



## Benicia Fire Department – Fire Prevention Policies

### Subject: **INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND SPRINKLER UNDERGROUND SUPPLY LINES**

**Section: B**

**Effective Date:** April 2, 2009

**Standard B-201** **Page:** 1 of 5

**Revised Date:** July 1, 2015

**Authority:** Benicia Municipal Code, Chapter 8.28, National Fire Codes, Standards 13 and 24 (Editions as adopted by the CFC), City of Benicia Public Works Department Standards.

**Plan Approval Required:** Review and approval of design and installation of fire service main sprinkler system underground supply lines and their appurtenances.

**Fees:** Based on Resolutions – Chapter 1.20, Section 1.20.010 BMC Contact Fire/Life Safety Division.

#### **Definitions:**

**APPROVED** means acceptable to the authority having jurisdiction.

**AUTHORITY HAVING JURISDICTION** is the City of Benicia, Fire and Life Safety Division.

**LISTED** means equipment or materials included in a list published by an organization acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of listed equipment or material and whose listing states either that the equipment or materials meets appropriate standards or has been tested and found suitable for use in a specified manner.

**PRIVATE FIRE SERVICE MAIN** as used in this standard is that pipe, and its appurtenances, on private property between the system side of the double check detector assembly (or other approved back flow device) and the base of the riser (flange or flange and spigot piece or base tee) for automatic sprinkler systems, standpipe systems, inlets to foam making systems or the base elbow of private hydrants or monitor nozzles. When connected to a public water system, the private service main begins at a point designated by the public water utility, usually at a manually operated valve near the property line.

**SHALL** indicates a mandatory requirement.

**SHOULD** indicates a recommendation which is advised but not required.



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**STANDARD** means the rules and regulations contained in the City of Benicia, Fire and Life Safety Division Standard and are designed to provide specific guidelines to California Fire Code requirements.

### **PLAN REVIEW**

Approval of plans is required prior to any work being started.

Plans shall be submitted to the Fire and Life Safety Division (3 copies) and shall include the following:

1. A site plan, drawn to scale, indicating such details as:
  - a. Size and location of all water supply mains.
  - b. Size and location of all piping, indicating the class and type of new pipe and the estimated depth of burial.
  - c. Size, type and location of control and check valves. Indicate if located in a pit or if operation is by post indicator or key wrench through a curb box. Indicate the size, type and location of meters and regulators.
  - d. Indicate location of hydrants, showing size and number of outlets and if outlets are to be equipped with independent gate valves. The fire hydrants shall be Clow – Model 2060.
  - e. Location of fire department connections including size, type, number of connections and in-line check valves.
  - f. A legend listing symbols identifying all valves, hydrants, fire department connections and any other appurtenant devices.
  - g. All plans for installation shall conform to all City of Benicia Public Work's Standards and Specifications: W-1, W-2, W-3, W-4, W-6, W-8, ST-7



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#### WATER SUPPLY

An adequate water supply shall be available for use in conjunction with automatic sprinkler systems and must meet the following criteria:

1. Hydrant flows will be taken at peak demand periods whenever practical.
2. Ninety percent of actual pressure readings and calculated water flow shall be used for determining the available water needed to meet system demand. This reduction is intended to reflect friction losses due to field changes in the installation, seasonal fluctuations in water pressure and any losses experienced at build out of developments in which the project is located.
3. When water supplies are deemed inadequate by the Benicia Fire or Public Works Departments, approved alternate methods of water supply shall be provided.
4. All water flows will be conducted by the Benicia Fire Department. A 48-hour notice is required for the test. A map showing the site and location of proposed water tap shall be provided.

#### **SPECIAL INSTALLATION INSTRUCTIONS FOR POLYVINYL CHLORIDE (PVC) PIPE FOR FIRE SERVICE MAINS**

##### **I. GENERAL**

The following specifications apply to the installation of pipe for fire service mains. The use of PVC pipe for fire service mains shall be restricted to 4-inch and larger diameters. All pipes shall have a minimum cover of 4 feet unless otherwise indicated by City Standards.

##### **II. MATERIALS**

All PVC pipe and fittings shall, at a minimum, conform to the requirements of ANSI/SWWA C900-81, Class 200. Rubber sealing gaskets shall meet the



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requirements of ASTM Designation F-477. No solvent cement joints will be permitted.

All plastic pipe required in odd lengths shall be cut using a proper cutting tool and guide that insures true line cuts on planes perpendicular to the pipe axis. No beveled cuts for pipeline alignment adjustments will be permitted.

### **III. INSTALLATION**

A. All installations shall conform to N.F.P.A. Standards No. 13 and 24; all manufactures requirements, and City of Benicia Standards.

B. All backfill shall conform to Benicia Public Works Standard ST-7.

### **TESTING**

All testing shall be performed as required by the Fire/Life Safety Division Standard B-202, Inspection and Testing of Underground Fire Service Mains.

Examples of tests and inspections required include:

1. Visual inspection of bedding material.
2. Visual inspection of the piping installation.
3. Visual inspection of the thrust blocks.
4. Visual inspection of remaining backfill placement.
5. Pressure testing of the underground piping.
6. Flushing of underground piping.
7. Inspection of all valves, on site fire hydrants and fire department connections to verify adequate elevation above grade.



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Tests and inspections must be scheduled 48 hours in advance. Inspections required by the Public Works Department must be scheduled 48 hours in advance. If you are unable to complete an installation prior to the scheduled inspection or test cancellations, it should be called in as soon as possible.