

Fire Protection (Sprinkler System) Inspections

Lines of Business: General Liability, Property,

Risk Control Strategy/Key Issues: Implementation of a building sprinkler protection inspection and maintenance policy to reduce the potential for system failure, leaks, and or water damage.

Suggested Program Elements:

Introduction:

Responsibility for sprinkler maintenance and inspection lies with the property owner. In cold climates, inspection, maintenance, and testing must be planned around the weather to minimize potential problems, such as freeze-ups and ice development in test areas.

Sprinkler systems – when installed, maintained, inspected, and tested properly – are the most effective means for protecting and safeguarding against loss of life and property. When the occupants of a building are aware of the presence of a sprinkler system, they will feel more secure that any fire will be detected early, an alarm will be given, and the fire extinguished at its origin. They can be confident that they will have time to evacuate a burning building before fire can cut off their escape.

The leading cause of sprinkler system failure is human error, specifically, that the system was shut off before the fire was extinguished. However, routine inspections should detect and correct this condition.

The National Fire Protection Association develops codes for sprinkler installation, inspection, maintenance, and testing. Most states, cities, towns, and fire marshals accept these codes and use them when looking at new construction, inspection, and performance requirements. Thus, when choosing a sprinkler inspection and testing contractor, it is imperative that you, as the building owner or owner's representative, find out if the contractor follows NFPA Code 25, Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.

Sprinkler systems have many common aspects. However there are many types and variations depending upon the availability and pressure of water to the building, weather conditions, building occupancy and contents, architect and contractor preferences, local fire codes, and the age of the system. It is impossible to cover all of the sprinkler system variations in one awareness bulletin; however, if you need help identifying your sprinkler system type, or your inspection, maintenance, and testing needs, please contact Trident Risk Control consultants for assistance.

To get you started in developing best practices for sprinkler system inspections, maintenance, and testing, below is a short, seasonal guide, and a table of basic requirements that apply to the most common wet and dry pipe sprinkler systems:

Spring Inspections:

As soon as the danger of freezing is past, cold weather valves in wet systems should be opened, cleaned, tested, and reset. Dry pipe valves should include the testing of water motor gongs, and water flow tests.

Fall Inspections:

At the approach of freezing weather, the inspector should:

1. Close cold weather valves, and drain pipes exposed to freezing temperatures. Replace water with antifreeze solutions or pressurized air. Test the specific gravity of any glycol antifreeze solution in the system.
2. Check dry pipe valves to make sure that the systems are holding air properly and that the electric and water motor alarms are in order. Check heating provisions for the dry valves, and check the drains at the low points to ensure they are properly clear of water.
3. Examine gravity tanks to determine if there is adequate protection against freezing and that any heating system employed is in operative condition.
4. Check the condition of fire pump reservoirs and the suction intake from other water sources.
5. Look over buildings to ensure that cold air will not enter or unduly expose system components to freezing.

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RECOMMENDED SPRINKLER SYSTEM			
Inspection, Maintenance, and Testing Schedule – NFPA 25 Summarized			
SPRINKLER SYSTEM COMPONENTS	ACTIVITY	FREQUENCY (NFPA 25)	REFERENCE (NFPA 25)
Control Valves			
Open and Sealed	Inspection	Weekly	9-3.3.1
Locked	Inspection	Monthly	9-3.3.1
Tamper Switch	Inspection	Monthly	9-3.3.1
Position (open or closed)	Test	Quarterly	9-3.4.1
Operation	Test	Annually	9-3.4.2
Control Valve	Maintenance	Annually	9-3.5
Gauges			
Wet Systems	Inspection	Monthly	2-2.4.1
Dry, Pre-action, or Deluge	Inspection	Weekly/Monthly	2-2.4.2
All Gages	Test	5 Years	2-3.2
Alarm Devices			
Alarm Devices	Inspection	Monthly	2-2.6
Alarm Devices	Test	Quarterly	2-3.3
Hydraulic Nameplate	Inspection	Quarterly	2-2.7
Hangers	Inspection	Annually	2-2.3
Buildings	Inspection	Annually (Prior to cold weather)	2-2.5
Piping	Inspection	Annually	2-2.2
Sprinklers	Inspection	Annually	2-2.1.1
<i>Sprinklers (high temp)</i>	Test	5 Years	2-3.1.1
<i>Sprinklers (fast response)</i>	Test	20 years	2-3.1.1
<i>Sprinklers (std.)</i>	Test	50 Years	2-3.1.1
Fire Dept. Connections	Inspection	Monthly	9-7
Main Drain	Test	Quarterly	9-2.6
Antifreeze Solution	Test	Annually	2-3.4
Obstruction Investigation	Maintenance	5 years or as needed	2-4.3
Alarm Valve			
<i>Exterior</i>	Inspection	Monthly	9-4.1.1
<i>Interior</i>	Inspection	5 Years	9-4.1.2
<i>Strainers, Filters, Orifice</i>	Inspection	5 years	9-4.1.2

Check Valve			
<i>Interior</i>	Inspection	5 Years	9-4.2.1
<i>Continued on next page.</i>			
Pre-action/Deluge Valve			
<i>Valve</i>	Maintenance	Annually	9-4.3.3.2
<i>Enclosure (during cold weather)</i>	Inspection	Daily/Weekly	9-4.3.1
<i>Exterior</i>	Inspection	Weekly	9-4.3.1
<i>Interior</i>	Inspection	Annually/5 yrs	9-4.3.1.3
<i>Strainers, Filters, Orifices</i>	Inspection	5 Years	9-4.3.1.4
<i>Priming Water</i>	Test	Quarterly	9-4.3.2.1
<i>Low Pressure Alarms</i>	Test	Quarterly	9-4.3.2.10
<i>Full Flow</i>	Test	Annually	9-4.3.2.2
Dry Pipe Valves/Quick Opening Devices			
<i>Valve/Device</i>	Maintenance	Annually	9-4.3.2.2
<i>Enclosure (during cold weather)</i>	Inspection	Daily/Weekly	9-4.4.1.1
<i>Exterior</i>	Inspection	Weekly	9-4.4.1
<i>Interior</i>	Inspection	Annually	9-4.4.1.4
<i>Strainers, Filters, Orifices</i>	Inspection	5 Years	9-4.4.1.5
<i>Priming Water</i>	Test	Quarterly	9-4.4.2.1
<i>Low Air Pressure</i>	Test	Quarterly	9-4.4.2.6
Alarm			
<i>Quick Opening Devices</i>	Test	Semiannually	9-4.4.2.2.1
<i>Trip Test</i>	Test	Annually	9-4.4.2.2
<i>Full Flow Trip Test</i>	Test	3 years	9-4.4.2.2.1
Backflow Prevention Assemblies			
<i>Reduced Pressure</i>	Inspection	Weekly	9-6.1.2
<i>Reduced Pressure Detector</i>	Inspection	Weekly	9-6.1.2
<i>Backflow Prevention Assemblies</i>	Test	Annually	9-6.2
<i>Pressure Regulating & Relief Valves</i>	Inspection	Monthly	9-5.1.1
	Test	Annually	9-5.1.2