



## • STANDARD 1 • WATER SUPPLY

### **SCOPE:**

To identify minimum water supply requirements for fire fighting purposes relative to commercial, industrial or residential development. This Standard provides requirements for water from fire hydrants for the purpose of fire suppression activities.

### **GENERAL REQUIREMENTS:**

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

### **AMOUNT OF WATER STORAGE REQUIRED:**

This information is derived from the current adopted California Fire Code, Local Ordinances and NFPA. If your project requires Fire Sprinklers please contact a Fire Protection Engineer (FPE) or C-16 contractor.

### **Flammable vegetation Defensible Space requirements**

Landscaping and vegetation shall be in accordance with San Luis Obispo County Planning and building "screening requirements". CAL FIRE requires that landscaping selections do not readily transmit fire.

Fire resistant landscaping located within 100 feet of site improvements (structures or fire water tanks) shall be in accordance with CFC, Public resources code 4291 and Title 19 Div 1 described as "vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to a structure or from a structure to other nearby vegetation. The intensity of fuels management may vary within the 100-foot perimeter of the structure, the most intense being within the first 30 feet around the structure. Consistent with fuels management objectives, steps should be taken to minimize erosion. For the purposes of this paragraph, "fuel" means any combustible material, including petroleum-based products and wildland fuels.

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

### **RESIDENTIAL**

- One- and Two-Family Dwellings:

#### **Private Water System**

- ✓ A C-16 contractor will design sprinkler system, and determine required dedicated fire water storage amount for structure of design.
- ✓ CAL FIRE will determine minimum dedicated fire water storage amount for structure(s) and site (Minimum 2500 gallons per NFPA 1142). See CAL FIRE Exhibit 2 & 3 for schematics
- ✓ Most projects will require a minimum 5,000 water storage tank. The 2500 gallon minimum dedicated fire water reserve combined with average domestic water usage dictates a standard tank size of 5,000 gallons.

- ✓ CAL FIRE does not require the installation of a dedicated fire water tank, only the required dedicated water storage amount.

*Exception(s):*

- ✓ *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.*

### **Community Water System**

- ✓ One and two family dwellings on a community water system shall meet the California Fire Code Appendix B fire-flow requirements, and Appendix C hydrant locations and distribution. A signed will serve letter from the water purveyor must be submitted with your fire safety plan, and received prior to final of the project.

1. Building construction type and square footage will determine fire flow requirements. The minimum allowable fire flow will be 1000 GPM for 2 hours if structure is less than 3600 square feet. For determining fire flow requirements on any structure over 3600 square feet refer to Appendix B table B105.1

*Exceptions:*

2. *Los Osos CSD: a reduction to 750 gpm is permitted in areas served by the water purveyors.*

### **Remodel/Alterations:**

For the purpose of 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, including garages, patio covers, overhangs, covered walkways and alterations, additions and remodel square footage will be considered a combined and cumulative sum of floor area.

### **COMMERCIAL**

A Fire Protection Engineer is required to design and review fire protection systems in new commercial development. For complex facilities a master fire protection plans is also required. The FPE will determine water storage capacity.

- ✓ The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in CFC Appendix B Table BB105.1. Buildings over 100,000 square feet will require secondary power supply for the fire protection system pumps.

*Exceptions:*

1. *A reduction in fire-flow of up to 75 percent, as approved by the chief, is allowed when the building is provided with an approved automatic sprinkler system. The resulting fire-flow shall not be less than 1500 gallons per minute.*
2. *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.*

Please note:

- 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 Appendix C of the California Fire Code. 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 Table BB105.1 of the CFC.

*Note: A reduction in fire-flow of up to 75 percent, as approved by the chief, is allowed when the building is provided with an approved automatic sprinkler system. CAL FIRE will consult with the approving Fire Protection Engineer 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**

Daisy chaining of tanks is prohibited.

Exception: When topographical or soil conditions prohibit large tanks (technical report required) and/or Planning and Building Department land use conditions require reduced visual impact reduction (Coastal Zone screening) and where approved by the fire chief multiple tanks may be installed. Multiple tanks systems must: all valves must be chained and locked open, each tank must be installed with monitored tamper resistance, all tanks must feed into one common manifold serving the fire protection systems and on site hydrants or other appurtenances.

## **TENANT IMPROVEMENTS**

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

## **DEFINITIONS:**

**CBC:** California Building Code 2010, California Code of Regulations Title 24, Part 2

**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 CFC adopted by the County of San Luis Obispo, Avila Beach CSD, City of Pismo Beach and Los Osos CSD.

**NFPA 13:** National Fire Protection Association 2011, 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 Chapter 3, CBC.

**SINGLE FAMILY DWELLING (SFD):** One and two family dwellings, including attached or detached private garages.

**TYPE OF CONSTRUCTION:** Determined from Chapter 6 of the CBC.

**CFC:** California Fire Code 2013, California Code of Regulations, Title 24, Part 2

**CRC:** California Residential Code 2013, California Code of Regulations, Title 24, Part 2.5

**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.