



Corona Fire Department

Requirements for Tents and Other Membrane Structures per 2016 CFC

PURPOSE

The intent of this guideline is to provide the minimum standards needed to obtain a permit to erect tents and other membrane structures.

SCOPE

This guideline shall apply to tents and other membrane structures having an area in excess 400 square feet. The requirements are from 2016 California Fire Code (CFC) Chapter 31 and California Code of Regulations (CCR) Title 19.

GUIDELINES

- A. A California Fire Code permit is required to erect a tent or membrane structure in excess of 400 sf.
Exception: Tents open on all sides, complying with the following:
- Individual Tents not exceeding 700 sf, open on all sides,
 - The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12' shall not exceed 700 sf total.
 - A minimum clearance of 12' to structures and other tents shall be provided.

- B. The following information is required to obtain a permit for a temporary tent or membrane structure:

1. An accurate scale or dimensioned site diagram indicating distances from temporary tents or membrane structures to permanent buildings, access drives, vehicles and parking areas, other tents, cooking and heating appliances and equipment, property lines and roadways.
 - a. Temporary tents and membrane structures shall not be located within 20 feet 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 tent or membrane structure.
 - Vehicles necessary to the operation of the establishment shall be parked at least 20' from any tent. All other vehicles shall be parked at least 100' from any tent except vehicles parked on a public street, which shall park at least 20' from any tent, per the regulation of the State Fire Marshal (CFC §3103.8.2 and CCR T-19, Div.1, §312).

Exception: 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.

Membrane structures and tents need not be separated from buildings when the provisions of CFC 3103.8.2, exception 2.1-2.4 are met.

2. Permanent tents and membrane structures shall also comply with the requirements of the California Building Code and California Code of Regulations, Title 19, per CFC 3104.1.
3. A statement which identifies the intended use of all structures and the dates for which the permit is required. Dates shall include the specific dates of installation, use and removal.

4. Emergency apparatus access roads are required in accordance with CFC 503. Additional emergency equipment such as hose lines or water supplies shall be shown in accordance with the requirements of CFC 3104.13
5. Specific areas for parking of vehicles shall be detailed on the site plan.
6. Dimensions and specifications for all temporary tents and membrane structures shall be provided.
 - a. An unobstructed fire break passageway or fire road not less than 12' 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, per CFC 3103.8.6.
7. Proposed seating and exiting arrangements (CFC 3103.11 and Chapter 10)
 - a. The occupant load shall be provided in accordance with CFC 3104.14 and Chapter 10.
 - Maximum occupant load shall be posted when greater than 50 persons.
 - A place of assembly permit is required when greater than 50 persons.
 - b. Locations and dimensions of tables and all other interior obstacles
 - c. Exit locations; dimensions required for exits as required by CFC 3103.12
 - d. Locations of all aisles and emergency exit pathways to be maintained per CFC 3103.12.5.1 & 3104.23.
 - e. Locations of NO SMOKING signs per CFC 3104.6.
 - f. Locations and types of EXIT signs and means of egress illumination, including power sources, per CFC 3103.12.6 and 3103.12.7.
 - g. Location of portable fire extinguishers per CFC 3104.12 and CFC 906.
 - h. Flame retardant certificate(s) for tent material per CFC 3104.2.
 - Certification executed by an approved testing laboratory certifying that all tents and membrane structures, their appurtenances; sidewalls, drops and tarpaulins; floor coverings, bunting and combustible decorative materials and effects, including sawdust when used on floors or passageways shall be provided in accordance with the provisions of Title 19, Division 1, Chapter 8.
 - i. 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.
 - j. Location and types of proposed heating and/or cooking equipment or open flame devices to be used in conjunction with the event shall be shown per CFC 3104.15.

CODE REQUIREMENTS

A. EXITS

1. 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' or less from an exit, per CFC 3103.12.1 through 3103.12.8.
2. 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 shall not be less than the total occupant load served by a means of egress multiplied by 0.2 inches per person.
3. Exit openings from tents shall remain open unless covered by a flame resistant curtain, as required by CFC 3103.12.3, provided that:
 - a. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80" above the floor level at the exit. The curtain shall be so arranged such that, when open, no part of the curtain obstructs the exit.
 - b. Curtains shall be of a color, or colors, that contrast with the color of the tent.
4. 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.

Table 3103.12.2 EXITS FROM TEMPORARY MEMBRANE STRUCTURES AND TENTS¹

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
1000 to 1999	5	120	96
2000 to 2999	6	120	96
Over 3000	7	120	96

5. The width of aisles without fixed seating shall be as follows, per CFC 3103.12.5:
 - a. In areas serving employees only, the minimum aisle width shall be 24 inches but not less than the width required by the number of employees served
 - b. In public areas, smooth-surfaced, unobstructed aisles having a minimum width of not less than 44 inches shall be provided from seating areas, and aisles shall be progressively increased in width to provide, at all points, not less than 1 foot of aisle width for each 50 persons served by such aisle at that point.
 - c. The arrangement of aisles shall be subject to approval by the fire code official and shall be maintained clear at all times during occupancy.
6. Exit signage shall be clearly marked per CFC 3103.12.6. Exit signs shall be installed where necessary to clearly identify the direction of travel when the exit serves an occupant load of 50 or more.

EXIT signs shall be either listed or 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:

- a. Two separate circuits, one of which shall be separate from all other circuits, for occupant loads of 300 or less; or
 - b. 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 and CFC 3103.10.4. The emergency system provided shall have a minimum duration of 90 minutes when operated at full design demand.
7. Means of egress shall be illuminated with light having an intensity of not less than 1 footcandle at floor level while the structure is occupied per CFC 3103.12.7. Fixtures required for means of egress illumination shall be supplied from a separate circuit or source of power.
 8. 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'. The surface of means of egress shall be maintained in an approved manner per CFC 3103.12.8.

B. SEATING

1. Assembly occupancies which contain seats, tables, displays, equipment or other material shall meet the requirements of CFC 1029.

¹ When the occupant load exceeds 3000, 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.

2. Places of assembly without ramped or tiered floors for seating and with greater than 200 seats, shall have the seats fastened together in groups of not less than three, or the seats shall be securely fastened to the floor per CFC 1029.14.

C. FIRE EXTINGUISHERS

1. Portable fire extinguishers shall be provided. Travel distance to the nearest 2A:10BC extinguisher shall not exceed 75', per CFC 906 and 3104.12. At least one Class 10BC extinguisher shall be provided at generators or transformers.
2. Portable fire extinguishers shall be located in conspicuous locations where they will be readily accessible and immediately available for use. These locations shall be along normal paths of travel, unless the fire code official determines that the hazard posed indicates the need for placement away from normal paths of travel, per CFC 906.5
3. Fire extinguishers provided for the protection of cooking grease fires shall be Class K, per CFC 906.4.

D. HEATING AND COOKING EQUIPMENT

1. Heating or cooking equipment, tanks, piping, hoses, fittings, valves, tubing, and other related components shall be installed as specified in the CA Mechanical Code and shall be approved by the fire code official.
2. Cooking and heating equipment shall not be located within 10 feet of exits or combustible materials per CFC 3104.15.3.
3. Tents with sidewalls or drops where cooking is performed shall be separated from other tents or membrane structures by a minimum of 20' per CFC 3104.15.5.
4. Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20' of a tent, or membrane structure per CFC 3104.15.6.
5. 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 per CFC 3104.15.4.
6. Electrical heating and cooking equipment shall comply with the California Electrical Code per CFC 3104.15.7.

E. FLAMMABLE AND COMBUSTIBLE LIQUIDS/GASES

1. Flammable-liquid-fueled equipment shall not be used in tents or membrane structures per CFC 3104.17.1.
2. Flammable or combustible liquids shall be stored outside in an approved manner not less than 50' from tents, or membrane structures, per CFC 3104.17.2.
3. Refueling shall be performed in an approved location not less than 20 feet from tents, or membrane structures per CFC 3104.17.3.

F. LP-GAS

1. LP-gas containers shall be located outside. Safety release valves shall be pointed away from the tent or membrane structure per CFC 3104.16.2
2. Portable LP-gas containers with a capacity of 500 gallons or less shall have a minimum separation between the container and the structure not less than 10', per CFC 3104.16.2.1.

3. Portable LP-gas containers with a capacity of more than 500 gallons shall have a minimum separation between the container and structures not less than 25', per CFC 3104.16.2.2.
4. 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, per CFC 3104.16.3.

G. DISPLAY OF MOTOR VEHICLES

1. Liquid- and gas- fueled vehicles and equipment used for display within tents or membrane structures shall comply with CFC 3104.18.1 through 3104.18.5.3.
2. Batteries shall be disconnected in an appropriate manner.
3. Vehicles or equipment shall not be fueled or defueled within a tent or membrane structure.
4. Fuel in a fuel tank shall not exceed 25% of the tank capacity or 5 gallons, whichever is less.
5. Fuel systems shall be inspected for leaks.
6. Fuel tanks openings shall be locked and sealed to prevent escape of vapors.
7. Placement of vehicles or equipment shall not obstruct any means of egress.
8. 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:
 - The quarter-turn shut off 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.
 - The hot lead of the battery shall be disconnected.

H. HOUSEKEEPING

1. Combustible vegetation shall be removed from the area occupied by a tent or membrane structure, and from areas within 30' of such structures per CFC 3104.21.
2. The floor surface inside tents or membrane structures and the grounds outside and within a 30' perimeter shall be kept clear of combustible waste. Such waste shall be stored in approved containers until removed from the premises, per CFC 3104.22.

I. STANDBY PERSONNEL

1. 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 such times such places are open to the public, or when such activity is being conducted, per CFC 3104.20.
2. There shall be trained crowd managers or crowd manager supervisors at a ratio of one crowd manager/supervisor for every 250 occupants, as approved. At least one qualified fire safety person shall be present in every tent having a capacity of 500 or more and one additional qualified person for each 1000 additional persons or fraction thereof shall be present, per CCF T-19, Chapter 2, §320.