

CALIFORNIA FIRE CODE – MATRIX ADOPTION TABLE CHAPTER 31 – TENTS AND OTHER MEMBRANE STRUCTURES

(Matrix Adoption Tables are non-regulatory, intended only as an aid to the user.)

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

Adopting Agency	BSC	SFM		HCD			DSA		OSHPD				BSCC	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																				
3101.1		X																		
[T-19 §303 (a)(b)]			X																	
3101.2		X																		
3101.3		X																		
[T-19 §310 (a-c)]			X																	
3103.8.2		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																	
3104.2		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																	
3104.12		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																	
3104.23		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 I remain the same.

CHAPTER 31

TENTS AND OTHER MEMBRANE STRUCTURES

SECTION 3101 GENERAL

3101.1 Scope. Tents and membrane structures shall comply with this chapter. The provisions of Section 3103 are applicable only to temporary tents and membrane structures. The provisions of Section 3104 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.

3101.2 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.

3101.3 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 3102 DEFINITIONS

3102.1 Definitions. The following terms are defined in Chapter 2:

AIR-INFLATED STRUCTURE.

AIR-SUPPORTED STRUCTURE.

MEMBRANE STRUCTURE.

TENT.

SECTION 3103 TEMPORARY TENTS AND MEMBRANE STRUCTURES

3103.1 General. All temporary tents and membrane structures shall comply with this section.

3103.2 Approval required. Tents and membrane structures having an area in excess of 400 square feet (37 m²) 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 m²).
 - 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 m²) total.
 - 2.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.

TENTS AND OTHER MEMBRANE STRUCTURES

3103.3 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.

3103.4 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7.

3103.5 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.

3103.6 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.

3103.7 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.

3103.7.1 Inspection report. When required by the fire code official, an inspection report shall be provided and shall consist of maintenance, anchors and fabric inspections.

3103.8 Access, location and parking. Access, location and parking for temporary tents and membrane structures shall be in accordance with this section.

3103.8.1 Access. Fire apparatus access roads shall be provided in accordance with Section 503.

3103.8.2 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 m²).
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 m²).
 - 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 Code*.

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 from any tent. No other vehicle shall be parked less than 100 feet from any tent except vehicles parked on a public street shall park at least 20 feet from any tent.

3103.8.3 Location of structures in excess of 15,000 square feet in area. Membrane structures having an area of 15,000 square feet (1394 m²) 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.

3103.8.4 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*.

3103.8.5 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.

3103.8.6 Fire break. An unobstructed fire break passage-way 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.

3103.9 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.

3103.10 Temporary air-supported and air-inflated membrane structures. Temporary air-supported and air-inflated membrane structures shall be in accordance with Sections 3103.10.1 through 3103.10.4.

3103.10.1 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.

3103.10.2 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.

3103.10.3 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.

3103.10.4 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.

3103.11 Seating arrangements. Seating in tents or membrane structures shall be in accordance with Chapter 10.

3103.12 Means of egress. Means of egress for temporary tents and membrane structures shall be in accordance with Sections 3103.12.1 through 3103.12.8.

3103.12.1 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.

3103.12.2 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 3103.12.2. 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.

3103.12.3 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.

3103.12.4 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).

3103.12.5 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.

3103.12.5.1 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.

3103.12.6 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.

3103.12.6.1 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.

**TABLE 3103.12.2
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)	
		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.

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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.

3103.12.7 Means of egress illumination. Means of egress shall be illuminated with light having an intensity of not less than 1 footcandle (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.

3103.12.8 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 3104 TEMPORARY AND PERMANENT TENTS AND MEMBRANE STRUCTURES

3104.1 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 non-flammable 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.

3104.2 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).*

3104.3 Label. Membrane structures or tents shall have a permanently affixed label bearing the identification of size and fabric or material type.

[California Code of Regulations, Title 19, Division 1, §334] Requirements Pertaining to All Tents.

All tents manufactured for sale in California shall be labeled in accordance with the appropriate provisions of California Code of Regulations, Title 19, Division 1, Section 335.

[California Code of Regulations, Title 19, Division 1, §335.(a) and (b)] Labeling of Tents.

(a) Each section of top and sidewall in large tents shall have a durable label, permanently affixed, bearing the following information:

- (1) *The Seal of Registration.*
- (2) *If treated fabric, the name and registration number of the approved application concern and approved chemical used, and the date of treatment.*
- (3) *If registered fabric, the trade name and registration number of the approved fabric, and the date of production.*

In lieu of attached labels, the required information may be applied directly to the fabric by print, stamp or stencil.

(b) Small tents shall have a permanently affixed label bearing the information in California Code of Regulations, Title 19, Division 1, Section 335, subsection (a), or shall comply with the provisions specified in CPAI-84 (1975) which reads as follows:

- (1) *Certification. A statement that the materials used in the manufacture of the item meet the flame-resistance requirements of CPAI-84.*
- (2) *Manufacturer Identification. An identification of the manufacturer of the item. If the item bears a private label, it shall identify the private labeler and shall also contain a code mark which will permit the seller of the item to identify the manufacturer to the purchaser upon request.*
- (3) *Code Number. A number enabling the manufacturer to identify from his records the suppliers and suppliers' lot numbers of the certified materials used in the item. The manufacturer shall also maintain records identifying the parties to whom he sold camping tentage. Further, he shall maintain records identifying items manufactured from lots of certified material. Records shall be maintained for four (4) years.*
- (4) *Warning label.*

WARNING
KEEP ALL FLAME
AND HEAT SOURCES
AWAY FROM THIS
TENT FABRIC

This tent is made with flame-resistant fabric which meets CPAI-84 specifications. It is not fire proof. The fabric will burn if left in continuous contact with any flame source.

The application of any foreign substance to the tent fabric may render the flame resistant properties ineffective.

This warning label or its equivalent must be permanently affixed to the tent at one conspicuous location, and must be block letters on a white background. The first paragraph of the body of the label must be placed

in a conspicuous location on each carton containing the tent.

3104.4 Certification. An affidavit or affirmation shall be submitted to the fire code official and a copy retained on the premises on which the tent or air-supported structure is located. The affidavit shall attest to the following information relative to the flame propagation performance criteria of the fabric:

1. Names and address of the owners of the tent or air-supported structure.
2. Date the fabric was last treated with flame-retardant solution.
3. Trade name or kind of chemical used in treatment.
4. Name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

[California Code of Regulations, Title 19, Division 1, §315.(d)] Flame Resistance Standards.

(d) Certificates of Flame Resistance or other documentation affirming the requirements of California Code of Regulations, Title 19, Division 1, Section 315, subsection (a) shall be made available upon request of the enforcement authority.

3104.5 Combustible materials. Hay, straw, shavings or similar combustible materials shall not be located within any tent or membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings utilized for a public performance or exhibit shall not be prohibited provided the sawdust and shavings are kept damp. Combustible materials shall not be permitted under stands or seats at any time.

[California Code of Regulations, Title 19, Division 1, §315.(b)] Flame Resistance Standards.

(b) Sawdust, shavings, or other combustible material used on the floor or ground shall be made flame resistant or when approved by the enforcing authority shall be kept adequately damp when tent is occupied.

[California Code of Regulations, Title 19, Division 1, §326.(b)] Hazard Abatement.

(b) Hay, straw, trash and other similar flammable material shall be stored more than 50 feet from any tent except upon approval of the enforcing authority.

Exception: *Tents to which the public is not admitted.*

3104.6 Smoking. Smoking shall not be permitted in tents or membrane structures. Approved "No Smoking" signs shall be conspicuously posted in accordance with Section 310.

[California Code of Regulations, Title 19, Division 1, §316] Smoking Prohibited.

Smoking is not permitted in any tent and in any adjacent areas where hay or other highly flammable materials are kept. "No Smoking" signs shall be conspicuously posted in all tents open to the public and wherever otherwise specified by the enforcing authority.

3104.7 Open or exposed flame. Open flame or other devices emitting flame, fire or heat or any flammable or combustible liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be permitted inside or located within 20 feet (6096 mm) of the tent or membrane structures while open to the public unless approved by the fire code official.

[California Code of Regulations, Title 19, Division 1, §317] Fireworks and Open Flames.

Fireworks, open flame or any device emitting flame or spark shall not be used in or immediately adjacent to any tent while open to the public, except when approved in writing by the enforcing authority.

3104.8 Fireworks. Fireworks shall not be used within 100 feet (30 480 mm) of tents or membrane structures.

3104.9 Spot lighting. Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet (1829 mm) of such equipment shall be protected with approved noncombustible insulation not less than 9¹/₄ inches (235 mm) thick.

3104.10 Safety film. Motion pictures shall not be displayed in tents or membrane structures unless the motion picture film is safety film.

3104.11 Clearance. There shall be a minimum clearance of at least 3 feet (914 mm) between the fabric envelope and all contents located inside membrane structures.

> **3104.12 Portable fire extinguishers.** Portable fire extinguishers shall be provided as required by *California Code of Regulations, Title 19, Division 1, Chapter 2, Article 3, Section 319.*

[California Code of Regulations, Title 19, Division 1, §319.(a) through (c)] Fire Extinguishers and Other Fire Protection Equipment.

(a) One Class 2-A fire extinguisher shall be provided in every tent having a floor area between 500 square feet and 1,000 square feet plus one 2-A fire extinguisher in each auxiliary adjacent tent. One additional extinguisher shall be provided for each additional 2000 square feet or fraction thereof.

(b) At least one Class 10 B-C fire extinguisher shall be provided with each generator or transformer.

(c) At least one Class 10 B-C fire extinguisher shall be provided in kitchen, dining areas, and at locations where flammable or combustible liquids or flammable gases are used, stored, or dispensed.

3104.13 Fire protection equipment. Fire hose lines, water supplies and other auxiliary fire equipment shall be maintained at the site in such numbers and sizes as required by the fire code official.

[California Code of Regulations, Title 19, Division 1, §319.(d) and (e)] Fire Extinguishers and Other Fire Protection Equipment.

(d) Tents having a capacity of 1,000 or more persons shall be protected on each of the long sides with fire hose lines

of at least 1¹/₂-inch internal diameter and of sufficient length to reach either end of the tent. The water supply shall be either from the public water mains or from tanks having a capacity of not less than 500 gallons. There shall be at least 65 pounds of flowing pressure at the nozzle of the hose line when a 1¹/₂-inch tip is used.

(e) The enforcing authority may modify or waive any of the requirements of this section [Title 19, Division 1, Section 319] and may accept other types of fire extinguishing equipment in lieu of that required by Title 19, Division 1 regulations if, in the authorities' opinion, reasonable and adequate protection will be afforded.

3104.14 Occupant load factors. The occupant load allowed in an assembly structure, or portion thereof, shall be determined in accordance with Chapter 10.

3104.15 Heating and cooking equipment. Heating and cooking equipment shall be in accordance with Sections 3104.15.1 through 3104.15.7.

3104.15.1 Installation. Heating or cooking equipment, tanks, piping, hoses, fittings, valves, tubing and other related components shall be installed as specified in the *California Mechanical Code* and shall be approved by the fire code official.

3104.15.2 Venting. Gas, liquid and solid fuel-burning equipment designed to be vented shall be vented to the outside air as specified in the *California Mechanical Code*. Such vents shall be equipped with approved spark arresters when required. Where vents or flues are used, all portions of the tent or membrane structure shall be not less than 12 inches (305 mm) from the flue or vent.

3104.15.3 Location. Cooking and heating equipment shall not be located within 10 feet (3048 mm) of exits or combustible materials.

3104.15.4 Operations. Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables, butane or other similar devices which do not pose an ignition hazard, shall be approved.

3104.15.5 Cooking tents. Tents with sidewalls or drops where cooking is performed shall be separated from other tents or membrane structures by a minimum of 20 feet (6096 mm).

3104.15.6 Outdoor cooking. Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet (6096 mm) of a tent or membrane structure.

3104.15.7 Electrical heating and cooking equipment. Electrical cooking and heating equipment shall comply with *California Electrical Code*.

3104.16 LP-gas. The storage, handling and use of LP-gas and LP-gas equipment shall be in accordance with Sections 3104.16.1 through 3104.16.3.

3104.16.1 General. LP-gas equipment such as tanks, piping, hoses, fittings, valves, tubing and other related components shall be approved and in accordance with Chapter 61 and with the *California Mechanical Code*.

[California Code of Regulations, Title 19, Division 1, §325] Liquefied Petroleum Gas.

Liquefied petroleum gas shall not be stored or used in connection with any tent unless the storage containers, equipment, fittings, appliances, placement, use and operation complies with the provisions of California Code of Regulations, Title 8, Article 5, Subchapter 1, Chapter 4.

3104.16.2 Location of containers. LP-gas containers shall be located outside. Safety release valves shall be pointed away from the tent or membrane structure.

3104.16.2.1 Containers 500 gallons or less. Portable LP-gas containers with a capacity of 500 gallons (1893 L) or less shall have a minimum separation between the container and structure not less than 10 feet (3048 mm).

3104.16.2.2 Containers more than 500 gallons. Portable LP-gas containers with a capacity of more than 500 gallons (1893 L) shall have a minimum separation between the container and structures not less than 25 feet (7620 mm).

3104.16.3 Protection and security. Portable LP-gas containers, piping, valves and fittings which are located outside and are being used to fuel equipment inside a tent or membrane structure shall be adequately protected to prevent tampering, damage by vehicles or other hazards and shall be located in an approved location. Portable LP-gas containers shall be securely fastened in place to prevent unauthorized movement.

3104.17 Flammable and combustible liquids. The storage of flammable and combustible liquids and the use of flammable-liquid-fueled equipment shall be in accordance with Sections 3104.17.1 through 3104.17.3.

3104.17.1 Use. Flammable-liquid-fueled equipment shall not be used in tents or membrane structures.

3104.17.2 Flammable and combustible liquid storage. Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet (15 240 mm) from tents or membrane structures. Storage shall be in accordance with Chapter 57.

[California Code of Regulations, Title 19, Division 1, §324.(a) and (b)] Flammable and Combustible Liquids.

(a) Liquids having a flash point below 200°F shall not be stored in any tent nor less than 50 feet from any tent.

(b) Flammable or combustible liquids shall be stored and dispensed in accordance with the provisions of the California Fire Code. The enforcing authority may permit limited quantities of flammable or combustible liquids required for display and normal merchandizing.

3104.17.3 Refueling. Refueling shall be performed in an approved location not less than 20 feet (6096 mm) from tents or membrane structures.

3104.18 Display of motor vehicles. Liquid- and gas-fueled vehicles and equipment used for display within tents or membrane structures shall be in accordance with Sections 3104.18.1 through 3104.18.5.3.

3104.18.1 Batteries. Batteries shall be disconnected in an appropriate manner.

3104.18.2 Fuel. Vehicles or equipment shall not be fueled or defueled within the tent or membrane structure.

3104.18.2.1 Quantity limit. Fuel in the fuel tank shall not exceed one-quarter of the tank capacity or 5 gallons (19 L), whichever is less.

3104.18.2.2 Inspection. Fuel systems shall be inspected for leaks.

3104.18.2.3 Closure. Fuel tank openings shall be locked and sealed to prevent the escape of vapors.

3104.18.3 Location. The location of vehicles or equipment shall not obstruct means of egress.

3104.18.4 Places of assembly. When a compressed natural gas (CNG) or liquefied petroleum gas (LP-gas) powered vehicle is parked inside a place of assembly, all the following conditions shall be met:

1. The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG or LP-gas container shall be closed and the engine shall be operated until it stops. Valves shall remain closed while the vehicle is indoors.
2. The hot lead of the battery shall be disconnected.
3. Dual-fuel vehicles equipped to operate on gasoline and CNG or LP-gas shall comply with this section and Sections 3104.18.1 through 3104.18.5.3 for gasoline-powered vehicles.

3104.18.5 Competitions and demonstrations. Liquid and gas-fueled vehicles and equipment used for competition or demonstration within a tent or membrane structure shall comply with Sections 3104.18.5.1 through 3104.18.5.3.

3104.18.5.1 Fuel storage. Fuel for vehicles or equipment shall be stored in approved containers in an approved location outside of the structure in accordance with Section 3104.17.2.

3104.18.5.2 Fueling. Refueling shall be performed outside of the structure in accordance with Section 3104.17.3.

3104.18.5.3 Spills. Fuel spills shall be cleaned up immediately.

3104.19 Separation of generators. Generators and other internal combustion power sources shall be separated from tents or membrane structures by a minimum of 20 feet (6096 mm) and shall be isolated from contact with the public by fencing, enclosure or other approved means.

3104.20 Standby personnel. When, in the opinion of the fire code official, it is essential for public safety in a tent or membrane structure used as a place of assembly or any other use where people congregate, because of the number of persons, or the nature of the performance, exhibition, display, contest or activity, the owner, agent or lessee shall employ one or more qualified persons, as required and approved, to remain on duty during the times such places are open to the public, or when such activity is being conducted.

TENTS AND OTHER MEMBRANE STRUCTURES

[California Code of Regulations, Title 19, Division 1, §320] Fire Safety Personnel.

The owners or operators of any tent used as a place of assemblage shall provide at least one qualified fire safety person in every tent having a capacity of 500 persons and one additional qualified person for each 1,000 additional persons or fraction thereof. Such persons shall be on duty in the tent at all times when the tent is open to the public. They shall be proficient in the handling of fire extinguishers and equipment and shall be familiar with the fire and panic safety regulations. The individual designated under this section shall meet the approval of the fire authority having jurisdiction.

Exception: *The enforcing authority may waive or modify the provisions of this section if, in his opinion, public safety will not be jeopardized.*

3104.20.1 Duties. Before each performance or the start of such activity, standby personnel shall keep diligent watch for fires during the time such place is open to the public or such activity is being conducted and take prompt measures for extinguishment of fires that occur and assist in the evacuation of the public from the structure.

3104.20.2 Crowd managers. There shall be trained crowd managers or crowd manager/supervisors at a ratio of one crowd manager/supervisor for every 250 occupants, as approved.

3104.21 Combustible vegetation. Combustible vegetation that could create a fire hazard shall be removed from the area occupied by a tent or membrane structure, and from areas within 30 feet (9144 mm) of such structures.

[California Code of Regulations, Title 19, Division 1, §326.(a)] Hazard Abatement.

(a) All flammable vegetation within 50 feet of any tent shall be removed.

3104.22 Combustible waste material. The floor surface inside tents or membrane structures and the grounds outside and within a 30-foot (9144 mm) perimeter shall be kept free of combustible waste and other combustible materials that could create a fire hazard. Such waste shall be stored in approved containers and removed from the premises at least once a day during the period the structure is occupied by the public.

[California Code of Regulations, Title 19, Division 1, §326.(c)] Hazard Abatement.

(c) Combustible waste shall not be permitted to accumulate on the grounds either inside or outside of tents. Such waste shall be stored in approved containers until removed from the premises.

3104.23 Obstructions. Exits, aisles and passageways shall not be blocked or have their minimum clear width obstructed in any manner by ticket offices, turnstiles, concessions, chairs, equipment, animal chutes, poles or guy ropes, or anything whatsoever, nor shall they be blocked by persons for whom no seats are available.

In occupancies having fixed seating, and on request of the owner or manager, the enforcing agency may permit modifications from the provisions of this code to accommodate seating for handicapped persons using mechanical aids such as, but not limited to, walkers and wheelchairs.