

# INSPECTION AND TESTING OF FIRE PROTECTION SYSTEMS



**Town of Brighton  
Office of the Fire Marshal**

October 2018

# Inspection and Testing of Fire Protection Systems Requirements

## Code Requirements

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The Fire Code of New York State (FCNYS) provides the major requirements which dictate when a fire protection system is required to be installed within a premise. These requirements vary widely and include the size of the structure; construction materials used and even the anticipated occupant use (business office versus high-piled storage of flammable products) within the structure.

A fire protection system is defined in the FCNYS as “Approved devices, equipment and systems or combination of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.”

Examples of fire protection systems include:

- Automatic fire alarm systems
- Manual fire alarm systems
- Combination Fire/Security Systems
- Automatic sprinkler systems
- Emergency generators that serve life safety functions
- Chemical suppression systems
- Fire doors
- Smoke management systems
- Standpipes

## Design Requirements

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Planning and designing buildings that are cost efficient to build or insure, meet the codes, make the best use of materials, and strike a balance between form and function is a complicated endeavor. During this process the property owner should also consider all future potential uses of the building and discuss how he/she wants to use the property in the future and discuss the impact with their fire protection contractor.

For example, the design of an automatic fire sprinkler system can drastically affect the overall allowed height of storage racks in a warehouse type facility. Using a system that meets only the minimum code requirements can limit the maximum storage height on shelves to less than 12 feet for the life of the building; even if the ceiling height is 25 feet, possibly prevent the use of double wide racks or even prevent aisle space from being less than 8 feet in width.

If a storage height greater than 12 feet is desired, the sprinkler system must be designed accordingly so that the space can be utilized to its maximum potential. Reducing up front costs by limiting the sprinkler system design in this case will not only reduce the possible uses in the structure but prohibit certain types of businesses from potentially occupying or leasing the space for the life of the building.

## Definitions

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We have provided some common definitions to help you better understand the systems you may have within your facility and the installation/maintenance of these systems.

**Confidence Test Report.** A complete record of a fire protection system test, including problems found and any corrections made.

**Fire Alarm System.** A system or portion of a combination system that consists of components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiated devices and to initiate the appropriate response to those signals. This includes the fire alarm system components interconnected to security equipment.

**Fire Drills.** Fire drills are procedures conducted to test the preparedness of building occupants to evacuate a particular structure. Certain fire protection systems may be actuated when they facilitate or assist building occupants in evacuation. The purpose of a fire drill is not to be used to test a fire protection system.

**Fire Protection Systems.** Approved devices, equipment and systems or combinations of systems used to detect a fire, activate an alarm, extinguish or control a fire, control or manage smoke and products of a fire or any combination thereof.

**Fire Watch.** A fire watch is the action of an on-site person whose sole duty is to watch for the occurrence of fire through routine patrols.

**Functional Test.** This type of test does not typically meet all of the necessary tests needed for a complete yearly inspection. A functional test is a physical check of installed equipment to insure that fire protection systems or portions of the system operate. This typically involves verification of alarm operation by testing the operation of smoke detectors with canned smoke, pulling pull stations, verifying visual indicators (strobes) flash, audible indicators (horns) make a noise, electronically held doors close and that water-flow in sprinkler piping will trip the interconnected alarm.

**Impairment Coordinator.** The building owner or a specified designee responsible for evacuating a building or providing an approved "fire watch" when automatic fire sprinkler or fire detection systems are not fully operational. The impairment coordinator will also be responsible for managing the impairment program.

**Impairment Program.** Procedures to be followed when a fire protection, or other life safety equipment such as emergency generators or smoke control system is out of service for construction, alteration, or due to an emergency condition.

**Inspection.** This type of service does not typically meet all of the necessary tests needed for a complete yearly inspection. An inspection is a visual examination of a fire protection system or portion of the system to verify that the system appears to be in operating condition and is free from physical damage and complies with the applicable statutes and regulations adopted by the state director of fire protection. An inspection is only a component of a full-service testing process and is necessary to identify proper spacing of equipment or obstructions.

**Installation.** The initial placement of fire protection equipment or the extension, modification, or alteration of equipment after the initial placement.

**Maintenance.** Work or repairs performed on a fire protection system to keep the equipment operable.

**Record Drawings.** Drawings ("as builts") that document the location of all devices, appliances, wiring, sequences, wiring methods, connections of the components of a fire alarm system, locations of water mains, sprinkler pipe diameter, types of sprinkler heads and other details of fire protection systems as installed. It is typical for portions of systems to be moved or rerouted from the original design plans due to construction features that were not foreseeable. Record drawings detail these differences. These documents are required to be maintained for the life of the system and updated accordingly as the system is modified.

**Statement of Compliance.** A document that describes the features of the installation, operation (performance), service, equipment or devices installed with representation by the property owner, system installer, system supplier and service organization. Depending upon the type of fire protection system, the respective NFPA standard may refer to this document as a *Record of Completion, Contractor's Test and Material Certificate* or something else. These documents are required to be provided to the Fire Marshal's Office prior to scheduling final inspections on new installations. These documents are required to be maintained for the life of the system and updated accordingly as the system is modified.

**Testing.** A procedure used to examine and measure the function of fire protection systems and related equipment as intended by the fire code, nationally recognized standards and manufacturer's specifications. This includes conducting periodic physical checks on systems such as: pull-station operation, smoke detector sensitivity, audible sound levels, device spacing, water flow tests, fire pump tests, and trip tests of dry pipe, deluge, or preaction valves. These tests follow up on the original acceptance test at intervals specified in the appropriate NFPA standard (25, 72, 96, 2001, etc.).

## Inspection, Testing & Maintenance

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**Why Test?** Reliability is the driving force behind every inspection, testing and maintenance program regardless of the equipment or its use in industrial processes. During an emergency event, safety equipment needs to perform as designed. This is why firefighters test life saving equipment used on fire apparatus on a daily basis.

Fire protection systems provide the same vital role in protecting your business whether it's life safety or property preservation. Fire protection systems; often overlooked by the basic necessity for electricity and plumbing needs must be maintained in order ensure that the systems will perform as designed.

**Requirement.** Section 901.6 of the FCNYS specifies that fire detection, alarm and extinguishing systems **must be** maintained in an operative condition at all times, including systems required by the building code or voluntarily installed by the property owner. This periodic testing of fire protection systems is called *confidence testing*. These systems must be maintained even if a building is unoccupied.

**Who's Responsible?** Property owners, or another person designated in a lease of the premises, are responsible for and expected to schedule necessary confidence testing.

**Test Reports.** Records of inspections, test and maintenance are required to be maintained on the property for a minimum of 10 years and made available to the fire department upon request. After the system is tested, a copy of the service/inspection report is required to be sent to the Office of the Fire Marshal (OFM) by the owner or contractor performing the service within 30 business days.

This allows OFM staff to review the findings of the inspections, follow up on possible code violations that could reduce the reliability of your fire protection system and review the level of service being provided to the business community by your service provider. Defects and fire code violations noted in the contractor's report must be corrected. Failure to correct problems could result in additional inspection fees and code enforcement actions from the OFM.

**Systems out of Service.** Where a required fire protection system is out of service for more than 4 hours, the fire department and the Fire Marshal shall be notified immediately by completing the Town of Brighton notification of system out of service form. The building shall either be evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shut down until the fire protection system has been returned to service. Reports and documentation of posted fire watch shall be of an acceptable format complying with the National Fire Protection Association standards

When systems are out of service, the property owner or specified designee shall assume the role of "impairment coordinator" who will manage the "impairment program."

## Inspection, Testing & Maintenance Schedule

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Fire protection systems are required by the fire code to be tested in accordance with nationally recognized standards. The most common standards are developed by the National Fire Protection Association (NFPA); which specify the components and testing schedule for the devices tested. Details of these specific frequencies can be found below. The following table provides only a brief summary of the testing schedules necessary. Due to the wide variability in fire protection system, various frequencies may be listed and are dependent upon the equipment installed.

Type of System	Standard	Frequency of Tests
Portable fire extinguishers	NFPA 10	Yearly
Carbon dioxide fire-extinguishing systems	NFPA 12	Yearly
Halon 1301 fire-extinguishing systems	NFPA 12A	Yearly
Dry-chemical fire-extinguishing systems	NFPA 17	Semi-Annually
Wet-chemical fire-extinguishing systems	NFPA 17A	Semi-Annually
Water-based sprinkler systems (Wet/dry pipe, deluge and pre-action systems)	NFPA 25	Monthly, Quarterly, Annual & 5 Year Cycles
Standpipe & Hose Systems		
Fire Pumps		
Foam Systems		
Fire Alarm Systems	NFPA 72	Monthly, Quarterly & Annual
Ventilation control and fire protection of commercial cooking operations	NFPA 96	Monthly, Quarterly, Semi-Annually and Yearly
Emergency Generators	NFPA 110	Monthly & 3 Year Cycles
Water-mist Systems	NFPA 750	Monthly, Quarterly, Annual & 5- 12 Year Cycles
Clean-agent extinguishing systems	NFPA 2001	Yearly & 5 Year Cycles

Additional bulletins are available that provide more detailed information on the testing frequency and requirements for each of the systems listed above. You may also consult with the Office of the Fire Marshal for more specific requirements on your system.

## Selecting a Contractor

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The Office of the Fire Marshal cannot make a recommendation about the use of a specific contractor, but members of the community can select a vendor from this list of contractors who have met these minimum qualification levels.

Additional steps to selecting a contractor include:

1. Check with the local Better Business Bureau or licensing authorities for any complaints that may have been filed
2. Check references to ensure contractors are properly licensed and bonded
3. Solicit multiple bids and compare what is included in the costs
4. Request references from contractor or your insurance company

To avoid possible hidden or additional service charge fees, be sure that you are aware of the complete service level being offered by the contractor before signing the contract. Will the inspections include "all" aspects of the respective testing standard? If so, what testing standard will they be following? If they don't or aren't able to inspect the entire system, what portions will they not be testing? Be sure to get a minimum of three quotes and compare the differences in detail; particularly if there is a substantial difference in prices.

## The Inspection - What to Expect

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On the day of the service, it will be necessary to have a representative meet with the service contractor on-site. The contractor will have inspection forms that need to be reviewed and signed by a property representative; otherwise the Office of the Fire Marshal will reject the inspection/service/test report. Depending upon the system being inspected, the property representative may also be required by the testing standards to provide record drawings or other documents prior to the contractor being able to conduct the inspection.

At the completion of the inspection/test, the property owner should review the findings of the inspection report, take any necessary steps to schedule or repair deficiencies or violations found and if necessary implement an impairment program. Do not be surprised if the Office of the Fire Marshal follows up with the property representative to inquire about the status of deficiencies or violations found.