

800 WATER SUPPLY & DISTRIBUTION

ITEM 809 - FIRE HYDRANTS

- 809.01 Scope of Work**
- 809.02 Description of Fire Hydrants**
- 809.03 Installation**
- 809.04 Backfilling**
- 809.05 Hydrant Delivered**
- 809.06 Hydrant Relocation**
- 809.07 Hydrant Abandoned**
- 809.08 Basis of Payment**

809.01 Scope of Work. The Contractor shall furnish all labor, tools, material and equipment necessary to furnish and install new fire hydrants at the locations shown on the plans or as ordered and specified.

The item shall include all excavation, furnishing and installing the new fire hydrant complete with proper jointing, blocking, backfilling and all other incidental work necessary to complete this item of work. Hydrant watch valves and 6 inch (152 mm) ductile iron hydrant leads are to be installed where necessary, under Items 801 and 802.

The Contractor shall notify the Division of Fire prior to taking any fire hydrant out of service.

809.02 Description of Fire Hydrants. All fire hydrants shall be post type made of cast iron and shall conform in all respects to the American Water Works Association Standard for "Fire Hydrants for Ordinary Water Works Service", AWWA - C502 except as herein after specified.

1. **Type of Hydrant.** The hydrant shall be of the compression type with the valve opening with or against the pressure. The valve end of the stem or valve rod shall be so constructed as to eliminate contact of dissimilar metals in the presence of moisture, this construction to extend above the moisture line at valve.

The stem or valve rod shall be made of 1inch (25 mm) minimum steel stock before machine work between the valve and the operating nut, excepting a breaking coupling, which is to be located at the proper point to conform to the breaking connection in the standpipe.

Unless approved by the Administrator, Division of Water, the only fire hydrants approved for use in the City of Columbus are the Mueller "Centurion", the "Kennedy K-10-B", the Clow "Eddy 4Z5", or the American Darling "Mark 73".

2. **Design.** The design shall be such that the stresses generated by a smashing blow will be localized and concentrated at a predetermined point in the couplings, straining the metal at this point beyond its ultimate tensile strength before a similar condition develops in the adjacent sections of the standpipe and stem. This design must assure that the upper and lower sections of the hydrant will break apart cleanly without bending the stem and without damage to the working parts of the hydrant, or the abutting parts of the standpipe sections; also, that there will be no leaking or flooding.

The upper section of the standpipe which carries the nozzle shall be secured to the lower section in such a manner that the upper section may be revolved, thus permitting the relocation of the nozzle to any desired direction.

The hydrant shall be so designed that, if broken at the joint, repairs may be made by the use of simple tools and the minimum number of parts, and without the necessity of excavating or shutting off the water supply to the hydrant. It shall be designed so that the stem and main valve may be removed through the top of the standpipe without excavating.

3. **Materials.** All materials used in the construction of this hydrant shall be of the best commercial quality in their respective classes.
4. **Workmanship.** All castings shall be clean and perfect, no plugging or patching allowed. The machine work on all parts must be true to gauge so that all parts shall be interchangeable from one hydrant to another of the same make and size. All hydrants delivered not conforming to specifications shall be rejected and returned to the Contractor at Contractor's expense.
5. **Testing.** Each hydrant shall be properly assembled and tested before leaving the factory.
6. **Certification.** The hydrant manufacturer shall certify that the type hydrant furnished has been manufactured and tested in accordance with these specifications, same to show facts and figures of the test.
7. **Paint.** *The hydrant manufacturer shall ensure that* each hydrant be given two good coats of special yellow hydrant enamel, except the top 4 inches (102 mm) of the hydrant from operating nut down which shall be painted flat black.

8. **Valves.** All hydrants to be equipped with rubber faced valves.

9. **Detailed Specifications, Size, Etc.**

Diameter of Port in Seal Ring:	minimum 4 1/4 inches (108.4 mm)
Size and type of connection to Main:	6 inches (152 mm) hub or bell or mechanical joint
Depth of Trench or Bury:	shall be 5 feet (1.5 m) unless otherwise specified or shown on the plans
Number of Nozzles - One (1):	Center Front
Inside diameter of nozzle:	4 inches (102 mm)
Dimensions of nozzles and threads:	4 27/32 inches (123 mm) outside
Diameter of male thread:	4 37/64 inches (116 mm) root of diameter; 6 threads per inch (2.4 threads per cm)
Higbee cut. Length of thread:	1 1/4 inches (32 mm) right.

10. **Hydrants to Open to the Right (Clockwise).** Size and shape of nozzle caps and operating nuts - 7/8 inch (22 mm) square at top, tapered to 1 inch (25 mm) at bottom, by 1 1/4 inch (32 mm) high. Thread on stem and nut - U.S. Standard (left hand).

11. **Drips or Draining Devices.** Drips or draining devices shall be eliminated.

12. **The Pumper Nozzle.** The pumper nozzle on this hydrant shall be threaded type or lead type. That portion of the nozzle that screws into the standpipe shall have pipe thread.

13. **The Breaking Connection.** The breaking connection of this hydrant shall be of a type approved by the Administrator of the Division of Water.

Exclusive of the main valve opening the cross sectional area available for water flow at any point of the waterway of the barrel or foot-piece of the smallest part shall not be less than 120 percent of that of the net opening of the main valve.

14. **Shop Drawings.** Before any hydrant is installed under the jurisdiction of this specification, drawings of the proposed hydrant shall be approved. The drawings shall be in sufficient detail to enable checking design and material. Shall any error or omission be discovered it shall be corrected and the hydrant supplied in accordance with the specifications.

809.03 Installation. Hydrants shall be furnished and installed at the locations shown on the plans. Unless otherwise shown on the plans or directed by the Engineer, fire hydrants shall be located 2 feet (0.6 m) behind the back of the curb line or 8 feet (2.4 m) from the edge of paved area on non-curbed roadways. They shall be of the proper length to suit the depth of cover over the water lines at the locations shown on the plans and the necessary extensions shall be furnished to obtain the proper length. Fire hydrants shall be located to clear all driveway openings by a minimum of 6 feet (1.8 m). *Fire hydrants shall not be placed within the radius of street intersections. If the hydrant lead exceeds 10 feet (3.0 m) in length, a second watch valve shall be installed, and restrained, within 2 feet (0.6 m) of the hydrant.*

The pit or trench for the fire hydrant shall be so excavated that when the hydrant is installed, the base shall rest on undisturbed soil and the hydrant shall be set plumb with nozzle outlet approximately 18 inches (0.5 m) from ground line. Hydrants shall be set in accordance with grade line which is approximately 2 inches (51 mm) below bottom of break connection on the hydrant standpipe.

All fire hydrants shall be installed with hardwood backing against undisturbed earth or Class "C" concrete backing poured against undisturbed earth, as approved by the Engineer.

809.04 Backfilling. Backfill shall consist of granular material conforming to Item 912 or approved suitable excavated material, power tamped in layers not exceeding 4 inches (102 mm) in thickness, loose measurement. This granular backfill shall extend from the bottom of the pit or trench to 6 inches (152 mm) below the existing or proposed surface of the surrounding area. The cost of furnishing and placing this backfill shall be included in the price bid per fire hydrant.

809.05 Hydrant Delivered. Where fire hydrant outlets are specified and indicated on the plans outside the corporation limits of the City of Columbus, hydrant outlets, valves, and valve boxes are to be provided and installed as indicated on the plans. Fire hydrants outside the corporation limits of the City of Columbus shall not be installed and shall be delivered to the Water Services Center, 910 Dublin Road, Columbus, Ohio. For hydrants not installed, the contractor will be paid, as per unit price bid, only for the material cost.

809.06 Hydrant Relocation. Relocation of fire hydrant shall be accomplished by removing existing hydrant, installing new 6 inch (152 mm) ductile iron pipe and cast iron fittings as required to set hydrant at location and elevation shown on the plans, resetting hydrant, blocking and backfilling to complete the work. If the new hydrant lead exceeds 10 feet (3.0 m) in length, a second watch valve shall be installed, *and restrained*, within 2 feet (0.6 m) of the relocated hydrant.

809.07 Hydrant Abandoned. Where shown on the plans or directed by the Engineer the abandonment of a fire hydrant shall be accomplished by closing the water valve, removing the hydrant and capping or plugging the water line at the watch valve. The capping or plugging shall be in accordance with Item 808. All abandoned hydrants shall be delivered to the

Water Services Center, 910 Dublin Road, Columbus, Ohio, unless otherwise directed by the Engineer. No additional payment will be made for this delivery.

809.08 Basis of Payment. Fire hydrants shall be paid for at the contract unit price bid for each hydrant installed or relocated, complete and ready for use, or for hydrant abandoned, which unit price and payment shall constitute full compensation for doing all work and providing all materials above described except that temporary repaving, permanent repaving and hydrant extensions shall be paid for under the appropriate items. *The cost for the hydrant lead and watch valve shall be paid for under Items 801 and 802.*

Payment will be made at the contract price for:

Item	Unit	Description
809	Each	Fire Hydrant
809	Each	Fire Hydrant, Delivered
809	Each	Fire Hydrant, Relocated
809	Each	Fire Hydrant, Abandoned