

# Town of Brookhaven Division of Fire Prevention

Christopher J. Mehrman  
Chief Fire Marshal



## Fire Service Water Main / Fire Hydrant Requirements Revision 02/2017

*This document has been created to assist the design professional, the installation contractor and the property owner with the design, installation and acceptance testing of new fire service main systems and the testing, inspection and maintenance of existing fire service main systems and fire hydrants. Although not all inclusive this document provides highlights of the requirements of the Division of Fire Prevention as well as many applicable national and state codes and standards as well as local requirements.. This Document should be utilized for all installations of fire service main, regardless of size and purpose.*

**Part I: General Information & Definitions**

**Part II: Requirements for the Installation of New Fire Service Main Systems**

**Part III: Annual Testing, Inspection & Maintenance of Existing Fire Service Main System**

**Part IV: Fire Hydrant Identification & Marking**

**Part V: Fire Hydrant Accessibility**

**Part VI: Obstruction Investigation**

**Part VII: Impairment Notification and Labeling**

## Part I: General Information & Definitions

All new installations, modification to existing systems, and inspection, testing and maintenance of existing systems shall be in compliance with the following local laws, codes and reference standards and requirements.

(Latest Editions):

### Applicable Laws, Codes and Standards:

**Town of Brookhaven Local Law: Chapter 30, Fire Prevention**

**Fire Code of New York State: Chapter 5, Section 508 and Chapter 9**

**NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances**

**NFPA 25, Standard for the Inspection, Testing, and Maintenance of Water Based Fire Protection Systems**

**NFPA 291, Flow Testing and Marking of Hydrants**

**NFPA 1142, Standard on Water Supplies for Suburban and Rural Fire Fighting**

**American Work Works Association: Manual of Water Supply Practices, Installation, Field Testing and Maintenance of Fire Hydrants.**

◇ **Fire service main system:** A system shall include but not be limited to: fire hydrant(s), piping, unions, turns (22.5° 45°, 90°), reduce pressure zone valves (RPZ), back flow prevention devices, check valves, sectional valves, control valves and pumps.

◇ **Fire Sprinkler service main system:** A system shall include but is not limited to: all piping, check valves, etc. extending from the connection to the water main system (public or private) to the base of the fire sprinkler riser.

◇ **Permit required:** A permit shall be obtained from the Town of Brookhaven, Division of Fire Prevention for the installation, addition, modification or repair to, a fire service main system and fire sprinkler service mains. A permit is not required for annual testing, inspection and maintenance of existing systems.

◇ **Registration required:** All fire service main systems shall be registered with the Town of Brookhaven, Division of Fire Prevention. Complete the Fire Protection Registration Form; submit to the Division of Fire Prevention with a \$51.37 fee for a 3 year registration. **No registration is required for fire sprinkler service mains.**

## **Part II - Requirements for the Plan Submission and Installation of New Fire Service Main Systems**

**Submission Requirements:** All submissions will be in compliance with the above listed codes, local laws, reference standards and shall include the following:

Town of Brookhaven, Division of Fire Prevention Permit Application (**FP – 10**)

Property owner authorization affidavit.

One (1) copy of the installers Suffolk County Plumbers License

Fee is \$150.00 for the first 100 feet of pipe and \$1.00 for each foot thereafter.

Two (2) sets of plans, bearing the stamp / seal of a New York State licensed design professional.

Hydraulic calculations shall be provided in a standard worksheet format, i.e. gpm, psi, elevation, pipe length, equivalent pipe length, etc. and include a summary sheet, and graph sheet. All submissions shall bear the stamp / seal of a New York State licensed design professional.

Manufacturer's documentation for all components of the system, including but not limited to; piping, unions (22.5°, 45°, 90° etc.) valves, RPZ, check valves, etc.

Submissions shall depict **in detail** the method to be used for the installation of all components of the system.

Submissions shall depict the method, **in detail** to be used for joint restraint of all system components, where required i.e. thrust blocking, roding, etc.

Submissions shall depict the distance of any proposed fire hydrant to the furthest portion of the subject building at grade level. **Special attention to both FCNYS 508.5 and IFC Commentary 508 by the design professional is required.**

Submissions shall include a statement indicating the occupancy hazard classification and the construction classification, indicating required minimum gallon per minute of water flow, as reference in NFPA 1142, required by T.O.B. L.L. 30-26 and approved site plan.

**Fire sprinkler service mains shall be submitted prior to, or at the same time as the fire sprinkler system submission (two separate submissions). Please Note: If the service main is denied, the fire sprinkler submission will also be denied automatically. Fire sprinkler submissions without a prior approved fire sprinkler service main will be automatically denied.**

**Installation Requirements:** All installations shall be completed in compliance with the applicable NFPA standards, Fire Code of NYS, Local Law of the Town of Brookhaven, Approved site plan requirements, Division of Fire Prevention requirements and the approved permit / plans.

Hydrants shall be equipped with one 4½” pumper connection and two 2 ½” hose nozzle outlet with threads matching those used by the fire department responsible for fire protection of the property.

Hydrants shall be located not more than six feet from the curb and shall be faced to be accessible to fire apparatus.

Hydrants in or adjacent to parking areas shall be provided with marking, curbing, stanchions or bollards to prevent the parking of vehicles within ten feet in any direction.

Hydrants shall be located away from the building a distance equal to 133% of the height of the nearest building wall.

Hydrants shall be connected “upstream” of all fire department connections for fire sprinkler or fire standpipe systems.

A minimum of 36” circumference around the hydrant shall be maintained clear of any obstructions, including but not limited to, plantings, sign posts, bollards, stanchions, etc.

Height of the hydrant(s) in relation to grade, measuring from the horizontal midline of the hydrant pumper connection, a minimum of 18” and a maximum of 36” to final grade / ground shall be maintained a minimum.

All valves serving Back Flow Prevention Device / RPZ shall be electronically monitored by a fire alarm system. Additionally temperature shall be electrically monitored by a fire alarm system in hot boxes and pit installations.

**Acceptance Testing / Inspection Requirements:** A Fire Marshal from the Town of Brookhaven, Division of Fire Prevention shall witness the following:

All piping, valves, elbows, tees, etc. (prior to backfilling)

Joint Restraint (prior to backfilling).

Hydrostatic test of all components of the system, in compliance with NFPA 24 10.10.2.2 - Hydrostatic Test. Hydrostatic testing shall be done prior to back filling, unless the contractor acknowledges responsibility for excavation to locate any and all leaks.

Flushing of all components of the fire service mains. Minimum flow rates for flushing shall comply with NFPA 24, 10.10.2.1.3 Flushing of Piping. ***Flushing shall be conducted prior to making connection to the building and / or fire protection systems, i.e. fire sprinkler systems, fire pumps, etc.***

Operating test: All fire hydrants, valves, etc. shall be operated in compliance with NFPA 24 10.10.2.4 - Operating Test.

Backflow Prevention Assemblies: Shall be tested in compliance with NFPA 24 10.10.25.5 – Backflow Prevention Assemblies.

Flow Testing: A flow test will be conducted by an accepted method and documented on a Town of Brookhaven Fire Hydrant / Fire Service Main Test Report.

Installation contractor shall submit an approved version of an Underground Piping Certificate **(fully completed and signed)**

Note: It is the policy of the Division of Fire Prevention that all portions of the acceptance testing be conducted in the presence of a Fire Marshal from this Division. Any and all portions of the system not visually inspected prior to backfilling **WILL** be required to be excavated to expose the portions not previously inspected.

***Please Note: It shall be the responsibility of the contractor / property owner to ensure that all necessary precautions are taken to safeguard the property from damage due to excessive water flow, such as, flooding of structures, damage landscaping, etc.***

### **Part III: Annual Testing, Inspection and Maintenance of Existing Fire Service Mains System & Fire Hydrants.**

Flow testing methods shall be in compliance with NFPA 291 Recommended Practice for Fire Flow Testing and Marking of Fire Hydrants. (Latest Edition)

Flow testing, inspection and maintenance shall be documented on the Division of Fire Prevention Certification of Inspection & Testing of Fire Hydrants / Fire Service Mains Report. *(Original signature only, no photocopies or faxes.)*

Results of a flow test and inspection conducted within each calendar year shall be provided to the Division of Fire Prevention.

A site plan of shall be submitted with the aforementioned test report. The following information shall be depicted:

- a. Layout of all hydrants on the property / system.

- b. All hydrants depicted shall be numbered as required in hydrant identification section below.
- c. Locations of RPZ / water supply (public to private)
- d. Submission shall be on an 8 ½ x 11 sheet.

◇ **Scheduling of Testing, Inspection and Maintenance:**

▪ ***Fire hydrants***

Item	Frequency	Special Notes
Inspection	annually & after use	
Maintenance	annually & after use	
Flow Test	annually	ensure proper operation

▪ ***Piping Exposed and Underground***

Item	Frequency	Special Notes
Flow Test	annually	Submit flow test data

▪ ***Piping Exposed***

Item	Frequency	Special Notes
Inspection	annually	

▪ ***Valves***

Item	Frequency	Special Notes
Inspection	weekly	ensure proper position
Maintenance	annually	
Test	annually	See NFPA 25, 13.3.3.5

▪ ***Back Flow Prevention Assemblies***

Item	Frequency	Special Notes
Inspection	weekly / monthly	
Maintenance	manufacturer's instructions	
Test	annually	fire pump – NFPA 25 13.6.2.1.4

**Part IV: Fire Hydrant Marking & Identification:**

**Fire Hydrant Marking:**

- Fire hydrants shall be classified according to NFPA 291, Flow testing and marking of hydrants.
- Fire hydrants shall be classified as to the rated capacity of available water flow with a 20 psi residual.
- Fire hydrants shall be classified and color coded in the following manner:

Class	Rated Capacity of :	Color Scheme
AA	1500 gallons per minute or +	*Rust-Oleum Brand High Performance Grade Safety Blue 245474
A	1000 – 1499 gallons per minute	*Rust-Oleum Brand High Performance Grade Safety Green 245476
B	500 – 999 gallons per minute	*Rust-Oleum Brand High Performance Grade Safety Orange 245477
C	Less then 500 gallons per minute	*Rust-Oleum Brand High Performance Grade Safety Red 245478
Adapted from the U.S.F.A. / N. F. A.* or equivalent with permission of the Division of Fire Prevention.		

- Color marking shall be applied to the fire hydrant bonnet, 2½ hose outlet nozzle caps and pumper outlet nozzle cap.
- Remainder of the fire hydrant shall be painted Safety Red.

**Fire Hydrant Identification:** All fire hydrants shall be identified in the following manner:

Fire Hydrants shall be numbered starting with the fire hydrant closest to the water source.

Numbering shall be in white, with a minimum height of two inches in height and ½ stroke.

Numbering shall be consecutive beginning with #1

Numbering shall be on the hydrant body, above the pumper outlet nozzle connection, if space does not allow the above, then below the pumper outlet nozzle connection or on the rear of the fire hydrant body is acceptable.

**Part V: Fire Hydrant / Fire Service Main Fire Hydrant Accessibility:**

**Obstructions:** Posts, fences, vehicles, vegetation, trash, storage and other materials or objects shall not be placed or kept near fire hydrants, in a manner that would prevent fire hydrants from being immediately discernible. The fire department shall not be deterred or hindered from gaining immediate access to fire hydrants.

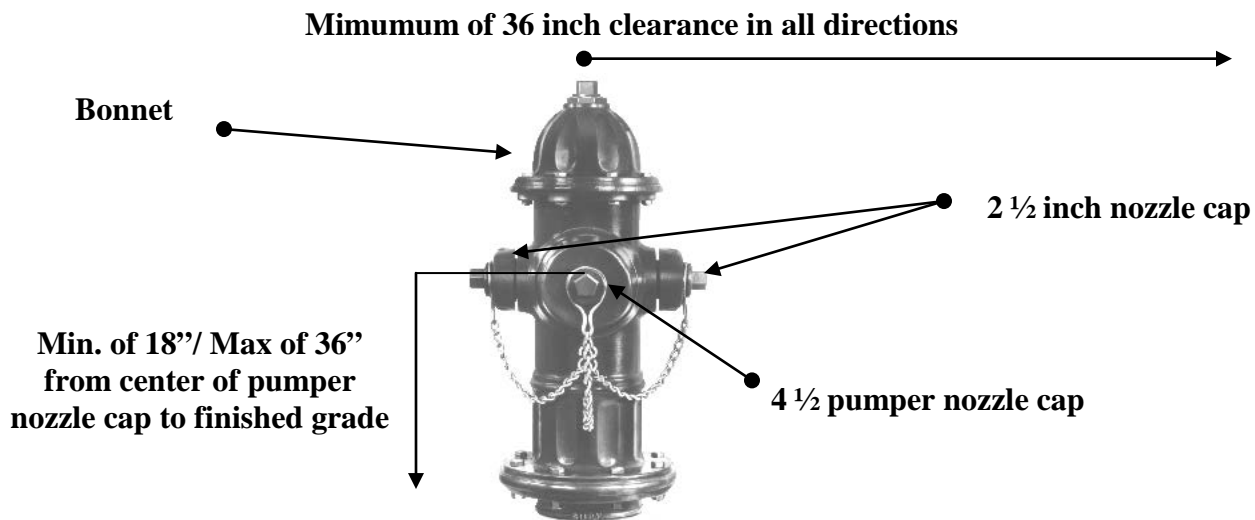
**Clear space around fire hydrants:** A minimum of 36" of clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved by the Chief Fire Marshal.

**Snow /Ice:** Maintain snow / ice clear to allow for access and operation of fire hydrants (Clear space around fire hydrants)

**Physical Protection:** Where fire hydrants are subject to impact by a motor vehicle, guard posts or other approved means shall be utilized at the discretion and approval of the Chief Fire Marshal.

**Ground Conditions:** A level surface shall be maintained to allow access to and operation of fire hydrants. No vegetation / ground cover shall obstruct or cause a trip hazard, while accesses fire hydrants.

**Fire Hydrant Height:** The center of pumper outlet shall not be less then 18 inches and not more then 36 inch above final grade. (see diagram).



#### **Part VI: Obstruction Investigations (Internal Piping):**

In cases of a possible internal piping obstruction in any portion (s) of fire protection system piping, the requirements of NFPA 25, Chapter 14 will be adhered to. Documentation as to the cause of the obstruction and the steps taken to clear said obstruction(s) shall be submitted to the Town of Brookhaven, Division of Fire Prevention.



## **Part VII: Impairment Notification and Labeling:**

**Notification:** Where any portion of a fire service main system is place out of service notification shall be made immediately to the local fire department whose area of response is affected by the impairment and within the next business day to the Town of Brookhaven, Division of Fire Prevention.

**Labeling:** Fire hydrants place out of service due to deficiencies that can not be repaired immediately shall be labeled utilizing the following method. Out of Service Rings: black background with white lettering stating “**OUT OF SERVICE**” shall be applied to both 2 ½” hose outlet nozzle connections.