

Fire Protection

A. Referenced Standards

Installation of underground fire protection mains shall comply with the following standards:

1. NFPA 24, Private Fire Service mains and their Appurtenances.
2. Factory Mutual Data Sheets 3-10, Fire Service Mains.

B. Piping – Shall be listed for fire protection services and comply with AWWA standards. Underground mains shall be cement lined ductile iron, Class 54.

C. Depth of Cover – The depth of cover over fire protection water mains shall not be less than 4 ½ feet, measured from the top of the pipe to finished grade.

D. Pipe Joints – All bolted joint assemblies shall be cleaned and thoroughly coated with asphalt or other corrosion-retardant material after installation of the assembly and prior to inspection and backfilling.

E. Anchoring – Mechanical joints shall be utilized on all tees, plugs, hydrant branches and bends. End of line restraint shall be via thrust blocks.

F. Thrust Blocks – Thrust blocks shall be concrete mix having not less than 2,000 psi strength at 28 days. Thrust blocks shall be poured between the underground pipe and undisturbed earth, leaving the pipe joint accessible for inspection and repair, and not obstructing the fire hydrant drain ports. Thrust blocks shall be sized in accordance with NFPA-24. Mechanical retainer glands are an acceptable alternative to thrust blocks

G. Flushing – Underground mains and lead-in connections to system risers shall be flushed thoroughly before connection is made to sprinkler, standpipe or other fire protection system piping in order to remove foreign materials which may have entered the pipe during the course of the installation. The minimum rate of flow shall be in accordance with NFPA 24.

H. Fire Hydrants – Hydrants shall contain one 4 ½” National Standard Fire Hose Thread (NST) pumper outlet and two 2 ½” NST hose outlets. The pumper outlet shall be adjusted to face in the direction prescribed by the University’s Code Compliance Officer, and such adjustment, if necessary, shall be made by the installing contractor prior to acceptance of the installation by the University’s Code Compliance Officer.

1. All fire hydrants shall be set on a gravel bed of at least 12” deep minimum, to ensure quick drainage from the ports provided near the base of the hydrant barrel.

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2. The center of the pumper connection shall be not less than 12” above final grade.
 3. Yard hydrants shall be installed in accordance with NFPA 24 and as directed by the University Code Compliance Officer.
 4. All hydrants and curb box covers associated with fire protection mains feed from the high pressure FP System shall be painted “OSHA Orange”.
- I. Inspection and Tests – No underground fire protection pipe assembly or fire hydrant shall be backfilled prior to inspection and approval of the installation by the University’s Code Compliance Officer or his designee.
1. A hydrostatic test shall be performed on the underground fire protection pipe assembly upon completion of the installation. All components such as valves, fittings, hydrants, etc. shall be installed prior to the final test. The Contractor may conduct preliminary testing for his benefit; however, the University will not accept such preliminary testing in lieu of the final required inspections and tests. The hydrostatic test shall be performed for not less than two hours, and shall be witnessed by the University’s Code Compliance Officer or his designee. All joints shall be left exposed for the hydrostatic test.
 2. A Contractor’s Material and Test Certificate for Underground Pipe shall be completed and submitted, by the Contractor, to the University’s Code Compliance Officer, Factory Mutual Engineering, and the Project Coordinator. The Contractor shall provide a hydraulic design placard at the main riser base.