

## Your guide to...

# Maintaining automatic sprinkler systems

You work hard to build and maintain your business. That's why it's important to ensure you're protected from all potential losses, especially when they're avoidable.

A proper maintenance program, including fire prevention and detection practices, can help protect your building, those working inside, and the investment you've made in your business.

### Understanding automatic sprinklers

An automatic sprinkler system is the preferred way to detect and control fires in residential, commercial, and industrial buildings.

### How the systems work

Automatic sprinkler systems consist of a network of piping connected to a water source under pressure. The sprinkler heads are attached to the piping, and activate when exposed to heat from a fire. An alarm is typically sounded to notify occupants and the fire department of a fire if the system is being monitored adequately.

### Types of systems

Systems can be classified as being one or a combination of the following:

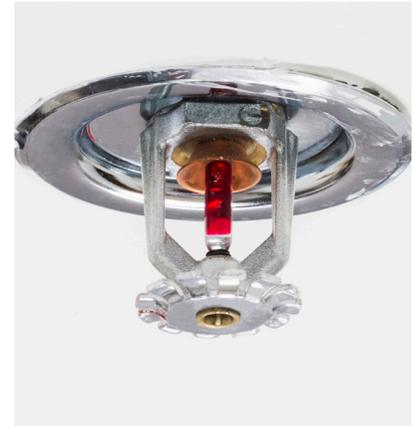
- ✓ Wet system – piping is continuously filled with water.
- ✓ Dry system – piping is filled with air and nitrogen, and only fills with water after the sprinkler head has been activated.
- ✓ Antifreeze system – in areas subject to freezing, the piping is filled with an antifreeze solution.
- ✓ Pre-action system – distribution piping is allowed to fill with water only after a heat or smoke detection system has been activated.
- ✓ Deluge systems – similar to pre-action systems, but sprinkler heads are 'open'.

### Preventing system failures

Automatic sprinkler heads are very successful at containing and suppressing fires. They have a very low failure rate of approximately one in 16 million.

According to the National Fire Protection Association (NFPA) here are some of the reasons that a sprinkler system could fail to operate or control a fire after it has been activated:

- ✓ closed control valves – 64%
- ✓ manual intervention that defeated the system – 17%
- ✓ lack of maintenance – 6%
- ✓ inappropriate system for the type of fire – 5%



Other common reasons why automatic sprinklers did not adequately control a fire include:

- ✓ freezing
- ✓ mechanical damage
- ✓ incomplete sprinkler coverage
- ✓ under-design of the sprinkler densities
- ✓ sprinkler heads obstructing spray pattern
- ✓ insufficient water supplies

### **Maintenance and testing are key**

Proper maintenance, inspection, and testing are needed to prevent failure in sprinkler systems, and ensure they operate reliably in a fire situation.

Each system type has particular requirement outlined by the NFPA standards for wet, dry, and special protection systems.

All inspection, testing, and maintenance should be conducted by trained and qualified professionals.

*Visual inspections* should be done periodically throughout the year to ensure the system isn't leaking, gauges are operating properly, and system pressures are maintained.

If there are any unusual conditions noted, contact your sprinkler contractor for repairs.

*Testing* on various components is done on regular, scheduled intervals. Water-flow alarms, anti-freeze solution and main-drains should be tested as required.

### **Don't forget...**

- ✓ fire pumps
- ✓ water storage tanks
- ✓ private fire hydrants and mains
- ✓ standpipes and hose stations
- ✓ fire alarm systems (that may connect to sprinkler systems)
- ✓ internal piping of all systems also requires inspection

### **Summary**

Maintaining your sprinkler system is critical for property protection and safety. When maintained properly, sprinkler systems can adequately control and suppress fires. Sprinkler systems are another building component that requires frequent and regular maintenance in order to operate as intended.

### **Resources**

*NFPA 25 – Standard for Inspection, Testing, and Maintenance of Water-based Fire Protection Systems*

*NFPA 22 – Standard for Water Tanks for Private Protection*

*NFPA statistics on US experience with Sprinklers - <http://www.nfpa.org/research/reports-and-statistics/fire-safety-equipment/us-experience-with-sprinklers>*

For further information on this topic, please contact your independent insurance broker.

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