



Scott M. Jalbert, Unit Chief

## **Standard 1**

### **Water Supply**

#### **Scope**

This standard provides a method of identifying the minimum water supply requirements for firefighting purposes relative to commercial, industrial or residential development. This standard provides requirements for water from fire hydrants for fire suppression activities.

#### **General Requirements**

All fire hydrants and required access roads shall be installed prior to structural construction.

#### **Definitions**

- **CBC** California Building Code 2016, California Code of Regulations Title 24, Part 2.
- **CFC** California Fire Code 2016, California Code of Regulations, Title 24, Part 9.
- **CRC** California Residential Code 2016, California Code of Regulations, Title 24, Part 2.5.
- **FPE** Fire Protection Engineer
- **Floor Area, Gross** For the purpose of calculating square footage for the application of fire sprinkler requirements and for fire flow requirements, the floor area shall include all combustible areas attached to the structure, including garages, patio covers, overhangs, covered walkways, etc.
- **Fire Flow** The flow rate of a water supply, measured at 20 pounds per square inch (PSI) (137.9kPa) residual pressure, that is available for firefighting. When water supply tanks are approved for use, the flow rate of a water supply may be at draft.
- **Local Ordinance** Amendments to the California Fire Code (CFC) adopted by the County of San Luis Obispo, Avila Beach Community

Services District, Cambria Community Services District, Cayucos Fire Protection District, City of Pismo Beach, Los Osos Community Services District and Templeton Community Services District.

- NFPA 13 National Fire Protection Association 2016, Standard for the Installation of Sprinkler Systems.
- Occupancy Type The purpose for which a building or part thereof is used or intended to be used, as determined by California Building Code (CBC), Chapter 3, Use and Occupancy Classification.
- PRC Public Resources Code
- Single Family Dwelling (SFD) One and two family dwellings, included attached or detached private garages. Also, sometimes referred to as Single Family Residence (SFR).
- SFM State Fire Marshal
- Type of Construction Determined from Chapter 6 of the California Building Code (CBC).
- Water Purveyor A public utility, a mutual water company, a governmental body, or other entity, owning and operating a water system and holding a valid permit from the State or County Health Department to purvey water.

### **Water Storage Requirements**

This information is derived from the current adopted California Fire Code, Local Ordinances and NFPA. If your project requires fire sprinklers, please contact an approved FPE or C-16 contractor. A current list of San Luis Obispo County approved fire protection engineers can be found at:

<http://calfireslo.org/Documents/Prevention/Standards&Exhibits/Approved%20FPE.pdf>

### **Defensible Space Requirements**

California law (PRC 4291) requires property owners and/or occupants to create 100 feet of defensible space around homes and buildings. Defensible space is a perimeter that provides a buffer to stop or slow the spread of an encroaching wildland fire or prevent a structure fire from escaping into the adjacent wildland. Defensible space is an area of reduced and/or modified fuel that will not readily transmit or carry fire and will provide firefighters with a safe working environment that allows them to protect buildings and structures from encroaching wildfires and minimizes the chance that a structure fire will escape to the surrounding wildland.

*CAL FIRE* requires that landscaping selections do not readily transmit fire. Landscaping and vegetation shall be in accordance with San Luis Obispo County Planning and Building “New Landscaping Requirements”

[http://www.slocounty.ca.gov/planning/New\\_Water\\_Requirements/New\\_Landscaping\\_Requirements.htm](http://www.slocounty.ca.gov/planning/New_Water_Requirements/New_Landscaping_Requirements.htm)

Our website [www.calfireslo.org](http://www.calfireslo.org) has several links with recommended planning tools for landscape and fuel management plans.

## **Residential**

For purposes of this section, residential refers to one and two family dwellings.

### **Remodel / Alterations**

In calculating square footage for the application of fire sprinkler requirements and fire flow requirements, the floor area shall include all combustible areas attached to the structure. This includes garages, patio covers, overhangs, and covered walkways. Alterations, additions and remodel square footage will be considered a combined and cumulative sum of floor area.

### **Private Water System**

1. A C-16 contractor will design the sprinkler system and determine the required dedicated fire water storage amount for structure of design.
2. *CAL FIRE* will determine minimum dedicated fire water storage amount for structure(s) and site (minimum 2,500 gallons per NFPA 1142). See FP-2 and FP-3 for schematics.
3. Most projects will require a minimum of a 5,000 gallon water storage tank. The 2,500 gallon minimum dedicated fire water reserve combined with average domestic water usage dictates a standard tank size of 5,000 gallons.
4. *CAL FIRE* does not require the installation of a dedicated fire water tank, only the required dedicated water storage amount.

### **Exceptions**

In some instances, with prior approval from the Fire Department:

- Large shops, multi-level residential and/or large atrium or vaulted ceiling designs may require the review of a fire protection engineer.
- Large and/or multiple structures with less than 50 feet separation may require additional dedicated fire water storage.



- In rural areas where there are no water purveyors and the building is protected by an approved automatic sprinkler system, the provisions in NFPA 13 for combined inside and outside hose lines may be utilized to determine fire-flow and duration. The water storage total quantity will be a combination of the sprinkler demand and the fire-flow requirements. The location, connections and other appurtenances of tanks shall be approved by the fire department.
  - When using this option, the resulting fire-flow (hose demand) shall double for every 10,000 square feet of building area or portion thereof. The fire sprinkler demand only needs to be provided once per building. Use of this option is limited to up to 2 buildings on the same property and ownership.
  - Buildings classified as Group U, agricultural buildings used as barns, storage structures, stables, poultry buildings and other similar uses with a total fire area of 3,000 square feet or less are not required to provide fire-flow.
  - Buildings classified as Group U, agricultural buildings used as greenhouses, horticultural structures, nurseries and similar uses may use NFPA 1142 provisions for water storage regardless of number of buildings of this type.
  - Buildings with a total floor area of 500 square feet or less are not required to provide fire-flow.
  - Domestic water demands shall be in addition to required fire water storage.

### **Subdivisions**

Subdivisions will require community water systems that comply with CFC Appendix C. For additional information relative to this requirement, contact the San Luis Obispo County Planning and Building Department.

### **Schools**

#### **Public Schools**

The State Fire Marshal (SFM) requires the Division of State Architect (DSA) to request water and access requirements and approval from the local jurisdiction. The minimum fire-flow and duration for public school buildings shall be as specified in CFC Appendix B, Table BB105.1.

- A reduction in fire-flow of up to 75%, as approved by the Fire Chief, is allowed when the building is provided with an approved automatic sprinkler system. *CAL FIRE* will consult with the approving FPE prior to permitting reduced fire-flow.

## **Private Schools**

Private schools shall comply with all the requirements for an educational building. Local requirements are applicable to private schools.

## **Multiple Tanks**

Connecting several tanks together, also known as daisy chaining, is strictly prohibited.

### **Exceptions**

In some instances, with prior approval from the Fire Department, multiple tanks may be installed.

- When topographical or soil conditions prohibit large tanks (technical report required) and/or
- Planning and Building Department land use conditions require reduced visual impact (Coastal Zone screening) and/or
- Where approved by the Fire Chief.

#### **If approved, multiple tanks systems must have:**

1. all valves chained and locked open,
2. each tank must be installed with monitored tamper resistance,
3. all tanks must feed into one common manifold serving the fire protection systems, and
4. onsite hydrants or other appurtenances.

## **Tenant Improvements**

Tenant improvements requiring a Fire Safety Plan and alterations to an existing fire sprinkler system must also provide a letter and/or review from an FPE verifying fire and life safety function of the installed system. Examples of thresholds for alterations requiring FPE review include walls moved, removed or added, occupancy change, hazard class change and/or additional sprinkler heads added to system.