



Santa Barbara County Fire Department

Fire Prevention Division

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Development Standard - #2

FIRE HYDRANT LOCATION, SPACING, AND FLOW

The information contained in this standard is provided solely for the convenience of the reader in complying with the Santa Barbara County Fire Department (SBCFD) requirements. It should be used as a schematic reference only. The SBCFD reserves the right to make changes and improvements to this standard as and when required by law, or otherwise, at any time. The Department's current standards will be posted and made available for downloading by the public at the following web site: www.sbcfire.com

Please note that the SBCFD assumes no liability for any damages incurred directly or indirectly as a result of any errors, omissions, or discrepancies between this standard and any applicable law. It is the sole responsibility of the person or persons conducting any work pursuant to this standard to ensure their work complies with any and all applicable codes, ordinances, and regulations.

CHAPTER 1 ADMINISTRATION

1.1 PURPOSE. This standard is prepared for the use and guidance of those charged with providing fire hydrants. It provides basic requirements for fire hydrants, how they are located and installation information to provide adequate water supply for firefighting.

1.2 SCOPE. This standard applies to the selection, placement and required flow of fire hydrants in conjunction with the California Fire Code (CFC) and other applicable codes. For private drafting hydrants, see Standard #3.

1.3 APPLICABILITY. This standard shall apply to all buildings or occupancies within the Santa Barbara County Fire District. All individuals and companies who intend to engage in the installation or alteration of fire hydrants are subject to the requirements of this standard.

1.4 FEES. A plan check fee is required for the installation of or modification to fire hydrants as required by the current SBCFD fee schedule.

CHAPTER 2 DEFINITIONS

DOMESTIC WATER SUPPLY: Water that is used for domestic consumption, potable water, in-home use, landscaping, or livestock.

FIRE FLOW: The flow rate of a water supply generally measured in gallons per minute measured at 20 pounds per square inch residual pressure that is available for firefighting.

FIRE FIGHTING WATER SUPPLY: A water supply provided for firefighting purposes only. Water required for domestic, industrial, landscaping, agricultural or any other use are in addition to a fire protection water supply.

FIRE SPRINKLER WATER SUPPLY (SPRINKLER DEMAND) - NFPA 13D: Water supply required to meet the design flow rate of a residential automatic fire sprinkler system, designed and installed by a California licensed C-16 contractor, for a minimum ten-minute duration using a 2-head hydraulic calculation.

OCCUPANCY TYPE: The purpose for which a building, or portion thereof, is used or intended to be used.

PRIVATE ON-SITE HYDRANT: Fire hydrants that are located within the property lines and are privately owned and maintained.

PUBLIC ON-SITE HYDRANT: Fire hydrants that are located within easements on the property and are publicly owned and maintained.

SAME PRACTICAL EFFECT: As used in this standard, means an exception or alternative with the capability of applying accepted fire suppression strategies and tactics, and provisions for firefighter safety.

SYSTEM-SIDE HYDRANT (OR YARD HYDRANT): Privately owned fire hydrants connected to underground piping between the Fire Department Connection (FDC) and the automatic fire sprinkler system. The use of these hydrants requires approval of the Planning and Engineering Division.

TYPE OF CONSTRUCTION: Determined in accordance with Chapter 6 of the California Building Code.

WATER PURVEYOR: A public utility, a mutual water company, a government 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.

CHAPTER 3 GENERAL

3.1 APPROVED INSTALLERS. Persons authorized to design, install, and work on these systems include:

- 1) C16 Contractors
- 2) C36 Contractors

3.2 PLAN SUBMITTAL. Hydrant location plans shall be submitted digitally to the SBCFD Planning and Engineering Division by emailing digital copies of all documents to pe.submittals@countyofsb.org and shall be approved prior to the installation of hydrants and prior to the start of site construction. Site/Plot plans shall be drawn with care by a trained person. Plans shall be drawn to an indicated scale of not less than 1 inch = 10 feet. Plans shall include the following:

- 1) Name of owner and/or occupant
- 2) Location of project, including street number, street name and city
- 3) Plot plan showing roads and driveways, parking lots, gates and all structures existing and proposed

4) Existing hydrants located within 500 feet. Indicate size of hydrant(s), number and size of outlets on each hydrant (i.e. 6 inch wet barrel with one 4 inch and two 2-1/2 inch outlets).

3.3 ALTERNATIVE METHODS. The Fire Chief or designee is authorized to approve alternate materials or methods provided that the Chief finds that the proposed design, use or operation satisfactorily complies with the intent of the Fire Code.

3.4 DEPTH OF BURY. Underground piping shall be buried a minimum of 30 inches (30") below grade.

3.5 INSTALLATION REQUIRED. Hydrants are required to be installed and serviceable prior to the start of vertical combustible construction.

3.6 CHANGES/RELOCATIONS. Hydrants shall be installed at the locations approved by the Planning and Engineering Division. Any changes or relocation of hydrants from the approved hydrant location plan shall be approved by the Planning and Engineering Division prior to installation or relocation.

CHAPTER 4 FIRE FLOW

4.1 FIRE FLOW. Fire flow shall be determined and maintained in accordance with this section and Appendix B of the California Fire Code. Where installation occurs outside a water purveyor's service area, stored water may be allowed in accordance with SBCFD Standard 3; in such case fire flow will be determined in accordance with that standard and NFPA 1142.

4.2 FIRE AREA <3600 SQFT. Maximum individual hydrant spacing and minimum flow rates for buildings having a fire area which does not exceed three thousand six hundred (3,600) square ft shall be determined according to Table 4.1 of this standard. Spacing and flow rates for all other structures shall be determined according to requirements found in Appendix B and C of the California Fire Code.

Area Type/Acres	Hydrant Spacing	Minimum Hydrant Flow Rate
Commercial	300ft	1,250gpm
Urban and Rural Development (Sprinklered)	500ft	500gpm
Urban and Rural Development (Non-Sprinklered)	500ft	1000gpm
Rural 5 Acres and Greater	600ft	500gpm

Table 4.1

4.3 PRESSURE. All flows are measured at twenty pound per square inch (20 PSI) residual pressure.

4.4 WATER MAIN SIZE. Water mains for hydrants shall be a minimum of six (6) inches.

CHAPTER 5 HYDRANT SPACING

5.1 HYDRANT SPACING. Hydrant spacing shall be determined and maintained in accordance with this section. Spacing is based on the distance between hydrants along an approved access road. Specific locations shall be approved by the Fire District prior to project approval.

5.2 SETBACK FROM STRUCTURE. Fire Hydrants shall be installed no closer than fifty (50) feet and no further than one hundred fifty (150) feet traveled path distance to the dwelling.

5.2.1 When equipped with a fire sprinkler or standpipe system, fire hydrants shall be within one hundred (100) feet of the fire department connection or at a location approved by the fire code official.

5.3 TRANSPORTATION PROTECTION. Where new water mains are installed along streets where hydrants are not needed for structure protection or similar fire problems, fire hydrants shall be installed at spacing not to exceed one thousand (1000) feet to provide for transportation hazards.

5.4 ONE OR BOTH SIDES OF ROADWAY. Fire hydrants shall be required on both sides of the roadway when any of the following conditions exist:

- 1) Roadway easement widths are greater than 60 feet.
- 2) A center median strip exists.
- 3) The roadway has four or more traffic lanes.
- 4) When, in the opinion of the fire code official, the use of fire hydrants on the opposite side of the roadway may prove operationally difficult or may create unsafe working conditions.

CHAPTER 6 HYDRANT REQUIREMENTS

6.1 HYDRANT REQUIREMENTS. Hydrants shall be installed and maintained in accordance with this section and Section 507 of the California Fire. Private Hydrants shall also be installed in accordance with NFPA 24.

6.2 HYDRANT SPECIFICATIONS. Wet barrel fire hydrants shall be manufactured to ANSI and AWWA standards. The six (6) inch riser shall be cast as an integral part of the head. They shall be fastened / locked to the head in such a manner to prevent the unintentional removal of the outlets out of the head.

6.2.1 The manufacturer's specifications of fire hydrants shall be submitted to the Fire Code Official upon request.

6.3 BREAKAWAY BOLTS. All hydrants on private property shall be an approved hydrant with breakaway bolts.

6.4 SHUTOFF. All hydrants shall be equipped with a shut-off (street) valve. Fire hydrant shut off valves (street valves) shall be located in the drive aisle, directly in front of the 4" port, 3' to 10' from the hydrant, covered with a metal valve box cover painted blue.

6.5 OUTLET CONFIGURATION. Outlet configurations shall be in accordance with the following:

6.5.1 Hydrants for one- and two- family dwellings shall have one (1) four inch (4") outlet and one (1) two-and-a-half inch (2 ½") outlet, see figure 6.1

6.5.2 Hydrants for commercial occupancies shall have one (1) four inch (4") outlet and two (2) two-and-a-half inch (2 ½") outlets, see figure 6.2.

6.6 OUTLET HEIGHT. The center of the lowest outlet shall be a minimum of eighteen inches (18") above finished grade and a maximum of twenty-four inches (24") above finished grade.

6.7 THREADS. Outlet threads shall have national standard threads and metal caps to protect them.

6.8 PENTAGANOL NUTS. The fire hydrant shall have pentagonal operating nuts.

6.9 CONCRETE PAD. A concrete pad shall be provided around each hydrant. The pad shall extend a minimum of eighteen (18) inches from the hydrant in all directions.

6.10 SETBACK. The centerline of the riser shall be normally two (2) feet behind the curb face, unless otherwise approved by the Fire Code Official.

6.11 DRIVEWAY. No fire hydrant shall be installed closer than five (5) feet from the edge of driveway aprons.

6.12 HYDRANT LOCATION IDENTIFICATION. Hydrants shall be identified by a blue reflective marker located 90 degrees to the hydrant.

6.12.1 Markers shall be placed eighteen (18) inches from the painted center line (CL) or if no painted CL exists, eighteen (18) inches from the center of the roadway on the side nearest the hydrant.

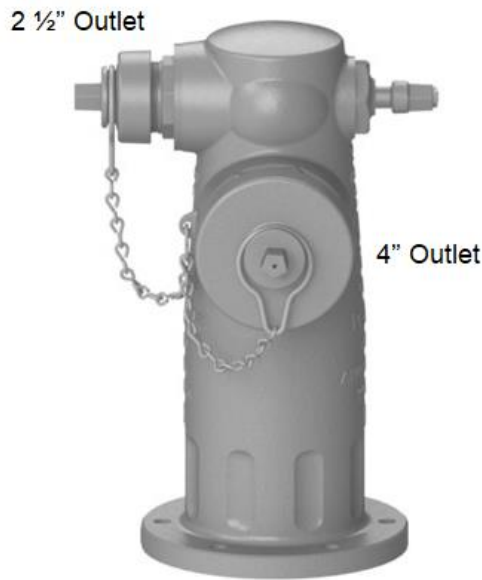
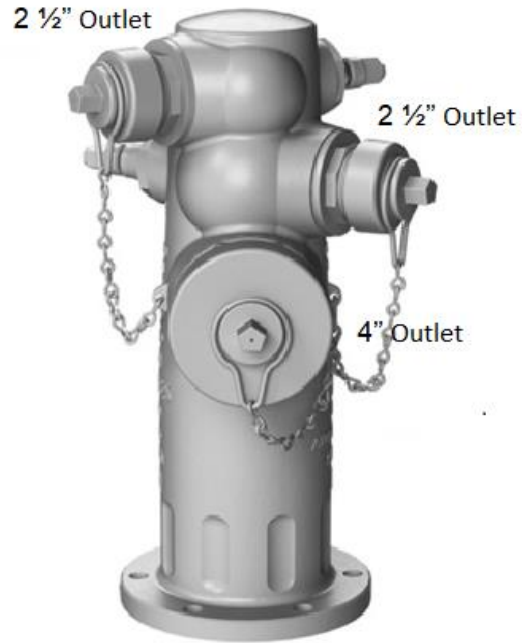
6.13 CURB PAINTING. Curb faces shall be painted red to seven and a half (7.5) feet on either side of the hydrant.

6.14 PAINTED. The exterior of the hydrant head including the riser, excluding the threads, shall be painted with two coats of primer and two coats of exterior oil based paint.

6.14.1 Public Hydrants shall be painted yellow.

6.14.2 Private Hydrants shall be painted red.

6.15 CLEARANCE. A three (3) foot clear space shall be maintained around the circumference of the hydrant except as otherwise required or approved. Posts, fences, vehicles, growth, trash, storage, and other materials or things shall not be placed or kept near fire hydrants.

*Figure 6.1 Residential Hydrant**Figure 6.2 Commercial Hydrant*

CHAPTER 7 INSPECTIONS

7.1 INSPECTIONS. The requirements for inspections and types of inspections that are to be conducted are listed in this chapter and shall comply with the following.

7.2 COVERING WORK. No work shall be covered or otherwise rendered inaccessible or unviewable prior to fire department inspection.

7.3 SCHEDULING WINDOW. A minimum of two business days shall be given to the fire department by the applicant prior to scheduling the inspection.

7.4 PUBLICLY OWNED AND INSTALLED. Fire hydrants that are installed by the water purveyor shall be in accordance with this standard, however, an inspection from the fire department will not occur.

7.5 PRIVATELY OWNED AND INSTALLED. Fire Hydrants that are privately installed and owned require the following inspections:

7.5.1 Underground Rough Inspection. All underground piping shall be inspected prior to backfilling. To facilitate the inspection, pipe nomenclature shall face up.

7.5.2 Underground Hydro Test. All underground piping shall be hydrostatically tested in accordance with NFPA 24 at two hundred (200) PSI or fifty (50) PSI over static, whichever is greater.

7.5.3 Flush. All underground piping shall be flushed prior to connection to any overhead sprinkler piping. A hydrant flush to clear debris from the underground shall be conducted prior to acceptance of the system.

7.5.4 Final. A final inspection shall be conducted prior to acceptance of the system.