

Fire Hydrants

Purpose

An above ground metal casting attached to a water supply system and is equipped with one or more discharges. A fire hydrant supplies water from a municipal water system, which in the City of Riverside is a grid type system supplied by a combination system using elevated storage tanks and a direct pumping system. The purpose of the hydrant is providing access to large amounts of water to supply in fire suppression activities.

Placement

Placed by Riverside Water Department with approval from RFD. Receiving water from Eastern Municipal Water District, RWD

Residential

- All street intersection
- Every 450 feet
- Streets with center medians

Commercial

- At each intersection
- Every 300 feet

Over 6,763 hydrants in Riverside

Components

1. Bonnet – rounded top portion of the hydrant
2. Barrel – main body section of the hydrant
3. Operating stem - attached to compression valve
4. Stem nut - 1 3/4" pentagonal nut attached to operating stem
5. Discharge outlet – 4" or 2 1/2" male NST
6. Caps – 4" or 2 1/2" female NST, cast iron, plastic. Inspect gasket
7. Shear Bolts – Hollow bolts allow hydrants to break away during impact
8. Valve Stem – made of bronze, used to open/shut compression valve

Note: The important inner workings are made of bronze to prevent corrosion.
Exterior pieces are generally made of cast iron.

Types of Hydrant

Wet Barrel

- Are used in areas that do not have freezing temperatures
- Have a compression type valve at each discharge outlet
- Entire hydrant is charged with water
- Almost all our hydrants in the city are wet barrel hydrants

Dry Barrel

- Are used in areas that have freezing temperatures
- The barrel does not have water in it till the valve is opened
- The compression valve is located below the frost line (approx. 18")

- The barrel has drain holes in it.
- There are very few left in the city.

Hydrants Styles/ Versions

1. Jones Head (1 or 2) 2 1/2" discharges
2. Standard (1) 2 1/2" discharge and (1) 4" discharge
3. Super (2) 2 1/2" discharges and (1) 4" discharge
4. Yard Hydrant – private hydrant, 500 GPM or less

Hydrant Classifications/ Color Coding for RFD

- Class AA - Green top w/ Green caps = 2000 GPM or Greater
- Class A - Green top = 1000 to 2000 GPM
- Class B - Orange top = 500 to 1000 GPM
- Class C - Red top = 0 to 500 GPM

Note: Hydrant barrels are painted yellow for standardization and visibility, suggested by NFPA standards.

If unmarked or unsure of class assume 0 – 500 GPM

Hydrants will carry the national recommended coloring code indicating GPM flow based on residual pressure of 20 PSI

IFSTA Hydrants color-coding

- Class AA – Light Blue – 1,500 gpm or greater
- Class A – Green – 1000 –1499 gpm
- Class B – Orange – 500-999 gpm
- Class C – Red – less than 500 gpm

NFPA 291

Barrel Markings

- RWD = Inventory number (opposite street side, 4 digits)
- HP = High pressure. Greater than 100 PSI
- BO or Blue Top = Blow off, indicates end of distribution or sand trap hydrant
- Circle with line through it= Fire Department use only
- || = No Gate Valve, must use main valve for water shut off
- Burlap Sack over hydrant = Out of Service
- BOT Dot = placed in the street
- Green hydrant- part of green belt (blends in)
- Purple hydrant- non potable water (can't drink)

Curb Markings

- □ 25ft – distance to valve
- FH- Fire Hydrant Valve
- FM- Main Valve
- FS- Fire Sprinkler shut off/ PIV
- Marking are placed on curb to elevate from water run off

Common Brands

The City of Riverside purchases fire hydrants from Clow Valve Company in Corona

The common brand names of hydrants in the city are:

- Jones
- Rich Van Devenor
- Crown
- Keystone
- Chatanooga

Maintenance

Riverside Water Department Responsibilities – every 6 months

- Operate and flush
- Maintain 3 ft clearance (for visibility and accessibility)
- Maintain 16 inch stem clearance from ground
- Lightly oil and hand tighten caps
- Operate and service gate valve
- Re-paint if needed (annually)

Riverside Fire Department Responsibilities

- Check paint
- Check 3ft clearance
- Check stem clearance
- Check for hand tight caps

User side is street side of hydrant

Right of way hydrant- 4 inch discharge points direction of traffic to minimize kink in supply line.

Any problems are reported to the superintendent of the water department

Sources of Water

Water comes from either surface waters like rivers and lakes or from ground waters like wells and springs. The majority of water for the City of Riverside comes from wells.

City of Riverside water comes from 3 places:

98.4% of the water is groundwater pumped from wells in the Bunker Hill Basin in San Bernardino and the Riverside Basins. The remaining 1.6% of the water is purchased from the Western Municipal Water District. WMWD is a customer of the Metropolitan Water District of Southern California (MWD). Their water is obtained from Northern California rivers and imported via the State Water Project.

There are 54 active wells that provide and store water in 18 reservoirs, the largest being 20 million gallon to the smallest at 152,200 gallon
Total capacity of all reservoirs for the city is 100.4m gallons!

Means of Moving Water

City of Riverside uses a combination system which uses gravity and direct pumping. The system includes the 18 reservoirs plus 2 pump stations and 37 booster stations with a total of 95 pumps.

Distribution System

There are 938 miles of pipeline and 14 miles of canal. Pipeline ranges in size from 2" to 72". The distribution system serves over 73 square miles and has over 6763 fire hydrants.

City of Riverside hydrants are supplied on a grid system. The grid system delivers the water throughout the area served. In this system water is provided thru a circulating feed from several mains. There is less pressure loss in a distribution system when hydrants are supplied from 2 or more directions.

Components of the grid system are:

- Primary Feeders Large pipe or mains that are wide spread and supply smaller mains. These are 16" pipes.

- Secondary Feeders Network of Intermediate sized pipes that reinforce the grid and aid in the concentration of required fire flow at any point. These 12" pipes.

- Distributers Grid arrangement of smaller mains serving individual fire hydrants. These are 8" pipes.

Hydrant Supply

Recommended size for supply to hydrants in residential areas is 6" minimum. These should be closely grided by cross connecting mains at intervals of no more then 600'. Hydrant spacing in these areas are 450' and at street intersections.

Recommended size for supply to hydrants in commercial and industrial areas is 8" minimum, with cross connecting mains every 600'. Hydrant spacing in these areas are 300' and at every intersection.

Valves.

Valves should be located at frequent intervals in the grid system so that only small districts are cut off if it is necessary to stop the flow at specified points. Valves should be operated at least once a year.