials in packages or containers. Dispensing and use in open containers or systems describes situations where a material is exposed to ambient conditions or vapors are liberated to the atmosphere. Dispensing and use in *open systems*, then, are generally more hazardous situations than handling, storage or use in *closed systems*. The actual use or process may include heating, electric or other sparks, catalytic or reactive materials and many other factors which could affect the hazard and must therefore be thoroughly analyzed.

E103.1.5 Surrounding conditions. Conditions such as other materials or processes in the area, type of construction of the structure, fire protection features (e.g., *fire walls*, sprinkler systems, alarms, etc.), occupancy (use) of adjoining areas, normal temperatures, exposure to weather, etc., must be taken into account in evaluating the hazard.

E103.2 Evaluation questions. The following are sample evaluation questions:

1. What is the material? Correct identification is important; exact spelling is vital. Check labels, MSDS, ask responsible *persons*, etc.
2. What are the concentration and strength?
3. What is the physical form of the material? Liquids, gases and finely divided solids have differing requirements for spill and leak control and containment.
4. How much material is present? Consider in relation to permit amounts, *maximum allowable quantity per control area* (from Group H occupancy requirements), amounts which require detached storage and overall magnitude of the hazard.
5. What other materials (including furniture, equipment and building components) are close enough to interact with the material?
6. What are the likely reactions?
7. What is the activity involving the material?
8. How does the activity impact the hazardous characteristics of the material? Consider vapors released or hazards otherwise exposed.

9. What must the material be protected from? Consider other materials, temperature, shock, pressure, etc.
10. What effects of the material must people and the environment be protected from?
11. How can protection be accomplished? Consider:
    - 11.1. Proper containers and equipment.
    - 11.2. Separation by distance or construction.
    - 11.3. Enclosure in cabinets or rooms.
    - 11.4. Spill control, drainage and containment.
    - 11.5. Control systems—ventilation, special electrical, detection and alarm, extinguishment, explosion venting, limit controls, exhaust scrubbers and excess flow control.
    - 11.6. Administrative (operational) controls—signs, ignition source control, security, personnel training, established procedures, storage plans and emergency plans.

Evaluation of the hazard is a strongly subjective process; therefore, the *person* charged with this responsibility must gather as much relevant data as possible so that the decision will be objective and within the limits prescribed in laws, policies and standards.

It may be necessary to cause the responsible *persons* in charge to have tests made by qualified *persons* or testing laboratories to support contentions that a particular material or process is or is not hazardous. See Section 104.7.2 of the *California Fire Code*.

E104
REFERENCED STANDARDS

CGA P-20 (2003)	Standard for Classification of Toxic Mixtures	E103.1.3.1
CGA P-23 (2003)	Standard for Categorizing Gas Mixtures Containing Flammable and Nonflammable Components	E102.1.2
ICC IFC-09	*California* Fire Code	E101.1, E102.1.1, E102.1.8.1, E103.2

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX F – HAZARD RANKING
(Not adopted by the State Fire Marshal)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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APPENDIX F
HAZARD RANKING

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION F101
GENERAL

F101.1 Scope. Assignment of levels of hazards to be applied to specific hazard classes as required by NFPA 704 shall be in accordance with this appendix. The appendix is based on application of the degrees of hazard as defined in NFPA 704 arranged by hazard class as for specific categories defined in Chapter 2 of the *California Fire Code* and used throughout.

F101.2 General. The hazard rankings shown in Table F101.2 have been established by using guidelines found within NFPA 704. As noted in Section 4.2 of NFPA 704, there could be specific reasons to alter the degree of hazard assigned to a specific material; for example, ignition temperature, flammable range or susceptibility of a container to rupture by an internal combustion explosion or to metal failure while under pressure or because of heat from external fire. As a result, the degree of hazard assigned for the same material can vary when assessed by different people of equal competence.

The hazard rankings assigned to each class represent reasonable minimum hazard levels for a given class based on the use of criteria established by NFPA 704. Specific cases of use or storage may dictate the use of higher degrees of hazard in certain cases.

SECTION F102
REFERENCED STANDARDS

ICC	IFC-09	*California* Fire Code	F101.1
NFPA	704-07	Identification of the Hazards of Materials for Emergency Response	F101.1, F101.2

TABLE F101.2
FIRE FIGHTER WARNING PLACARD DESIGNATIONS BASED ON HAZARD CLASSIFICATION CATEGORIES

HAZARD CATEGORY	DESIGNATION
Combustible liquid II	F2
Combustible liquid IIIA	F2
Combustible liquid IIIB	F1
Combustible dust	F4
Combustible fiber	F3
Cryogenic flammable	F4, H3
Cryogenic oxidizing	OX, H3
Explosive	R4
Flammable solid	F2
Flammable gas (gaseous)	F4
Flammable gas (liquefied)	F4
Flammable liquid IA	F4
Flammable liquid IB	F3
Flammable liquid IC	F3
Organic peroxide, UD	R4
Organic peroxide I	F4, R3
Organic peroxide II	F3, R3
Organic peroxide III	F2, R2
Organic peroxide IV	F1, R1
Organic peroxide V	None
Oxidizing gas (gaseous)	OX
Oxidizing gas (liquefied)	OX
Oxidizer 4	OX 4
Oxidizer 3	OX 3
Oxidizer 2	OX 2
Oxidizer 1	OX 1
Pyrophoric gases	F4
Pyrophoric solids, liquids	F3
Unstable reactive 4D	R4
Unstable reactive 3D	R4
Unstable reactive 3N	R3
Unstable reactive 2	R2
Unstable reactive 1	None
Water reactive 3	W3
Water reactive 2	W2
Corrosive	H3, COR
Toxic	H3
Highly toxic	H4

F—Flammable category.
R—Reactive category.
H—Health category.
W—Special hazard: water reactive.
OX—Special hazard: oxidizing properties.
COR—Corrosive.
UD—Unclassified detonable material.
4D—Class 4 detonable material.
3D—Class 3 detonable material.
3N—Class 3 nondetonable material.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX G – CRYOGENIC FLUIDS–WEIGHT AND VOLUME EQUIVALENTS
(Not adopted by the State Fire Marshal)

Adopting agency	BSC	SFM		HCD			DSA		OSHPD				CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
		T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4								
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

*The California Code of Regulations (CCR), Title 19, Division 1 provisions that are found in the *California Fire Code* are a reprint from the current CCR, Title 19, Division 1 text for the code user's convenience only. The scope, applicability and appeals.

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX H – HAZARDOUS MATERIALS MANAGEMENT PLANS AND HAZARDOUS MATERIALS INVENTORY STATEMENTS

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter		X																		
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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APPENDIX H

HAZARDOUS MATERIALS MANAGEMENT PLANS AND HAZARDOUS MATERIALS INVENTORY STATEMENTS

(See Sections 2701.5.1 and 2701.5.2)

SECTION H1 SCOPE

H1.1 Scope. *Hazardous Materials Inventory Statements (HMIS) and Hazardous Materials Management Plans (HMMP) which are required by the chief pursuant to Chapter 27 shall be provided for hazardous materials in accordance with Appendix H.*

Exceptions:

1. *Materials which have been satisfactorily demonstrated not to present a potential danger to public health, safety or welfare, based upon the quantity or condition of storage, when approved.*
2. *Chromium, copper, lead, nickel and silver need not be considered hazardous materials for the purposes of Appendix H unless they are stored in a friable, powered or finely divided state.*

Proprietary and trade secret information shall be protected under the laws of the state or jurisdiction having authority.

SECTION H2 HAZARDOUS MATERIALS INVENTORY STATEMENTS (HMIS)

H2.1 When required. *A separate HMIS shall be provided for each building, including its appurtenant structures, and each exterior facility in which hazardous materials are stored.*

The hazardous materials inventory statement shall list by hazard class all hazardous materials stored. The hazardous materials inventory statement shall include the following information for each hazardous material listed:

1. *Hazard class.*
2. *Common or trade name.*
3. *Chemical name, major constituents and concentrations if a mixture. If a waste, the waste category.*
4. *Chemical Abstract Service number (CAS number) found in 29 Code of Federal Regulations (C.F.R.).*
5. *Whether the material is pure or a mixture, and whether the material is a solid, liquid or gas.*
6. *Maximum aggregate quantity stored at any one time.*
7. *Storage conditions related to the storage type, temperature and pressure.*

H2.2 Changes to HMIS. *An amended HMIS shall be provided within 30 days of the storage of any hazardous materials which changes or adds a hazard class or which is sufficient in quantity to cause an increase in the quantity which exceeds 5 percent for any hazard class.*

SECTION H3 HAZARDOUS MATERIALS MANAGEMENT PLANS (HMMP)

H3.1 General. *Applications for a permit to store hazardous materials shall include an HMMP standard form or short form in accordance with Section H3.3 and shall provide a narrative description of the operations and processes taking place at the facility. See Figure H3.*

H3.2 Information required. *The HMMP standard form shall include the information detailed in Section H3.2.*

H3.2.1 General information. *General information, including business name and address, emergency contacts, business activity, business owner or operator, SIC code, number of employees and hours, Dunn and Bradstreet number, and signature of owner, operator or designated representative.*

H3.2.2 General site plan. *A general site plan drawn at a legible scale which shall include, but not be limited to, the location of buildings, exterior storage facilities, permanent access ways, evacuation routes, parking lots, internal roads, chemical loading areas, equipment cleaning areas, storm and sanitary sewer accesses, emergency equipment and adjacent property uses. The exterior storage areas shall be identified with the hazard class and the maximum quantities per hazard class of hazardous materials stored. When required by the chief, information regarding the location of wells, flood plains, earthquake faults, surface water bodies and general land uses within 1 mile (1,609 km) of the facility boundaries shall be included.*

H3.2.3 Building floor plan. *A building floor plan drawn to a legible scale which shall include, but not be limited to, hazardous materials storage areas within the building and shall include rooms, doorways, corridors, means of egress and evacuation routes. Each hazardous materials storage facility shall be identified by a map key which lists the individual hazardous materials, their hazard class and quantity present for each area.*

H3.2.4 Hazardous materials handling. *Information showing that activities involving the handling of hazardous materials between the storage areas and manufacturing processes on site are conducted in a manner to prevent the accidental release of such materials.*

H3.2.5 Chemical capability and separation. *Information showing procedures, controls, signs or other methods used to ensure separation and protection of stored materials from factors which could cause accidental ignition or reaction of ignitable, reactive or incompatible materials in each area.*

H3.2.6 Monitoring program. *Information including, but not limited to, the location, type, manufacturer's specifica-*

tions, if applicable, and suitability of monitoring methods for each storage facility when required.

H3.2.7 Inspection and recording keeping. *Schedules and procedures for inspecting safety and monitoring and emergency equipment. The permittee shall develop and follow a written inspection procedure acceptable to the chief for inspecting the facility for events or practices which could lead to unauthorized discharges of hazardous materials. Inspections shall be conducted at a frequency appropriate to detect problems prior to a discharge. An inspection check sheet shall be developed to be used in conjunction with routine inspections. The check sheet shall provide for the date, time and location of inspection; note problems and dates and times of corrective actions taken; and include the name of the inspector and the countersignature of the designated safety manager for the facility.*

H3.2.8 Employee training. *A training program appropriate to the types of quantities of materials stored or used shall be conducted to prepare employees to safely handle hazardous materials on a daily basis and during emergencies.*

The training program shall include:

1. *Instruction in safe storage and handling of hazardous materials, including maintenance of monitoring records;*
2. *Instruction in emergency procedures for leaks, spills, fires or explosions, including shutdown of operations and evacuation procedures; and*
3. *Record-keeping procedures for documenting training given to employees.*

H3.2.9 Emergency response. *A description of facility emergency procedures is to be provided.*

H3.3 HMMP Short Form—(Minimal Storage Site). *A facility shall qualify as a minimal storage site if the quantity of each hazardous material stored in one or more facilities in an aggregate quantity for the facility is 500 pounds (227 kg) or less for solids, 55 gallons (208.2 L) or less for liquids, or 200 cubic feet (5.7 m^3) or less at NTP for compressed gases and does not exceed the threshold planning quantity as listed in 40 C.F.R., Part 355, Sections 302 and 304. The applicant for a permit for a facility which qualifies as a minimal storage site is allowed to file the short form HMMP. Such plan shall include the following components:*

1. *General facility information.*
2. *A simple line drawing of the facility showing the location of storage facilities and indicating the hazard class or classes, and physical state of the hazardous materials being stored.*
3. *Information describing that the hazardous materials will be stored and handled in a safe manner and will be appropriately contained, separated and monitored.*
4. *Assurance that security precautions have been taken, employees have been appropriately trained to handle the hazardous materials and react to emergency situations, adequate labeling and warning signs are posted, adequate emergency equipment is maintained, and the disposal of hazardous materials will be in an appropriate manner.*

SECTION H4
MAINTENANCE OF RECORDS

H4.1 *Hazardous materials inventory statements and hazardous materials management plans shall be maintained by the permittee for a period of not less than three years after submittal of updated or revised versions. Such records shall be made available to the chief upon request.*

FIGURE H3
SAMPLE FORMAT
HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP) INSTRUCTIONS

SECTION I — FACILITY DESCRIPTION

1.1. Part A

1. *Fill out Items 1 through 11 and sign the declaration.*
2. *Only Part A of this section is required to be updated and submitted annually, or within 30 days of a change.*

1.2. Part B - General Facility Description (Site Plan)

1. *Provide a site plan on 8 1/2- by 11-inch (215 mm by 279 mm) paper, using letters on the top and bottom margins and numbers on the right and left side margins, showing the location of all buildings, structures, chemical loading areas, parking lots, internal roads, storm and sanitary sewers, wells and adjacent property uses. Indicate the approximate scale, northern direction and date the drawing was completed.*
2. *List all special land uses within 1 mile (1,609 km).*

1.3. Part C - Facility Storage Map (Confidential Information)

1. *Provide a site plan on 8 1/2- by 11-inch (215 mm by 279 mm) paper, using letters on the top and bottom margins and numbers on the right and left side margins, with approximate scale and northern direction, showing the location of each storage area. Mark map clearly "Confidential - Do not disclose" for trade-secret information as specified by federal, state and local laws.*
2. *Identify each storage area with an identification number, letter, name or symbol.*
3. *Show the following:*
    - *3.1. Accesses to each storage area*
    - *3.2. Location of emergency equipment*
    - *3.3. The general purpose of other areas within the facility*
    - *3.4. Location of all above-ground and underground tanks to include sumps, vaults, below-grade treatment systems, piping, etc.* <
4. *Map key. Provide the following on the map or in a map key or legend for each storage area:*
    - *4.1. A list of hazardous materials, including wastes*
    - *4.2. Hazard class of each hazardous waste*
    - *4.3. The maximum quantity for hazardous materials*
    - *4.4. Include the contents and capacity limit of all tanks at each area and indicate whether they are above or below ground*
    - *4.5. List separately any radioactives, cryogens and compressed gases for each facility*
    - *4.6. Trade-secret information shall be listed as specified by federal, state and local laws*

SECTION II — HAZAROUS MATERIALS INVENTORY STATEMENT (HMIS)

2.1. Part A - Declaration

Fill out all appropriate information.

2.2. Part B - Inventory Statement

1. *You must complete a separate inventory statement for all waste and nonwaste hazardous materials. List all hazardous materials in alphabetical order by hazard class.*

2.3. Inventory Statement Instructions:

Column Information Required

1. *Provide hazard class for each material.*
2. *Nonwaste. Provide the common or trade name of the regulated material. Waste. In lieu of trade names, you may provide the waste category.*
3. *Provide the chemical name and major constituents and concentrations, if a mixture.*

FIGURE H3 (Continued)

4. *Enter the chemical abstract service number (CAS number) found in 29 C.F.R. For mixtures, enter the CAS number of the mixture as a whole if it has been assigned a number distinct from its constituents. For a mixture that has no CAS number, leave this item blank or report the CAS numbers of as many constituent chemicals as possible.*
5. *Enter the following descriptive codes as they apply to each material. You may list more than one code, if applicable.*

   P = Pure
   M = Mixture
   S = Solid
   L = Liquid
   G = Gas

6. *Provide the maximum aggregate quantity of each material handled at any one time by the business. For underground tanks, list the maximum volume [in gallons (liters)] of the tank.*

   6.1. Enter the estimated average daily amount on site during the past year.

7. *Enter the units used in Column 6 as:*

   LB = Pounds
   GA = Gallons
   CF = Cubic Feet

8. *Enter the number of days that the material was present on site (during the last year).*
9. *Enter the storage codes below for type, temperature and pressure.*

   Type

   A = Above-ground tank
   B = Below-ground tank
   C = Tank inside building
   D = Steel Drum
   E = Plastic or nonmetalic drum
   F = Can
   G = Carboy
   H = Silo
   I = Fiber drum
   J = Bag
   K = Box
   L = Cylinder
   M = Glass bottle or jug
   N = Plastic bottles or jugs
   O = Tote bin
   P = Tank wagon
   Q = Rail car
   R = Other

   Temperature

   4 = Ambient
   5 = Greater than ambient, but not cryogenic [less than –150°F (–101.1°C)]
   6 = Less than ambient
   7 = Cryogenic conditions [less than –150°F (–101.1°C)]

   Pressure

   1 = Ambient (atmospheric)
   2 = Greater than ambient (atmospheric)
   3 = Less than ambient (atmospheric)

FIGURE H3 (Continued)

HAZARDOUS MATERIALS MANAGEMENT PLAN

SECTION I: FACILITY DESCRIPTION

PART A - GENERAL INFORMATION

1. Business Name: _____ Phone: _____

Address: _____

2. Person Responsible for the Business:

Name	***Title***	***Home Number***	***Work Number***
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. Emergency Contacts: _____

4. Person Responsible for the Application/Principal Contact:

Name	***Title***	***Phone***
_____	_____	_____

5. Property Owner:

Name	***Address***	***Phone***
_____	_____	_____

6. Principal Business Activity: _____

7. Number of Employees: _____

8. Number of Shifts: _____

9. Hours of Operation: _____

10. SIC Code: _____

11. Dunn and Bradstreet Number: _____

12. Declaration

I certify that the information above and on the following parts is true and correct to the best of my knowledge.

Signature: _____ Date: _____

Print Name: _____ Title: _____

(must be signed by owner/operator or designated representative)

PART B - GENERAL FACILITY DESCRIPTION/SITE PLAN

(Use grid format on the next page)

Special land uses within 1 mile (1,609 km): _____

_____

_____

FIGURE H3 (Continued)

PART C - FACILITY MAP

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	
1															1
2															2
3															3
4															4
5															5
6															6
7															7
8															8
9															9
10															10
11															11
12															12
13															13
14															14
15															15
16															16
17															17
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	

BUSINESS NAME	**DATE**
ADDRESS CITY	**PAGE_____ OF_____**

(Use grid format above)

SECTION II: HAZARDOUS MATERIALS INVENTORY STATEMENT

PART A - DECLARATION

1. Business Name: _____

2. Address: _____

3. Declaration: _____

Under penalty of perjury, I declare the above and subsequent information, provided as part of the hazardous materials inventory statement, is true and correct.

Signature: _____ Date: _____

Print Name: _____ Title: _____

(Must be signed by owner/operator or designated representative.)

FIGURE H3 (Continued)

SECTION V: RECORD KEEPING

Description of our inspection program: _____

_____

_____

_____ *We will use the attached forms in our inspection program.*

_____ *We will not use the sample forms. We have attached a copy of our own forms.*

SECTION VI: EMERGENCY RESPONSE PLAN

1. In the event of an emergency, the following shall be notified:

A. On-site Responders:

Name	***Title***	***Phone***
_____	_____	_____
_____	_____	_____

B. Method of Notification to Responder:

_____ *Automatic Alarm* _____*Phone*

_____ *Manual Alarms* _____*Verbal*

_____ *Other:* _____

_____

_____

C.	***Agency***	***Phone Number***
Fire Department:		
Cal EMA California Emergency Management Agency:		
Other:		

_____

_____

2. Designated Local Emergency Medical Facility:

Name	***Address***	***Phone (24 hours)***
_____	_____	_____

3. Mitigation Equipment:

A. Monitoring Devices:

_____ *Toxic flammable gas detection*

_____ *Fluid detection*

_____ *Other:* _____

_____

B. Spill Containment:

_____ *Absorbents* _____ *Other:* _____

_____

C. Spill Control and Treatment:

_____ *Vapor Scrubber* _____ *Mechanical Ventilation*

_____ *Pumps/vacuums* _____ *Secondary Containment*

_____ *Neutralizer* _____ *Other:* _____

FIGURE H3 (Continued)

4. Evacuation:

_____ *Immediate area evacuation routes posted*

_____ *Entire building evacuation procedures developed*

_____ *Assembly areas preplanned*

_____ *Evacuation maps posted*

_____ *Other:* _____

_____

5. Supplemental hazardous materials emergency response plan on site.

Location: _____

Responsible Person: _____

Phone: _____

SECTION VII: EMERGENCY-RESPONSE TRAINING PLAN

1. Person responsible for the emergency-response training plan:

Name ***Title*** ***Phone***

_____ _____ _____

2. Training Requirements:

A. All employees trained in the following as indicated:

_____ *Procedures for internal alarm/notification*

_____ *Procedures for notification of external emergency-response organization*

_____ *Location and content of the emergency-response plan*

B. Chemical handlers are trained in the following as indicated:

_____ *Safe methods for handling and storage of hazardous materials*

_____ *Proper use of personal protective equipment*

_____ *Locations and proper use of fire- and spill-control equipment*

_____ *Specific hazards of each chemical to which they may be exposed*

C. Emergency-response team members are trained in the following:

_____ *Procedures for shutdown of operation*

_____ *Procedures for using, maintaining and replacing facility emergency and monitoring equipment*

3. The following records are maintained for all employees:

_____ *Verification that training was completed by the employee*

_____ *Description of the type and amount of introductory and continuing training*

_____ *Documentation on and description of emergency-response drills conducted at the facility.*

4. A more comprehensive and detailed emergency-response training plan is maintained on site.

Location: _____

Responsible Person: _____

Phone: _____

CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX I – FIRE PROTECTION SYSTEMS—NONCOMPLIANT CONDITIONS
(Not adopted by the State Fire Marshal)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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CALIFORNIA FIRE CODE-MATRIX ADOPTION TABLE
APPENDIX J – EMERGENCY RESPONDER RADIO COVERAGE
(Not adopted by the State Fire Marshal)

Adopting agency		SFM		HCD			DSA		OSHPD											
	BSC	T-24	T-19*	1	2	1/AC	AC	SS	1	2	3	4	CSA	DHS	AGR	DWR	CEC	CA	SL	SLC
Adopt entire chapter																				
Adopt entire chapter as amended (amended sections listed below)																				
Adopt only those sections that are listed below																				
[California Code of Regulations, Title 19, Division 1]																				
Chapter/Section																				

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APPENDIX J
EMERGENCY RESPONDER RADIO COVERAGE

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

SECTION J101
GENERAL

J101.1 Scope. Systems, components and equipment required to provide emergency responder radio coverage shall be in accordance with this appendix.

J101.2 Permit. A construction permit is required for installation of or modification to emergency responder radio coverage systems and related equipment. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

SECTION J102
DEFINITIONS

J102.1 Definitions. For the purpose of this appendix, certain terms are defined as follows:

AGENCY. Any emergency responder department within the jurisdiction that utilizes radio frequencies for communication. This could include, but not be limited to, various public safety agencies such as fire department, emergency medical services and law enforcement.

SECTION J103
TECHNICAL REQUIREMENTS

J103.1 System design. The emergency responder radio coverage system shall be designed in accordance with Sections J103.1.1 through J103.1.5.

J103.1.1 Amplification systems allowed. Buildings and structures that cannot support the required level of radio coverage shall be equipped with a radiating cable system, a distributed antenna system with Federal Communications Commission (FCC)-certified signal boosters or other system approved by the *fire code official* in order to achieve the required adequate radio coverage.

J103.1.2 Technical criteria. The *fire code official* shall maintain a document providing the specific technical information and requirements for the emergency responder radio coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, the effective radiated power of radio sites and other supporting technical information.

J103.1.3 Secondary power. The emergency responder radio coverage system shall be equipped with a secondary source of power. The secondary source of power shall be either a battery system or an emergency generator. The secondary power supply shall supply power automatically when the primary power source is lost. The secondary source of power shall be capable of operating the emergency responder radio coverage system for a period of at least 12 hours.

J103.1.3.1 Battery systems. The active components of the installed system or systems shall be capable of operating on an independent battery system for a period of at least 12 hours without external power input. The battery system shall automatically charge in the presence of external power input.

J103.1.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:

1. All signal booster components shall be contained in a NEMA4-type waterproof cabinet.
2. The battery system shall be contained in a NEMA4-type waterproof cabinet.
3. The system shall include automatic alarming of malfunctions of the signal booster and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 or, when approved by the *fire code official*, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC certification prior to installation.

J103.1.5 Additional frequencies and change of frequencies. The emergency responder radio coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC.

J103.2 Installation requirements. The installation of the public safety radio coverage system shall be in accordance with Sections J103.2.1 through J103.2.5.

J103.2.1 Approval prior to installation. No amplification system capable of operating on frequencies licensed to any public safety agency by the FCC shall be installed without prior coordination and approval of the *fire code official*.

J103.2.2 Permit required. A construction permit, as required by Section 105.7.5 of the *California Fire Code*, shall be obtained prior to the installation of the emergency responder radio coverage system.

J103.2.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include:

1. A valid FCC-issued General Radio Operators License, and
2. Certification of in-building system training issued by a nationally recognized organization or school or a

certificate issued by the manufacturer of the equipment being installed.

The agency may waive these requirements upon successful demonstration of adequate skills and experience satisfactory to the *fire code official*.

J103.2.4 Acceptance test procedure. When an emergency responder radio coverage system is required, and upon completion of installation, the building *owner* shall have the radio system tested to ensure that two-way coverage on each floor of the building is a minimum of 90 percent. The test procedure shall be conducted as follows:

1. Each floor of the building shall be divided into a grid of 20 approximately equal areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system.
3. A maximum of two nonadjacent areas shall be allowed to fail the test.
4. In the event that three of the areas fail the test, in order to be more statistically accurate, the floor may be divided into 40 equal areas. A maximum of four nonadjacent areas shall be allowed to fail the test. If the system fails the 40-area test, the system shall be altered to meet the 90-percent coverage requirement.
5. A test location approximately in the center of each grid area shall be selected for the test, then the radio shall be enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area shall not be allowed.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of installation and subsequent annual inspections.

J103.2.5 FCC compliance. The emergency responder radio coverage system installation and components shall also comply with all applicable federal regulations, including but not limited to, FCC 47 CFR 90.219.

J103.3 Maintenance. The emergency responder radio coverage system shall be maintained in accordance with Sections J103.3.1 through J103.3.5.

J103.3.1 Maintenance. The public radio coverage system shall be maintained operational at all times.

J103.3.2 Permit required. A construction permit, as required by Section 105.7.5 of the *California Fire Code*, shall be obtained prior to the modification or alteration of the emergency responder radio coverage system.

J103.3.3 Testing and proof of compliance. The emergency responder radio coverage system shall be inspected and tested annually or whenever structural changes occur including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:

1. In-building coverage test as described in Section J103.2.4.
2. Signal boosters shall be tested to ensure that the gain is the same as it was upon initial installation and acceptance.
3. Backup batteries and power supplies shall be tested under load for a period of one hour to verify that they will properly operate during an actual power outage. If within the one-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional one-hour periods until the integrity of the battery can be determined.
4. All other active components shall be checked to verify operation within the manufacturer's specifications.
5. At the conclusion of the testing, a report verifying compliance with Section J103.2.4 shall be submitted to the *fire code official*.

J103.3.4 Additional frequencies. The building *owner* shall modify or expand the emergency responder radio coverage system at his or her expense in the event frequency changes are required by the FCC or additional frequencies are made available by the FCC. Prior approval of a public safety radio coverage system on previous frequencies does not exempt this section.

J103.3.5 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.

SECTION J104
REFERENCED STANDARDS

FCC 47 CFR 90.219—2007	Private Land Mobile Radio Services—Use of Signal Boosters	J103.2.5
ICC IFC—09	*California* Fire Code	J103.2.2, J103.3.2
NFPA 72—10	National Fire Alarm Code	J103.1.4

HISTORY NOTE APPENDIX

CALIFORNIA FIRE CODE

(Title 24, Part 9, California Code of Regulations)

For prior code history, see the History Note Appendix to the *California Fire Code* 2007 Triennial Edition, effective January 1, 2008.

1. SFM 04-09 — Adoption of the 2009 edition of the *International Fire Code* published by the International Code Council, for incorporation into the *2010 California Fire Code*, CCR Title 24, Part 9 with amendments for the State Fire Marshal regulated occupancies, effective on January 1, 2011.

2. Errata to correct errors and omissions.

3. (SFM EF 03/10 & EF 03/11) – Emergency regulations for antifreeze in residential fire sprinkler systems and for exceptions for interconnected residential smoke detectors, respectively. Effective on April 28, 2011 and approved as permanent on July 20, 2011.

4. (SFM 04/10) – Repeal and amend provisions of the 2010 *California Fire Code*, CCR Title 24, Part 9, with amendments for the State Fire Marshal regulated occupancies, effective on July 1, 2012.

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SECTION R604
WOOD STRUCTURAL PANELS

R604.3 Installation. Wood structural panel wall sheathing shall be attached to framing in accordance with Table R602.3(1) or Table R602.3.(3). Wood structural panels marked Exposure 1 or Exterior are considered water-repellent sheathing under the code.

Q: What does "Exposure 1" refer to?

A: Exposure 1 panels are made with waterproof glues with untreated wood. They are designed for exposure to the weather during construction. They are not intended for permanent exposure to the weather. For permanent exposure to the weather, "Exterior" grade panels must be used. [6-27]

Q: Is plywood stronger than oriented strand board (OSB) of the same thickness?

A: No, not according to the provisions in the IRC. PS 1 and PS 2 are U.S. Department of Commerce (DOC) Voluntary Product Standards. PS 1 specifies how plywood must be manufactured in order to qualify for grade-mark identification. PS 2 deals with how a panel product must perform in a designated application rather than how it must be manufactured. Plywood and OSB may be produced

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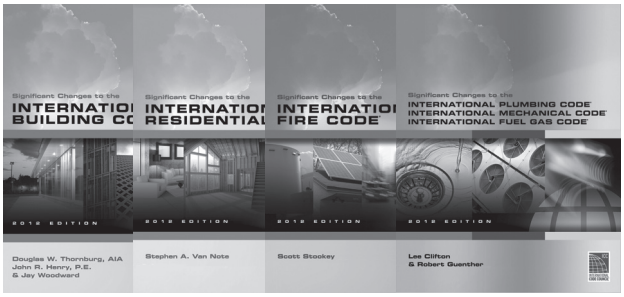

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#7024S12

SIGNIFICANT CHANGES TO THE IRC, 2012 EDITION
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#7202S12

Changes are identified then followed by in-depth discussion of how the change affects real world application. Photos, tables and illustrations further clarify application.


712 Vertical Openings

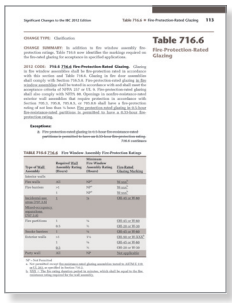
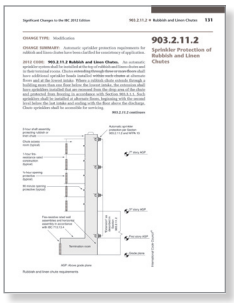


Table 716.6 Fire-Protection-Rated Glazing


903.2.11.2 Sprinkler Protection of Rubbish and Linen Chutes

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