



FIRE PREVENTION GUIDELINE

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| Title: Tents, Canopies and Other Membrane Structures | | |
| Number: FPG-22 | Effective Date: 01/01/2008 | Revised Date: 03/01/2009 |
| Code References: California Fire Code (CFC), California Code of Regulations (CCR) Title 19, Merced Municipal Code (MMC) | | |
| Note: <i>This guideline is a summary of Fire Department clarifications and interpretations of City and State Codes and nationally recognized standards in accordance with the currently adopted edition of the Fire Code. Information contained herein applies to typical circumstances and may not address all situations.</i> | | |

Scope

This Guideline has been developed to assist the public and business community with the inspection and maintenance requirements for tents, canopies and other membrane structures.

Codes and Guidelines

This guideline shall apply to tents and membrane structures with an area of more than 200 square feet and canopies with an area in excess of 400 square feet in compliance with the California Fire Code, California Code of Regulations, Title 19 and the Merced Municipal Code.

Permits Required

A Fire Code permit is required to operate a temporary membrane structure, tent or canopy.

A construction permit may be required by the City of Merced Inspection Services Division required to erect an air-supported temporary membrane structure, or tent having an area in excess of 200 square feet or a canopy with an area in excess of 400 square feet.

Definitions

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.

Canopy: A structure, enclosure or shelter constructed of fabric or pliable materials supported by any manner, except by air or the contents it protects, and is open without sidewalls or drops on 75 percent or more of the perimeter.

Tent: A structure, enclosure or shelter constructed of fabric or pliable material supported by any manner except by air or contents that it protects.

Specific Requirements

1. Plan Submittal

Plans to erect and operate a tent, canopy or air-supported structure must be submitted to the City of Merced Fire Prevention Bureau at 99 E. 16th Street, Merced California a minimum of 72 hours prior to the scheduled event. The plans shall include a site plan, drawn to scale with the following details:



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- a. Property lines
- b. Building footprints
- c. Location of all tents, canopies and membrane structures.
- d. Submit a floor plan showing the location of all tables, chairs, interior obstacles, exits and their dimensions, exit pathways, no smoking signs, fire extinguishers, exit signs and their type, generators, and the type of floor surface.
- e. Size and planned use(s)
- f. Distance to parking, access roads, sidewalks, other tents, buildings or other exposures.
- g. Date and time of set-up and tear down.
- h. A copy of the approved certification of flame resistance

2. Inspection

Fire Prevention requires a site inspection after the structure has been erected with all requirements in place. The site must pass inspection at least 12 hours prior to the event. Additional inspections may be required. Please contact the Fire Prevention Bureau at 209-385-6830 to schedule an inspection.

3. Use Period

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

4. Flame Retardant Treatment and Standards

- a. Side walls, drops, and tops of temporary membrane structures, tents, and canopies shall be composed of flame-resistant material or shall be treated with a flame retardant in an approved manner. Floor coverings, bunting, combustible decorative materials and effects, including sawdust when used on floors or passageways, shall be composed of flame-resistant material or shall be treated with a flame retardant in an approved manner.
- b. The grounds outside and adjacent to or within 30 feet of temporary membrane structures, tents, and canopies shall be kept free and clear of combustible wastes. Such wastes shall be stored in approved containers until removed from the premises.
- c. Temporary membrane structures, tents, and canopies shall have a permanently-affixed label bearing the following information:



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- i. Identification of temporary membrane structure, tent, or canopy, size and fabric or material type;
- ii. For flame-resistant materials, necessary information to determine compliance with this standard;
- iii. For flame-retardant treated materials, the date that the temporary structure, tent, or canopy and other combustible materials were last treated with an approved flame retardant;
- iv. The trade name and type of flame retardant utilized in the flame-retardant treatment;
- v. The names of the person and firm that applied the flame retardant.

5. **Place of Assembly**

For the purposes of this guideline, a place of assembly shall include a circus, carnival, tent show, theater, dance hall, or other place of assembly in or under which persons gather for any purpose.

6. **Access, Location, and Parking**

- a. Approved fire apparatus access shall be provided within 150 feet of any portion of a tent, canopy or membrane structure. Access roads shall have an unobstructed width of not less than 22 feet with vertical clearance of 13 feet, 6 inches.
- b. Temporary membrane structures, tents, and canopies shall not be located within 20 feet of buildings, property lines, parked vehicles, internal combustion engines, or other temporary membrane structures, tents, or canopies. 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.
 - i. Exception: Separation distance between temporary membrane structures, tents, and canopies not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet. Also, the Fire Marshal may approve tents located in or on permanent buildings provided that such use does not constitute an undue hazard.

7. **Exits**

- a. Exits shall be spaced at approximately equal intervals around the perimeter of the temporary membrane structures, tents and canopies and shall be located such that all points are 100 feet or less from an exit.
- b. Exits shall be provided in accordance with the following table:

Table 3211-A



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| Capacity | Minimum # of Exits | Minimum Width Each Exit - Feet | |
|--------------------------|--------------------|--------------------------------|---|
| Tent or Canopy Structure | | Membrane | |
| Up to 199 | 2 | 6 | 3 |
| 200 to 499 | 3 | 6 | 6 |
| 500 to 999 | 4 | 8 | 6 |
| 1000 to 1999 | 5 | 10 | 8 |
| 2000 to 2999 | 6 | 10 | 8 |
| 3000+ | 7 | 10 | 8 |

- c. Exit openings from tents shall remain open unless covered by a flame-resistant curtain as follows:
 - i. Curtains shall be free sliding on a metal support. The support shall be a minimum of eight (8) feet above the floor level at the exit. Curtains shall be so arranged that, when open, no part of the curtains obstruct the exit; and
 - ii. Curtains shall be of a color, or bear markings that will contrast with, the color of the tent.

8. Doors

Exit doors shall swing in the direction of exit travel. To avoid hazardous pressure loss from air-supported structures, such doors shall be automatic closing against operating pressures. Opening force at the door edge shall be in accordance with the Building Code.

9. Maintenance of Means of Egress

- a. The required width of exits, aisles and passageways shall be maintained at all times to a public way.
- b. Guy wires, guy ropes, and other support members shall not cross a means of egress at a height of less than eight (8) feet.
- c. The surface of means of egress shall be maintained in an approved manner.

10. Exit Illumination and Signage

- a. Means of egress shall be illuminated with light having an intensity of not less than one (1) foot-candle at floor level while the structure is occupied. Fixtures required for means of egress illumination shall be supplied from



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a separate circuit or source of power when occupant load exceeds more than 300.

- b. Exit signs shall be installed at required exit doorways and where otherwise necessary to clearly indicate the direction of egress when the exit serves an occupant load of 50 or more.
- c. Exit signs in temporary membrane structures, tents, and canopies with occupant loads of more than 100 persons shall be of an approved self-luminous type or shall be internally or externally illuminated by fixtures supplied in the following manner:
 - i. For occupant loads of 300 or less, two separate circuits, one of which shall be separate from all other circuits, shall be provided;
 - ii. When the occupant load exceeds 300, two separate sources of power, one of which shall be an approved emergency system, shall be provided. Emergency power shall be supplied from storage batteries or on-site generator set, and the system shall be installed in accordance with the Electrical Code.

11. Seating Arrangements and Aisle Spacing

- a. Seating arrangements and aisle spacing shall be in accordance with Article 25 of the Uniform Fire Code and meet the approval of the Fire Marshal.
- b. For situations without fixed seats, the minimum clear aisle width shall be 36 inches where seats, tables counters, furnishings, displays, and similar fixtures or equipment are placed on one side of the aisle only, and 44 inches when such fixtures or equipment are placed on both sides of the aisle.
- c. Aisles shall terminate at a cross aisle, foyer, doorway, or vomitory. Aisles shall not have a dead end greater than 20 feet in length.
- d. When seating rows have 14 or fewer seats, the minimum clear width between rows shall not be less than 12 inches measured from the back of one seat to the nearest projection of the seat behind. The clear width shall be increased as follows:
 - i. For rows of seating served by aisles or doorways at both ends there shall be no more than 100 seats per row. A minimum clear width of 12 inches between rows shall be increased by 0.03 inch for every additional seat beyond 14, but the minimum clear width need not exceed 22 inches.
 - ii. For rows of seating served by an aisle or a doorway at one end only, the minimum clear width of 12 inches between rows shall be increased by 0.06 inch for every additional seat beyond seven, but the minimum clear width need not exceed 22 inches. In addition,



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the distance to the point where the occupant has a choice of two directions of travel to an exit shall not exceed 30 feet from the point where the occupant is seated.

- e. When there are more than 300 seats, loose seats, folding chairs, or similar seating facilities that are not fixed to the floor shall be bonded together in groups of three or more. Bonding of chairs is not required when tables are provided for dining or similar purposes.

12. **Structural Stability**

Temporary membrane structures, tents, and canopies and their appurtenances shall be adequately braced and anchored to prevent weather-related collapse. Documentation of structural stability shall be furnished to the Fire Marshal upon request.

13. **Smoking and Open Flames**

Smoking shall not be permitted in any temporary membrane structure, tent or canopy, or in any adjacent areas where hay, straw, or any other combustible materials are stored or used unless approved by the Fire Marshal. Approved "NO SMOKING" signs shall be conspicuously posted.

14. **Fireworks, Open Flames and Hot Objects**

Fireworks, open flames and devices capable of igniting combustible materials **shall not** be used in or adjacent to a tent, canopy or temporary membrane structure, unless approved by the Fire Marshal.

15. **Heating and Cooking Equipment**

- a. Cooking equipment is permitted only inside tents used exclusively for the cooking of food. No other uses such as public assembly, sales, displays, etc. are permitted. (Exception: The warming of food, cooking demonstrations, or similar activities where the equipment and operations involved do not present an ignition hazard as approved by the Fire Marshal.)
- b. Cooking equipment used in cooking tents shall be vented to the outside air by approved means. Where vents or flues are used, all portions of the tent or canopy shall be no less than 12 inches from the flue or vent. Solid fuel burning equipment shall be equipped with a spark arrestor having opening not exceeding ¼ inch wire mesh.
- c. Tents where cooking is performed shall be separated from other temporary membrane structures, tents, and canopies by a minimum of 20 feet.
- d. Outdoor cooking that produce sparks or grease-laden vapors shall not be performed within 20 feet of a non-cooking temporary membrane structure, tent, or canopy. All other cooking equipment shall be located a minimum of 10 feet from temporary membrane structures, tents, and canopies.



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- e. Only comfort-type heating equipment is permitted. All fuel-fired comfort heating equipment shall be located on the exterior of the temporary membrane structure or tent a minimum of 10 feet away. Heated air shall be ducted from the equipment to the temporary membrane structure or tent. Separate fuel supplies that are in use for comfort-heating equipment shall be located a minimum of 20 feet from the temporary membrane structure or tent. Stored fuel shall be located a minimum of 50 feet from the tent.
- f. Heating and cooking equipment shall not be located within 10 feet of exits, exit pathways, tent or canopy fabric, or other combustible materials.
- g. All cooking and heating equipment, tanks, piping, hoses, fittings, valves, tubing, and other related components shall be approved and in accordance with the Mechanical Code.

16. Flammable or Combustible Liquids and Liquefied Petroleum Gas (LPG)

- a. Flammable-liquid-fuel equipment shall not be used in temporary membrane structures, tents, or canopies.
- b. Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet from temporary membrane structures, tents, or canopies.
- c. LPG shall be located outside and in accordance with CFC Table 8204-A. Safety release valves shall be pointed away from temporary membrane structures, tents, or canopies. (*Exceptions: CFC §8203.2.1.5 and 8203.2.1.6.*)
- d. Refueling shall be performed in an approved location not less than 20 feet from temporary membrane structures, tents, or canopies.

17. Housekeeping

- a. Combustible vegetation shall be removed from the area occupied by a temporary membrane structure, tent, or canopy, and from areas within 30 feet of such a structure.
- b. Hay, straw, trash, and similar combustible materials shall not be stored inside or within 30 feet of a temporary membrane structure, tent, or canopy being used for cooking or public assembly.
 - i. (Exception: Hay, straw, and similar combustibles treated with a flame retardant in an approved manner.)

18. Portable Fire Extinguishers and Other Fire Protection Appliances

- a. Minimum fire extinguisher coverage shall be provided in every temporary membrane structure, tent, or canopy as follows:
 - i. 200 to 500 square feet of floor area: one 2A:10BC extinguisher;
 - ii. 501 to 1,000 square feet of floor area: two 2A:10BC extinguisher;



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- iii. Each additional 2,000 square feet of floor area or fraction thereof:
one 2A:10BC extinguisher.

- b. Fire extinguishers shall be provided for each kitchen, mess hall, power generator, or transformer location where flammable or combustible liquids are used, and in other locations in accordance with Uniform Fire Code Standard 10-1.

- c. At least one 40B:C type fire extinguisher shall be provided for each kitchen, mess hall, power generator, or transformer, and at locations where flammable or combustible liquids are used, stored, or dispensed.

- d. Other fire appliances shall be maintained at the site as may be required by the Fire Marshal.