

FIRE PROTECTION SYSTEM INSPECTION, TESTING AND MAINTENANCE PROGRAMS

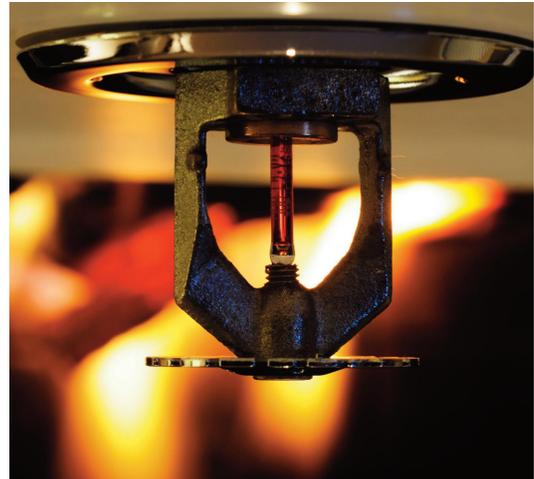
National Fire Protection Association (NFPA) #25 – a main reference standard that can help you reduce the possibility of disaster at your facilities

So you've installed a fire protection system. Good! Does it work? Only regular and thorough inspection, testing and maintenance can ensure that your initial investment in a fire protection system continues to pay off through a system that remains viable.

A company-wide commitment to strong risk control practices and procedures is the foundation of a good property conservation program. An integral part of this program must include proper inspection, testing and maintenance of fire protection systems. Why?

You need a fire protection system inspection, testing and maintenance program to:

- Ensure all fire protection equipment and systems will operate properly during an emergency and help limit the extent of a loss; a weak fire inspection program leaves you vulnerable to a crippling loss incident
- Comply with industry best practices
- Keep your good fire/property loss history intact, which will help ensure competitive and smooth property insurance renewals; *please note that other factors beyond your loss history can impact insurance renewals*
- Comply with government legislated fire codes; federal, state, provincial and city/municipal fire codes normally mandate minimum requirements for fire protection system inspection, testing and maintenance programs



Following are some basics that should be considered in a good fire protection system inspection, testing and maintenance program. This overview is not exhaustive and only seeks to provide fundamental risk management advice on the subject matter.

BASICS OF A GOOD FIRE PROTECTION SYSTEM INSPECTION, TESTING AND MAINTENANCE PROGRAM

Various **National Fire Protection Association (NFPA)** fire codes provide good references and guidelines in this area. Government-legislated fire codes normally reference NFPA compliance as minimum requirements. Insurance companies also reference NFPA for minimum inspection, testing and maintenance requirements. Some insurance companies recommend inspections and/or testing stricter than that required by NFPA codes.

The required inspections, testing and maintenance of fire protection systems should be performed by personnel who are trained and experienced. This may involve



your company maintenance staff or a qualified fire protection contractor. We recommend you consult the authority having jurisdiction for your specific properties in order to establish acceptable policy and procedures for this work.

The **2011 Edition of NFPA #25** “Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems” outlines details for inspecting systems, such as sprinklers, standpipe and hose, fixed water spray, private fire hydrants, water mist, foam water systems, water mains, fire pumps, water tanks and control valves.

NFPA INSPECTION CHECK-LIST

The following is only a partial check-list of some NFPA #25 (2011 Edition) requirements for fire protection system inspection, testing and maintenance programs. Refer to NFPA #25 for additional requirements and detailed information.

✓ EQUIPMENT TYPE	ACTION REQUIRED
WEEKLY	
Dry pipe and pre-action systems water and air pressure	<i>visual inspection</i>
Fire pumps	<i>visual inspection</i>
Diesel driven fire pumps	<i>test run</i>
Diesel pump fuel tank level and batteries	<i>visual inspection</i>
Water supply control valves (sealed only)	<i>visual inspection</i>
MONTHLY	
Inspect fire protection water supply control valves (with locks or tamper switches provided)	<i>visual inspection</i>
Alarm check valves and trim and valve tamper	<i>visual inspection</i>
Record water pressure at sprinkler riser	<i>visual inspection</i>
Pre-action deluge valves and trim	<i>visual inspection and test water flow devices</i>
Electric driven fire pumps	<i>test run</i>
QUARTERLY	
Water flow alarm devices	<i>visual inspection and test mechanical devices</i>
2 in drain test – when a sole supply is through a backflow or PRV	<i>test</i>
Fire hydrants, fire hose and hose houses	<i>visual Inspection</i>
Water suction tanks	<i>visual inspection</i>
SEMI-ANNUALLY	
Water flow alarm devices – using inspection test connection	<i>test</i>
Valve tamper switches	<i>test</i>
Smoke/heat detection units	<i>visual inspection</i>
ANNUALLY	
A qualified individual or fire protection contractor should conduct comprehensive inspections, testing and maintenance on items such as sprinkler system control valves, pipe hangers, piping, sprinkler heads, water flow alarms, dry pipe valves, main two-inch drains, fire pumps, hydrants, etc.	
Fire alarm systems	<i>inspect and test</i>
Standpipe systems, fire hose, etc.	<i>inspect and maintenance</i>
Private fire hydrants	<i>inspect and maintenance</i>
Fire pumps	<i>detail inspection and maintenance including performance testing</i>
Sprinkler system water supply control valves	<i>test/turn and maintenance</i>

NFPA AND OTHER SOURCE INSPECTION CHECK-LIST

The appropriate NFPA Standards and/or other local fire codes should be referenced when establishing a fire protection system inspection, testing and maintenance program.



Protect your investment.
Prevent a disaster.
Keep all fire protection systems in service and properly maintained.

✓	EQUIPMENT TYPE	ACTION REQUIRED
	Portable fire extinguishers	<i>inspect monthly</i>
	Fire alarms and voice communication systems for life safety	<i>inspect and test annually (portions of systems require weekly/monthly testing)</i>
	Emergency power systems – emergency electrical power systems for critical equipment	<i>monthly testing</i>
	Special fire suppression systems – low-medium-high expansion foam, carbon dioxide, halon, clean agent, dry/wet chemical, deluge, etc.	<i>annual and/or semi-annual testing required</i>
	Smoke/heat detectors and carbon dioxide detectors	<i>inspect/test annually</i>
	Manual fire alarm pull stations	<i>test annually</i>
	Fire doors	<i>visual weekly inspection and annual testing</i>
	Water suction tanks and reservoirs	<i>visual weekly inspections and monthly/annual maintenance</i>

KEEP RECORDS

Records should be kept for all inspections, testing and maintenance and filed for review by the fire department, insurance companies, your broker and other fire protection consultants.

A REMINDER! IMPAIRMENTS TO FIRE PROTECTION SYSTEMS

If any fire protection system is taken out of service (planned event) or becomes impaired for any reason, special precautions should be taken. The following is a **partial list** of recommended procedures and precautions.

- Report impairments to your insurance company as required
- Report impairments to the public fire department
- Expedite repairs in order to limit the time fire protection is impaired
- Provide extra fire extinguishers and fire hose
- Hot work should not be conducted in the area affected by the impairment
- Provide extra security and fire watch as needed

IMPORTANT – PROPER APPLICATION OF NFPA #25

KEY POINTS REGARDING THE SCOPE AND PROPER APPLICATION OF NFPA #25

- Readers should review NFPA #25 in detail to understand the full scope and responsibilities involved in this area of fire protection, *and also consult fire protection professionals and/or the authority having jurisdiction as needed to ensure you are following proper procedures.*
- NFPA #25 addresses the operating condition of fire protection systems as well as impairment handling and reporting as applied to fire protection systems that have been properly installed in accordance with generally accepted practices. *The NFPA #25 outlines procedures to ensure a fire protection system will activate and function as designed; however, the adequacy of the system to protect the hazards/occupancy involved is not part of this standard (see Chapter 1, Section 1.1.3).*
- NFPA #25 does **not** require the inspector to verify the adequacy of the design of the systems inspected and tested. *The evaluation regarding adequacy of the fire protection to protect a given occupancy is outside the scope of NFPA #25 (see Chapter 1, Section 1.1.3.1 and A.1.1.3.1).*
- Responsibility for Fire Protection System Inspection, Testing, Maintenance and Impairments – NFPA #25 indicates *the property owner or designated representative shall be responsible for properly maintaining a water-based fire protection system (see Chapter 4).*
- Changes in Occupancy, Use, Process, or Materials – NFPA #25 indicates that the property owner or designated representative shall not make changes in the occupancy, the use or process, or the materials used or stored in the buildings without an evaluation of the fire protection systems. *An evaluation regarding the adequacy of the fire protection design is not considered part of the normal inspection, testing, and maintenance required by NFPA #25 (see Chapter 4, Section 4.1.5 and 4.1.5.1 and 4.1.5.2).*



This bulletin does not cover all parts of the National Fire Protection Association (NFPA) Standard #25 “Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.” We have only referenced a few sections of this standard to highlight best practices in the subject area. We encourage readers to review NFPA #25 in detail for a full understanding of the NFPA requirements relating to fire protection system inspection, testing and maintenance programs.



SUMMARY

A strong fire protection system inspection, testing and maintenance program is essential to ensure all fire protection equipment and systems will function properly during an emergency. This will help protect your company assets and prevent an interruption of normal business operations as well as help ensure your organization is in compliance with applicable fire codes, industry best practices and insurance company requirements. We recommend periodic audits of existing programs be undertaken to ensure they are up to date and functioning properly.

CONTACTS

If you would like additional information on this or other risk control topics, contact your local Willis Property Risk Control representative or:

Danny Foran

Senior Risk Control Consultant
Willis Strategic Outcomes Practice
Willis Canada Inc.
416 216 0781

danny.foran@willis.com

Joe Stavish, PE

National Technical Director
Property Risk Control
Willis Strategic Outcomes Practice
973 829 2955

joe.stavish@willis.com

You may also visit **our website** at willis.com.

The objective of our publication is to provide a general overview and discussion of issues relevant to loss control. The comments and suggestions presented should not be taken as substitute for advice about any specific situation.

REFERENCES

1. National Fire Protection Association (NFPA) – “NFPA 25 Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems” 2011 Edition