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FIRE MARSHAL

Private Fire Hydrant Regulations

Adopted: October 21, 1998
Revised: September 30, 2009

CHAPTER 1
GENERAL REQUIREMENTS

1-1 GENERAL REQUIREMENTS

1-1.1 In accordance with section 1-4.4.1 of the Salem Fire Prevention Code Ordinance of 2009, as adopted by the town, the following regulations are hereby adopted.

1-1.2 Any residential development of three or more units, or any other development occurring within the Town of Salem, New Hampshire, that is within 500 feet of the current geographical area serviced by the municipal water system shall provide fire hydrants as a water supply for fire department use. (See Chapter 2)

1-1.3 In those areas where the extension of the municipal water system is upon private property, the developer shall be required to provide private fire hydrants commensurate to the hazard, as approved by the fire department. (See Chapters 3 & 4)

1-1.4 Any hydrant located on private property and deemed by the Water Department to be non-public shall be considered a “Private Hydrant”. The owner, operator, or occupant of any building shall be responsible for compliance with these regulations. For condominiums, the condominium association shall be responsible for compliance with these regulations. Where the phrase “property owner” is used throughout these regulations, it is intended to include any person(s) identified in this section (1-1.4).

1-2 OPERATION AND USE

1-2.1 Fire Hydrants, both public, and private are considered to be part of a fixed fire extinguishing system. Therefore, no person shall tamper with, render inoperative or inaccessible, or operate a fire hydrant except as necessary during emergencies, maintenance, drills or prescribed testing.

1-2.2 prior to any non-emergency use (maintenance, drills, or prescribed testing); written authorization from the Utilities Manager is required before the operation of any hydrant. Emergency use requires immediate notification of the Fire Department. Unauthorized operation of any fire hydrant is a violation of the Town of Salem, New Hampshire Fire Prevention Code of 2009 and subject to fines up to and including One Thousand Dollars ($1,000.00).

1-3 DAMAGED OR INOPERABLE FIRE HYDRANTS

1-3.1 Any damaged or inoperable fire hydrants must be reported to the Fire Department immediately.

1-3.2 Repairs to damaged hydrants must be done by a service technician who holds a valid Certificate of Fitness for hydrants issued by the Fire Department to conduct hydrant repairs.

1-3.3 Repairs to damaged hydrants must be inspected by the Salem Water Department.

CHAPTER 2
HYDRANT REQUIREMENTS

2-1 GENERAL REQUIREMENTS

2-1.1 Any development occurring within 500 feet of an existing water main shall extend and/or improve the system to provide fire hydrants with adequate fire flows for fire protection purposes.

2-1.2 Fire Hydrants shall be required in the following Districts:

2-1.2.1 Industrial District
2-1.2.2 Commercial-Industrial District
2-1.2.3 Business Office District I
2-1.2.4 Business Office District II
2-1.2.5 Limited Commercial Shopping Village District
2-1.2.6 Garden Apartments R-A District
2-1.2.7 Manufactured Housing Park District
2-1.2.8 Residential District
2-1.2.9 Recreational District
2-1.2.10 Rural District
2-1.2.11 Town Center District
2-1.2.12 Seniors Housing Overlay District

2-1.2 Fire hydrants shall be installed in accordance with the requirements of the Director of Public Works.

2-1.2.1 Fittings shall be short body ductile iron Class 350 Mechanical Joint, conforming to ANSI Specification A21.53 (AWWA C153-88), latest edition, for pipe sizes 16-inches and smaller, and Class 350 standard Mechanical Joint fittings conforming to AWWA C110/ANSI A21.10, latest edition, for pipe sizes 18 through 24-inches.

2-1.2.2 Hydrant tees with rotatable mechanical joint gland on 6-inch plain end branch shall be used for hydrant branch connections and all other 6-inch tee locations.

2-1.2.3 Thrust blocks shall be used at all hydrants, fittings and bends, and shall be of the size and type as shown on the Hydrant Setting Detail and the Thrust Block Detail available in the Appendix A of Section W-1, titled Ductile Iron Pipe and Fittings of the Water Distribution System Material and Construction Specifications per the Town of Salem, NH Water Department.

2-1.2.4 Restrained joints shall be furnished for installation of all mechanical joints.

2-1.2.5 Concrete thrust blocks shall be installed at all hydrants.

2-1.2.5.1 The thrust blocks shall be constructed in a neat workmanlike manner. Care should be taken to ensure that the pipe fitting, including bolts will be accessible and to prevent the encasement of the pipe and/or fittings with concrete. A minimum of 8 mil of polyethylene sheeting must be placed between the pipe/fitting and the concrete.

2-1.2.7 Fire hydrants shall be American Darling B-62-B-1 with a 6-inch mechanical joint inlet connection to the main, two 2.5-inch National Standard Thread hose outlets, one 4.5-inch National Standard Thread pumper/steamer outlet, a main valve opening of 5.25-inches and a standpipe or barrel diameter of 8.5-inches.

2-1.2.8 The hydrants must meet all requirements of the latest revision of AWWA C-502 and be listed by Underwriters Laboratories, Inc. as meeting their standard UL246, latest revisions.

2-1.2.9 Hydrants shall open right (clockwise) and be marked with an arrow and the word “OPEN” to indicate the direction to turn the operating nut to open the hydrant.

2-1.2.10 Hydrant barrels will be of a length to provide minimum of five feet of bury.

2-1.2.11 Hydrants shall be installed in conformance to AWWA C600, Section 11, latest revision, using barrel blocks, tie rods and anchored joints in accordance with the details shown in the back of the Water Distribution System Material and Construction Specifications or on the drawings prepared by a Professional Engineer.

2-1.2.12 Hydrants, as detailed on the drawings prepared by a Professional Engineer, shall be set at the locations designated by the Engineer and shall be bedded on a firm foundation. A drainage pit 2 feet 6-inches in diameter and to the limits shown on the Drawings shall be filled with crushed stone and satisfactorily compacted. During backfilling, additional crushed stone shall be brought up around and 12-inches over the drain port, and then covered with geotextile soil separation fabric. Each hydrant shall be set in true vertical alignment and shall be properly braced. Thrust blocks shall be placed between the back of the hydrant inlet and undisturbed soil at the end of the trench.

2-1.2.13 The operating nut shall be set between 30-inches and 34-inches above the finished ground grade. Mound or slope angle around hydrant is not to exceed 3 to 1 when area around
hydrant must be cut or filled to meet height requirements.

2-1.1.13.1 If it is necessary to use and extension kit to comply with Section 2-1.2.13, above. The extension kit shall be compatible with the hydrant specified and manufactured by/or approved for use by the hydrant manufacturer.

2-1.2.14 The assembly shall include the hydrant, hydrant tee, auxiliary gate valve, valve box and cover, length of pipe, and all excavation, backfill, sheeting, site work and thrust restraint.

2-1.3 Fire hydrant spacing shall be not more than 500 feet roadway travel distance in residential developments and not more than 250 feet roadway travel distance in all other developments. (International Fire Code 2006 Ed.).

2-1.4 All private fire hydrants shall be painted using Benjamin Moore Industrial Urethane Alkyd Gloss paint (referred to as “BW”) or Sherwin Williams Steel master Industrial Urethane Alkyd Gloss referred to as “SW”). The hydrant body shall be painted Industrial Red (Benjamin Moore code #M2223). The hydrant(s) shall be tested and the bonnet (excluding the operating nut) and discharge port caps shall be color coded in accordance with NFPA 25. **This color coding shall be based upon actual hydrant flow calculations.**

2-1.4.1 NFPA 25 Color Coding System.

1500 gpm or greater	Safety Blue - BM code M2235/SW code 4086
1000 gpm to 1499 gpm	Safety Green - BM code M2241/SW code 4085
500 gpm to 999 gpm	Safety Orange- BM code M2265/SW code 4083
Less than 500 gpm	Safety Red - BM code M2221/SW code 4081

2-1.5 All fire hydrant locations shall be approved by the fire chief.

CHAPTER 3
ANNUAL TEST AND INSPECTION OF PRIVATE FIRE HYDRANTS

3-1 GENERAL REQUIREMENTS

3-1.1 All privately owned fire hydrants supplied water by the Salem Municipal Water System are to be tested and inspected annually.

3-1.2 Property owners shall be responsible for the contracting of a qualified person for the test and inspection.

3-1.3 Any test/service technician must have a valid Certificate of Fitness for hydrants issued by Fire Department to conduct tests and/or inspections.

3-1.1 Test/service technician qualifications for fitness will be approved by the Utilities Manager of the Department of Public Works.

3-1.5 A minimum of two (2) business days notice to the Utilities Manager of the Department of Public Works is required before any hydrant test may be conducted.

3-1.6 Hydrant inspection forms must be filled out and a copy submitted to the Water Department, Town of Salem. Inspection forms will be provided by the Department of Public Works.

3-1.7 The test/service technician is responsible for notifying all customers affected by tests (pressure, clarity, traffic etc...)

3-1.8 All hydrants will be maintained free from obscuring vegetation, landscaping, and accumulations of snow for a radius of ten (10) feet from the hydrant.

CHAPTER 4
TEST REQUIREMENTS

4-1 GENERAL REQUIREMENTS

4-1.1 The test/service technician must have all equipment necessary to operate the hydrant and auxiliary valves, control the discharged water to prevent damage to property and waterways, and safely guide traffic around the test area. At a minimum, equipment required is to include:

4-1.1.1 A wrench designed for the operation of 1½ inch pentagon hydrant main valve nut.

4-1.1.2 A 2½ inch National Standard Thread hydrant gate valve.

4-1.1.3 A diffuser, flushing elbow or other apparatus to direct discharged water toward acceptable drainage structures or areas.

4-1.1.4 A valve wrench for the operation of a two-inch square operating nuts for the auxiliary (or “branch”) valve.

4-1.1.5 Pry bars for the removal of valve box covers.

4-1.1.6 Grease gun.

4-1.1.7 Orange traffic safety cones.

4-2 TESTING PROCEDURES

4-2.1 The following procedure is to be followed during an annual test and inspection of private hydrants.

4-2.1.1 All hydrant discharge port caps shall be removed, threads cleaned and lubricated, gaskets checked and replaced as necessary, and caps reinstalled and tightened to 5 to 10 ft/lbs.

4-2.1.2 The auxiliary or branch valve shall then be located, exposed and the valve wrench placed on the operating nut.

4-2.1.3 The 2½ inch hydrant gate valve (in the closed position), and the diffuser/flushing elbow, shall be installed on the hydrant.

4-2.1.4 Open the hydrant main valve. The number of turns to fully open the valve shall be counted and recorded.

4-2.1.5 Slowly, open the hydrant gate valve until it is fully open. Flow the hydrant full open, until the water runs clear.

4-2.1.6 Operate the auxiliary valve wrench ***SLOWLY*** and close the auxiliary gate valve. Count and record the number of turns.

4-2.1.7 Reopen the auxiliary valve until it is fully open. Turn the wrench one half turn back.

4-2.1.8 Slowly close the hydrant gate valve until flow is reduced to 25 G.P.M. or less.

4-2.1.9 Inspect and replace if necessary the grease fitting on the hydrant operating nut. Using the grease gun lubricate the hydrant operating nut.

4-2.1.10 Close the hydrant main valve. Count and record the number of turns. The torque required to operate the hydrant main valve should not exceed 100 ft/lbs.

4-2.1.11 The hydrant operating nut should be turned back ½ turn from the fully closed position.

4-2.1.12 Observe the rate of drainage to ensure the drains are working properly and all water drains from the barrel of the hydrant.

4-2.1.13 Remove the 2½ inch hydrant gate valve and the diffuser/flushing elbow from the hydrant and replace the 2½ inch cap.

4-2.1.14 A report shall be submitted to the Fire Prevention Bureau indicating the results of the test and any corrective action which may have been taken. This report shall comply with the requirements of NFPA 24. Specifically Appendix C/D.

These Fire Hydrant Regulations are issued on the order of:

_____ on_____

Jeffrey S. Emanuelson, Fire Marshal Date
Salem Fire Department - Bureau of Fire Prevention

Appendix "A"

FIRE HYDRANT TEST REPORT

Property Name: _____ **Date:** _____
Address: _____ **Time:** _____
_____

Water Department Notified: _____ **Person Contacted:** _____
Location of Hydrant: _____
Manufacturer: _____ **Model:** _____

Inspection Data

Accessible: _____ **Self Draining:** _____
Cracks in Barrel: _____ **Outlet nipples tight:** _____
Outlet Threads Lubricated: _____ **Worn:** _____
All gaskets in good condition: _____
Hydrant in operating condition: _____
Repairs made: _____
Repairs Recommended: _____

Flow Test Data

Static Pressure: _____ **Outlet Diameter:** _____
Residual Pressure: _____ **Booster Pump on:** _____
Pitot Reading: _____ **Reading @ 20 PSI:** _____
Flow from Chart: _____ **Fire Flow from Chart:** _____
Nozzle Co-efficient: _____ **Nozzle Co-efficient:** _____
Calculated Flow: _____ **Calculated Fire Flow:** _____

Hydrant Painted to reflect actual fire flow: _____ **Color:** _____

Test/Inspection Certified by: _____ **Fitness #** _____