Santa Clara Fire Department

Tents and Temporary
Membrane Structures

PURPOSE

This guide is intended to provide safety standards and regulations for the installation of temporary tents, canopies, air-supported, air-inflated or tensioned membrane structures.

SCOPE

Guideline for tents and temporary membrane structures are established in order to ensure compliance with applicable codes and regulations. The Santa Clara Fire Department (SCFD) is responsible for enforcing these requirements, which are contained in the 2010 California Fire Code Chapter 24, and Title 19 of the California Code of Regulations (CCR). Where specific language is enforced, the applicable code is cited for reference.

Temporary tents, air-supported, air-inflated, or tensioned membrane structures and canopies shall not be erected for a period of more than 180 days within a 12 month period on a single premise.

DEFINITIONS

A permit is required for the following:

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 useable 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.

Temporary Membrane Structure – An air inflated, air-supported, cable or frame covered structure not otherwise defined as a tent which will be continually used for a period of time not exceeding 180 days.

Tent - Any structure, enclosure or shelter constructed of fabric or pliable material supported by any manner except by air or contents that it protects greater than 400 square feet with more than 25 percent of the perimeter enclosed.

SUBMITTAL REQUIREMENTS

In order to ensure adequate time to process plans and issue permits, **the following must be provided to the Santa Clara Fire Department Fire Marshal's Office a minimum of 10 days prior to the date of event**.

1. **GENERAL:**
   A. A Fire permit is required for all tents and temporary membrane structures exceeding 400 square feet or tents with all sides open that exceed 700 square feet. The following shall be submitted to SCFD for review.
      i. Provide one site diagram.

Office of The Fire Marshal ▪ 1675 Lincoln St ▪ Santa Clara, CA 95050 ▪ Tel: (408) 615-4970 ▪ Fax: (408) 241-3006
Hazardous Materials Division ▪ Tel: (408) 615-4960 ▪ Fax: (408) 241-3006

ii. Submit a completed SCFD Permit Application, which can be obtained at the Fire Marshal's Office, 1675 Lincoln Street, Santa Clara or on the City of Santa Clara website at www.santaclaraca.gov.

iii. Submit appropriate fees: Please reference SCFD Plan Check Fees document.

B. Submittals may be mailed or hand delivered to Santa Clara Fire Department, Division of Fire Prevention, 1675 Lincoln Street, Santa Clara, CA 95050. All fees must be paid at the time of plan submittal.

C. Plans not conforming to these minimum requirements will be returned as incomplete.

2. **Site Diagram -** An accurate scale or dimensioned site diagram indicating:

   A. Specific areas for parking of vehicles shall be detailed on the site plan.

   B. Dimensions for all tents and temporary membrane structures.

   C. A statement which identifies the intended use of all structures and the dates for which the permit is required.

   D. The sidewalls, drops, top, floor coverings, and decorative materials shall be composed of flame resistant material or treated with a flame retardant material in an approved manner. All materials used within the structure shall comply with the flame propagation performance criteria of NFPA 701. (2010 CFC, Sec. 2404.2)

   E. A statement which indicates the proposed use of any heating and/or cooking equipment or open flame devices in conjunction with the event. (**Additional conditions and permit may be required**)

   F. Locations of any additional emergency equipment such as hose lines or emergency power supplies if required.

3. **Floor Plan** – A floor plan shall be submitted and the following shall be shown: (2010 CFC, Sec. 2403.6)

   A. Proposed seating arrangements,

   B. Locations and dimensions of tables,

   C. Locations and type of all other interior obstacles,

   D. Exit locations; dimensions required,

   E. Locations of all emergency exit pathways shall be maintained at all times,

   F. Locations of NO SMOKING signs,

   G. Locations and type of emergency lighting, including proposed power source(s),

   H. Locations and type of exit signs,

   I. Locations of portable fire extinguishers,

   J. Type of floor surface proposed inside tent or canopy,

   K. Location and width of all-weather fire access roadways.

4. **Inspection Requirements -** A site inspection is required after the structure has been erected (prior to the event). The inspector shall verify compliance with these guidelines. All inspections shall be scheduled a minimum of 2 days prior to the date of the event. All required Building and Planning Department approvals must be obtained prior to the date of the event. **All permits shall be posted at the site or kept in an approved location on the premises.**

5. **Location -** Tents or temporary membrane structures shall not be located within 20 feet of lot lines, buildings, other tents or temporary 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, tent, or canopy. (2010 CFC, Sec. 2403.8.2)

Exceptions:

A. Separation distance between tents and membrane structures not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet.

B. Tents and temporary membrane structures need not be separated from buildings when all the following conditions are met:

i. The aggregate floor area of the tents and temporary membrane structures shall not exceed 10,000 square feet,

ii. The aggregate floor area of the building and tents and temporary membrane structures shall not exceed the allowable floor area, including increases, as indicated in the *California Building Code*,

iii. Required means of egress provisions are provided for the building and the tents and temporary membrane structures including travel distances,

iv. Fire apparatus access roads are provided in accordance with Section 503 related to building and temporary structures.

6. **Structures in excess of 15,000 square feet -** Membrane structures having an area of 15,000 square feet or more shall be located not less than 50 feet from any other tent or structure as measured from the sidewall of the tent or membrane structure, unless joined together by a corridor. (2010 CFC Chapter 24 Section 2403.8.3)

7. **Fire Break -** An unobstructed fire break passageway or fire road not less than 12 feet wide, and free from guy ropes or other obstructions, shall be maintained on all sides of all tents and temporary membrane structures unless otherwise approved by the fire code official. (2010 CFC, Sec. 2403.8.6)

8. **Means of Egress -** Means of egress from tents and temporary membrane structures shall be in accordance with 2403.12.1 through 2403.12.8. (2010 CFC, Sec. 2403.12)

A. **Distribution** - Exits shall be spaced at approximately equal intervals around the perimeter of the tent and temporary membrane structure and shall be located such that all points are 100 feet or less from an exit. (2010 CFC Chapter 24 Section 2403.12.1)

B. **Number** - Tents and temporary membrane structures or a useable 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 shall not be less than the total occupant load served by a means of egress multiplied by 0.2 inches per person. (2010 CFC, Sec. 2403.12.2)

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 or Canopy	Membrane Structures
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

a. When the occupant load exceeds 3,000, the total width of the means of egress (inches) shall not be less than the total occupant load multiplied by 0.2 inches per person.

9. **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:
   A. Curtains shall be free sliding on a metal support. The support shall be a minimum of 80 inches above the floor level at the exit.
   B. The curtains shall be so arranged that, when open, no part of the curtain obstructs the exit. Curtains shall be of a color, or colors, that contrast with the color of the tent. (2010 CFC, Sec. 2403.12.3)
10. **Seating Arrangements** - Seating in tents and temporary membrane structures shall be in accordance with Chapter 10. (2010 CFC, Sec. 2403.11)
11. **Bonding of chairs.** When more than 299 loose seats, folding chairs or similar seating facilities are used and not fixed to the floor, the chairs shall be bonded together in-groups of three or more. (CCR Title 19, Division 1, Sec. 3.06(a))
12. **Clear width of aisle access ways serving seating** - Where seating rows have 14 or fewer seats, the minimum clear aisle access ways width shall not be less than 12 inches measured as the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. 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. (2010 CFC, Sec 1028.10)
13. **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 between rows shall be increased by 0.3 inch for every additional seat beyond 14 seats, but the minimum clear width is not required to exceed 22 inches. (2010 CFC, Sec. 1028.10.1)
14. **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 between rows shall be increased by 0.6 inch for every additional seat beyond seven seats, but the minimum clear width is not required to exceed 22 inches. Distance measured as the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. (2010 CFC, Sec. 1028.10.2)
15. **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. (2010 CFC, Sec. 2403.12.4)
16. **Aisles** - The width of aisles without fixed seating shall be in accordance with the following: (2010 CFC, Sec. 2403.12.5)
   A. <u>Areas serving employees only</u> - The minimum aisle width shall be 24 inches but not less than the width required by the number of employees served.
   B. <u>Public areas</u> - 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 the points, not less than 1 foot of aisle width for each 50 persons served by such aisle at the point.
17. **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. (2010 CFC, Sec. 2403.12.5.1)
18. **Exit signs** - Exit signs shall be installed when occupant load is more than 49 people. (2010 CFC, Sec. 2403.12.6)
19. **Exit sign illumination** - Exit signs shall be of an approved self-luminous type or shall be internally or externally illuminated by luminaries supplied in the following manner: (2010 CFC, Sec. 2403.12.6.1)

A. Two separate circuits, one of which shall be separated from all other circuits, for occupant loads of 300 or less; or

B. Two separate sources or 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 onsite generator set, and system shall be installed in accordance with the California Electrical Code. **A city Building Department electrical permit may be required. Check with local Building Department prior to Fire Authority inspection.**

20. **Means of egress illumination** - Means of egress shall be illuminated with light having an intensity of not less than 1 foot candle 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. **Means of egress illumination shall be provided for 50 or more persons.** (2010 CFC, Sec. 2403.12.7)

21. **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. The surface of means of egress shall be maintained in an approved manner. (2010 CFC, Sec. 2403.12.8)

22. **Posting of occupant load** - Every room or space that is assembly occupancy shall have that occupant load of the room posted in a conspicuous place. (2010 CFC, Sec. 1004.3)

23. **Areas without fixed seating** - The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.1. For areas without fixed seating, the occupant load shall not be less than the number determined by dividing the floor area under consideration by the occupancy as set in Table 1004.1.1. Where an intended use is not listed in Table 1004.1.1, the Fire Code Official shall determine the square footage factor to be used to calculate the occupant load. (2010 CFC, Sec. 1004.1.1)

TABLE 1004.1.1 ASSEMBLY AREAS WITHOUT FIXED SEATING:

ASSEMBLY AREAS WITHOUT FIXED SEATING	
Concentrated (chairs only)	7 net
Standing Space	5 net
Un-concentrated (tables and chairs)	15 net

24. **Heating and cooking equipment** - Heating and cooking equipment shall be in accordance with sections 2010 CFC, Sections 2404.15.1 through 2404.15.7.

A. 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. (2010 CFC, Sec. 2404.15.1)

B. 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*. Where vents or flues are used, all portions of the tent or temporary membrane structure shall be not less than 12 inches from the flue or vent. (2010 CFC, Sec. 2404.15.2)

C. Location - Cooking and heating equipment shall not be located within 10 feet of exits or combustible material. (2010 CFC, Sec. 2404.15.3)

D. 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. (2010 CFC, Sec. 2404.15.4)

E. Cooking tents - Tents where cooking is performed shall be separated from other tents and temporary membrane structures by a minimum of 20 feet. (2010 CFC, Sec. 2404.15.5)

F. Outdoor cooking - Outdoor cooking that produces sparks or grease laden vapors shall not be performed within 20 feet of a tent or temporary membrane structure. (2010 CFC, Sec. 2040.15.6)

G. Electrical heating and cooking equipment - Electrical cooking and heating equipment shall comply with the *California Electrical Code*.(2010 CFC, Sec. 2404.15.7)

25. **LP-Gas** – General LP-gas equipment such as tanks, piping, hoses, fittings, valves, tubing, and other related components shall be approved and in accordance with Chapter 38 and the *California Mechanical Code*. (2010 CFC, Sec. 2404.16.1)

26. **Location of containers** – Lpg gas containers shall be located outside. Safety release valves shall be pointed away from the tent or temporary membrane structure. (2010 CFC, Sec. 2404.16.2)

A. Containers 500 gallons or less - Portable LPgas containers with a capacity 500 gallons or less shall have a minimum separation between the container and structure, property lines, public ways, or other containers of not less than 10 feet. (2010 CFC, Sec. 2404.16.2.1)

B. Containers more than 500 gallons - Portable LPgas containers with a capacity of more than 500 gallons shall have a minimum separation between the container and structures, property lines, public ways, or other containers of not less than 25 feet. (2010 CFC, Sec. 2404.16.2.1)

27. **Protection and security** - Portable LPgas containers, piping, valves, and fittings which are located outside an area being used to fuel equipment inside a tent or temporary membrane structure shall be adequately protected to prevent tampering, damage by vehicles, or other hazards and shall be located in an approved location. Portable LPgas containers shall be securely fastened in place to prevent unauthorized movement. (2010 CFC, Sec. 2404.16.3)

28. **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 2404.17.1 through 2404.17.3. (2010 CFC, Sec. 2404.17)

A. Use - Flammable-liquid-fueled equipment shall not be used in tent or temporary membrane structures. (2010 CFC, Sec. 2404.17.1)

B. Flammable and combustible liquid storage - Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet from tents and temporary membrane structures. (2010 CFC, Sec. 2404.17.2)

C. Refueling - Refueling shall be performed in an approved location not less than 20 feet from tents and temporary membrane structures. (2010 CFC, Sec. 2404.17.3)

29. **Display of motor vehicles** – The display of motor vehicles shall be in accordance with the following: (2010 CFC, Sec. 2404.18)

A. Batteries shall be disconnected in an appropriate manner. (2010 CFC Chapter 24 Section 2404.18.1)

B. Vehicles or equipment shall not be fueled or defueled within the tent, canopy, or membrane structure. (2010 CFC Chapter 24 Section 2404.18.2)

C. Fuel in the fuel tank shall not exceed one-quarter of the tank capacity or 5 gallons, whichever is less. (2010 CFC Chapter 2404.18.2.1)

D. Fuel systems shall be inspected for leaks. (2010 CFC Chapter 24 Section 2404.18.2.2)

E. Fuel tank openings shall be locked and sealed to prevent the escape of vapors. (2010 CFC Chapter 24, Section 2404.18.2.3)

F. The location of vehicles or equipment shall not obstruct means of egress. (2010 CFC Chapter 24, Section 2404.18.3)

G. CNG or LPgas vehicles in places of assembly - When a compressed natural gas (CNG) or liquefied petroleum gas (LPgas) powered vehicle is parked inside a place of assembly, all the following conditions shall be met: (2010 CFC Chapter 24, Section 2404.18.3)

(i) The quarter-turn shutoff valve or other shutoff valve on the outlet of the CNG of LPgas container shall be closed and the engine shall be operated until it stops. Valves shall remain closed while the vehicle is indoors.

(ii) The hot lead of the battery shall be disconnected.

(iii) Dual fuel vehicles equipped to operate on gasoline and CNG or LPgas shall comply with this section and sections CFC Chapter 24 Sections 2404.18.1 through 2404.18.5.3 for gasoline powered vehicles.

H. Vehicle competitions and demonstrations - Liquid and gas fueled vehicles and equipment used for competition or demonstration within a tent or temporary membrane structure shall comply with sections CFC Chapter 24 Section 2404.18.5.1 through 2404.18.5.3.

(i) Fuel for vehicles or equipment shall be stored in approved containers in an approved location outside of the structure no less than 50 feet from tents or canopies. (2010 CFC Chapter 24 Section, 2404.18.5.1)

(ii) Refueling shall be performed outside of the structure no less that 20 feet from tent or canopies. (2010 CFC Chapter 24, Section 2404.18.5.2)

(iii) Fuel spills shall be cleaned up immediately. (2010 CFC Chapter 24 Section 2404.18.5.3)

I. Separation of generators - Generators and other internal combustion power sources shall be separated from tents or temporary membrane structures by a minimum of 20 feet and shall be isolated from contact with the public by fencing, enclosure, or other approved means. (2010 CFC Chapter 24 Section 2404.19)

30. **Crowd Managers** – Trained crowd managers shall be provided for facilities or events where more than 1,000 persons congregate. One trained crowd manager shall be provided for every 250 persons congregating.

31. **Standby Personnel** - When, in the opinion of the fire code official, it is essential for public safety in a tent or temporary 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. (2010 CFC Chapter 24 Section 2404.20)

A. 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.

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

32. **Vegetation Removal** - Combustible vegetation shall be removed from the area occupied by a tent or temporary membrane structure, and from areas within 30 feet of such structure. (2010 CFC Chapter 24 Section 2404.21)

33. **Waste Material** - The floor surface inside tents and temporary membrane structures and the ground outside and within a 30 foot perimeter, shall be kept clear of combustible waste. Such waste shall be stored in approved containers until removed from the premises. (2010 CFC Chapter 24 Section 2403.9)

34. **Combustible Materials** - Hay, straw, shavings, or similar combustible materials shall not be located within the tent or temporary membrane structure containing an assembly occupancy, except the materials necessary for the daily feeding and care of animals. Sawdust and shavings

utilized for the public performance or exhibit shall not be prohibited, provided the sawdust and shavings are kept damp. Combustible materials shall not be permitted under stands of seats at anytime. (2010 CFC Chapter 24 Section 2404.5)

35. **Smoking** - Smoking shall not be permitted in tents or temporary membrane structures. Approved "NO SMOKING" signs shall be conspicuously posted throughout the structure. (2010 CFC Chapter 24, Section 2404.6)

36. **Portable Fire Extinguishers** - Provide one minimum 2A:10B:C fire extinguisher every 75 feet of travel distance. The top portion of the portable fire extinguishers shall be mounted between 3 and 5 feet above the floor. (2010 CFC Chapter 24, Section 2404.7)

37. **Open Flames** - 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 of the tent or temporary membrane structure while open to the public unless approved by the fire code official. (2010 CFC Chapter 24 Section 2404.7)

38. **Fireworks** - Fireworks shall not be used within 100 feet of tents and temporary membrane structures. (2010 CFC Chapter 24, Section 2404.8)

39. **Spot Lighting** - Spot or effect lighting shall only be by electricity, and all combustible construction located within 6 feet of such equipment shall be protected with approved noncombustible insulation not less than 9.25 inches thick. (2010 CFC Chapter 24 Section 2404.9)

40. **Safety Film** - Motion pictures shall not be displayed in tents and temporary membrane structures unless the motion picture film is safety film. (2010 CFC Chapter 24 Section 2404.10)

41. **Clearance** - There shall be a minimum clearance of at least 3 feet between the fabric envelope and all contents located inside the tent or temporary membrane structure. (2010 CFC Chapter 24 Section 2404.11)

42. **Temporary Air-supported and Air-inflated Membrane Structures** - Temporary air-supported and air-inflated membrane structures shall comply with the following: (2010 CFC Chapter 24Section 2403.10)
    A. During high winds, the use of doors in air supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open. (2010 CFC Chapter 24 Section 2403.10)
    B. 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. (2010 CFC Chapter 24 Section 2403.10.2)
    C. An air-supported structure used as a place of assembly shall be furnished with not less than 2 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. (2010 CFC Chapter 24 Section 2403.10.3)

SCHEDULING INSPECTIONS

1. Inspection appointments can only be made by the permit applicant or listed contractor.
2. It is the responsibility of the permit applicant or listed contractor to have a representative on the job site during the inspection with a set of approved plans. Failure to do so will result in the cancellation of the inspection and a re-inspection fee will be assessed.
3. Call (408) 615-4970 at least one business day prior to the desired date of the inspection. Inspections are assigned on a first come first served basis. The inspection request line is open Monday through Friday between 8:00 a.m. and 5:00 p.m.

SMART PERMIT INFORMATION SYSTEM

The City of Santa Clara offers you the opportunity to check the status of you fire permits on-line. To access the Smart Permit Information System please log onto the system at:

http://santaclaraca.gov/community/smt_permit_information.html

You can search the system using your Case Number (Permit number: FIR2008-00001), Project Name, Applicant Name or the address of the project.