



SAN DIEGO FIRE-RESCUE

COMMUNITY RISK REDUCTION DIVISION

STANDARD TITLE		STANDARD NUMBER
ON-SITE HYDRANT AND WATER SUPPLY		A-3
EFFECTIVE DATE: 09/19/2022	REVISION DATE: 10/08/2024	

I. PURPOSE

This standard clarifies the requirements for private fire hydrants providing the required water supply for buildings and facilities in accordance with the 2022 California Fire Code (CFC) section 507, Appendix B, Appendix C and NFPA 24 (2022 edition).

II. SCOPE

This applies to all fire hydrants installed on private property within the jurisdiction of the San Diego Fire-Rescue Department. This policy does not apply to public fire hydrants installed within a utility easement located on private property.

III. WATER AVAILABILITY

- A. Fire-flow requirements for buildings or portions of buildings shall be determined by the California Fire Code (CFC) Appendix B as amended by the San Diego Fire-Rescue Department. The Fire Code Official is authorized to increase fire-flow requirements when deemed necessary due to the potential for large fires or conflagrations.

Fire flow calculation area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building. Calculations used to determine the required fire flow shall be shown on the plan set including the building construction type, included floor area and any reductions utilized.

Exceptions:

1. Portions of buildings that are separated by fire walls without openings, constructed in accordance with the California Building Code, are allowed to be considered as separate fire-flow calculation areas.
2. The fire-flow calculation area of buildings constructed of Type 1A and Type 1B construction shall be the area of the three largest floors.
 - a. Fire-flow calculation area for open parking garages shall be determined by the largest floor.

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- B. Proof of water availability may be requested to verify that existing and proposed hydrants will be able to provide the required fire flow. Please refer to Development Services Informational Bulletin 180 for the procedures on obtaining available water flow utilizing water modeling data. The results of the water study or hydraulic analysis prepared by a registered professional engineer shall be provided with the plans to demonstrate that the required fire flow can be achieved.

IV. NUMBER AND LOCATION

- A. Fire hydrants shall be located on required access roadways according to CFC Section 507 & Appendix C.

Note: Existing fire hydrants on public streets are allowed to be considered as available to meet the location and spacing requirements.

- B. Fire hydrants shall be located within 400 feet of all portions of any building or facility as measured by an approved route around the exterior of the building.

Exception: The distance requirement may be increased to 600 feet for group R3 and U occupancies equipped throughout with an approved automatic sprinkler system.

- C. Hydrants shall be located so that a hose line running between the hydrant and fire department connection (FDC) served by that hydrant does not cross driveways, obstruct roads or fire lanes, or otherwise interfere with emergency vehicle response and evacuation of a site.
- D. Hydrants and FDCs should not be located where apparatus staged at these appurtenances would then encroach on minimum fire apparatus turning radii unless alternative routes are available.
- E. Fire hydrants shall be located within 100 feet of the FDC for buildings equipped with a standpipe system.
- F. Hydrants shall be located at least 40 feet from any building or portion of a building. Hydrants may be located closer, as approved by the fire code official, provided that nearby walls do not contain openings and the hydrant is not otherwise located where it can be rendered inoperable due to damage from collapsed walls, debris or excessive heat.
- G. Hydrants shall be fully operable before combustible materials arrive on construction sites.
- H. Fire protection equipment and fire hydrants shall be clearly identified in a manner approved by the Fire Code official to prevent obstruction by parking and other obstructions.
- I. Hydrant locations shall be identified by the installation of reflective blue colored markers in accordance with standard drawing SDW-104 and the following:

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1. On unstriped roadways, blue markers shall be set six inches from the approximate center of the roadway, perpendicular to the hydrant.
2. On undivided striped roadways, blue markers shall be set six inches to the hydrant side of the center stripe.
3. On divided roadways, the blue marker shall be set six inches to the side of the median or lane striping, which is closest to the hydrant.
4. In locations where hydrants are situated on corners, blue markers shall be installed on both approaches fronting the hydrant.

V. INSTALLATION SPECIFICATIONS

- A. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24 as amended in Chapter 80 of the CFC.
- B. Hydrants shall be listed and must conform to AWWA C-503 for “Wet Barrel Fire Hydrants”
- C. Valve stems shall be pentagonal in shape and measure 33/64 inch (13mm) to center of flat sides. Valves shall open in a counterclockwise direction.
- D. Fire hydrants shall be painted OSHA safety red.
- E. Fire hydrants shall have individually valved ports, two 4-inch ports and one 2 1/2-inch port, on all occupancies except R-3, which can have one 4-inch port and one 2 1/2-inch port. Fire hydrants shall be installed with the largest port perpendicular to the street.
- F. Outlets shall be National Standard threads with metal protector caps. The outer end of all hose coupling threads shall contain a “Higbee Cut” to prevent cross threading.
- G. When three (3) or more hydrants are required, supply to the hydrants must be looped with two (2) separate connections to the public water supply. Gate valves shall be installed on both sides of each fire service lateral. In addition, sectional control valves shall be located so that no more than two (2) hydrants will be shut off at any one time.

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- H. All hydrants shall have a shut off valve located no closer than 5 feet from the hydrant and no further than 20 feet.
- I. The base flange of the hydrant must not vary more than 1 foot in elevation from the grade level of the required access. The lowest stem shall be a minimum of 18 inches above the ground.
- J. The connection from the hydrant to the main shall not be less than 6-inches. An 8-inch fire service may be required to meet fire-flow requirements.
- K. Underground supplies to fire hydrants must be plan reviewed and inspected by DSD Building Construction and Safety Division prior to being put into service. Such inspection shall include visual inspection of piping thrust blocks poured per standard drawing number SDW-151, a hydrostatic pressure test of a minimum of 200 psi or 50 psi in excess of street main pressure and a flush test when installation is complete.

VI. MAINTENANCE AND PROTECTION

- A. Fire hydrants are required to be maintained in an operable condition at all times and must be repaired or replaced when defective.
- B. Vehicle protection shall be provided for fire hydrants subject to vehicular damage by approved crash posts or a minimum 6-inch standard concrete curb. Crash posts shall be installed per standard drawing number WM04. Crash posts shall be 4-inch, cement filled pipe minimum 3 feet in height with 4 feet of piping below grade.
- C. Unobstructed access to fire hydrants shall be maintained at all times. A clear space of 3 feet shall be maintained around the circumference of fire hydrants including vegetation.
- D. Private fire service mains shall be periodically inspected, tested and maintained in accordance with California Code of Regulations, Title 19, Division 1, Chapter 5 including the following:
 - 1. Private Fire Hydrants: Inspect annually and after each operation; flow test and maintenance annually.
 - 2. Fire service main piping: Inspection of exposed annually; flow test every 5 years.
 - 3. Fire service main piping strainers: Inspection and maintenance after each use.
- E. SDFD must be immediately notified of hydrants placed out of service due to damage or extended repairs/maintenance (more than 24 hours) in accordance with FPB Policy D-15-4.