**Chapter 12 Inspection, Testing, and Maintenance**

12.1\* General

The installer shall provide to the owner/occupant instructions on inspecting, testing, and maintaining the system.

12.2\* Inspections and Tests

The sprinkler system shall be inspected and tested periodically to make sure the system is in good working condition.

12.3 Maintenance

12.3.1

The sprinkler system shall be properly maintained in accordance with this standard and the manufacturers' instructions.

12.3.2

Any sprinkler that is operated, damaged, corroded, covered with foreign materials, or showing signs of leakage shall be replaced with a new listed sprinkler having the same performance characteristics as the original equipment.

12.3.2.1\*

Where replacing residential sprinklers manufactured prior to 2003 that are no longer available from the manufacturer and are installed using a design density less than 0.05 gpm/ft2 (2.04 mm/min), a residential sprinkler with an equivalent K-factor (± 5 percent) shall be permitted to be used provided the currently listed coverage area for the replacement sprinkler is not exceeded.

12.3.3 Painting Sprinklers

12.3.3.1

Sprinklers shall not be painted unless applied by the manufacturer.

12.3.3.2\*

Any sprinklers that have been painted outside of the factory shall be replaced with a new listed sprinkler.

12.3.4\* Wet Pipe Systems

A wet pipe system shall be maintained above 40°F (4°C), including areas properly insulated to maintain 40°F (4°C).

12.3.5\* Antifreeze Systems

12.3.5.1 Annual Antifreeze Solution Test and Replacement Procedure

12.3.5.1.1

Samples of antifreeze solution shall be collected by qualified individuals in accordance with 12.3.5.1.1.2 or 12.3.5.1.1.3 on an annual basis.

12.3.5.1.1.1

The system shall be drained to verify the following:

The solution is in compliance with 9.2.2.1.1.

The solution provides the necessary freeze protection.

12.3.5.1.1.2

Solution samples shall be taken near the beginning and near the end of the draining process.

12.3.5.1.1.3\*

Solution samples shall be taken at the highest practical elevation and the lowest practical elevation of the system.

12.3.5.1.2

The two samples collected in accordance with the procedures specified in 12.3.5.1.1.2 or 12.3.5.1.1.3 shall be tested to verify that the specific gravity of both samples is similar and that the solution is in compliance with 9.2.2.1.1.

12.3.5.1.2.1

The specific gravity of each solution shall be checked using a hydrometer with a suitable scale or a refractometer having a scale calibrated for the antifreeze solution.

12.3.5.1.3\*

If concentrations of the two samples collected in accordance with the procedures in 12.3.5.1.1.2 or 12.3.5.1.1.3 are similar and in compliance with 9.2.2.1.1, then (a) the solution drained in accordance with 12.3.5.1.1.1 can be used to refill the system, or (b) the existing undrained solution tested in accordance with 12.3.5.1.1.3 shall be permitted to continue to be used.

12.3.5.1.3.1

If the two samples are not similar and not in compliance with 9.2.2.1.1, then a solution in compliance with 9.2.2.1.1 shall be used to refill the system.

12.3.5.1.4 Tag

12.3.5.1.4.1

A tag shall be attached to the riser indicating the date the antifreeze solution was tested.

12.3.5.1.4.2

The tag shall also indicate the type and concentration of antifreeze solution (by volume) with which the system is filled, the date the antifreeze was replaced (if applicable), the name of the contractor that tested and/or replaced the antifreeze solution, the contractor's license number, a statement indicating if the entire system was drained and replaced with antifreeze, and a warning to test the concentration of the antifreeze solutions at yearly intervals per NFPA 13D.

12.3.6 Inactive Systems

12.3.6.1\*

In a detached dwelling or a manufactured home the sprinkler system shall be permitted to be put in an inactive state for any of the following reasons:

After a manufactured home has been installed and tested in the factory and is being prepared for shipment

When a manufactured home is being stored for future occupancy

When the detached dwelling is unoccupied during renovation work, with notification and approval of the AHJ

When the detached dwelling is unoccupied for an extended period of time, with notification and approval of the AHJ

12.3.6.2

Where a wet pipe system is installed and the piping will be subject to freezing, the piping and the stored water supply shall be drained.

12.3.6.2.1\*

Where residential pendent and sidewall sprinklers are installed on drops that are 4 in. (100 mm) or less in length, the drops shall not be required to be drained.

12.3.6.4

Prior to the system being restored to service, the system shall be filled with water, pressurized to normal system pressure, and visually inspected for leaks.

12.3.6.5

Once the system has been restored to service, it shall be inspected and tested in accordance with Section 12.2.