

INTERNAL PIPING INSPECTION AND OBSTRUCTION INVESTIGATION



Town of Brighton
Office of the Fire Marshal

MAY 2020

Internal Pipe Inspections and Obstruction Investigations

Purpose

To outline the requirements of National Fire Protection Association – Chapter 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems as it relates to the internal pipe inspections and obstruction investigations of fire sprinkler systems.

Scope

This guideline is to help outline the requirements of National Fire Protection Association – Chapter 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems as it relates to the required 5 year internal pipe inspections and obstruction investigations of fire sprinkler systems

Applicable Codes & Standards

2020 Fire Code of New York State

National Fire Protection Association – Chapter 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems (2017 edition).

Background

The Office of the Fire Marshal has recently received questions and concerns from commercial business property owners / managers regarding the nuances of the NFPA 25 fire protection standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

Concerns have been voiced that suddenly fire protection contractors have been suggesting and in some case mandating, that their client and or customers submit to costly “teardowns” or “dismantling” of portions of the building automatic fire sprinkler system to remain in compliance with the National Fire Protection Association – Chapter 25 – 2017 Edition Section 13 - Obstruction Investigation.

It appears that there may be some confusion or misinterpretation regarding the intent of Chapter 13 and the word “*investigation*” as it is used in that chapter.

In researching the matter, it has been determined that New York State adopted by reference, NFPA 25 on January 1, 2003 when the Fire Code of New York State (International Fire Code – 2003) was adopted and placed into regulations. Therefore, the initial inspection to implement a five-year obstruction investigation cycle does not need to begin until January 2008 and or additional / next inspection would become due sometime in 2013, 2018 Ect.

Furthermore, on May 12, 2020 New York State adopted the 2020 Fire Code of New York State and placed by reference, NFPA 25 – 2017 Edition into regulation and is now the most recent edition used for inspection, testing and enforcement.

Internal Inspections vs. Obstruction Investigation

Internal pipe inspections and obstruction investigations are two separate tasks. The internal inspection of piping has a frequency of every 5 years as indicated in NFPA 25 (2017 edition), Section 14.2.1. However, the obstruction investigation has no time limit and is initiated only when any of the listed 15 conditions in NFPA 25 (2017 edition), Section 14.3.1 are present.

Internal Inspection of Piping

An internal inspection of piping and branch line conditions shall be conducted every 5 years. This “internal inspection of piping” is a “visual” inspection, completed every 5 years, on one main and one branch line.

The purpose of this inspection is to check for the presence of sufficient corrosion or foreign material capable of obstructing sprinklers and rendering the system ineffective in the event of a fire. Internal inspections are important if there is reason to believe that foreign material exists in the water supply or if the supply is from a stored or raw water source. These internal inspections are especially critical for dry-pipe and pre-action sprinkler systems.

The 2017 Edition of NFPA 25 further clarified this section by changing the word “inspection” to “assessment” and excludes nonmetallic pipe from the assessment. The purpose of this assessment is to look for the presence of foreign material (both organic and inorganic). A substantial amount of explanatory information was placed in Annex A of NFPA 25 (2017 edition) to clarify the intent and actual requirements.

If no such material is seen, then the system is returned to service.

If there is slime or turbercules, Section 14.2.1.3 states it must be tested for indication of microbiological influenced corrosion (MIC).

Note:

it does not say it has to be treated for MIC since one option in NFPA 13 is simply to monitor the situation.

The NFPA 25 Handbook explains that the inspection “is not intended to place an additional burden on the property owner by requiring an additional inspection every 5 years. Rather, the inspection required by 14.2.1 should be coordinated with the internal inspection requirement of system valves, such as is required by 13.4.1.2 for alarm valves.”

Fire protection contractors and business owners should consider having the internal pipe assessment or inspection conducted at the same time as an annual inspection or when the fire sprinkler system is undergoing any alterations, additions, renovations, or repairs to save the cost of separate inspections.

Guidance is explicitly indicated in Section 14.2.1 that an inspection of piping is completed by opening a flushing connection at the end of one main (most likely the cross main) and by removing a sprinkler toward the end of one branch line to look for any type of foreign material. When this section says a flushing connection and a sprinkler it does indeed mean just one of each.

Obstruction Investigation

An obstruction investigation is conducted when any of the 15 conditions identified in Section 14.3.1 is found to exist. For example, there were some systems installed for only a few years that have experienced pinhole leaks. This is a condition listed to initiate an obstruction investigation and obstruction prevention program. These 15 conditions can show up at any time.

When a system does not exhibit any of the 15 conditions listed under Section 14.3.1, then only the internal inspection of piping or “visual” inspection discussed earlier shall be completed every 5 years.

When one of the 15 conditions identified in 14.2.2 exists; then Section 14.3.2.1 initiates an investigation. This section has four specified locations for the visual inspections:

- (1) System NFPA 25 valve,
- (2) Riser,
- (3) Cross main, and
- (4) Branch line.

This section doesn't specify how many branch lines should be opened, but the Handbook commentary indicates that the intent is to open a representative number of branch lines as opposed to every branch line in the system.

If this investigation identifies conditions that could cause obstructions, then Section 14.3.3 dictates that a complete flushing program shall be conducted. Although it is not stated, it certainly is reasonable to allow one to first determine the extent of the problem by further visual inspections completed according to Section 14.2.3.2 and modify the flushing process accordingly.

Additional information in regard to Obstruction Investigation is located in Annex D. In Annex Section D.3.2 it states,

“Generally a system can be considered reasonably free of obstructing material, provided the following conditions apply:

- (1) Less than ½ cup of scale is washed from the cross mains.
- (2) Scale fragments are not large enough to plug a sprinkler orifice.
- (3) A full, unobstructed flow is obtained from each branch line checked.”

It is the decision of Office of the Fire Marshal that non-compliance or failure of any of the above three conditions outlined in Annex Section D.3.2 triggers the establishment of a flushing program.

Once again, it is important to note that this information applies to the obstruction investigation as dictated by Section 14.3.1 and not the internal inspection required every 5 years per Section 14.2.1.1.

As such, it requires one of the 15 conditions identified in 14.3.1 to exist to initiate an obstruction investigation and possibly a subsequent flushing program.