



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Access - Controlled Doors	SPEC NO: 11 - A EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This Standard applies to buildings and tenant spaces with entrance doors that are electrically access-controlled.

BACKGROUND

The California Building Code (CBC) contains specific regulations for Access-Controlled Egress Doors and Electromagnetically-Locked Egress Doors. These types of Access-Control systems are allowed for the occupancy group specified in the CBC provided that panic hardware is not otherwise required on the egress doors.

For clarification purposes for this Standard, Access-Controlled Egress Doors, Electromagnetically-Locked Egress Doors and an entrance-only access control system are defined as follows:

- Access-controlled Egress Doors are doors where egress is controlled by a system that requires a card-key, code or actuation of a motion sensor or other device to allow doors to be opened (typically by cutting off power to a magnet attached to the door) for egress purposes.
- Electromagnetically Locked Egress Doors are doors where egress through the door is controlled by a system that requires a card key, code or sensor to electrically unlock the door hardware itself for egress purposes. No special knowledge or effort is required to operate the door unlocking hardware with such systems.
- Entrance-only access-control system is a system where the door(s) are not required to be electrically unlocked from the egress side in order to exit and normal mechanical operation of the door hardware allows egress through the door(s). These types of systems typically use an electric strike to control access from the exterior into the building or area.

REQUIREMENTS

Building or tenant spaces having Access-controlled Egress Doors, Electromagnetically-Locked Egress Doors or an entrance-only access-control system shall also be equipped with provisions for unlocking doors for Fire Department access under emergency conditions as required by this Standard (see additional requirements in the CBC for unlocking interior stairway doors).

A key operated switch shall be provided adjacent to the main building entrance or tenant space entrance (or other location approved by the Fire Inspector) for Fire Department use. Operation of the switch shall unlock or release all access-controlled doors within the building or tenant space. **Note that when required fire-rated doors are unlocked they shall always remain latched.**

All doors shall remain unlocked until the system is manually reset. The switch shall be keyed to the Fire Department's Knox Key System. In lieu of the Knox key switch, a Fire Department approved key lock box containing keys to the access control system may be installed immediately adjacent to a system-deactivating switch.

Exception:

When approved by the Chief, a key switch is not required when only the exterior building or tenant space main entrance doors are electrically access-controlled and an approved key lock box is provided. The number and location of the key lock boxes shall be as approved by the Fire Inspector. The key lock boxes shall contain master keys that will unlock all doors associated with the building or tenant space. Note that card-keys are not acceptable for this purpose. Unlocking doors via a master key will cause the door(s) to remain unlocked until manually re-locked.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Apparatus Access	SPEC NO: 11-B EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

Applicable to Fire Department apparatus access roadways serving commercial buildings and three or more single-family dwellings. Note that the specifications contained in this Standard apply only to properties located within the service area of the Morgan Hill.

DEFINITIONS

Roadway: A vehicular access roadway greater than or equal to 20 feet in width.

Driveway: A vehicular access roadway less than 20 feet in width and serving no more than two, single-family dwellings.

Temporary Access Roadway: A temporary vehicular access road or driveway that is provided until such time that the permanent road or driveway is installed.

REQUIREMENTS

Road Design

1. **Minimum clear width:** The minimum clear width of fire department access roads shall be 20 feet. Modifications to the design or width of a fire access road, or additional access road(s) may be required when the fire code official determines that access to the site or a portion thereof may become compromised due to emergency operations or nearby natural or manmade hazards (flood prone areas, railway crossings, bridge failures, hazardous material-related incidents, etc.)

The width of secondary access roads may be reduced to less than 20 feet provided turnouts are installed adjacent to the roadway every 500 feet with a minimum dimension of 10 feet wide and 40 feet long or as otherwise determined by the fire code official.

2. **Access and loading:** Facilities, buildings or portions of buildings hereafter constructed shall be accessible to fire department apparatus by way of an approved fire apparatus access road (including bridges and culverts) with an asphalt, concrete or other approved driving surface capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds (34050 kg) or as otherwise determined by the fire code official.

3. **Minimum clear height:** Vertical clearance over required vehicular access roads and driveways shall be 13'6".
 4. **Grade:** Maximum Grade shall not exceed 15% (6.75 degrees).
 5. **Turn Radius (circulating):** The minimum outside turning radius is 42 feet for required access roadways. Greater radius up to 60 feet may be required where the Fire Prevention Division determines that Ladder Truck access is required. Circulating refers to travel along a roadway without dead ends.
 6. **Turning Radius (Cul-de-sacs):** The minimum outside turning radius is 36 feet. Use of cul-de-sacs is not acceptable where it is determined by the Fire Prevention Division that Ladder Truck access is required, unless greater turning radius is provided.
 7. **Turnarounds:** Turnarounds are required for all dead end roadways with a length in excess of 150 feet. The turnaround details shown in this document are intended to provide a general design concept only. Modifications or variations of these designs may be approved by the Fire Prevention Division on a case-by-case basis. All turnaround designs submitted for Fire Department review shall meet all previously stated requirements. These details are applicable when a 36-foot minimum turning radius for dead ends is specified. These details are not applicable where turning radius greater than 36 feet is specified or when a circulating radius is specified.
 8. **Dead ends:** Dead-end fire apparatus access roads in excess of 150 feet (45720 mm) shall be provided with width and turnaround provisions as determined by the fire code official.
 9. **Parking:** When parking is permitted on streets, in both residential/commercial applications, it shall conform to the following:
 - Parking is permitted both sides of the street with street widths of 36 feet or more
 - Parking is permitted on one side of the street with street widths of 28 – 35 feet
 - No parking is permitted when street widths are less than 28 feet
- NOTE:** Rolled curbs can be part of the curb/sidewalk and used to increase the roadway width with approval from the fire code official. Additional requirements may apply for buildings 30 feet in height or greater. See requirements under **AERIAL FIRE APPARATUS ACCESS ROADS**.
10. **Access to a hydrant:** Fire hydrants located on a public or private street, or on-site, shall have an unobstructed clearance of not less than 30 feet (15 feet either side of hydrant), in accordance with California vehicle code 22514. Marking shall be per California vehicle code 22500.1
 11. **Traffic calming:** Traffic calming devices and the design thereof shall be approved by the fire code official prior to installation.
 12. **Alternate paving material:** Alternative paving materials such as 'Grass Crete', turf block or similar type material may be used for emergency vehicle access (EVA) under certain conditions. The submittal shall include the design criteria based upon the imposed load of fire apparatus as identified in item 2, Access and Loading. The EVA shall:

- Be marked. The lane at the curb delineated with lights, bollards, paint, contrasting material, etc.
- Be structurally sound to preclude movement or disbanding with soil movement.
- Be field tested by the contractor in the presence of the fire code official. Testing may include driving the EVA by a weight verified vehicle. Prior to final approval, the engineer of record (civil or soils engineer) shall certify the installation.

FIRE APPARATUS ROADWAY SIGNS

Where required by the Fire Code Official, fire apparatus access roads shall be designated and marked as a fire lane as set forth in Section 22500.1 of the California Vehicle Code. The designation shall be indicated (1) by a sign posted immediately adjacent to, and visible from, the designated place clearly stating in letters not less than one inch in height that the place is a fire lane, (2) by outlining or painting the place in red and, in contrasting color, marking the place with the words "FIRE LANE", which are clearly visible from a vehicle, or (3) by a red curb or red paint on the edge of the roadway upon which is clearly marked the words "FIRE LANE'.

NUMBER OF ACCESS ROADS REQUIRED

Commercial and Industrial Developments

1. **Buildings exceeding three stories or 30 feet in height.** Buildings or facilities exceeding 30 feet (9144 mm) or three stories in height shall have a least two means of fire apparatus access for each structure.
2. **Buildings exceeding 62,000 square feet in area.** Buildings or facilities having a gross building area of more than 62,000 square feet (5760 mm) shall be provided with two separate and approved fire apparatus access roads.

Exception: Projects having a gross building area of up to 124,000 square feet (11520 mm) that have a single approved fire apparatus access road when all buildings are equipped throughout with approved automatic sprinkler systems.

Multi-Family Residential Developments (R-1 & R-2 occupancies)

1. Multi-family residential projects having more than 100 dwelling units shall be equipped throughout with two separate and approved fire apparatus access roads.

One-or-Two Family Residential Developments

1. Developments of one or two family dwellings where the number of dwelling units exceeds 30 shall be provided with two separate and approved fire apparatus access roads and shall meet the requirements listed under; separation of access roads.

Exception: When approved by the fire code official, where there are more than 30 dwellings units on a single public or private fire apparatus road and all dwellings units are equipped throughout with an approved automatic sprinkler system in accordance with California Fire Code Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.

The number of dwelling units on a single fire apparatus access road shall not be increased unless fire apparatus access roads will connect with future development, as determined by the fire code official.

REQUIREMENTS FOR SECONDARY ACCESS ROADS

1. **Separation of access roads.** Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the property or area to be served, measured in a straight line between accesses (from centerline to centerline).
2. **Connection to other roads:** Where a secondary access roadway connects to a public or private street there shall be either; no curb, a rolled curb or a driveway cut as approved by the fire code official.
3. **Easements:** Only lands owned or in control of the property owner, held in common with adjacent properties or publicly owned may be used for secondary access. Secondary access roadways shall not be located in easements through private property unless specifically approved by the fire code official. When easements are required for secondary access roadways, they shall be recorded as Emergency Vehicle Ingress Egress Easements (E.V.I.E.E) granted to the Fire Department.
4. **Marking and Identification:** When necessary, signs or other approved notices shall be posted at secondary access roadways to prevent obstruction by parked vehicles. Such signs or notices shall be in accordance with Fire Prevention Division Standards.
5. **Maintenance:** Secondary access roadways shall be maintained at all times by the property owner. The roadway surface gates/locks and vertical and horizontal clearances shall be maintained in serviceable condition. Maintenance of secondary access roadways on commonly held lands shall be clearly stated in the Covenant, Conditions, and Restrictions (CC&R) or Landscape Maintenance agreements of the development project. The CC&Rs shall mandate that the owners association shall retain professional management to oversee maintenance responsibilities.

AERIAL FIRE APPARATUS ACCESS ROADS

1. **Where required:** Buildings or portions of buildings or facilities exceeding 30 feet (9144 mm) in height above the lowest level of fire department vehicle access shall be provided with approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Overhead utility and power lines shall not be located within the aerial fire apparatus access roadway.
2. **Width:** Fire apparatus access roads shall have a minimum unobstructed width of 26 feet (7925) in the immediate vicinity of any building or portion of building more than 30 feet (9144 mm) in height.
3. **Proximity to building:** At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet (4572) and a maximum of 30 feet (9144mm) from the building, and shall be positioned parallel to one entire side of the building, as approved by the fire code official.

TEMPORARY ACCESS ROADS

1. When approved by the Fire Marshall, a temporary access road may be installed for fire department access to buildings under construction until such time that the permanent road or driveway is in place. A written request along with detailed plans for the temporary access road shall be submitted to the Fire Prevention Division for review and approval prior to installation. The plan submittal shall also include timelines for use of the temporary roadway and acknowledgment that the integrity of the roadway will be maintained at all times.
2. The width and turn radius dimensions of a temporary access road shall be the same as for the required permanent roadway. As a minimum, the roadway shall consist of a compacted sub base and six (6) inches of road base material (Class 2 aggregate base rock) both compacted to a minimum 95%. The perimeter edges of the roadway shall be contained and delineated by curb and gutter or other approved method. The use of geotextile reinforcing fabric underlayment or soils lime-treatment may be required if so determined by the project civil engineer. Provisions for surface drainage shall also be provided where necessary.
3. Engineering certification of the temporary roadway construction shall be documented and submitted to the Fire Prevention Division prior to or at the time of the acceptance inspection of the roadway.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Fire Safety Regulations for Barbeques on Balconies, Patios and Decks of Residential Occupancies Having More Than 2 Dwelling Units	SPEC NO: 11-C EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

The adopted Fire Code contains regulations for the use and storage of barbeques on specified balconies, patios and decks of residential structures having more than two dwelling units. These include apartments, condominiums, and townhouses (Except for townhouses located on individual parcels separated by recorded property lines).

REQUIREMENT

The following are the applicable sections from the Fire Code:

308.3.1 Open-flame cooking devices.

Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet of combustible construction.

Exceptions:

- One and two-family dwellings
- Where buildings, balconies, and decks are protected by an automatic sprinkler system.

308.3.1.1 Liquefied-petroleum-gas fueled cooking devices.

LP-gas burners having an LP-gas container with a water capacity greater than 2.5 pounds [nominal 1 pound LP-gas capacity] shall not be located on combustible balconies or within 10 feet of combustible construction.

Exception: One- and two-family dwellings.

Summary of the above codes:

Charcoal Barbeques – It is acceptable to store the barbeque unit on a combustible balcony (i.e. wood) but it is not acceptable to operate it on a combustible balcony or within 10 feet of combustible construction (which includes the surrounding walls and overhangs above). It is acceptable to operate the barbeque on a balcony if the balcony, deck, overhangs and adjacent walls are of non-combustible construction or if the balcony is protected overhead by an automatic tire sprinkler system.

Liquefied Petroleum Gas (LPG/Propane) Barbeques - It is not acceptable to store or operate an LPG barbecue with a propane fuel container size greater than one pound on a combustible balcony or within 10 feet of combustible construction (which includes the surrounding walls and overhangs above). There is no exception for automatic tire sprinklers.

Frequently Asked Questions:

When did these new requirements become effective?

January 1, 2008

Which municipalities have adopted Fire Code regulations for barbeques?

All municipalities in Santa Clara County have adopted the Fire Code regulations for barbeques.

Can electric barbeques be used on combustible balconies and decks without restriction?

Yes.

Are natural gas fueled barbeques subject to the same regulations as LPG fueled units?

No. However, they are still subject to the regulations of section 308.3.1 (shown above) for open flame cooking devices.

Can I convert my LPG barbecue to natural gas?

Yes, if done in accordance with the barbecue device manufacturer's specifications.

What types of materials are considered combustible construction and what types are considered non-combustible construction?

Wood or vinyl siding, wood decking and fabric awnings are examples of combustible construction. For the purposes of these regulations, stucco covered walls/ceilings, concrete or tiled floors and wood railings facing the exterior (not between units) will be considered to be non-combustible construction. Note that certain composite deck and railing materials may also be considered non-combustible for the purposes of these regulations. Check with the Fire Preventions Division for approval.

Can I store my charcoal barbecue on my combustible balcony as long as I no longer use it?

Yes. However, first check with your building manager/owner as there may be more restrictive rules regarding barbecues for the property.

Can I store my LPG gas barbecue on my combustible balcony as long as I no longer use it?

Yes, but only if the fuel tank is removed. However, first check with your building manager/owner as there may be more restrictive rules regarding barbecues for the property. Note that the removed fuel tank may not be stored on the balcony, within 10 feet of combustible construction or inside of any enclosed structure. TANKS CANNOT BE STORED ON THE INSIDE OF A DWELLING UNIT.

Can I connect together (manifold) multiple smaller camp stove size LPG containers to use in place of the larger size LPG tank to fuel my barbeque?

No.

Are there other restrictions I should be aware of regarding the use of propane fuel?

Yes, if your building has more than one dwelling unit above the first floor, you must transport the LPG/propane containers to your unit via an open exterior stairway. It is not acceptable to transport propane containers greater than one-pound capacity inside the common building areas, i.e. enclosed interior stairways and elevators.

Who do I call if someone is using their barbeque in non-compliance with these regulations and I want to report it?

Call your building manager/owner to report the incident or contact the Fire Prevention Division office during normal business hours (Monday-Friday) to register a complaint.

If I install a fire sprinkler on my balcony, can I use a barbeque?

No, the entire building requires a fire sprinkler system not just the balcony area.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Construction Site Fire Safety	SPEC NO: 11-D EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This Standard is intended to prescribe minimum safeguards for new building construction, demolition or significant building alteration projects in order to provide a reasonable degree of safety to life and property from fire. This Standard is based on the provisions for fire safety during building construction or demolitions as set forth in the California Fire Code and National Fire Protection Association Standard 241. This Standard shall not be construed to be in lieu of other applicable State or Federal laws and regulations related to construction site safety. The general contractor (or other designee of the building owner) shall be responsible for compliance with the provisions of this Standard. When the term “shall” is used in this Standard, it means a mandatory requirement.

REQUIREMENTS

I. Fire Protection Plan

A written Fire Protection Plan shall be developed for significant or complex construction projects at the discretion of the fire department. The plan shall be approved by the Fire Inspector prior to proceeding past foundation work for new buildings or commencement of demolition work in alteration projects. The written plan shall be consistent with the fire safety precautions as specified in this Standard. The general contractor is responsible for carrying out the provisions of the Fire Protection Plan and communicating it to all subcontractors. Additionally, the Fire Marshal shall be notified of any change affecting the utilization of information contained in the Fire Protection plan. The Fire Protection Plan shall include the following:

- A. Procedures for reporting emergencies to the Fire Prevention Division.
- B. Procedures for emergency notification, evacuation and/or relocation of all persons in the building under construction and on the site.
- C. Procedures for hot work operations, management of hazardous materials and removal of combustible debris and maintenance of emergency access roads.
- D. Floor plans identifying the locations of exits, exit stairs, exit routes and portable fire extinguishers.
- E. Site plans identifying the designated exterior assembly areas for each evacuation route.

- F. Site plans identifying required fire apparatus access roadways and on-site fire hydrants.
- G. The name and contact phone number of the person(s) responsible for compliance with the Fire Protection Plan.

II. General Safety Requirements

- A. Fire Department Access Roadways: All construction sites shall be accessible by fire department apparatus by means of roadways having an all-weather driving surface of not less than 20ft. of unobstructed width. The roads shall have the ability to withstand the live loads of fire apparatus, and have a minimum 13ft. 6 in. of vertical clearance. Dead end fire access roads in excess of 150 ft. in length shall be provided with approved turnarounds.

When approved by the Chief, temporary access roadways may be utilized until such time that the permanent roadways are installed. As a minimum, the roadway shall consist of a compacted sub base and six (6) inches of road base material (Class 2 aggregate base rock) both compacted to a minimum 95%. The perimeter edges of the roadway shall be contained and delineated by curb and gutter or other approved method. The use of geotextile reinforcing fabric underlayment or soils lime-treatment may be required if so determined by the project civil engineer. Provisions for surface drainage shall also be provided where necessary. The integrity of the roadway shall be maintained at all times.

Key boxes: Key boxes and/or approved padlocks shall be required when necessary for access through locked gates or structures.

- B. Fire hydrants: Where underground water mains and hydrants are required for the building(s) under construction, they shall be installed, completed, and in service prior to combustible construction materials accumulating on site.
- C. Telephone service: Provisions shall be provided at the construction site for emergency notification of the fire department via telephone. The street address of the construction site shall be posted adjacent to the telephone, along with the number for the public safety answering point.
- D. Premises identification: The address numbers of the property or project location shall be plainly visible and legible from the street or road fronting the property at the fire apparatus access point or as otherwise approved.
- E. Combustible debris: Wood, cardboard, packing material, form lumber and similar combustible debris shall not be accumulated within buildings. Such debris, rubbish and waste material shall be removed from buildings on a daily basis.
- F. Oily rags: Oily rags and similar material shall be stored in metal or other approved containers equipped with tight-fitting covers.
- G. Temporary heating equipment: Temporary heaters, such as those that are LPG fueled, shall be listed and shall be installed, used, and maintained in accordance with the manufacturer's instructions (See LPG storage and use requirements below). Heating devices shall be secured properly and kept clear from combustible materials. Refueling operations shall be conducted in an approved manner.

- H. Smoking: Smoking is prohibited anywhere inside or on the roof of new buildings under construction or in the project work area of buildings undergoing alteration. A suitable number of 'No Smoking' signs shall be posted to ensure that smoking is controlled.
- I. Vehicle parking: All vehicles shall be parked a minimum of 20 feet from new buildings under construction.

Exceptions:

1. Vehicles that are temporarily parked for loading/unloading or other construction related operations. Such vehicles shall not be left unattended.
2. Private vehicles may be parked in parking garages of Type I construction if the automatic fire sprinkler system is in service and vertical openings are protected.

- J. Combustible material storage: Combustible construction materials shall be stored a minimum of 20 feet from buildings under construction or undergoing remodel.

Exceptions:

1. Materials that are staged for installation on a floor level.
2. When approved by the Fire Inspector, materials may be stored in parking garages of Type I construction if the automatic fire sprinkler system is in service and vertical openings are protected.

III. Fire Protection Systems

- A. Fire Sprinkler Systems: Where automatic fire sprinkler systems are required to be installed in new buildings, the system shall be placed in service as soon possible. Immediately upon the completion of sprinkler pipe installation on each floor level, the piping shall be hydrostatically tested and inspected. After inspection approval from the Fire department, each floor level of sprinkler piping shall be connected to the system supply riser and placed into service with all sprinkler heads uncovered. Protective caps may be installed on the active sprinklers during the installation of drywall, texturing and painting, but shall be removed immediately after this work is completed. For system activation notification, an exterior alarm bell can be installed and connected to the sprinkler waterflow device prior to installation of the monitoring system.

For buildings equipped with fire sprinkler systems that are undergoing alterations, the sprinkler system(s) shall remain in service at all times except when system modifications are necessary. Fire sprinkler systems undergoing modifications shall be returned to service at the end of each workday unless otherwise approved by the Fire Inspector. The General contractor or his/her designee shall check the sprinkler control valve(s) at the end of each workday to confirm that the system has been restored to service.

- B. Standpipes: Where standpipes are required, the standpipes shall be installed when the progress of construction is not more than 35 ft. in height above the lowest level of the fire department access. Standpipes shall be provided with fire department hose connections and outlets at accessible locations adjacent to usable stairs.

The standpipe system shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. Each floor shall be provided a 2 1/2-inch valve outlet for fire department use. Where construction height requires installation of a Class III standpipe, fire pumps and water main connections shall be provided to serve the standpipe.

- C. Fire Extinguishers: Portable fire extinguishers shall be provided and shall be mounted on a wall or post at each usable stairway and such that the travel distance to any extinguisher does not exceed 75 ft. Mounting height to the top of the extinguisher shall not exceed 5 feet. Extinguishers shall not have less than a 2A10BC rating or as otherwise directed by the fire department. The general contractor shall ensure that an adequate number of individuals are trained in the proper use of portable fire extinguishers. Fire extinguishers shall also be located in storage sheds and contractor trailers.
- D. Fire Alarm Systems: Fire alarm systems shall be maintained operational at all times during building alterations. When an alteration requires modification to a portion of the fire alarm system, the portion of the system requiring work shall be isolated and the remainder of the system shall be kept in service whenever practical. When it is necessary to shut down an entire fire alarm system a fire watch or other mitigation approved by the fire department shall be implemented by the general contractor until the system is returned to full service.

IV. Means of Egress Requirements

- A. Minimum number of Exits: All new buildings under construction shall have a least one unobstructed exit. All exits shall be identified on the Fire Protection Plan.
- B. Multi-Story Buildings: Each level above the first story in new multi-story buildings shall be provided with at least two usable exit stairs after the floor decking is installed. The stairways shall be continuous and discharge to grade level. Stairways serving more than two floor levels shall be enclosed (with openings adequately protected) after exterior walls/windows are in place. Exit stairs in new and in existing, occupied buildings shall be lighted and maintained clear of debris and construction materials at all times.

Exception: For new multi-story buildings, one of the required exit stairs may be obstructed on not more than two contiguous floor levels for the purposes of stairway construction (i.e., installation of gypsum board, painting, flooring, etc.).

- C. Assembly Points: Designated exterior assembly points shall be established for all construction personnel to relocate to upon evacuation. The assembly points shall also be identified in the Fire Protection Plan.

V. Area Separation Walls

When area separation walls are required, the wall construction shall be completed (with all openings protected) immediately after the building is sufficiently weather-protected at the location of the wall(s).

VI. Special Operation Requirements

- A. Hot Work: Hot work includes any work involving operations capable of initiating fires or explosions, including cutting, welding, brazing, soldering, grinding, thermal spraying, thawing pipe, torch applied roofing, or any other similar activity. The use of hot work equipment shall be in accordance with the following guidelines, including a pre-site inspection, fire watch and post inspection procedures.
1. Pre-site Inspection: An inspection of the hot work site shall be conducted by the General Contractor or his/her designee prior to hot work operations to ensure:
 - (a) the hot work site is clear of combustibles or that combustibles are protected;
 - (b) exposed construction is of noncombustible materials or that combustible materials are protected;
 - (c) openings are protected;
 - (d) there are no exposed combustibles on the opposite side of partitions, walls, ceilings, floors, etc.;
 - (e) fire extinguishers are available, fully charged and operable; and
 - (f) fire watch personnel are assigned, equipped and trained.
 2. Fire Watch: The sole duty of fire watch personnel shall be to watch for the occurrence of fire during and after hot work operations. Individuals designated to fire watch duty shall have fire extinguishing equipment readily available and shall be trained in the use of such equipment. Personnel assigned to fire watch shall be responsible for extinguishing spot fires and communicating an alarm. Fire watch personnel shall be provided with at least one means for notification of the fire department. Hot work conducted in areas with vertical and horizontal fire exposures that cannot be observed by a single individual shall have additional personnel assigned to fire watches to ensure that all exposed areas are monitored.
 3. Post-inspection: The fire watch shall be maintained a minimum of 30 minutes after the conclusion of the work to look out for leftover sparks, slag or smoldering combustibles.
- B. Asphalt and tar kettles: Asphalt kettles shall not be located within 20 feet of any combustible material, combustible building surface or building opening. With the exception of thermostatically controlled kettles, an attendant shall be within 100 feet of a kettle when the heat source is operating. Ladders or similar obstacles shall not form a part of the route between the attendance and the kettle. Kettles shall be equipped with tight-fitting covers. A minimum 3A 40-B:C rated portable fire extinguisher shall be located within 30 feet of each asphalt kettle when the heat source is operating. Minimum 3A 40-B:C rated portable fire extinguishers also shall be located on roofs during asphalt coating operations.
- C. Motor Equipment: Motorized equipment including internal-combustion-powered construction equipment shall be used in accordance with the following;
1. Equipment shall be located so that exhausts do not discharge against combustible materials.
 2. When possible, exhausts should be piped to the outside of the building.

3. Equipment shall not be refueled while in operation.
4. Fuel for equipment shall be stored in an approved area outside of the building.

(Ref: CFC Articles 87 & 13 – also 49, 79 and 11)

VII. Hazardous Materials

A. Liquefied Petroleum Gas (LP-Gas) - Storage and use shall comply with the following:

1. Propane containers may be used in buildings under construction or undergoing major renovation as a fuel source for temporary heating for curing concrete, drying plaster and similar applications in accordance with the following:
 - (a) Heating elements (other than integral heater-container units) shall be located at least 6 feet from any LP-Gas container.
 - (b) Integral heater-container units specifically designed for the attachment of the heater to the container, or to a supporting standard attached to the container, may be used provided they are designed and installed so as to prevent direct or radiant heat application to the LP –Gas container.
 - (c) Blower and radiant type units shall not be directed toward any LP-Gas container within 20 feet.
 - (d) Heat producing equipment shall be installed with clearance to the combustibles in accordance with the manufacturer's installation instructions.
 - (e) Cylinders shall comply with DOT cylinder specifications and shall be secured in an upright position.
 - (f) Regulators shall be approved for use with LP-Gas. Fittings shall be designed for at least 250 psig service pressure.
 - (g) Hose shall be designed for a working pressure of at least 350 psig (unless limited to 5 psig) and shall be a maximum of 6 feet in length.
 - (h) Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and to the pilot in the event of flame extinguishment or combustion failure. Portable heaters with an input of more than 50,000 Btu/hr shall be equipped with either a pilot that must be proved before the main burner can be turned on or an approved electronic ignition system.
2. In addition to the above, for LPG storage/use in buildings undergoing alteration and that are fully or partially occupied, the following shall also apply:
 - (a) Specific approval must be obtained from the fire department prior to bringing LP-Gas containers on-site.
 - (b) The maximum water capacity of individual containers shall be 5- gallon water capacity and the number of containers in the building shall not exceed the number of workers assigned to using the LP-Gas.
 - (c) Containers having a water capacity greater than 2 1/2 lb. [1 quart] shall not be left unattended.

B. Storage, Use and Dispensing of Flammable and Combustible Liquids

1. Storage areas for flammable and combustible liquids shall be kept free of weeds and extraneous combustible material. Open flames and smoking are prohibited in flammable or combustible liquid storage areas.
2. Tanks and containers shall be marked with the name of the product and FLAMMABLE-KEEP FIRE AND FLAME AWAY. Tanks (containers in excess of 60 gallons) shall also be labeled KEEP 50 FEET FROM BUILDINGS.
3. Metal containers for Class I or II liquids shall be in accordance with DOT requirements or shall be of an approved design. Discharge devices shall not cause an internal pressure on the container. Individual containers shall not be interconnected and shall be kept closed when not in use.
4. Secondary containment or a means of spill control, drainage control, and diking is required for large containers (such as 55 gallon drums) and tanks as approved by the Fire Department.
5. Plans for the installation/use of any aboveground storage tank (containers greater than 60 gallons) shall be submitted to the fire department for review and permit prior to the proposed tank arriving at the site.

C. Compressed Gases

1. Gas cylinders shall be marked with the name of the contents.
2. Gas cylinders shall be stored upright and secured to prevent falling.
3. When not in use, valve protective caps shall be in place.
4. Gas cylinders shall be protected against physical damage.
5. When stored, gas cylinders shall be separated from each other based on their hazard classes.
6. Combustible materials shall be kept a minimum of 10 feet from gas containers.
7. Gas cylinders shall not be placed near elevators, unprotected platform edges or other areas where they would drop more than 2 feet.
8. Gas cylinders shall not be placed in areas where they may be damaged by falling objects.
9. Ropes, chains or slings shall not be used to suspend gas cylinders, unless the cylinder was manufactured with appropriate lifting attachments.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Specifications for Driveways, Turnarounds and Turn Outs Serving up to Two (2) Single Family Dwellings	SPEC NO: 11-E EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This standard is applicable to driveways serving up to two (2) single family dwellings where any portion of the dwelling(s) is greater than 150 feet from the center line of a public roadway.

DEFINITIONS

Roadway: A vehicular access roadway greater than or equal to 20 feet in width.

Driveway: A vehicular access roadway less than 20 feet in width and serving no more than two single-family dwellings.

REQUIREMENTS

DRIVEWAY:

Minimum 12 feet wide paved surface. See MHMC Section 18.50.300; Paving Standards

VERTICAL CLEARANCE:

The vertical clearance shall be in accordance with the Fire Code, 13 feet, 6 inches.

GRADE:

Maximum grade shall not exceed 15% (6.75 degrees).

Exception: Grades up to 20% may be allowed by the Fire Chief provided an approved automatic fire sprinkler system is installed throughout the affected dwelling structure including attached garages. In no case shall the portion of driveway exceeding 15% gradient be longer than 300 feet in length. For longer driveways, there shall be at least 100 feet of driveway at 15% or less gradient between each 300-foot section that exceeds 15%.

PAVEMENT SURFACE:

Driveways shall be surfaced roads of either asphalt, concrete or other material such as pavers, acceptable to the Fire Prevention Division (See MHMC Section 18.50.300). Note: For alternative roadway surfaces such as "Turf Block" or other materials that blend into landscaping and/or that do not readily appear to be driving surfaces, the boundary edges of the alternate material shall be

delineated as approved by the Fire Prevention Division. Delineation shall be by concrete curbs, borders, posts or other means that clearly indicate the location and extent of the driving surface.

BRIDGES AND CULVERTS:

All bridges and culverts shall be designed to support the imposed load of a fire apparatus weighing at least 75,000 pounds.

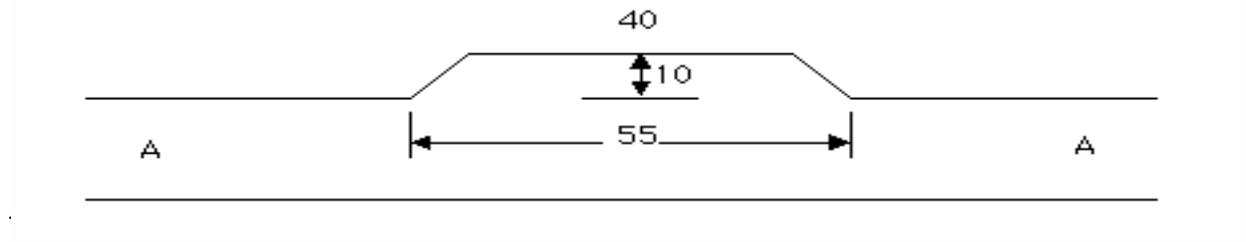
TURNING RADIUS:

The minimum outside turning radius is 36 feet, unless otherwise specified.

Exceptions: Modified turning radius may be allowed by the Fire Prevention Division in cases where conditions acceptable under the Fire Code allow for such deviation. Requests for such modifications must be made in writing to the Fire Department for review.

TURNOUTS:

Turnouts are required every 500 feet for driveways in excess of 500 feet.

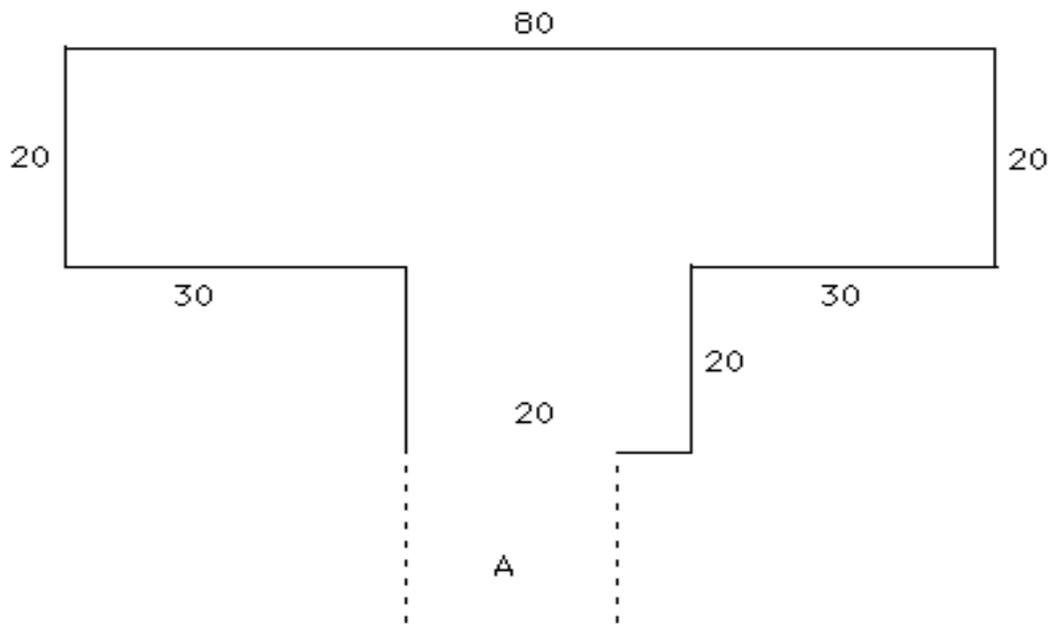
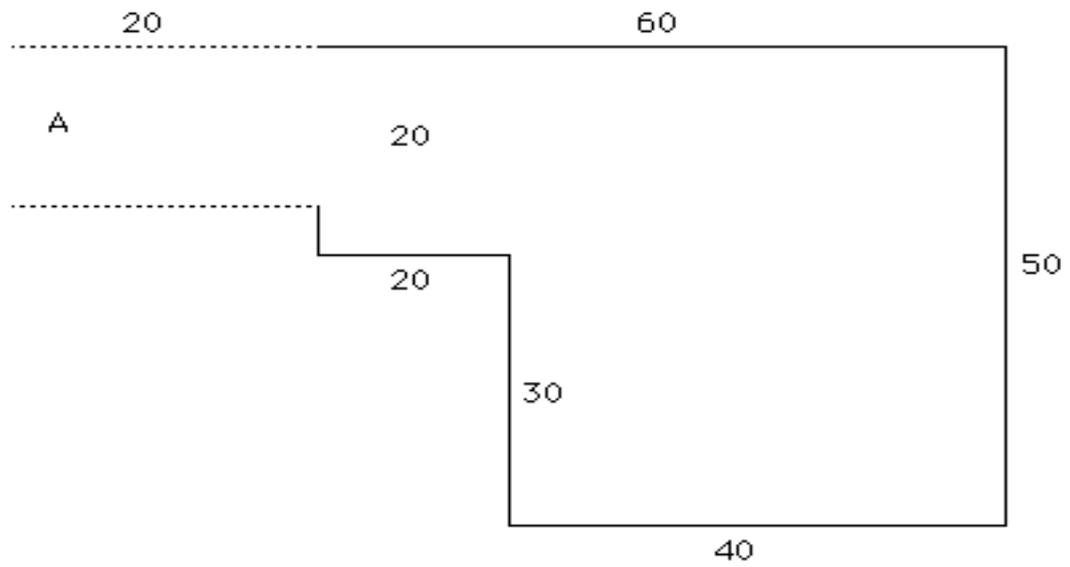


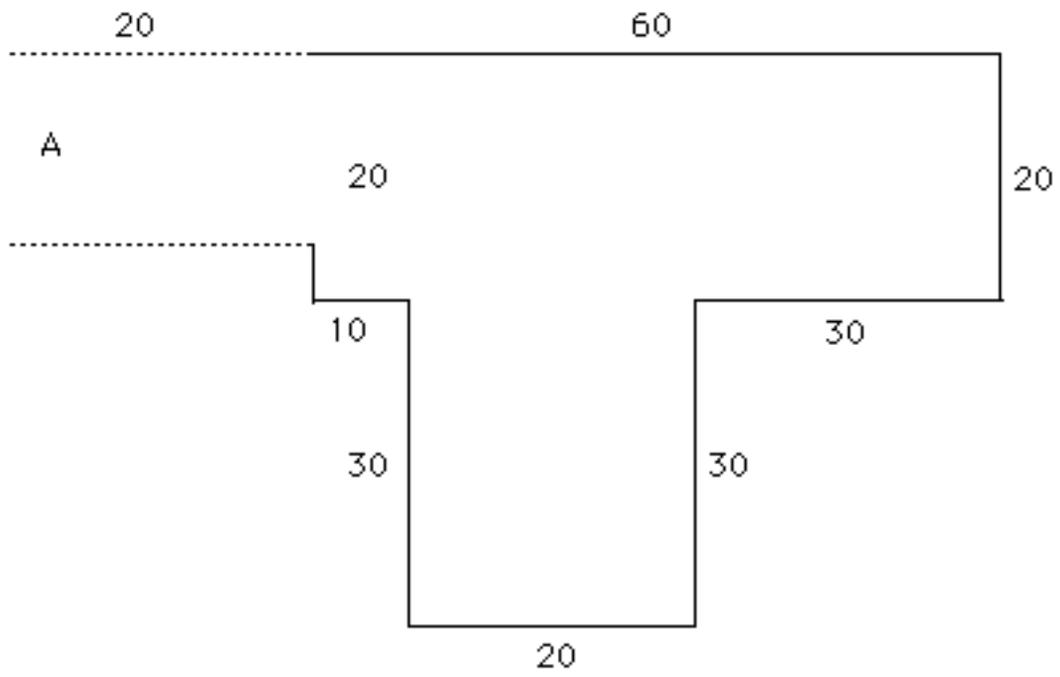
Dimensions are in feet.

DIMENSION A: 12 FT

TURNAROUNDS:

Turnarounds are required for all driveways with a length in excess of 150 feet.





Dimensions are in Feet



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Fire Lane Marking	SPEC NO: 11-F EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

The Fire Prevention Division is authorized to direct installation of approved signs or other approved notices for the identification of fire lanes. The purpose is to prevent obstruction of required emergency vehicle access.

DEFINITIONS

Driveway: A vehicular access less than 20 feet in width and serving no more than two single family dwellings.

Fire Lane: A vehicular access roadway or driveway designated officially by the Fire Department as a required means of fire department emergency access.

Fire Apparatus Access Roads: A vehicular access greater than or equal to 20 feet in width.

REQUIREMENTS

Fire Department Approval:

Fire apparatus access roads, driveways and access ways shall not be marked as fire lanes without first obtaining Fire Prevention Division approval. Fire lanes shall be identified by red curb marking, signage or roadway surface marking as specified below. Detailed plans showing the location of the lanes may be required.

Red Curb Marking:

Curb top and side shall be painted red, and the words, "FIRE LANE" in white, shall be stenciled on the top and side of all red curbs at a maximum interval of 50 feet. Letters shall be 3-inches in height with a minimum 3/4-inch stroke.

Signage:

1. Signs shall be of metal construction, measuring 12-inches wide and 18-inches high, and of a reflective type. Plastic or wooden signs are not acceptable.

2. Signs shall read: "NO STOPPING – FIRE LANE 22500.1 CVC." Lettering shall be not less than 1-inch in height and clearly visible from a vehicle.
3. Signs shall be in visible locations and mounted on galvanized metal poles at a height of 80 inches. Signs shall be maintained unobstructed by foliage, etc.
4. The distance between signs posted along the fire lane shall not exceed 125 feet. Not less than two signs shall be posted in each block. If traffic flows in two directions, signs must be posted so as to be readable from either direction.

Roadway Surface Marking:

Outlining or painting the fire lane area in red with the words "FIRE LANE" in white, at intervals of not more than 50 feet or as otherwise directed by the Fire Prevention Division. Size of lettering shall be not less than 24-inches in height and 3-inch stroke.

Notification of Local Law Enforcement Agency:

Upon declaration by the Fire Prevention Division that a vehicular access is a required "FIRE LANE", the owner of the property shall make notification of the fire lane to their local law enforcement agency requesting periodic patrol of such lanes.

Enforcement of Fire Lanes:

The enforcement of fire lanes is the responsibility of the local law enforcement agency as specified under California Vehicle Code (CVC) Section 22500.1



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Closure of Private Roadways, Driveways, Fire Apparatus Access Roadways and Gates	SPEC NO: 11-G EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

The installation of gates, or other barricades across required fire department access roads or driveways shall comply with this Standard.

DEFINITIONS

Driveway: A vehicular access roadway less than 20 feet in width that serves not more than two single-family dwellings.

Roadway: A vehicular access roadway greater than or equal to 20 feet in width.

REQUIREMENTS

Roadways, driveways and secondary access shall not be closed without first obtaining approval from the Fire Prevention Division. Detailed plans showing the location and method of the closure are required.

GATES:

No gate may be installed across a required Fire Department access road or driveway without approval from the Fire Prevention Division. A detailed plan shall be submitted for review and approval prior to installation. The following apply to all gate installations:

1. Security gates equipped with electronic control devices shall have an approved Fire Prevention Division override key switch, and shall allow operation of the gate during power outages.
2. Manual locking mechanisms, such as padlocks, shall be approved by the Fire Prevention Division.
3. Forms for ordering approved key switches and padlocks shall be obtained from the Fire Prevention Division.
4. All manually operated gates shall be designed to remain in the open position when left unattended. Activation of an approved key switch for an electronically controlled gate shall open the gate and cause it to remain in the open position until reset by emergency response personnel.

5. When open, gates shall not obstruct any portion of the required width of the driveway or access road, shall be adequately supported to prevent dragging, and shall be operable by one person. Sliding gates shall slide parallel to the security fence. Swing-style gates shall open a full 90 degrees (minimum) and may swing in either direction.
6. Gate components shall be maintained in an operative condition at all times and be replaced or repaired when defective.
7. A durable sign stating "NO PARKING – FIRE LANE" shall be provided on both sides of the gate.

CHAINS:

1. Posts for chains shall be of a size and strength to accommodate the weight of the chain and locks.
2. Posts shall not be located where they will be within the required roadway or driveway width.
3. Locks for chains shall be approved fire department locks only.
4. A durable sign stating "NO PARKING – FIRE LANE" shall be attached to the chain and face both directions.

BOLLARDS:

The use of bollards, as a method for access closure, is acceptable only when the location and design of the bollards are approved by the Fire Prevention Division.

1. Bollards shall be a moveable or fold-over type. 'Lift-out' or knocked down types are not allowed. Hydraulic type bollards are allowed under special conditions only. All bollards shall be approved by the fire code official prior to installation.
2. Locking devices used to secure bollards shall be as approved by the Fire Prevention Division.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Haunted Houses/Ghost Walks	SPEC NO: 11-H EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

These regulations shall apply to temporary Haunted Houses, Ghost Walks, or similar amusement uses where decorative materials and confusing sounds and/or visual effects are present.

DEFINITIONS

Decorative Materials: All materials used for decorative, acoustical or other effect (such as curtains, draperies, fabrics, streamers, and surface coverings) and all other materials utilized for decorative effect (such as batting, cloth, cotton, hay stalks, straw, vines, leaves, trees, moss and similar items), including foam plastics and other materials containing foam plastics.

Haunted House: A temporary or permanent building or structure, or portion thereof, which contains a system that transports passengers or provides a walkway through a course so arranged that the means of egress are not apparent due to theatrical distractions, not visible due to low illumination, are disguised or are not readily available due to the method of transportation through the building or structure.

Ghost Walks: Similar to a Haunted House and may include both indoor and outdoor areas where the means of egress is similarly not readily identifiable.

REFERENCES

California Building Code, California Fire Code, and California Code of Regulations, Title 19.

Allowable Structures:

Haunted Houses, Ghost Walks and similar amusement uses shall only be located in structures that comply with the provisions for Special Amusement Buildings in accordance with the California Building Code. Tents or membrane structures may be used when in compliance with all applicable requirements of this regulation and when the total floor area is less than 1,000 square feet and the travel distance to an exit from any location is less than 50 feet.

Permits:

1. A permit application shall be submitted a minimum of two (2) weeks prior to the event. An inspection will be required prior to operation.
2. Additional permits may be required from local Planning and/or Building Departments.

Those agencies should be contacted directly.

Permit Submittal Information:

The permit application submittal shall include the following:

1. A dimensioned site plan that shows:
 - a. The proximity of the event building(s) to other structures or hazardous areas.
 - b. The path of travel from the event building or area to the public way.
 - c. The location of exterior evacuation assembly points (if required).
2. A floor plan showing the following:
 - a. Dimensions of the area being used (include total square footage, width of exits, aisles or interior exit pathways, etc.)
 - b. The path of travel participants will take. Include the layout of any mazes, mirrors or other display items that may confuse the egress path.
 - c. A brief description of what will be depicted in each room or area along the walk or course including what type of special effects will be utilized.
 - d. Location of exits, exit signs, and emergency lighting.
 - e. Location of electrical panel(s) and light switches.
 - f. Identification of what the normal or prior use of the structure(s) being used is (i.e.: auditorium, school, church, etc.).
 - g. Accessible egress routes.
 - h. Areas of refuge (if any).
 - i. Fire alarm panel location (if any).
 - j. Manual fire alarm pull station and horn/strobe locations (if any)
 - k. Portable fire extinguisher locations.
3. A fire safety and evacuation plan that includes the following:
 - a. Procedures for reporting a fire or other emergency.
 - b. Procedures for accounting for occupants and staff after evacuation has been completed.
 - c. Identification and assignment of personnel responsible for rescue or emergency medical aid.
 - d. The means of notifying occupants (both patrons and event personnel) of a fire or emergency.
 - e. Identification and assignment of personnel in charge that can be contacted for further information.
 - f. A description of the emergency alarm, voice/alarm, alert tone or preprogrammed voice messages.
 - g. A description of all staff positions and their duties.
 - h. A statement that all personnel will carry flashlights and know the location of all exits, fire extinguishers, light switches, electrical panels, and emergency phones. Additionally, that personnel will be trained on fire safe practices and fire evacuation.
 - i. A statement that personnel will be designated to turn off all distracting noises (i.e.: sound system) and turn on lights when alerted by either fire alarm or otherwise notified of an emergency condition.

Occupant Load And Staffing Requirements:

1. Maximum occupant load (which shall include event personnel) shall be determined during plan review. A sign stating maximum occupant capacity shall be posted in a visible location near the entrance, and personnel shall control the flow of patrons so as not to exceed this limit.
2. The event shall be adequately staffed to control the occupant load and assist patrons in exiting should an evacuation become necessary. Staffing level shall be determined upon review of plans and may be increased at the discretion of the Fire Department.

Exits:

1. Two exits shall be provided from each room with an occupant load of 50 or more. Required exit doors shall swing in the direction of egress.
2. Illuminated exit signs shall be provided at each exit serving an occupant load of 50 or more.
3. Exit doors serving an occupant load of 50 or more shall not be provided with a latch or lock unless it is panic hardware.
4. When tents or membrane structures are approved for use, curtains shall not be allowed to cover the exits.
5. Emergency lighting shall be provided in exit pathways.
6. Exhibits and decorative materials shall not obstruct, confuse, or obscure exits, exit pathways, exit signs, or emergency lights.
7. Additional exit pathway markings, including low level exit signs and directional exit path markings installed in accordance with the Building Code, may be required at time of field inspection.

Fire Protection:

1. An automatic fire sprinkler system shall be provided.

Exception: When the total floor area is less than 1,000 square feet and travel distance to an exit is less than 50 feet.

2. Provide an approved automatic fire detection system in accordance with the California Building Code as required for amusement buildings.
3. Actuation of a single smoke detector, the fire sprinkler system or other automatic fire detection device shall immediately sound an alarm at the structure in a constantly attended location.
4. Provide an emergency voice/alarm communication system in accordance with the California Building Code as required for amusement buildings.
5. Fire Extinguishers shall be provided as follows:

- a. A minimum 2A10BC rated.
 - b. Properly mounted (top of unit between 3 and 5 feet from floor).
 - c. Visible and accessible at all times and clearly illuminated or marked with reflective tape.
 - d. Located within 50 feet travel distance from anywhere in the building.
6. Decorative materials shall not obstruct fire sprinklers, fire extinguishers, or any other Fire Department equipment.

Electrical:

1. Extension cords shall be a heavy commercial type. UL listed, in good condition, and shall be appropriate for the intended use.
2. Only UL listed power strips with over-current protection shall be used when the number of outlets provided is inadequate. Power strips shall be plugged directly into the outlet, and shall not be plugged into one another in series.
3. For string lighting, the manufacturer's installation guidelines shall be followed for the maximum number of string lights that can be connected. When connecting string lights together, the total amperage of all the light strings shall be calculated to ensure they do not exceed the amperage for the extension cord and circuit.
4. All extension cords and power strips shall be adequately protected from foot traffic ("Bridged") if paths of travel cannot be avoided.
5. An electrical permit may be required. See your local Building Department for requirements. Portable generators shall be diesel. When portable generators are utilized, they shall be located a minimum of 20 feet away from all structures. The plan submittal shall show the location and fuel capacity of all generators.

Decorative Materials:

1. All decorative materials (see definition) shall be either inherently flame retardant and labeled as such, or shall be treated with a flame retardant that is registered with the California State Fire Marshal. If the material is treated by the user, a container and receipt will serve as proof.
2. Interior wall, ceiling and floor finishes shall be Class A rated in accordance with the Building Code.
3. A Flame test may be required. The flame test shall consist of putting a flame to a sample of the materials by match or lighter. The test shall be conducted in the presence of the Fire Code Official. It shall be done outside the structure, on a specimen of the materials approximately 3 inches wide by 10 inches long and orientated by a 45-degree angle from horizontal. When testing, the flame shall be put to the bottom edge of the material for a period of up to 12 seconds. If the material fails to ignite, or it ignites and the flame self-extinguishes when the flame source is removed from the sample, the material is considered to be flame retardant.

4. Care and consideration shall be used with respect to smoke generator and smoke alarm locations. Use of smoke generator may be restricted if determined to be incompatible with smoke alarm(s).

Inspections:

1. A fire safety inspection shall be conducted by the Fire Inspector at least one day prior to the start of operation.
2. A fire drill demonstrating the implementation of the fire evacuation plan may be required at the time of inspection.

Miscellaneous:

1. "NO SMOKING" signs shall be provided at main entrance and throughout exhibit.
2. Storage or use of flammable or combustible liquids, gasses and solids is prohibited.
3. Open flame is prohibited.
4. Good housekeeping shall be maintained throughout exhibit and exit pathways at all times.

HAUNTED HOUSE / GHOST WALK EVENT APPLICATION FORM

1. **EVENT INFORMATION:**

Address of event: _____

Date of setup: _____ Date of teardown: _____

Date(s) open to public: _____ through _____

Hours of operation: _____

2. **CONTACT INFORMATION:**

Name(s): _____

Phone(s): _____

Email address: _____

Mailing address: _____

3. **OTHER:**

a. Description of special effects, including sound, theatrical smoke, lighting (i.e., strobes) and all other effects:

b. Description of decorations and/or wall coverings being used. Provide documentation for the fire-retardant treated materials being proposed or provide a sample of the material for a flame test.

c. Provide the following information in accordance with the Haunted House Standard:

1. Site plan for the event
2. Complete floor plan of event area
3. Fire Evacuation Plan
4. Fire Safety Plan
5. Fire protection and detection systems (if applicable)



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Key Box Placement and Required Keys	SPEC NO: 11-I EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

California Fire Code, Section 506.1 states: "When access to or within a structure or area is unduly difficult because of secured openings or where immediate access is necessary for life-saving or fire fighting purposes, the Fire Code Official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the Fire Code Official."

It is the City of Morgan Hill's policy that key boxes be required for the buildings that are equipped with fire sprinklers and/or fire alarm systems. This policy will only help facilitate the quick response of emergency crews to the interior of a building.

DEFINITIONS

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

REQUIREMENTS

Key Box Placement Guidelines:

Key boxes are to be provided for the following occupancies:

- Buildings equipped with fire alarm and/or fire sprinkler systems.
- All school buildings.
- Strip malls that have large anchor stores.

Location of Key Boxes on Premises:

Key boxes are to be located near the main entrance and placed between 4 and 6 feet above the ground.

Obtaining Fire Department Key Box Authorization Forms:

Approved key boxes may only be obtained with a Fire Department authorization form. These forms may be obtained by contacting the Fire Prevention Division.

Required Keys:

The Key Box should contain keys to the following:

- Main entrance doors
- Fire alarm system
- Electrical rooms and automatic sprinkler riser rooms
- Elevators
- Fire control room (if applicable) – Manual pull stations (if applicable)

Key Box Installation:

Key Boxes shall be installed only as specified in the manufacturer's instructions included with each box. The placement of the key box shall not be greater than six (6) feet from the ground.

Locking of Boxes:

Key Boxes are delivered in the "open" position so that mounting can be accomplished. Contact the Fire Prevention Division for locking or unlocking of the Key Box. Only Fire Department Personnel have keys to Key Boxes.

Placement of Key Box Decals:

The alert decal shipped with the Key Box should be mounted in a location approved by the Fire Department.

Identification of Keys:

Keys stored inside the Key Box shall be provided with identification tags that are durable and water-resistant. Paper tags and ink lettering are NOT acceptable. Keys shall be attached to a metal ring equipped with a brass disk type tag that identifies the rooms or areas served.



IMPORTANT REMINDER: Whenever locks are changed or re-keyed, the keys stored in the key box must be updated. Please contact the Fire Prevention Division to coordinate the placement of new keys in the key box.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Large Family Day Care Homes	SPEC NO: 11-J EFFECTIVE DATE: 09/15/98 REVISED: 04/18/09
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SCOPE

The Office of the California State Fire Marshal has adopted regulations for large family day care homes. These regulations were written to protect the day care occupants in case of fire or other life threatening emergencies. The local Fire Department is required to inspect the building in order to ensure that these regulations are being followed. This information is a guideline designed to assist individuals in preparation for an inspection. This guideline includes some of the common issues found during the inspection process.

DEFINITIONS

For the purposes of this document, the following definitions apply:

1. **Exit** – Means a continuous unobstructed means of egress to a public way, and includes gates.
2. **Large Family Day Care** – Means a provider’s own home licensed to provide day care for nine to fourteen persons, less than twenty-four hours per day. This would include children under the age of ten who reside at the providers’ home.

Fees and Permit Requirements:

1. The provider must have a current license issued by the State of California. In addition to the license issued by the state, each local jurisdiction will have its own permitting and licensing requirements.
2. Please contact your local fire prevention office to determine the fees applicable to conduct an annual inspection and the permitting process.
3. All licenses and permits shall be kept and posted in a conspicuous location. **[CFC§105.3.5]**

General:

1. An approved number or address must be posted on the building in such a position as to be plainly visible and legible from the street or road fronting the property. **[CFC §505.1]**
2. Yards shall be maintained to prevent the accumulation of trash, refuse, dead vegetation, weeds, and/or any other combustible materials. **[CFC §304.1]**

3. Chimneys attached to any appliance or fireplace that burns a solid fuel shall be equipped with an approved spark arrester. **[CFC §2802.1]**

Building Construction:

1. Day care operations shall not be permitted in garage or patio area(s). *[Exception: The conversion has been performed under permit and the space meets all applicable state and local regulations.]* **[CBC §108.4.1]**
2. A one-hour separation between the day care area and the garage is required. The separation may be limited to the installation of materials approved for one-hour fire resistive construction on the garage side and a self-closing, tight fitting solid- wood door 1-3/8 inches in thickness, or a self-closing tight-fitting door having a fire protection rating of not less than twenty (20) minutes. **[CBC §406.1.4]**
3. Day care rooms shall be permitted on the first floor only. *[Exception: Buildings equipped with an approved automatic fire sprinkles system throughout.]* **[CBC §442.4]**
4. Every sleeping room shall have at least one operable window or door approved for emergency escape or rescue. The window or door must be openable from the inside to provide a full clear opening without the use of separate tools or special knowledge. *[Note: Windows must have a minimum openable height of twenty-four (24) inches and minimum openable width of twenty (20) inches. The finished sill height shall not exceed a maximum of forty-four (44) inches for the floor.]***[CBC §1026]**

Fire Protection Systems and Equipment:

1. A portable fire extinguisher having a minimum 2A10BC rating shall be mounted in an accessible location no higher than five (5) feet from the floor. The fire extinguisher is required to be visually inspected on a monthly basis. The fire extinguisher shall be serviced annually by a State Fire Marshal-licensed concern and bear a current service tag. **[CFC §445.4]**
2. A smoke detector shall be located in each sleeping room. A smoke detector and carbon monoxide detector shall be located at a point centrally located in the corridor or area giving access to each separate sleeping area. When the dwelling unit has more than one story, and in dwellings with basements, a smoke detector and carbon monoxide detector shall be located on each story and basement, smoke detectors and carbon monoxide detector shall be hardwired and interconnected. **[CBC §445.3]**
3. Smoke detectors shall be tested monthly. Battery operated detectors must have batteries replaced as needed, not to exceed a period of one (1) year. Smoke detectors shall be installed per manufacturer's installation guidelines and the smoke detector shall not be in service for a period of time to exceed ten (10) years from the date of manufacture.
4. In addition to the smoke detector requirement(s), every large family day care facility shall provide and maintain a device(s) suitable for sounding a fire alarm. Such devices shall be attached to the structure and be easily accessible and unobstructed. The tone and audibility of the device shall be distinctive and heard throughout the structure. **[CBC §445.5]**

Examples of these devices include the following:

- Battery operated smoke detector
- Manually operated alarm bell or horn

Electrical:

1. Extension cords shall not be used in place of permanent wiring and shall be used only with portable appliances. **[CFC §605.5]**
2. Multi-plug adapters, multi-plug extension cords, cube adapters, and other strip plugs and other devices shall not be used. **[CFC §605.4]**

Exits:

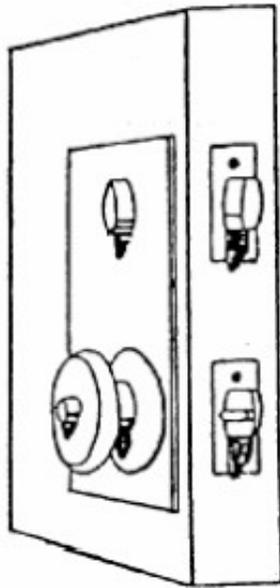
1. Every story or basement shall be provided with two (2) exits that are remotely located from each other. A horizontal sliding door may be used as one of the required exits. *[Note: Each exit shall be a minimum of thirty-two (32) inches in width and six feet eight inches (80") in height.]*
2. All exit doors shall be openable from the inside without the use of a key or any special knowledge or effort. *[Note: Dead bolts will be permitted if they are interconnected with the doorknob in such a manner that turning the doorknob will simultaneously unlock the dead bolt in a single operation (See Figure 1 on page 4 of this document).]*
3. Obstructions are not permitted in aisles, corridors, stairways, and exits.
4. Side gates that are part of the exit path shall be provided with single operation hardware. An example is a string with a handle (at children's level) that is attached to the normal gate latch. *[See Figure 2 on page 4 of this document.]*
5. A means of exit shall not pass through kitchens, storerooms, closets or spaces used for similar purposes. **[CBC §1014.2]**

General Safety:

1. Flammable and combustible liquids in quantities in excess of ten (10) gallons shall be stored in a flammable liquid locker or cabinet. Flammable liquids that do not exceed ten gallons shall be stored in approved containers within the garage. **[CFC §3404.3.4.4]**
2. All Hazardous Materials shall be stored in an area inaccessible to children.
3. The heating system shall be capable of maintaining a temperature of sixty-eight (68) degrees Fahrenheit. **[CBC §1204.1]**
4. The water heater will have a temperature pressure relief valve installed. **[CPC §608.3]**
5. A thirty-six (36) inch clearance shall be maintained around any heat producing equipment or appliances. **[CFC §305.1]**
6. Gas water heaters, if located within the garage, shall be eighteen (18) inches above the level of the floor. **[CPC §508.14]**

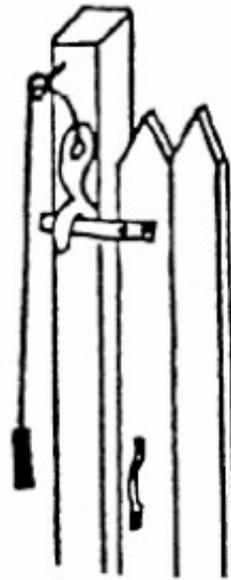
7. Water heaters shall be seismically secured. **[CPC §508.2]**
8. An emergency evacuation plan shall be developed, reviewed and posted on site. **[CCR]**
9. Fire drills shall be conducted every six (6) months and the records shall be maintained on site and available for review. **[CCR §102417(g)(9)(A)]**

Figure 1



Exit door deadbolt/latch

Figure 2



Gate Latch



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Marking Of Fire Department Connections, Post Indicator Valves, Fire Sprinkler Control Valves And Fire Hydrants.	SPEC NO: 11-K EFFECTIVE DATE: 01/01/13 REVISED:
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A. GENERAL

Fire Department equipment shall be clearly marked so that equipment is clearly visible.

B. SURFACES TO BE PAINTED

1. Fire Department Connections - Paint all surfaces Safety Yellow (or equivalent) including riser pipe, caps and check valve.
2. Post Indicator Valves - Paint all surfaces Safety Yellow (or equivalent) from top to bottom.
3. Exterior Fire Sprinkler Control Valves - Paint all surfaces Safety Yellow (or equivalent).
4. Public Fire Hydrants - Paint all surfaces Safety Yellow (or equivalent) including caps and flanges.
5. Private Fire Hydrants –
 - Paint all surfaces Safety Yellow (or equivalent) including caps and flanges.
 - Private Fire Hydrants connected to fire sprinkler system underground piping shall have the top four (4) inches of the hydrant painted Safety White (or equivalent).

C. FIRE HYDRANT ROADWAY MARKERS

Blue reflective markers shall be provided on the roadway to identify fire hydrant locations. The markers shall be secured to the roadway directly in line with the hydrant and as follows:

1. On roadways without center stripes, the blue markers shall be set in the center of the roadway.
2. On undivided, striped roadways, blue markers shall be set 6" to the hydrant side of the center stripe.
3. On divided roadways, the blue markers shall be set 6" to the side of the lane striping that is closest to the hydrant.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Model Rocket Guidelines	SPEC NO: 11-L EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

The requirements contained in this Standard apply to the use of model rockets within the City of Morgan Hill.

DEFINITIONS

Model Rocket: Any toy or educational device that weighs not more than 500 grams, including the engine and any payload that is propelled by model rocket engines.

Model Rocket Engine: Commercially manufactured, non-reusable rocket propulsion device which is constructed of a nonmetallic casing and solid propellant, wherein all of the ingredients are self-contained so as not to require mixing or handling by the user and which have design and construction characteristics determined by the State Fire Marshal to provide a reasonable degree of safety to the user. For the purpose of this Standard, model rocket engines shall not contain more than 62.5 grams of propellant.

REQUIREMENTS

Authorization:

- No model rocket user shall launch any model rocket from any site without first securing authorization from Fire Prevention Division.
- It shall be the responsibility of the model rocket user to secure permission of the owner of private lands when such land is approved to be used to launch model rockets.
- Model rocket launch permits will be issued for group educational purposes only. Single user (those not affiliated with a group educational curriculum) will not be issued a permit.
- Permits shall not be issued for any model rocket launches within designated Wildland Urban Interface Areas.

Supervision:

The permittee shall be responsible for the safety of all other spectators and other persons connected with launching of model rockets.

Launch Site:

- Shall be located outdoors in a cleared area, free of tall trees, power lines, buildings, and dry brush or grass as approved by the Fire Prevention Division.
- Model rocket shall be launched from the center of the launch site.
- Launch site diameter shall be as per the following table and based on motor type.

Equivalent Motor Type	Minimum Site (ft) Dia.
1/4-A & 1/2-A	50
A	100
B	200
C	400
D	500
E & F	1000

Approved Locations:

Allowed for school sponsored, educational programs at approved school sites and/or under the supervision of permitted model rocket clubs at approved sites. Discharging of model rockets are prohibited within city parks.

Launch Site Safety:

- Model rocket shall be launched from a stable launch device that provides rigid guidance until it has reached a speed adequate to ensure a safe flight path.
- To prevent accidental eye injury, the launcher shall be placed so the end of the rod is above eye level, or the end shall be capped when approaching it.
- Launcher shall have blast deflector devices to prevent the motor exhaust from hitting the ground directly. Area adjacent to launch device shall be cleared of dry grass or combustibles.
- Launching system shall be remotely controlled and electrically operated and have a launching switch that will return to "off" position.
- All persons shall remain 30 feet from launching device and be provided with an audible 5-second countdown pending launch.
- Misfires shall not be approached until minimum of one-minute time has elapsed.
- Launches shall be discontinued when winds exceed **20 mph**
- Launch angles shall be within 30 degrees of vertical.
- Launches shall only occur during daylight hours.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Outdoor Carnivals and Fairs	SPEC NO: 11-M EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This standard shall apply to the location, construction and use of temporary booths utilized for cooking, merchandise sales and/or display at carnivals and fairs. Fabric-covered booths or other membrane structures with sidewalls that are in excess of 400 square feet, or that are without sidewalls, and are in excess of 700 square feet must comply with the additional requirements set forth in the Fire Code for Temporary Tents and Membrane Structures.

PERMITS AND APPROVAL

Permits are required for outdoor carnivals and fairs. Fees may also be required for plan reviews and/or inspections depending upon location and size of event.

DEFINITIONS

Cooking Booths - Booths where food is prepared by a heating or cooking process such as but not limited to grilling, frying, barbecuing, flambé, deep fat frying, baking, warming, and boiling.

Deep Fat Frying - Any cooking operation or process whereby the product floats or is submerged in hot oil during the cooking process.

Vendor Booths - All booths other than cooking booths.

REQUIREMENTS

Access Roadways:

When booths are set up along access roadways an unobstructed width of not less than 20 feet shall be maintained unless otherwise approved by the authority having jurisdiction.

Cooking Booth Constructions and Location:

1. All fabrics or membranes covering cooking booths must be certified flame retardant or treated with a fire retardant paint or spray.
2. Decorative materials must be inherently fire resistive, or must be treated with a fire-retardant paint or spray.

Note: For items 1 and 2 a flame test may be required for non-certified flame retardant or treated materials. A field flame test will require a sample of material measuring 2 inches by 12 inches.

3. Each cooking booth shall have at least one exit, 3 feet wide by 6'8" high (booth frame shall not obstruct exit path).
4. Cooking booths shall have a minimum clearance of 10 feet on at least two sides.
5. Cooking Booths shall have a clearance of at least 10 feet from any vendor booth.
6. A 10-foot wide separation shall be provided for every 100 lineal feet of continuous cooking booths

Cooking Equipment:

1. All interior cooking equipment shall be of an approved type and open flame cooking shall be a minimum of 18 inches from booth back/side drop materials.
2. Camping type stoves may be used only with approved fuel under the following conditions:
 - Do not add liquid fuel to stoves in booth.
 - Maximum of two gallons of fuel capacity for each appliance is allowed with no additional fuel storage inside of booth.
 - Do not use kerosene or gasoline.
3. Butane or Propane equipment shall conform to the following:
 - Cooking appliances must have an on-off valve and be located far enough away to safely shut off in case of fire.
 - Shut-off valves must be provided at each fuel source.
 - Hoses type must be approved for use with the equipment and fuel type.
 - Tanks must be protected from damage and be secured in an upright position.
 - Storage of extra butane or propane tanks **will not be** allowed in the booth.
 - Tanks not in use must be turned OFF.
 - Maximum quantity for use inside booths is 10 gallons.
 - Propane BBQ's shall be located outside, a minimum of 10 feet away from all booths and in areas where public access is prohibited.
 - The booth operator shall test all connections for leaks with soap and water solution prior to use.
 - Unused fuel cylinders shall be stored in a secured position. Maximum outside storage is 10 gallons.

Note: Specialized-cooking equipment, used outside of the booth may have larger tanks, when approved by the authority having jurisdiction.

Vendor Booth Construction and Location:

1. Each vendor booth shall have at least one exit way, a minimum of 3 feet wide by 6'8" high (booth frame shall not obstruct exit path).

2. Vendor booths shall have a minimum clearance of 20 feet on at least one side with clearance of at least 10 feet from any cooking booth.
3. A 10-foot wide separation shall be provided for every 200 lineal feet of vendor booths in a single row or every 100 lineal feet of vendor booths in a double row (refer to diagram).
4. Candles or open flame is prohibited without prior approval of the authority having jurisdiction.

Electrical Power:

1. Generators shall be placed in approved locations for festival use.
2. Refueling of generators is prohibited during event hours. No extra fuel shall be stored during event hours.
3. During approved refueling times, no smoking or open flames will be allowed within 25 feet of the refueling operation.
4. Extension cords shall be of a grounded type, approved for exterior use and be in good condition (no cuts or exposed wires, no electrical tape).

Flambé/Open Flame Cooking/ BBQ:

1. Use only an electric starter or commercially sold lighter fluid.
2. Charcoal/wood burning cooking and storage of lighter fluid is prohibited inside booths.
3. Flambé/Open Flame Cooking/BBQ Cooking shall be located a minimum of 10 feet away from booths and in areas where public access is prohibited.

Exception: Fully enclosed BBQs may be less than 10 feet with prior approval of the authority having jurisdiction.

4. Flambé/Open Flame Cooking/BBQ Cooking shall not be under a canopy or overhand of any type.
5. Flambé/Open Flame Cooking/BBQ Cooking shall be 10 feet away from combustible structures and parked vehicles.
6. Coals shall be disposed in metal containers approved by the authority having jurisdiction.

Deep Fat Frying/Wok:

1. Deep fat frying, Wok cooking operations shall be located outside the booth and no closer than 18 inches from any combustible material.
2. The cook area shall be located in an area where public access is prohibited.
3. Deep fat frying/Wok cooking equipment must be equipped with a temperature

regulating device.

4. Separation shall be maintained with a minimum of 3 feet clearance between deep fat frying and flambé or open flame cooking.
5. Booths with deep fat frying, wok, or flambé cooking shall be equipped with an extinguisher rated for class "K" fires.

Fire Extinguishers:

1. Each cooking booth shall be equipped with a fire extinguisher with a minimum rating of 2A:10B:C. Booths with deep fat frying or flambé cooking shall be equipped with an extinguisher rated for class "K" fires.
2. For vendor booths, the maximum travel distance to a fire extinguisher with a minimum rating of 2A:10B:C shall not exceed 75 feet.
3. All Fire extinguishers shall be clearly visible and accessible at all times.
4. Fire extinguishers shall be properly maintained with current service tags.
5. Each generator shall be provided with a fire extinguisher with a minimum 40B:C rating. The extinguisher shall be located near the generator and be accessible at all times.

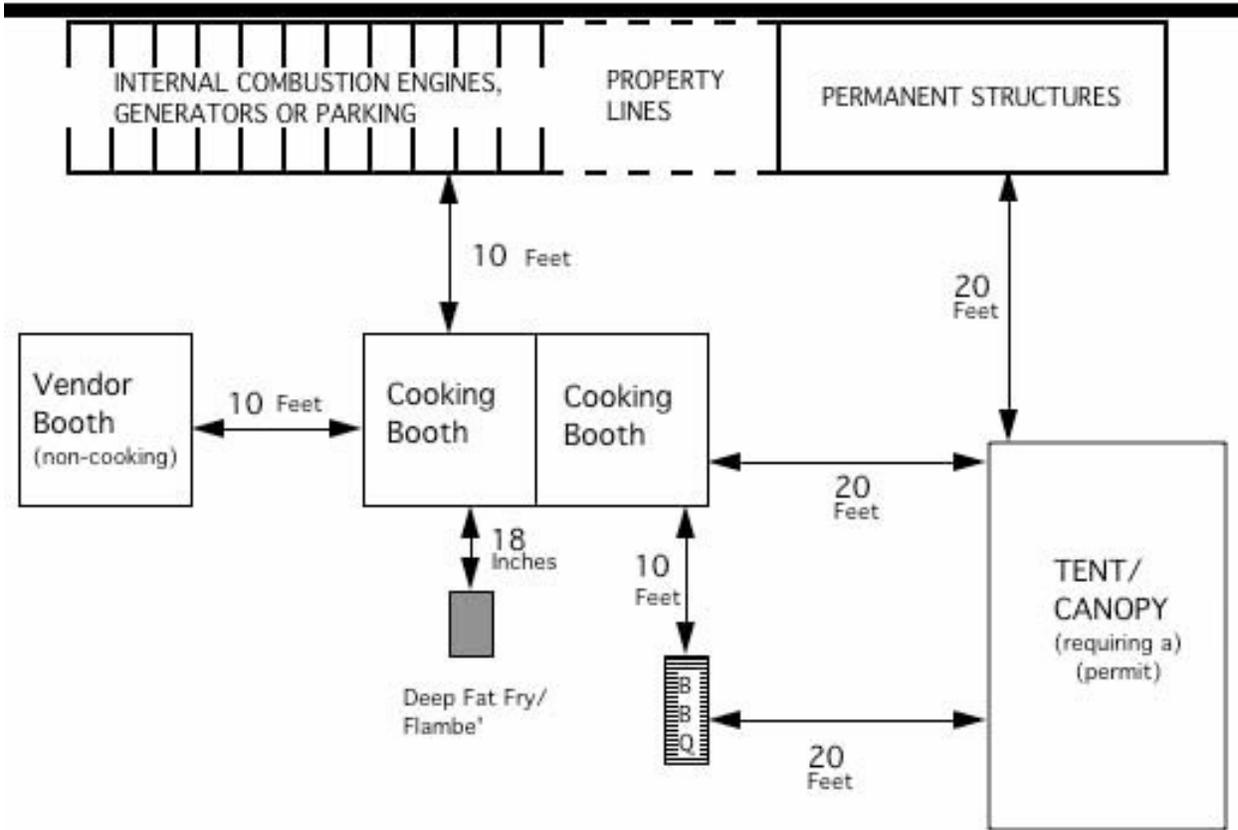
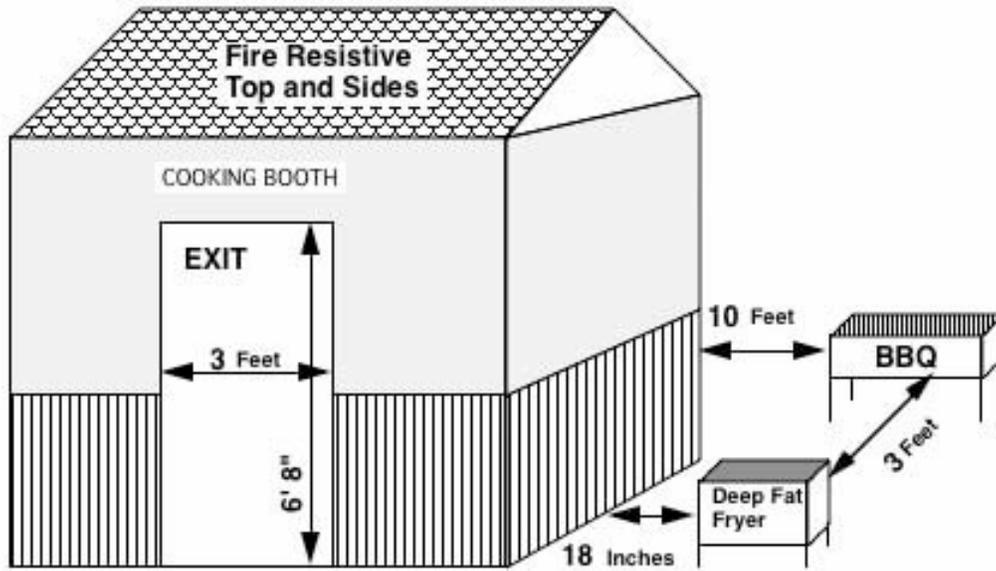
Miscellaneous:

1. All compressed gas cylinders shall be secured in an upright position.
2. Clean all cooking areas regularly to prevent the build-up of grease.

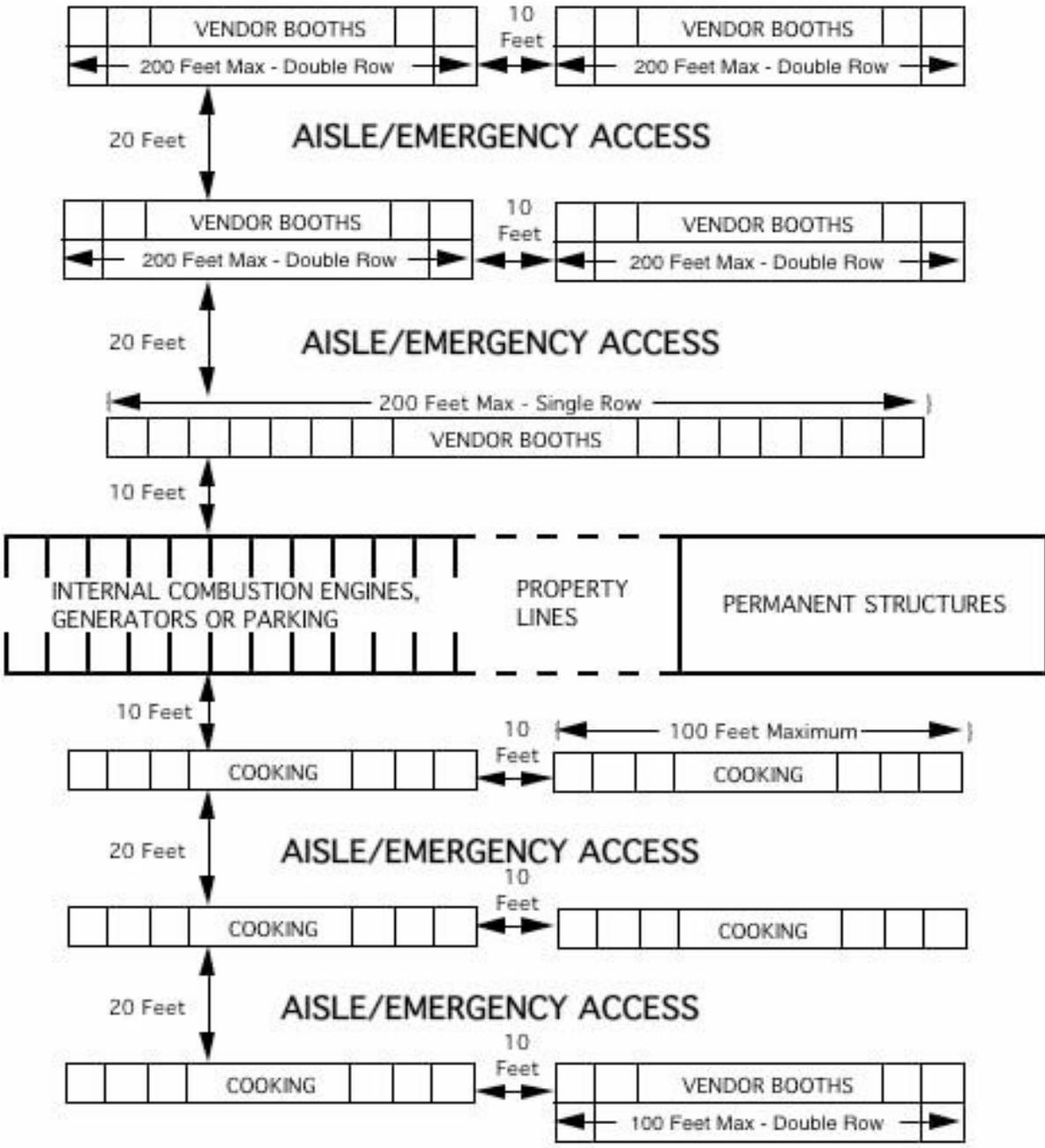
Fire Safety Tips:

1. Know where the fire extinguisher is and how to use it.
2. DO NOT leave cooking unattended.
3. DO NOT wear loose fitted clothing while cooking
4. Remove trash accumulation regularly.
5. Keep combustibles away from heat sources.
6. In case of emergency, DIAL 9-1-1.

FESTIVAL COOKING BOOTHS



FESTIVAL VENDOR & COOKING BOOTH LOCATIONS





FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Storage and Use of Portable Liquefied Petroleum Gas Outdoor Heaters	SPEC NO: 11-N EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

Portable liquefied petroleum gas (i.e., LPG/Propane) heaters may be permitted in outdoor locations provided that the use complies with the requirements described in this document.

REQUIREMENTS

1. **LPG Heaters In Use:**
 - a. LPG heaters shall be listed and installed and maintained in accordance with their listing. **[CFC §603.4.2.2.1]**
 - b. LPG heaters in use shall be separated from combustibles as set forth in the manufacturer's product listing but not less than 5 feet. In the absence of an owner's manual stating otherwise, the horizontal and vertical clearances shall be not less than 5 feet. *[Note: Most heaters have distance requirements stated on a permanently attached plate.]* **[CFC §603.4.2.1.3]**
 - c. LPG heaters in use shall not be located less than 3 feet from building openings. **[CFC Table 3804.3]**
 - d. Structures such as walls, solid fences, earth or concrete barriers and other similar structures shall be avoided around or over LPG heaters. *[Note: The base of the heater contains the LPG cylinder, and the presence of such structures can create significant hazards, such as pocketing of escaping gas, interference with the application of cooling water by firefighters, and the redirection of flames against the LPG cylinders.]*
 - e. LPG heaters are prohibited inside tents and temporary membrane structures; on exterior balconies; and inside any occupancy when connected to the fuel gas container. **[CFC §603.4.2.1.1]**
 - f. Sources of ignition shall be prohibited within 5 feet of any LPG heater. "NO SMOKING" signs shall be conspicuously posted at affected locations. **[CFC §305.1 and §310.3]**
 - g. LPG heaters shall not be located within 5 feet of exits or exit discharges. **[CFC §603.4.2.1.4]**



2. **LPG Cylinders in Storage:**

- a. LPG cylinders larger than 2 ½ pound water capacity (nominal 1 pound of LPG) shall not be stored in buildings. **[CFC §3809.9]**
- b. LPG cylinders shall be located in a manner which minimizes exposure to excessive temperature rise, physical damage, or tampering. **[CFC §3809.2]**
- c. LPG cylinders shall not be located on roofs. **[CFC §3809.6]**
- d. LPG cylinders shall not be located in basements, pits or similar locations where heavier-than-air gas might collect. **[CFC §3809.7]**
- e. When exposed to probable vehicular traffic, LPG cylinders shall be suitably protected from impact. **[CFC §3809.13]**
- f. LPG cylinders shall be stored or used in an upright position. Cylinder outlet valves shall be closed or plugged. **[CFC §§3809.3 and 3809.8]**
- g. LPG cylinder storage outside of buildings for cylinders shall be located at least 5 feet from any doorway or opening in a building frequented by the public where occupants have at least two exits. For buildings or sections of buildings having only one exit, the location of such storage from the doorway or opening shall be at least 10 feet. The maximum quantity of LPG allowed in storage is 500 pounds (a 5-gallon cylinder equals 20 lbs. of LPG). Contact your Fire Prevention Division for storage requirements of more than 500 pounds of LPG. **[CFC Table 3809.12]**
- h. LPG cylinders shall be protected by either: **[CFC §3809.13]**
 - i. An enclosure with at least a 6-foot high industrial type fence; or
 - ii. A lockable ventilated metal locker or rack that prevents tampering with valves and pilferage of the cylinder.

[Note: A chain link fence is the type of fence most commonly used for security. A solid fence is not allowed because it is important to allow air to circulate freely.]

- i. Structures such as walls, solid fences, earth or concrete barriers and other similar structures shall be avoided around or over LPG cylinders.

[Note: The presence of such structures can create significant hazards, such as pocketing of escaping gas, interference with the application of cooling water by firefighters and the redirection of flames against the LPG cylinders.]



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Private Hydrants for Other than Single Family Dwellings	SPEC NO: 11-O EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

The Fire Chief is authorized to require the installation of fire protection water supplies and fire hydrants in accordance with the provisions of the Fire Code. The information contained within this document is to serve as a guideline for installation of such equipment. This document is not applicable for installations of public water mains and fire hydrants.

DEFINITIONS

Fire Flow: The amount of water required for fire department use for fire suppression operations.

Piping: Any piping approved for use by the National Installation Standards or by the Fire Prevention Division.

Velocity Factor: The speed of water in the pipe in feet per second.

Wharf Hydrant: A hydrant with one, two-and-one-half inch (2-1/2") outlet.

REQUIREMENTS

Hydrant Type:

All hydrants shall be a "wet barrel" type with outlets sizes and configurations as follow:

- Hydrant Type - Two 2 1/2 outlets and one 4 1/2 inch outlet.
- Wharf Hydrants may not be used for installations under this Standard.

Supply piping shall be of a minimum size of 6 inches for required flows up to 1000 GPM, and shall be 8- inches or greater for flows in excess of 1000 GPM. Contact the Fire Department for specific sizing requirements of mains and fire service connections.

Riser and riser elbow shall be ferrous metal. Buried horizontal piping runs may be of an approved plastic pipe.

Concrete thrust blocks sized in accordance with National Standards shall be provided at all changes in pipe direction.

Hydrant Location:

Hydrants are to be placed at locations approved by the Fire Prevention Division. In most cases, hydrants shall be located adjacent to roadways such that the centerline of the hydrant is at least 2 feet but not more than 8 feet from the face of the curb or roadway surface.

Hydrants shall be installed such that the center of the largest hose outlet is not less than eighteen (18") inches or more than thirty (30") inches above the final grade.

When required by the Fire Prevention Official, fire hydrants shall be protected by approved bollards, installed per Fire Prevention Division Standards.

Fire hydrants shall be painted safety yellow. Note: Private on-site hydrants supplied by the sprinkler system FDC shall have the top portion of the hydrant (approximately 4 inches) painted white.

Hydrant Threads:

National Standard Thread

Hydrant Clearance:

A minimum 3-foot clear space shall be maintained around the circumference of fire hydrants, and similar fire appliances such as FDC's or PIV's.

Fire Department Connections:

A Fire Department Inlet Connection shall be provided for all private hydrant system installations. The connection shall provide a minimum of four, two-and-one-half inch (2-1/2") threaded inlets, served by a minimum 6" inch riser located at the public way, or as approved by the Fire Department.

Valves:

Control valves shall be provided for hydrant installations. A control valve shall be provided between the main and the hydrant(s). It shall be placed at the location(s) approved by the Fire Prevention Division, however in no case shall the valve be located less than 6 feet from the centerline of the hydrant.

Required Plans Submittal:

Shop drawings reflecting compliance with National Fire Protection Association Standard #24, shall be prepared and submitted to the Fire Prevention Division for review. The shop drawings shall be drawn to scale and contain the following information:

1. Size, location, type of water supplies, piping, including the class and depth of cover, control valves, fire hydrants and thrust blocks or anchor points.
2. Manufacturer's Specification sheets for all equipment including hydrants, tanks and valves.
3. Type of joint restraint(s), include the method of corrosion protection.

Hydraulic Calculations:

Hydraulic calculations may be required to verify required fire flow at hydrants prior to installation. If required by the Fire Prevention Division, hydraulic calculations shall be part of the plans submittal. Maximum Velocity Factor shall be 15 feet per second for hydraulic calculations.

Fire Department Permits:

Permits for installation are required. Contact the Fire Prevention Division for details regarding permit applications, and fees.

Installation Requirements:

Installation of fire service piping shall be performed only by individuals who are trained and licensed to perform such work. Poor workmanship will not be accepted or approved.

All materials shall be new and in good physical condition.

Installation Inspection:

All underground piping and valves shall be inspected by the fire department prior to backfill. Hydrostatic, flow, and flush tests may also be required prior to final acceptance of the installation.

Other Installation Reference Guides:

All installations shall also conform to National Fire Protection Association NFPA 24: "Installation of Private Fire Service Main and Their Appurtenances".



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Private Fire Protection Water Supply Tanks and Hydrants for Single Family Dwellings	SPEC NO: 11-P EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This Standard applies to the installation of private, residential fire protection water supply systems for fire sprinklers and fire hydrants when a municipal or approved private water system is not available for fire protection.

DEFINITIONS

Fire Flow: The amount of water required for fire department use for fire suppression operations.

Fire Protection Water Supply: Water required for fire suppression hose streams.

Hydrant: A fire hydrant (wharf type) with one 2 1/2-inch outlet.

Piping: Any piping approved for use by the National Installation Standards or by the Fire Prevention Division.

Tank Outlet: An outlet on the tank that allows direct connection to the tank by a fire hose.

Velocity Factor: The speed of water in the pipe in feet per second.

REQUIREMENTS

Required Fire Protection Water Supply

On-site water storage shall be provided in accordance with the table below based on the size of the building. The volumes specified are acceptable only when an approved automatic fire sprinkler system is also installed. If fire sprinklers are not installed, the supply shall be per the calculated fire flow (flow rate and duration) as specified in the Fire Code.

Building Size	Volume of Fire Protection Water Supply
Up to 10,000 sq. ft.	10, 000 Gallons
10,000 sq. ft. – 15,000 sq. ft.	30, 000 Gallons
Over 15,000 sq. ft.	45, 000 Gallons

Water Tanks

A. General

1. Fire protection water supply tank(s) and hydrant locations shall be approved by the Fire Prevention Division. Tanks shall be located to allow gravity flow of water from the tank to the hydrant. A system to automatically fill the tank(s) is required.
2. Underground tanks that require drafting operations will not be allowed.
3. Fire protection water supply tanks of other than steel construction shall not be located closer than 20 feet to any structure. Wood tanks are not allowed.
4. The water supply for both automatic fire sprinklers and domestic use shall be supplied by the same tank(s) to ensure reliability. A system to automatically fill the tank(s) is required.
5. The tank capacity for combined domestic/fire sprinkler systems shall be determined by adding the volume required for the fire sprinkler system to a minimum of 1,000 gallons for domestic use. The volume of the sprinkler demand shall be based on minimum 30-minute flow duration.
6. The volume of fire protection water supply, as set forth in the "Required Water Supply" table, shall be dedicated to fire protection use. Water for other uses, such as irrigation, shall not be combined in the same tank system. The only exception to this is if it can be demonstrated, to the satisfaction of the Fire Prevention Division, that water can be provided to fulfill irrigation needs and the volume required for fire protection water supply can reliably be available at all times.
7. Tank systems providing both the domestic supply and supply to the sprinkler system and/or hydrant may require cross contamination protection. Check with Building Department for specific requirements related to protection of the domestic supply.
8. Check with the Building Department for tank, tank foundation or other permit requirements.

B. Interconnection of Water Tanks

Interconnection of tanks shall be by a minimum pipe size of 4 inches for storage capacity of up to 10,000 gallons maximum and six inches for storage capacity over 10,000 gallons. Piping for tank interconnections shall be steel pipe unless buried. Buried horizontal piping runs may be of an approved plastic pipe.

C. Water Tank Valves

Control valves shall be provided for water tank installations. Valves shall be of the indicating type. The following control valves shall be provided:

1. Hydrant supply piping control valve. This valve located between the tanks and the hydrant shall be placed at location approved by the Fire Prevention Division. However, in no case shall the valve be located less than 6 feet from the centerline of the hydrant.

2. Tank Interconnection Control valves for isolation of tanks.
3. Water Source Control Valves shall be provided to isolate tanks from water fill sources.

Hydrants

A. Hydrant Location

1. Hydrants shall be located as approved by the Fire Prevention Division. In most cases, hydrants shall be located a minimum of 40 feet from buildings and adjacent to roadways/driveways such that the centerline of the hydrant is at least 2 feet (but not more than 8 feet) from the face of the curb or roadway surface. In lieu of a separate hydrant, a tank outlet may be allowed provided that the outlet location, with respect to the structure, is acceptable to the Fire Prevention Division.
2. Hydrants and tank outlets shall be installed such that the center of the hose connection is not less than eighteen (18") inches nor more than thirty (30") inches above the final grade.
3. When required by the Chief, fire hydrants shall be protected by approved bollards, installed per Fire Prevention Division Standards.
4. Fire hydrants shall be painted safety yellow (or equivalent).

B. Hydrant Pressure

Hydrants supplied by tanks shall have positive, static head pressure. Draft hydrants are not permitted.

C. Hydrant Supply Piping

1. Hydrant supply piping shall be a minimum 4 inches in diameter. Hydrant risers and riser elbows shall be steel. All buried supply piping shall be; galvanized steel, coated ductile iron or approved non-metallic pipe.
2. Concrete thrust blocks, sized in accordance with national standards, and shall be provided at all changes in pipe direction.
3. Hydrant supply piping from private water tanks shall be tested @ 50 psi over static pressure for 2 hours.

D. Hydrant Threads

Hydrants shall have National Standard Thread.

E. Hydrant Clearance

A 3-foot clear space shall be maintained around the circumference of fire hydrants.

Plan Submittals and Permits

A. Permits

An installation permit from the Fire Prevention Division is required for private fire protection water supply tanks and hydrants. The installation work shall be performed by a licensed contractor. Permits will be issued only after plan approval. Contact the Fire Prevention Division for details regarding permit applications and fees.

B. Plans Submittal

1. Plans for fire protection water tanks and/or hydrant installations shall be submitted to the Fire Prevention Division for review and approval. The plan shall be drawn to scale and contain the following information:
2. Size, location and type of all water supply tanks.
3. A complete description and diagram of water supply sources such as municipal water lines, wells, tanks, etc.
4. Size, type, and location of all piping: including the class and type and depth of cover.
5. Size, type and location of all control valves.
6. Location of hydrant(s).
7. Manufacturers specification sheets for all equipment including hydrants, tanks and valves.
8. Size, location and type of thrust blocks or anchor points.
9. All materials shall be new or in good physical condition. The Fire Prevention Division reserves the right to disapprove the use of any used materials.

Inspection

Installation Inspection:

1. All underground piping shall be inspected by the Fire Prevention Division prior to covering. Note that a hydrostatic pressure test is required prior to covering.
2. Flow and flush tests, performed in the presence of Fire Prevention Division staff, will also be required prior to final acceptance of the installation.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Specifications For The Design And Installation Of Fire Sprinkler Systems In Multi-Unit Residential Buildings.	SPEC NO: 11-Q EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

This standard applies to the installation of automatic fire sprinkler systems that are required by local ordinance for multi-unit residential buildings, up to and including, four (4) stories in height when National Fire Protection Standard (NFPA) #13R is used as the design basis.

Note: In accordance with the California Building Code (CBC), a NFPA 13R design cannot be used when sprinklers are used to substitute for 1-hour construction, or for increases in building height or allowable area as protection is not provided throughout the building.

REQUIREMENTS

The installation and design of the system shall comply with chapter 9 of the CBC (Title 24, Part 2), and the provisions of NFPA Standard 13R, except as modified herein.

Location of Sprinklers - Fire sprinklers shall be installed in accordance with their listing, shall protect all usable spaces including, but not limited to:

- Penthouses
- Equipment rooms
- Elevator shafts
- Service chutes (dumbwaiter, laundry, etc.)
- Underneath combustible exterior stairs
- Porte Cochere
- Patios, porches, balconies and stairs having overhead exterior wall projections greater than 6 inches in depth

Monitoring - Automatic fire sprinkler systems shall be monitored in accordance with the California Fire Code.

Annunciation - Systems installed within buildings equipped with approved fire alarm systems, shall be annunciated by floor and/or zone at the fire alarm panel (and remote annunciator if one exists). The designer shall incorporate equipment and devices as necessary to achieve the required annunciation.

Fire Department Connections - Fire department connections shall be provided as part of the system and be located proximal to the public way, on the primary entry side of the building.



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Installation of Fire Sprinkler Systems in One and Two Family Dwellings	SPEC NO: 11-R EFFECTIVE DATE: 01/01/13 REVISED: 10/24/14
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SCOPE

This standard applies to fire sprinkler system installations in one and two family dwellings where fire sprinkler systems are installed when required by the California Residential Code, in accordance with local ordinances, or as an approved Alternate Method of Compliance to the provisions of the Fire Code.

The system design criteria, as set forth in this Standard is based on total building square footage. Note that all usable spaces such as attached or detached garages, carports, attics used for storage, etc. are included when determining total building square footage.

DEFINITIONS

Alternate Method of Compliance: An approved method of compliance that, in the opinion of the Fire Department, meets the intent of the provisions outlined in the Fire Code.

NFPA Standard 13D: National Fire Protection Association Standard 13D, Fire Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes

REQUIREMENTS

I. General

The sprinkler system design and installation shall comply with provisions of the current State adopted edition of NFPA Standard 13D except as specified in this Standard.

II. Design Criteria

All plan submittals for the installation of water-based fire suppression systems shall include a report or other documentation from the water purveyor that provides water supply information.* The information provided shall include the static pressure, residual pressure and gallons per minute (gpm) available in the vicinity of the project.

The available pressure provided by the water purveyor shall be reduced by 10% for the system demand calculations. Note: If the test methodology of the water purveyor already includes a 10% reduction, no additional reduction is required (the reduction provided by the water purveyor must be so indicated on the provided water supply information).

III. Water Supply

1. The water supply source for the fire sprinkler system shall be from the same source as the domestic supply unless otherwise approved by the Fire Prevention Division.
2. When water tanks are approved to supply fire sprinklers, both the domestic and fire protection water storage shall be combined in one tank or tanks to ensure reliability.
3. Water supply tanks shall be sized to provide the fire sprinkler system with a flow duration of not less than 30 minutes. See Standard Detail # 11-P for tank requirements.
4. When pumps are used for water supply/pressure to sprinkler systems, the pump specifications (pump rating, flow curve, etc.) shall be included with the plans submittal.
5. Where a water supply serves both domestic and fire sprinkler systems, 5 gpm shall be added to the sprinkler system demand at the point where the systems are connected, to determine the size of common piping and the size of the total water supply requirements where no provision is made to prevent flow into the domestic water system upon operation of a sprinkler.
6. Back flow prevention devices may be required by the local water purveyor. If such devices are required, the system demand calculations shall include losses for the device specified by the water purveyor.

IV. Number of Design Sprinklers

1. For buildings up to 3600 square feet, the number of design sprinklers shall be in accordance with NFPA Standard 13D.
2. For buildings 3601 to 6200 square feet, the number of design sprinklers shall include all sprinklers within the most remote room or compartment up to a maximum of three (3) sprinklers.

Note: If the most remote room or area contains less than three (3) sprinklers, the number of design sprinklers shall include all of the heads within the room. In addition, calculations shall be provided that demonstrate the operation of 3 sprinklers in the most remote room that requires three (3) or more heads for coverage.

3. For buildings in excess of 6200 square feet, the (4) four most hydraulically demanding heads in a room or compartment shall be calculated.

V. Location of Sprinklers

The exceptions listed for the locations of sprinklers as per NFPA Standard 13D shall be applicable except as follows:

1. Fire sprinklers shall be provided in any attached or detached garage, carport, basement, foyer(s) or area below decks used for storage or other purposes.
2. Roof attic areas not intended for storage or other uses, a single pilot head shall be provided in the attic space above each attic access door or hatch. In addition, pilot sprinkler protection shall be provided for any mechanical equipment installed in attics including, but not limited to, furnaces and water heaters. Note: Approved CPVC fire sprinkler pipe will be allowed to supply attic heads required by this section. Freeze protection for piping shall be provided as necessary.
3. Roof attic areas intended for storage or other uses with an access door/hatch greater than 22 x 30 shall be provided with a complete fire sprinkler system.
4. Sprinkler protection shall be provided for usable areas under exterior building or roof overhangs, such as patios and porches that extend more than 4 feet from exterior walls.

Exception: Overhangs over building entrances that do not exceed 12 feet in length or width.
5. Small closet spaces that contain furnaces, water heaters or other mechanical equipment shall be provided with sprinkler protection regardless of the size of the space.

VI. Fire Department Connection

For buildings in excess of 6200 square feet, a Fire Department Connection (FDC) shall be provided. The FDC shall consist of at least one 2.5" hose connection that is connected to the sprinkler riser with a pipe **not less** than the diameter of the sprinkler riser.

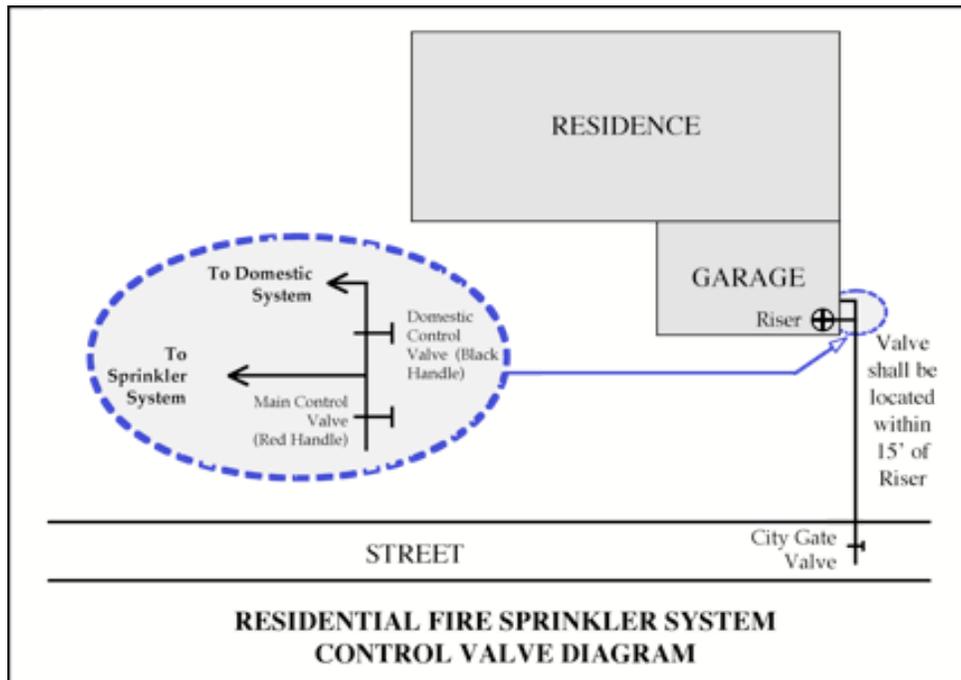
1. The location of the FDC shall be as approved by the Fire Prevention Division utilizing the following criteria:
2. The FDC shall be located on an exterior wall of the residence, a minimum of 10 feet from any door or window opening. The distance to openings may be decreased to not less than 5 feet if the FDC is located on an adjacent wall that is more than 180 degrees to the wall that the opening is located on.
3. The FDC shall be readily accessible from the street or access driveway.
4. The FDC shall not be located behind fences or gates such that it is not visible from the front of the residence.
5. The FDC shall be painted safety yellow and be identified with a sign that states "Fire Department Connection". The lettering on the sign shall be at least one inch high.

VII. Alarms

Exterior audible water flow alarms shall be provided. Additionally, water flow shall activate either a separate interior audible device that can be heard in all sleeping areas or, through interconnection with the smoke detectors, which will sound an alarm in the sleeping areas.

VIII. Control Valves

Valves controlling the water supply to residential fire sprinkler systems shall be installed in accordance with NFPA Standard #13D and be distinguishable, accessible, and located adjacent to the structure, proximal to the domestic shut off valve. The main system control valve shall be distinguishable from the domestic valve by means of a permanently attached tag and be of contrasting color (i.e.: red handle for main system, versus black handle for the domestic supply).





FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Tents, Canopies and Temporary Membrane Structures	SPEC NO: 11-S EFFECTIVE DATE: 01/01/13 REVISED:
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SCOPE

These standards shall apply to any temporary membrane structure or tent in or under which 10 or more persons may gather in accordance with California Code of Regulations (CCR) Title 19.

Temporary membrane structures and tents shall be used for a period of not more than 180 days within any 12-month period at a single facility unless approved by the local building and/or zoning code official.

A. **Permits**

A tent or temporary membrane structure having an area in excess of 400 square feet may be required to have a permit and/or an inspection prior to being erected. Permits and approvals shall be in accordance with requirements of the local fire code official. **[CFC §105.6.43]**

B. **Definitions**

For the purposes of this document, the following definitions shall apply:

Tent - A shelter, structure or enclosure made of fabric or similar pliable material. **[CFC §2402]**

Membrane Structure - An air-inflated, air-supported, cable or frame-covered structure as defined by the California Building Code and not otherwise defined as a tent. See Chapter 31 of the California Building Code. **[CFC §2402]**

C. **Access, Location, and Parking**

1. Fire apparatus access shall be provided as outlined in CFC §503. Access roads shall have an unobstructed width of not less than 20 feet and an unobstructed vertical clearance of 13 feet, 6 inches. **[CFC §503.2.1]**
2. Temporary membrane structures and tents shall not be located within 20 feet of buildings, lot lines, parked vehicles, internal combustion engines, or other temporary membrane structures or tents. 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:

- a. Separation distance between temporary membrane structures and tents not used for cooking is not required when the aggregate floor area does not exceed 15,000 square feet;
 - b. Temporary membrane structures or tents need not be separated from buildings when all of the following conditions are met:
 1. The aggregate floor area of the membrane structure or tent shall not exceed 10,000 square feet;
 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;
 3. Required means of egress are provided for both the building and the membrane structure or tent including travel distances;
 4. Fire apparatus access roads are provided in accordance with Section 503 of the California Fire Code;
 - c. The Fire Code official may approve tents located in, or on, permanent buildings provided that such use does not constitute an undue hazard. **[CFC §2403.8.2]**
3. 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. **[CFC §2403.8.2]**

D. Anchorage and Structural Stability

1. Membrane structures and tents and their appurtenances shall be adequately roped, braced and anchored to withstand the elements of weather and prevent against collapsing. **[CFC §2403.9]**
2. Documentation of structural stability shall be furnished to the fire code official upon request. **[CFC §2403.9]**

E. Flame Resistance and Flame Retardant Treatment and Standards

1. Before a permit is granted, the owner or agent shall file with the fire code official a certificate executed by the State Fire Marshal certifying that the tents and membrane structures and their appurtenances; sidewalls, drops and tarpaulins are made from a flame resistant fabric or material approved by the State Fire Marshal. **[CFC §§2402.1, 2404.2, 2404.4]**
2. Required Label, Stencil or Stamp:
 - a. Each section of top and sidewall of large tents and temporary membrane structures (i.e., those designed for use by 10 or more persons) shall have a permanently-affixed a durable label bearing the following

information: **[CFC§2404.3(a)]**

- i. The seal of registration.
- ii. If treated fabric, the name and registration number of the approved application concern and approved chemical used and the date of treatment.
- iii. If registered fabric, the trade name and registration number of the approved fabric and the date of production.

In lieu of the permanent label, the registration information may be applied directly to the fabric by print, stamp or stencil. **[CFC §2404.3(a)]**

b. Small tents shall have a permanently affixed label bearing all of the information listed above for large tents, or shall meet the provisions of CPAI-84 (1975), as follows: **[CFC §2404.3]**

- i. A statement that the materials used in the manufacture of the item meet the flame resistance requirements of CPAI-84.
- ii. 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.
- iii. A number enabling the manufacturer to identify from his records the suppliers and suppliers' lot number of the certified materials used in the item. The manufacturer shall also maintain records identifying the parties to whom he sold camping tentage. Further, the manufacturer shall maintain records identifying items manufactured from lots of certified material. Records shall be maintained for four years.
- iv. A warning label in accordance with the following, or its equivalent, must be permanently affixed to the tent at one conspicuous location and must be black letters on a white background:

24 Point Type WARNING

16 Point Type KEEP ALL FLAMES AND HEAT SOURCES AWAY
FROM THIS FABRIC

12 Point Type This tent is made with flame resistant fabric which
meets CPAI-84 specifications. It is not fireproof. 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.

F. Maximum Occupant Load

- 1. The occupant load allowed in an Assembly structure shall be determined in accordance with Chapter 10 of the CFC. **[CFC §2404.14]**

2. Every room or space that is an Assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place near the main exit or exit access doorway from the room or space. **[CFC §1004.3]**
3. For areas without fixed seating, the number of occupants shall be computed at the rate of one occupant per unit of area as prescribed below: **[CFC §1004.1.1]**

Table 1004.1.1	Floor area in square feet per occupant
Concentrated (chairs only – not fixed)	7 net
Standing Space	5 net
Unconcentrated (tables & chairs)	15 net

G. Exits

Exits shall be spaced at approximately equal intervals around the perimeter of the temporary membrane structure or tent and shall be located such that all points are 100 feet or less from an exit. **[CFC §2403.12.1]**

1. Exits shall be provided in accordance with the following table:

**CFC TABLE 2403.12.2
MINIMUM NUMBER OF EXITS AND EXIT WIDTHS FOR TENTS AND
TEMPORARY MEMBRANE STRUCTURES***

Occupancy Load	Minimum Number of Means of Egress	Minimum Width of Each Means of Egress - Tent	Minimum Width of each Means of Egress – Membrane Structure
10 to 199	2	72 in.	36 in.
200 to 499	3	72 in.	72 in.
500 to 999	4	96 in.	72 in.
1,000 to 1,999	5	120 in.	96 in.
2,000 to 2,999	6	120 in.	96 in.
Over 3,000	7	120 in.	96 in.

* 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. Such widths of means of egress shall be divided approximately equally among the separate means of egress.

2. Exit openings from tents shall remain open unless covered by a flame-resistant curtain as follows: **[CFC §2403.12.3]**
 - 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. Curtains shall be so arranged that, when open, no part of the curtains obstruct the exit; and
 - b. Curtains shall be of a color, or colors, that contrast with the color of the tent.

I. 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 not exceed 15 pounds (66 N). **[CFC §2403.12.4]**

J. Maintenance of Means of Egress

1. The required width of exits, aisles and passageways to a public way shall be maintained at all times. **[CFC §2403.12.8]**
2. Guy wires, guy ropes, and other support members shall not cross a means of egress at a height of less than eight (8) feet. **[CFC §2403.12.8]**
3. The surface of means of egress shall be maintained in an approved manner. **[CFC §2403.12.8]**
4. 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 wires, or anything whatsoever, nor shall they be blocked by persons for whom no seats are available. **[CFC §2404.23]**

K. Exit Illumination and Signage

1. Means of egress shall be illuminated with light having an intensity of not less than one (1) footcandle 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. **[CFC §2403.12.7]**
2. Exit signs shall be clearly marked. 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. **[CFC §2403.12.6]**
3. Exit signs shall be either listed and labeled in accordance with UL 924 as the internally illuminated type and used in accordance with their listing or shall be externally illuminated by luminaries supplied in the following manner:
 - a. For occupant loads of 300 or less, two separate circuits, one of which shall be separate from all other circuits, shall be provided;
 - b. When the occupant load exceeds 300, two separate sources of power, one of which shall be an approved emergency system, shall be provided. Emergency systems shall be supplied from storage batteries or on-site generator set, and the system shall be installed in accordance with the Electrical Code. The emergency system provided shall have a minimum duration of 90 minutes at full design demand. **[CFC §2403.12.6.1]**

L. Seating Arrangements and Aisle Spacing

1. Seating arrangements and aisle spacing shall be in accordance with Chapter 10 of the CFC and meet the approval of the fire code official. **[CFC §§2403.11, 2403.12.5.1]**

2. Aisle width for areas with no fixed seating shall be as follows:
 - a. In public areas without fixed seats, the minimum clear aisle width shall be 44 inches 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. [CFC §2403.12.5]
 - b. 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 in accordance with CFC Table 2403.12.2.
3. Aisles shall terminate at a cross aisle, foyer, doorway, or vomitory having access to an exit. [CFC §1028.9.5]
4. Aisles shall not have a dead end greater than 20 feet in length. [CFC §1028.9.5]
5. Where seating rows have 14 or fewer seats, the minimum clear aisle access way 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. [CFC §1028.10]

The clear width shall be increased as follows:

- a. For rows of seating served by aisles or doorways at both ends, there shall not be more than 100 seats per row. A minimum clear width of 12 inches between rows shall be increased by 0.3 inch for every additional seat beyond 14, but the minimum clear width is not required to exceed 22 inches. [CFC §1028.10.1]
 - b. 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 0.6 inch for every additional seat beyond seven, but the minimum clear width is not required to exceed 22 inches. [CFC §1028.10.2]
6. Aisle access ways serving arrangements of seating at tables shall provide a minimum of 12 inches of width plus $\frac{1}{2}$ inch of width for each additional 1 foot, or fraction thereof, beyond 12 feet of aisle access way length measured from the center of the seat farthest from an aisle. [CFC §1017.4.2]
7. 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. In addition, where one of the two paths of travel is across the aisle through a row of seats to another aisle, there shall not be more than 24 seats between the two aisles, and the minimum clear width between the rows for the row between the aisles shall be 12 inches plus 0.6 inch for each additional seat above seven in the row between aisles. [CFC §§1028.8, 1028.8.1]
8. When there are 300 or more loose seats, folding chairs, or similar seating facilities that are not fixed to the floor, chairs 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. [CFC §1014.4]

M. Smoking and Open or Exposed Flames

1. Smoking shall not be permitted in any tent or temporary membrane structure or in any adjacent areas where hay, straw, or any other combustible materials are stored or used. Approved "NO SMOKING" signs shall be conspicuously posted. **[CFC §2404.6]**
2. Open flame or other devices emitting flame, fire, spark or heat or any flammable liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be used in, or located within 20 feet of the tent or membrane structure while open to the public unless approved by the fire code official. **[CFC §2404.7]**

N. Flammable or Combustible Liquids and Liquefied Petroleum Gas (LP-gas)

1. Flammable-liquid-fuel equipment shall not be used in temporary membrane structures or tents. **[CFC §2404.17.1]**
2. Refueling shall be performed in an approved location not less than 20 feet from temporary membrane structures and tents. **[CFC §2404.17.3]**
3. Flammable and combustible liquids shall be stored outside in an approved manner not less than 50 feet from temporary membrane structures and tents. **[CFC §2404.17.2]**
4. LP-gas shall be located outside. Safety release valves shall be pointed away from temporary membrane structures and tents. **[CFC §2404.16.2]**
5. Portable LP-gas containers having a capacity of 500 gallons or less shall have a minimum separation between the container and structure of not less than 10 feet. **[CFC §2404.16.2.1]**
6. Portable LP-gas containers having a capacity of 500 gallons or more shall have a minimum separation between the container and structure of not less than 25 feet. **[CFC §2404.16.2.2]**
7. Portable LP-gas containers, piping, valves and fittings located outside and 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. **[CFC §2404.16.3]**
8. Portable LP-gas containers shall be securely fastened to prevent unauthorized movement. **[CFC §2404.16.3]**

O. Generators

Generators and other internal combustion power sources shall be separated from tents or membrane structures by a minimum of 20 feet and shall be isolated from contact with the public by fencing, enclosure, or other approved means. **[CFC §2404.19]**

P. General Fire Safety

1. There shall be a minimum clearance of at least 3 feet between the fabric envelope and all contents located inside tents and membrane structures. **[CFC §2404.11]**
2. Combustible vegetation, hay, straw, trash and similar combustible material shall be removed from the area occupied by a temporary membrane structure or tent and from areas within 50 feet of tents and membrane structures to which the public is admitted. **[CFC §§2404.21, 2404.5]**
3. Floor coverings, bunting, combustible decorative materials and effects, including sawdust when used on floors or passageways, shall be composed of flame-resistant material meeting performance criteria of NFPA 701 or shall be treated with a flame retardant in an approved manner and meet the flame propagation criteria of NFPA 701. **[CFC §2404.2]**
4. Hay, straw, shavings or similar combustible materials shall not be located within, or used on the floor of, any tent or membrane structure unless it is made flame resistant in an approved manner, or when approved by the fire code official, kept adequately damp when the tent is occupied. **[CFC §2404.5]**
5. The floor surface inside tents or membrane structures and the grounds outside and within a 30-foot perimeter shall be kept free and clear of combustible waste and other combustible materials that could create a fire hazard. Such wastes shall be stored in approved containers until removed from the premises at least once a day during the period the structure is occupied. **[CFC §2404.22]**
6. Any condition that presents a fire hazard, would contribute to the rapid spread of fire, interfere with the rapid exit of persons from tents, or interfere with or delay the extinguishment of a fire, shall be immediately corrected as ordered by the fire code official. **[CFC §2402.1]**

Q. Heating and Cooking Equipment

1. Cooking equipment is permitted only inside tents and temporary membrane structures used exclusively for the cooking of food. No other uses such as public assembly, sales, displays, ect. are permitted inside a tent where cooking is allowed. [Exception: Operations such as warming of foods, cooking demonstrations and similar operations that use solid flammables, butane, or other similar devices that do not pose an ignition hazard may be approved by the fire code official for use inside a tent or temporary membrane structure occupied by the public.] **[CFC §§2404.7, 2404.15.4]**
2. Gas, liquid and solid fuel-burning equipment 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 membrane structure shall be not less than 12 inches from the flue or vent. Solid fuel burning equipment shall be equipped with a spark arrester having openings not exceeding ¼-inch wire mesh. **[CFC §2404.15.2]**
3. Tents with sidewalks or drops where cooking is performed shall be separated from other temporary membrane structures and tents by a minimum of 20 feet. **[CFC §2404.15.5]**
4. Outdoor cooking that produces sparks or grease-laden vapors shall not be performed within 20 feet of a tent or membrane structure. **[CFC §2404.15.6]**

5. Open flame or other devices emitting flame, fire, spark or heat or any flammable liquids, gas, charcoal or other cooking device or any other unapproved devices shall not be used in, or located within 20 feet of the tent or membrane structure while open to the public unless approved by the fire code official. All other cooking equipment shall be located a minimum of 10 feet from temporary membrane structures and tents. **[CFC §§2404.7, 2404.15.3]**
6. Heating and cooking equipment shall not be located within 10 feet of exits or combustible materials. **[CFC §2404.15.3]**
7. All cooking and heating equipment, tanks, piping, hoses, fittings, valves, tubing, and other related components shall be installed in accordance with the California Mechanical Code and shall be approved by the fire code official. **[CFC §2404.15.1]**

R. Portable Fire Extinguishers and Other Fire Protection Equipment

1. Minimum fire extinguisher coverage shall be provided in every tent and temporary membrane structure as follows:
 - a. 200 to 500 square feet of floor area: one 2-A extinguisher plus one in each auxiliary adjacent tent; **[CFC §2404.12(a)]**
 - b. Each additional 2,000 square feet of floor area or fraction thereof: one 2-A extinguisher. **[CFC §2404.12(a)]**
2. At least one 10 B-C extinguisher shall be provided for each generator or transformer. **[CFC §2404.12(b)]**
3. At least one 10 B-C extinguisher shall be provided in the kitchen, dining areas and at locations where flammable or combustible liquids or flammable gases are used, stored or dispensed. **[CFC §2404.12(c)]**
4. Tents having a capacity of 1,000 or more persons shall be protected along the long sides with fire hose lines of at least 1½-inch inside diameter and of sufficient length to reach either end of the tent. The water supply shall either be 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 1/2 – inch tip is used. **[CFC §2404.13]**
5. Other fire protection equipment shall be maintained at the site as required by the fire code official. **[CFC §2404.13]**

S. Standby Personnel and Crowd Managers

1. Trained crowd managers shall be provided where more than 1,000 people congregate or in tents and membrane structures when required by the fire code official. The minimum number of crowd managers shall be established at a ratio of one crowd manager to every 250 persons. Where approved by the fire code official, the ratio of crowd managers may be reduced where the facility is equipped throughout with an approved automatic sprinkler system or based on the nature of the event. **[CFC §§403.3, 2404.20.2]**

2. When, in the opinion of the fire code official, it is essential for public safety in a tent or membrane structure, because of the number of persons, or the nature of the event 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 event is being conducted. **[CFC §2404.20]**



FIRE PREVENTION DIVISION STANDARD DETAILS & SPECIFICATIONS

SUBJECT: Installation of Fire Service Underground Piping, FDC's and Fire Hydrants	SPEC NO: 11-T EFFECTIVE DATE: 01/01/13 REVISED: 2/10/15
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SCOPE

This standard applies to the installation of underground fire service supply piping, fire department connections, and fire hydrants.

REQUIREMENTS

Fire service underground supply piping shall be installed in accordance with National Fire Protection Association Standard (NFPA) #24, Standard for the Installation of Private Fire Service Mains, and in accordance with this standard.

UNDERGROUND SUPPLY PIPING

- Fire service piping shall not be installed under buildings. When portions of the piping must penetrate building foundations or footings, it shall be installed per NFPA Std. #24 and protected by a sleeved penetration that provides a minimum two-inch (2") annular clear space; Underground fire service piping shall not be encased in concrete.
- Fire service piping shall not cross property lines.
- When an existing structure is added to, resulting in an additional sprinkler system riser being provided, it shall be supplied from the existing fire service main and FDC. (See "Post indicator valves" below for valving arrangements)
- Prior to connection to the fire sprinkler system, all underground fire service piping shall be subjected to a hydrostatic test at 200 psi for a period of 2 hours. After completion of the test, the piping shall be flushed as outlined in the NFPA standard.

POST INDICATOR VALVES

- New sprinkler systems shall be provided with a Post Indicator Valve (PIV) for system control. (Exception: approved back-flow prevention assemblies utilizing (OS&Y) valves)
- One-story buildings having multiple system risers, (i.e., large warehouses or industrial buildings), shall have a single main supply PIV installed at the street, while the other risers may have exterior wall mounted PIV's or Outside Screw and Yolk (OS&Y) control valves.
- Main system PIV's (or back-flow prevention assemblies controlling sprinkler systems) shall be installed on the street address side of the building, not more than five (5') feet behind the back edge of the sidewalk (when a sidewalk is provided running parallel to the street and is within

ten (10') feet of the street/curb line), and in no case shall the PIV or control valve assembly be more than twenty (20') feet from the street/curb line.

- For buildings three (3) or more stories in height, the PIV or control valve assembly shall be installed at the street for main system control, with individual floor control valves provided within the building, located in a protected stairway enclosure.

FIRE DEPARTMENT CONNECTIONS

- New Installation - The fire department connection (FDC) shall be installed at the street on the street address side of the building. It shall be located within 40 feet of a fire hydrant and within ten (10) feet of the main PIV (unless otherwise approved by the Chief due to practical difficulties). FDC's shall be equipped with a minimum of two (2), two-and-one-half (2- 1/2") inch national standard threaded inlet couplings. Exception: FDC's supplying private on-site fire hydrants shall have a minimum four (4) way inlet coupling.
- Existing Buildings - On existing buildings, wherever the fire department connection is not visible to approaching fire apparatus, the fire department connection shall be indicated by an approved sign mounted on the street front or on the side of the building. Such sign shall have the letters "FDC" at least 6 inches (152 mm) high and words in letters at least 2 inches (51 mm) high or an arrow to indicate the location. All such signs shall be subject to the approval of the fire code official.
- Orientation of the FDC shall be such that hose lines may be readily and conveniently attached to the inlets without interference.
- FDC's shall be painted safety yellow.

FIRE HYDRANTS

- Hydrants shall be located adjacent to roadways such that the centerline of the hydrant is at least 2 feet but not more than 8 feet from the face of the curb or roadway surface.
- The hydrant street control valve shall be located a minimum of 6 feet from the centerline of the hydrant.
- Required fire hydrants shall be installed such that the center of the largest hose outlet is not less than eighteen (18") inches, nor more than thirty (30") inches above the final grade.
- When required by the Chief, fire hydrants shall be protected by approved bollards, installed per fire department standards.
- Fire hydrants shall be painted safety yellow. Note: Private on-site hydrants supplied by the sprinkler system FDC shall have the top portion of the hydrant (approximately 4 inches) painted white.