

SECTION 026416
FIRE HYDRANTS

1. DESCRIPTION

This specification shall govern all work necessary to provide all fire hydrants required to complete this project.

2. MATERIALS

Concrete: Concrete shall be Class "A" in accordance with Section 030020 "Portland Cement Concrete" of the City Standard Specifications, with a minimum compressive strength of 3000 psi at 28 days.

Fire Hydrants: The fire hydrants shall conform to AWWA C502 (or latest edition) standard specifications for fire hydrants for ordinary water works service, except for changes, additions and supplementary details specifically outlined herein:

- a) Hydrants - Hydrants shall be of the traffic model type equipped with a safety flange or collar on both the hydrant barrel and stem.
- b) Type of Shutoff - The shutoff shall be of the compression type only.
- c) Inlet Connection - The inlet shall be ASA A-21.11 1964 mechanical joint for six-inch (6"), Class 150 ductile iron pipe. A complete set of joint material shall be furnished with each hydrant.
- d) Delivery Classifications - Each hydrant shall have two hose nozzles and one pumper nozzle.
- e) Bury Length - The hydrants shall be furnished in the bury length as indicated on drawings.
- f) Diameter (Nominal Inside) of Hose and Pumper Nozzles - The hose nozzles shall be two and one-half inches (2-½") inside diameter and the pumper nozzle shall be four inches (4") inside diameter.
- g) Hose and Pumper Nozzle Threads - The hose nozzles shall have two and one-half-inch (2-½") National Standard thread (7-½ threads per inch). The pumper nozzle shall have size (6) threads per inch with an outside diameter of 4.658 inches, pitch diameter of 4.543 inches, and a root diameter of 4.406 inches.
- h) Harnessing Lugs - None required.
- i) Nozzle Cap Gaskets - Required.
- j) Drain Openings - Required.

- k) Tapping of Drain Opening - Tapping of the drain opening for pipe threads is not required.
- l) Nozzle Chain - Not required.
- m) Direction to Open - The hydrants shall open left (counter clockwise).
- n) Color of Finish Above Ground Line - That portion of the hydrant above the ground line shall be painted chrome yellow.
- o) Shape and Size of Operating and Cap Nuts - The operating and cap nuts shall be tapered pentagon one and one-fourth inches (1-1/4") point to face at base and one and one-eighth inches (1-1/8") point to face at top of nut.
- p) Nozzle Cap Chains - Hydrants shall be furnished without nozzle cap chains.
- q) Size of Fire Hydrant - The main valve opening shall not be less than five and one-quarter inches (5-1/4") inside diameter.
- r) Valve Facing - The main valve facing of the hydrant shall be rubber with 90± Durometer hardness. When the main valve lower washer and stem nut are not an integral casting then the bottom stem threads shall be protected with a bronze cap nut and a bronze lock nut.
- s) Barrel Sections - The hydrant shall be made in two or more barrel sections with flanges connecting the barrel to the elbow and to the packing plate.
- t) Breakable Coupling - Hydrants shall be equipped with a breakable coupling on both the barrel section and the stem. The couplings shall be so designed that in case of traffic collision the barrel and stem collar will break before any other part of the hydrant breaks.
- u) Hydrant Adjustment - The hydrant shall be designed as to permit its extension without excavating after the hydrant is completely installed.
- v) Breakable Collars, Barrel and Stem - Weakened steel or weakened cast iron bolts that are used in the breakable barrel couplings will not be acceptable.
- w) Operating Stem - Stems that have operating thread located in the waterway shall be made of manganese bronze, Everdure, or other high quality non-corrodible metal. Stems that do not have operating threads located in the waterway must be sealed by a packing gland or "O"-ring seal located between the stem threads and waterway. Iron or steel stems shall be constructed with a bronze sleeve extending through the packing or "O"-ring seal area. The sleeve shall be of sufficient length to be in the packing gland "O"-ring seal in the both open and closed positions of the main valve. The sleeve shall be secured to the steel stem so as to prevent water leakage between the two when subjected to 300 pounds hydrostatic test pressure.

- x) Drain Valve Mechanism - Drain valves operating through springs or gravity are not acceptable.
- y) Operating Stem Nut - The operating stem nut shall be designed to prevent seepage or rain, sleet, and the accumulation of dust between the operating nut and the hydrant top.
- z) Packing Gland or "O"-Ring Seal - Fire hydrants having the threaded part of the stem at the hydrant top shall be equipped with a packing gland or an "O"-ring seal immediately below the threaded section of the stem.

3. CONSTRUCTION METHODS

Fire hydrants shall be installed as shown on drawings. Minimum burial length shall be 3 feet. Breakable couplings shall be located at least 2 inches and less than 6 inches above finish grade.

Hydrants and fittings shall be stored on timber and kept clean. The interior surfaces of hydrants and fittings shall be washed and sterilized with approved sterilizing agent, if requested by the Engineer at the time of installation.

4. CERTIFICATION

The manufacturer shall furnish to the Engineer two (2) certified sets of prints showing complete details and dimensions of the hydrant.

The manufacturer shall furnish to the Engineer one (1) certified copy of the physical tests of all metals used in the manufacture of the fire hydrant that is normally manufactured and that will meet these specifications.

5. MEASUREMENT AND PAYMENT

Unless otherwise specified on the Bid Form, fire hydrants will be measured as a unit per each. Payment shall include, but not be limited to, furnishing and installing the complete fire hydrant assembly with valve, 6-inch line and fitting on the main; and shall be full compensation for all labor, materials, tools, equipment and incidentals required to properly complete the work.