

**TOWN OF FARMINGTON**  
**FIRE PROTECTION REGULATION**  
Revised 2/26/2010

**I. PREAMBLE:**

**A. Purpose:** Due to the rural nature of the Town of Farmington and the lack of a community wide municipal water system, it has been necessary to require the provision of fire protection for newly developed areas within the community.

**B. Scope:** Sufficient water is of vital importance in order for the Farmington Fire-Rescue Department to provide effective fire protection services to the Town. The fire protection requirements set forth by the Fire-Rescue Department shall allow developer/agents some options in providing the necessary fire protection and ensuring that there shall be an adequate fire cistern/water supply available to support fire protection operations.

**II. DEFINITIONS:**

**A. Approved:** Accepted by the authority having jurisdiction.

**B. Authority Having Jurisdiction:** The organization, office or individual responsible for “approving” equipment, an installation or procedure. In the context of the regulation the authority having jurisdiction shall be the Planning Board and the Fire-Rescue Department.

**C. Dry Hydrant:** A permanent piping system, normally a drafting source, that provides access to a water source other than a municipal-type water system.

**D. Municipal-Type Water System:** A system having water pipes serving hydrants and designed to furnish, over and above domestic consumption, a minimum flow of 250 gallons per minute and 20 pounds per square inch residual pressure for a 2 hour duration.

**E. Protected Property/Easement:** Property protected by a fire cistern/water supply that is minimally adequate in volume and duration and by a fire department capable of using this fire cistern/water supply to suppress a possible fire within the property.

**F. Vehicle Pad:** A level, hard surfaced area adjacent to a dry hydrant that is large enough and configured so as to allow a fire truck to be connected to the dry hydrant.

**G. Water Supply:** A water supply shall mean a natural body of water that is a man-made or a natural pond that has sufficient water.

**III. AUTHORITY:**

**A. Regulation:** Fire-Rescue Regulation per NFPA

**B. Policy:** The standards contained within this document shall be the criteria for the design, construction and location of fire cistern/water supply.

**C. Enforcement Authority:** The enforcement of this standard shall be a shared authority between the Fire-Rescue Department, the Planning Board and the Code Enforcement Office.

**D.** The Planning Board or designee shall have authority for the enforcement of those elements that are specifically related to the design and sufficiency of the fire protection with the recommendations from the Chief of the Fire-Rescue Department.

**E.** The Planning Board or designee shall have authority for those elements of construction and site plan/subdivision plan compliance as well as any bond issues.

#### **IV. ADMINISTRATION:**

**A.** Any subdivision, which creates 7 lots or more, shall be required to construct/ install a fire cistern/water supply of 15,000 gallons.

**B.** The minimum development of any fire cistern/water supply for the purpose of fire protection shall follow this procedure and all applicable NFPA requirements.

**C.** The developer shall provide the Planning Board the design documentation for review as part of the regular site plan/subdivision plan approval process.

**D. Design Documentation and Review:**

**1.** A site plan/subdivision plan shall be provided for review that includes all of the information required by the Planning Board and the information listed below.

**a.** A plan which shows the location of the water source and delineates the protected property or properties within the specified travel distance of 1200 feet. The furthestmost house shall not be more than 1500 feet from the fire cistern/water supply.

**b.** The location of the proposed hydrant(s) shall be shown.

**c.** A vehicle pad shall be shown if a dry hydrant is being proposed.

**2.** A design package for the type of fire cistern/water supply to be used shall be submitted for review to the Planning Board as part of the site plan/ subdivision plan application. All designs and calculations shall be stamped by a New Hampshire Licensed Engineer.

**a.** The design package shall include the following information:

**1.** The design and construction methods to be employed in creating the fire cistern/water supply.

**2.** The calculations used to determine the capacity of the water source.

**3.** The design calculations used to determine the size of the dry hydrant.

4. If a water supply is used, data establishing the normal water level and the low level on a 50-year drought shall be supplied.

**E. Construction Timetables:**

1. Water supplies that are required by this regulation shall be constructed according to the following timetable:
  - a. Subdivisions – Fire cisterns/water supplies shall be constructed at the beginning phase of the project. No building permits shall be issued until the fire cistern/water supply is completed and approved.
  - b. Subdivisions – Municipal or community type water system shall be installed at the time the roadways are constructed and prior to the issuance of building permits.
  - c. Commercial – The required fire cistern/water supply of any type shall be completed and operational prior to any occupancy of the building.
2. The fire cistern/water supply shall be fully completed and tested prior to being accepted by the Fire Chief and the Planning Board or designee.

**F. Ownership/Responsibility and Bonding:**

1. All required fire cistern/water supply developments shall be bonded as part of the overall bonding requirement which shall be recommended by the Planning Board and approved by the Farmington Board of Selectmen.
2. Maintenance bonds shall be posted for cisterns and buried tanks and shall be held for a period of 2 years. The bond will be released by the Board of Selectmen upon recommendation by the Planning Board and inspection and approval of the system by the Fire-Rescue Department. The Association shall own and maintain the cistern/water supply until, if and when, the roadway and infrastructure is accepted by the Town legislative body.
3. The property owner/developer shall provide the Town of Farmington with a written easement that allows for the use of the cistern.
4. If the cistern is located within a development that has a Condominium/Homeowners Association form of ownership, the responsibility for maintenance of the cistern shall remain with the Condominium/Homeowners Association.

**G. Inspection and Testing:**

1. The fire cistern/water supply shall be inspected by the authority having jurisdiction during its construction/installation. An inspection schedule shall be established for each specific project.
2. A successful flow test shall be conducted by the Fire-Rescue Department or their designee prior to approval of the system.

3. A NH Licensed engineer shall sign off that the cistern was built to specifications.

## **V. CISTERN STANDARDS:**

### **A. General Requirements:**

1. Fire cisterns/water supplies shall be located no more than 1200 feet roadway travel distance from any access driveway on the furthestmost lot within the development.
2. The design of the fire cistern/water supply shall be designed to be trouble free for a design life expectation of 20 years.
3. The entire fire cistern/water supply shall be rated to highway loading. All appropriate easements to the Town shall be in place prior to construction.
4. All piping shall be American Society for Testing and Material (ASTM) (current edition) International steel pipe or schedule 40 PVC.
5. All connections shall be clean and the appropriate sealing material used according to manufacturer's specifications so as to ensure all joints are airtight.
6. All connections shall be anchored to the cistern to resist movement. Steel piping shall be screwed at the joints. Steel pipe or schedule 40 PVC piping shall be glued at the joints.
7. A separate well, pump, float device and meter (as applicable) shall be connected to said cistern to maintain a full level of water at all times.
8. All hydrant pipe and protective bollards shall be primed with rust inhibiting primer and painted bright red.

### **B. Storage Vessels:**

1. Cisterns/buried tanks are a vital means of providing a water source in areas where natural or manmade ponds are not available. Cisterns are generally site built units, however, manufactured tanks may be used provided the general construction concepts of this section are met.
2. Cisterns shall be designed specifically for the site and soil conditions where it is to be constructed. The plans for the design shall be stamped by a NH Licensed Engineer. The engineer shall sign off that the cistern was built to specifications.
3. A NH Licensed Engineer shall sign off that the cistern was built to specifications.
4. Cisterns shall be designed using the information found in National Fire Protection Association (NFPA) standard #1231, Appendix B, Section B-4, 6, as the basic design criteria.

5. The design of the dry hydrant in the cistern shall comply with Section V of this Regulation.
6. The dry hydrant shall have a minimum delivery capacity of 1,000 gallons per minute (GPM) for  $\frac{3}{4}$  of the capacity of the cistern.
7. The dry hydrant shall be located so as to use a single 10 foot length of suction hose to connect to the fire pump when the apparatus is parked on the vehicle pad.
8. The vehicle pad shall be so located and of sufficient size so as to allow the apparatus to connect to the dry hydrant without blocking a travel lane of the roadway.
9. The dry hydrant suction connection shall be a maximum height of 15 feet above the bottom of the cistern.

**C. Suction Connections:**

1. The suction connection shall be a steel, threaded female connection 4.50 inch diameter, with National Standard Thread (NST) and provided with a suitable cap.
2. The suction piping system shall be 6 inches in diameter and capable of delivering 1,000 GPM, for  $\frac{3}{4}$  of the cisterns rated capacity. Any suction piping that is underground may be steel pipe or schedule 40 PVC.
3. The suction pipe connection shall be between 24 inches and 30 inches above level of the grade where the vehicles wheels shall be located when the cistern is in use.
4. Suction piping shall be supported on the top of the tank and to the bottom of the cistern with a space of 8 inches from the floor of the tank.
5. The bottom of the suction pipe to the pumper connection shall not exceed 14 feet vertical distance.
6. The shoulder and vehicle pad shall be 12 feet wide and 60 feet in length and tapered to meet the roadway. The pull-off shall be built to the Town of Farmington Road and Related Regulations specifications and paved.
7. The pitch of the shoulder and vehicle pad from the edge of the pavement to the pumper suction connection shall be 1% to 6% downgrade.
8. All horizontal suction piping must slope slightly uphill toward the pumper connection.

**D. Filler Connection:**

1. The filler pipe shall be 4 inches in diameter steel pipe or schedule 40 PVC.
2. The filler connection shall have one 4 inch Storz connector with suitable cover attached to a 45 degree downward sweep elbow. The filler connection shall be supported vertically to the cistern.
3. The filler pipe connection shall be 36 inches above the final grade.

**E. Vent Pipe:**

1. The vent pipe shall be 6 inches in diameter.
2. The vent pipe shall terminate not less than 36 inches above the final grade, with the opening to the pipe facing downward.
3. Vent piping shall have screen covers installed to prevent access by wildlife.

**F. Backfilling:**

1. The entire cistern shall be completely piped and inspected prior to any backfilling being accomplished.
2. All backfill materials shall be screened gravel with no stone larger than 1.50 inches and shall be compacted to 95% ASTM 1557.
3. Bedding the cistern shall consist of a minimum of 12 inches of .75 inch to 1.50 inch, crushed stone, and compacted. No fill shall be used under the stone.
4. The cistern shall be designed and installed so it will not float when empty.
5. After backfilling, the cistern shall be protected by either large boulders or steel, concrete filled, pipe bollards no less than 8 inches in diameter set in the ground below frost line or guardrails, protecting all exposed piping from potential vehicular damage.
6. Backfilling over the cistern shall be:
  - a. 4 feet of fill; or
  - b. The top and highest 2 feet of the cistern shall be insulated with vermin resistant foam insulation, and 2 feet of fill.
  - c. Backfill shall extend 10 feet beyond the edge of the cistern then have a maximum of a 3:1 slope, loamed and seeded.
7. Cisterns shall be equipped with a 32 inch watertight manhole with a bland cover that will accept a Knox Padlock as specified by the Fire Chief. Access shall be provided to all sections of the tank.

8. The developer/agent is responsible for completely filling the cistern initially. The water level shall not drop more than 1 inch in the first 24 hours initially and not more than 1 inch additionally in 30 days.
9. The developer/agent is responsible to supply and install identification signs as directed by the Fire Chief. This shall include “No Parking” signs according to Town specification.
10. The Certificate of Occupancy shall be withheld until the fire cistern/water supply has been approved and accepted by the Fire-Rescue Department, signed off by the Fire-Rescue Department and certified by a NH Licensed Engineer.

## **VI. ALTERNATIVE SYSTEMS:**

### **A. Ponds/Lakes:**

A pond or lake, whether it is a manmade or natural, shall meet the specifications as set by the US Department of Agriculture, Soil Conservation Service and those specifications found in Section V of this Regulation. A dry hydrant shall be installed that meets the design standard of this Regulation. All work shall be inspected.

### **B. Municipal/Public Water Supplies:**

Extensions of the municipal water service for the Town of Farmington may be allowed if approved by the Board of Selectmen and shall fully meet the design and installation requirements of the Farmington Water Department.

### **C. Community Water Systems:**

If a community water system is used within a subdivision to provide the fire suppression water requirement, the system shall be designed and constructed to meet NFPA standard #24 – Standard for the Installation of Private Fire Service Mains. The design and flow capacities of the complete system shall also meet the criteria of the American Water Works Association for the size subdivision being supplied.