



WOODSIDE FIRE PROTECTION DISTRICT

Fire Hydrant Water Supply

Design /Installation Requirements

808 Portola Rd. #C Portola Valley, CA 94028 Fire Prevention 650-423-1405 Fax 650-851-3960

February 2024

Labeling

All signage, labels and placards will be **RED SIGN WITH WHITE LETTERS** or as approved by the fire code official.

One- and Two-Family Dwellings, Group R-3 and R-4 Buildings and Townhouses:

2022 CFC Appendix B including amendments adopted in Woodside Fire Protection District's Ordinance #13.

APPENDIX B FIRE FLOW REQUIREMENTS FOR BUILDINGS IS ADOPTED IN ITS ENTIRETY AND AMENDED AS BELOW

SECTION B105 FIRE FLOW REQUIREMENTS FOR BUILDINGS is *amended* as follows:

Section B105.1 is *amended* to read as follows:

B105.1 One- and two-family dwellings, Group R-3 and R-4 buildings and townhouses.

The minimum fire-flow and flow duration requirements for one- and two-family dwellings, Group R-3 and R-4 buildings and townhouses shall be as specified in Tables B105.1(1) and B105.1(2). The minimum fire flow shall be 1000 gallons per minute at 20 psi residual pressure. A water supply for fire protection shall mean a fire hydrant within 600 feet from the building, measured via an approved roadway/driveway capable of the required fire flow. Where a public or private water company is not within a 1000 feet of a required fire hydrant location, or the water company cannot provide the required gallons per minute, NFPA 1142 Standard on Water Supplies for Suburban and Rural Firefighting 2022 Edition may be adhered to for fire flow requirements as an alternate means.

***Distance from hydrant to structure shall be measured via an approved roadway in which the engine can safely drive from the hydrant to front door of structure.*

TABLE B105.1(1) REQUIRED FIRE FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES is *amended*

as follows:

TABLE B105.1(1)

REQUIRED FIRE-FLOW FOR ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

FIRE-FLOW CALCULATION AREA (Square feet)	AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (gallons per minute)	FLOW DURATION (hours)
0-3,600	No automatic sprinkler system	1,000	1
3,601 and greater	No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2) at the required fire-flow rate
0-3,600	Section 903.3.1.3 of the <i>California Fire Code</i> or Section 313.3 of the <i>California Residential Code</i>	1,000	1
3,601 and greater	Section 903.3.1.3 of the <i>California Fire Code</i> or Section 313.3 of the <i>California Residential Code</i>	½ value in Table B105.1(2) ^a	1

For SI: 1 square foot = 0.0929 m², 1 gallon per minute = 3.785 L/m.

a. The reduced fire-flow shall be not less than 1,000 gallons per minute.

Buildings Other Than One- and Two-Family Dwellings:

2022 CFC Appendix B including amendments adopted in Woodside Fire Protection District's Ordinance #13.

TABLE B105.2 REQUIRED FIRE FLOW FOR BUILDINGS OTHER THAN ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES
is amended to read as follows:

TABLE B105.2

REQUIRED FIRE-FLOW FOR BUILDINGS OTHER THAN ONE- AND TWO-FAMILY DWELLINGS, GROUP R-3 AND R-4 BUILDINGS AND TOWNHOUSES

AUTOMATIC SPRINKLER SYSTEM (Design Standard)	MINIMUM FIRE-FLOW (Gallons per minute)	FLOW DURATION (hours)
No automatic sprinkler system	Value in Table B105.1(2)	Duration in Table B105.1(2)
Section 903.3.1.1 of the <i>California Fire Code</i>	50% of the value in Table B105.1(2) ^a	Duration in Table B105.1(2) at the reduced flow rate
Section 903.3.1.2 of the <i>California Fire Code</i>	50% of the value in Table B105.1(2) ^a	Duration in Table B105.1(2) at the reduced flow rate

For SI: 1 gallon per minute = 3.785 L/m.

- a. The reduced fire-flow shall be not less than 1,500 gallons per minute.

Draft Hydrants Requirements:

When using a drafting hydrant based on NFPA 1142 requirements connected to a swimming pool or tank, the following requirements must be complied with and shown on the plans:

Draft Hydrant Plans to Include:

- Square footage of largest structure.
- Water source and capacity in gallons.
- Elevation between fire department connection/hydrant and bottom of water source. ***(Elevation of fire dept. connection not to exceed 15 feet above bottom of water source)***
- Distance from the water source pipe connection to fire department connection/hydrant.
- Calculations indicating fire flow including pipe size, bends, elevation, and distance.
- Piping to include kick blocks (24"x24") @ each bend and constructed of materials that will withstand corrosion and electrolysis. Woodside Fire Protection District requires additional pipe protection. All metallic pipes and fittings shall be epoxy coated, polyethylene encased. All *bolts, nuts, tie rods, etc.* for portions of the underground main shall be 316 stainless steel. All fasteners shall be mastic coated.
- Height of the fire department connection shall be 3 feet off the ground.
- Location of the fire department connection shall be field approved by WFPD.
- Fire dept. connection will include minimum of male 4 ½" national standard thread and cap.

A draft system is required to be tested by Woodside Fire Protection District upon completion of installation. Final permit approval and occupancy will not be given until the system has been inspected and tested.

Number of Hydrants

2022 CFC Appendix C including amendments adopted in Woodside Fire Protection District's Ordinance #13.

APPENDIX C FIRE HYDRANT LOCATIONS AND DISTRIBUTION IS ADOPTED IN ITS ENTIRETY AND is amended to read as follows:

SECTION C103 FIRE HYDRANT SPACING is amended as follows:

C103.2.1 Modified Distribution of Fire Hydrants is added to read as follows:

C103.2.1 Average Spacing. In rural areas where parcels with structures have large frontages and or long driveways, the minimum location of a fire hydrant shall be 600 feet to the structure measured via a roadway or primary driveway as approved by the Fire Code Official.

Land Divisions and Subdivisions:

The minimum fire flow shall be 1000 gallons per minute at 20 psi residual pressure. Fire hydrants need be 600 feet apart and within 600 feet from proposed or existing structures via an approved roadway/driveway.

Water mains and hydrants shall meet American Water Works Standards. 6" water main minimum. Systems should be engineered to establish the correct fire flow capacity. All fire flow capacities (gpm) and psi should be show on plans.

General Requirements:

- Fire hydrants and required access roads shall be provided prior to the time of construction.

Installation

- Fire hydrants shall be visible and accessible from a required access road. A fire hydrant shall be substantially supported.
- Fire hydrant installation details shall be in accordance with the current adopted version of NFPA 24 and local water purveyor standards.
- Roadway turnouts not less than 26 feet wide and 20 feet in length shall be required along the roadway at fire hydrant locations.
- The depth of covering shall be measured from top of pipe to finished grade.
 - Under areas of vehicular traffic – 3 feet minimum
 - Under landscaping and walkways – 2 1/2 feet minimum
 - Under railroad tracks – 4 feet minimum (see railroad specs)

Underground Supply Piping

After the hydrant location plans are approved, the engineered underground supply piping plans, with hydrants shown at the approved locations, are required to be plan checked and approved prior to installation as follows:

- **Public Hydrants.** Underground plans are reviewed and approved by the local water purveyor and Woodside Fire's Bureau of Fire Prevention and Life Safety. The installation is inspected by the water purveyor.
- **Private Hydrants.** Engineered underground plans are reviewed and approved by Woodside Fire's Bureau of Fire Prevention and Life Safety. The installation is inspected by Woodside Fire's Bureau of Fire Prevention and Life Safety
- Fire hydrants shall be installed with a minimum 6" pipe, supplied by a minimum 8" supply line.

Painting

- **Public hydrants:** shall follow local water purveyor standards.
- **Private hydrants:** shall be painted red and caps shall be painted in accordance to NFPA 291 Table 5.1:
 - a) Light blue: >1500 gpm (***Rust-oleum high-performance enamel "Safety Blue"***)
 - b) Green: 1000-1499 gpm (***Rust-oleum high-performance enamel "Safety Green"***)
 - c) Orange: 500-999 gpm (***Rust-oleum high-performance enamel "Safety Orange"***)
 - d) Red: <500 gpm (***Rust-oleum high-performance enamel "Safety Red"***)

Changes/Relocations

- Any changes or relocation of fire hydrants from the approved hydrant location on the plan shall be approved by Woodside Fire's Bureau of Fire Prevention and Life Safety Division prior to installation or relocation.

Out of Service Hydrants

- When fire hydrants are for any reason nonoperational, they shall be covered with black plastic bags and the bags shall be secured in place.

Reflective Pavement Markers

- Prior to occupancy of any structure, blue reflective hydrant location markers shall be placed on the access roads in accordance with Woodside Fire District standards. If the final asphalt cap is not in place at the time final occupancy is desired, the hydrant markers shall still be installed and replaced when the final asphalt cap is completed. See the drawing below.

Figure 1

TWO LANE STREET



Figure 2

MULTI-LANE STREET

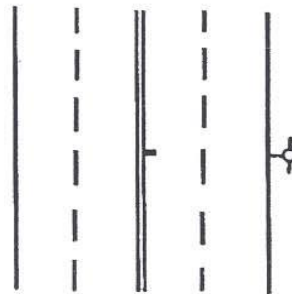


Figure 3

TWO LANE STREET
AT INTERSECTION

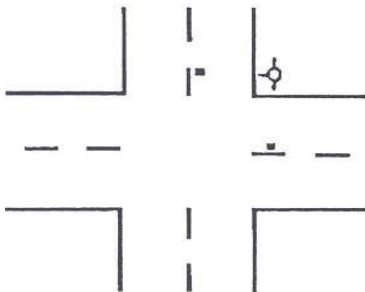


Figure 4

FOUR LANE STREET WITH TURN LANE
AT INTERSECTION

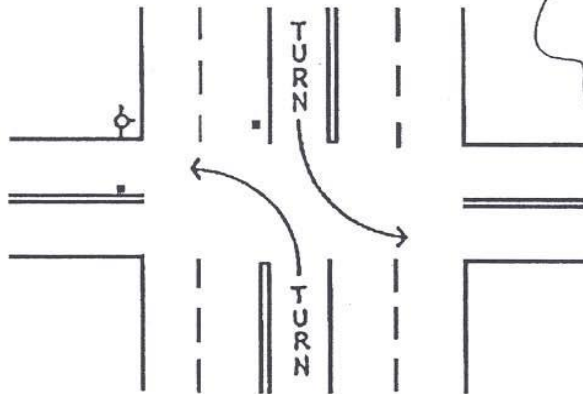


Figure 5

MULTI-LANE STREET WITH
TURN LANE

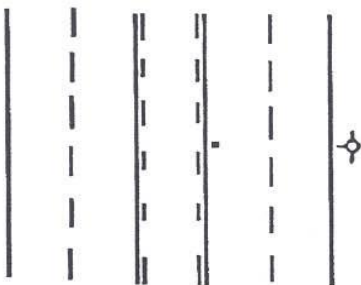
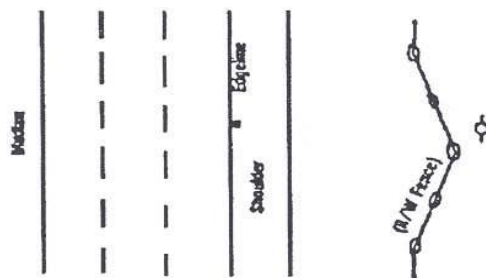


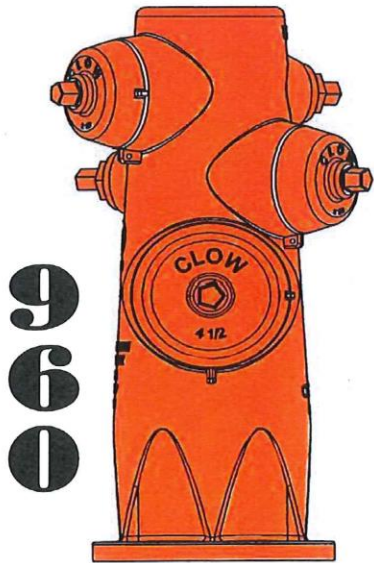
Figure 6


FREEWAYS AND EXPRESSWAYS



Hydrant Type and Size

- All new fire hydrants shall be steamer type CLOW 960 wet barrel, having at least (1)- 4 ½" outlet and (2)-2 ½" outlets, all having national standard threads.



- ✚ MEETS OR EXCEEDS AWWA C-503
- ✚ CONFORMS TO AWWA C-550
PROTECTIVE INTERIOR COATING
- ✚ CAST IRON BODY
- ✚ MEETS NFPA STANDARD #194 FOR
FIRE CONNECTIONS
(NATIONAL FIRE PROTECTION ASSOCIATION)
- ✚ 200 PSI WATER WORKING PRESSURE
- ✚ 400 PSI HYDROSTATICALLY TESTED
- ✚ UL APPROVED 
- ✚ MODEL 960 – (2) 2 ½" X (1) 4" OR 4 ½"
- ✚ NSF 61(G) | ANSI 372 Certified 

CLOW

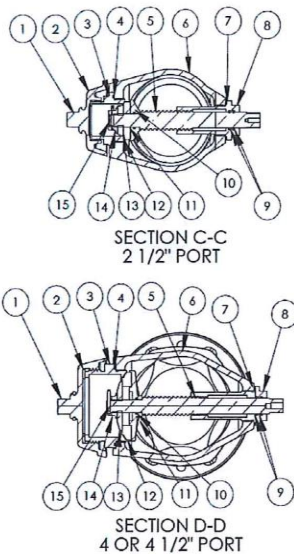
960 SERIES

WET BARREL FIRE HYDRANT

CLOW VALVE COMPANY
A DIVISION OF MCWANE, INC.
902 SOUTH 2ND STREET, OSKALOOSA IOWA 52577
1375 MAGNOLIA AVENUE, CORONA CALIFORNIA 92879
TELEPHONE: (888) 889-2411 FAX: (951) 735-0837
WWW.CLOWVALVE.COM

CLOW Wet Barrel 960 Series Fire Hydrants are designed for performance and appearance

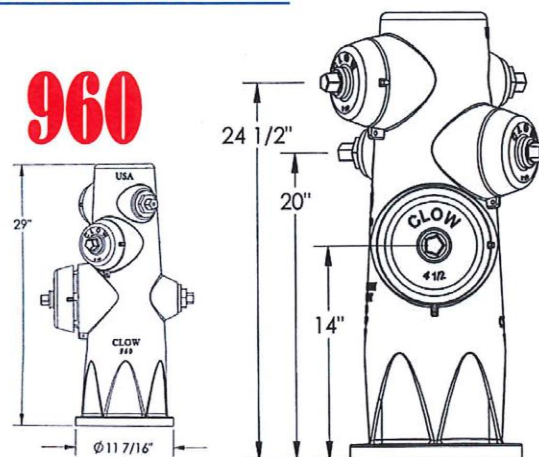
FEATURES: Meets Or Exceeds AWWA C503. Conforms To AWWA C550 For Protective Interior Coating. Meets NFPA Standard #194 For Fire Connections. 200 PSI Water Working Pressure. 400 PSI Hydrostatically Tested. Hi Strength Cast Iron Body. Removable Bronze Outlets. All Internal Parts Removable from Outlet Ports. Cast Iron Caps Available w/ operating pentagon nuts in sizes: 1 1/8" – 1 1/2" – 1 3/4" (per customers request). Aesthetically Classic Appearance.



HYDRANT VALVE & SLEEVE ASSEMBLY

ITEM	DESCRIPTION	MATERIAL
1	Outlet Nozzle Cap	Gray Iron
2	Outlet Nozzle Gasket(Gray Iron Only)	Rubber
3	Hose Outlet Nozzle or Pumper Outlet Nozzle	Copper Alloy
4	Nozzle O-Ring	Rubber
5	Stem	Copper Alloy
6	Body	Gray Iron
7	Stuffing Box O-Ring	Rubber
8	Stuffing Box	Copper Alloy
9	Stuffing Box O-Ring	Rubber
10	Valve Carrier	Copper Alloy
11	Carrier O-Ring	Rubber
12	Valve Washer	Copper Alloy
13	Valve Washer Retainer	Copper Alloy
14	Retaining Nut	Copper Alloy
15	Cotter Pin	Copper Alloy
16	Chain Assembly	Steel

900 SERIES FIRE HYDRANT MODELS



****All hydrants are standard manufacturer painted Hydrant Orange (School Bus Yellow), unless specified otherwise****
**** Standard Exterior Coating: Self Priming Semi-Gloss High Solids 2 Part Polyurethane****

Schools

- **Public Schools:** California Fire Code Appendix BB and CC shall be used to determine distance/spacing and number of hydrants. The State Fire Marshal (SFM) requires the Division of State Architect (DSA) to request water and access requirements and approval from the local jurisdiction.
- **Private Schools:** California Fire Code Appendix B and C including amendments adopted in Woodside Fire Protection District's Ordinance #13 shall be used to determine distance/spacing and number of hydrants.

Guidelines For Fire Hydrant Placement

1. Bollards may be required.
2. Location of front bollards shall be adjusted to provide clearance for outlets and shall have approval of the Bureau of Fire Prevention and Life Safety Division.
3. Use existing hydrants if within the allowable distance based upon the type of project. (Existing hydrants may need to be upgraded) If not sure about existing hydrants, do a site inspection first.
4. Flag lots may present a problem. Hydrant location is critical and must be verified by the Bureau of Fire Prevention and Life Safety Division.
5. Do not place along sharp bends in access road/driveway.
6. Place on property lines between lots.
7. Try to place where the road/driveway is level.
8. Watch grade level, walls, and obstructions anywhere you are considering placing a hydrant.
9. Any changes in location of fire hydrants shall be approved by the Bureau of Fire Prevention and Life Safety Division prior to installation.
10. Fire hydrants and water lines must be in the water purveyor's easement or within easements to the property owners that will benefit from the hydrant.

Plan Submittal Information

A fire hydrant location plan check is conducted during the civil plan review for all projects where new buildings or additions to buildings are proposed. The following information must be provided on the civil plan sheets:

1. Show existing and proposed hydrant locations.
2. Indicate size of hydrant(s)
 - a. Make sure you denote the hydrant type, size and number of outlets on the approved hydrant location plans.

3. Number and size of outlets (i.e. 6" wet barrel with one 4 ½" and two 2 ½" outlets)
4. Show streets, driveways, access roads (including parking lots), gates and all structures existing and proposed.

Submittal

Woodside Fire Protection District requires plans to be submitted for new fire hydrant water supplies. Plans will be reviewed and approved by Woodside Fire's Bureau of Fire Prevention and Life Safety Division. Plans can be submitted electronically to wfpdsprinklerreview@woodsidefire.org. The subject line shall include the following information:

- Physical address of the project
- Permit Number (if applicable)
- City
- Contact Information