**Chapter 7 Installation**

7.1 Valves

7.1.1

A single control valve arranged to shut off both the domestic system and the sprinkler system shall be installed unless a separate shutoff valve for the sprinkler system is installed in accordance with 7.1.2.

7.1.2

The sprinkler system piping shall not have separate control valves installed unless supervised by one of the following methods:

Central station, proprietary, or remote station alarm service

Local alarm service that causes the sounding of an audible signal at a constantly attended location

Valves that are locked open

7.1.3

A separate shutoff valve shall be installed for the domestic water supply in installations other than those complying with Section 6.3.

7.1.4

If provided, a backflow prevention assembly that includes a shutoff valve shall be considered a control valve, and an additional control valve shall not be required.

7.2 Drains and Test Connections

7.2.1\*

Each sprinkler system shall have a minimum 1/2 in. (15 mm) drain on the system side of the control valve.

7.2.2

A valve shall be installed in the drain piping.

7.2.3

A drain shall be installed for each trapped portion of a dry system that is subject to freezing temperatures.

7.2.4\*

Where waterflow alarms are provided, test connections shall be installed at locations that allow flow testing of water supplies, connections, and alarm mechanisms.

7.2.5

The test connections, where provided, shall contain a K-factor equal to or smaller than the smallest sprinkler K-factor installed in the system.

7.2.6\*

Where a pressure-reducing or pressure-regulating valve is installed on a stand-alone system, a test connection with a K-factor at least as large as the smallest sprinkler K-factor on the system shall be installed downstream of the device.

7.3 Pressure Gauges

7.3.1

Where a dry system is installed, a pressure gauge shall be installed to indicate system air pressure.

7.3.2

Where a pressure tank is used for the water supply, a pressure gauge shall be installed to indicate tank pressure.

7.3.3

Where a pressure-reducing or pressure-regulating valve is installed on a stand-alone system, a pressure gauge shall be installed downstream of the device.

7.4 Piping Support

7.4.1

Listed pipe shall be supported in accordance with any listing limitations.

7.4.2

Pipe that is not listed, and listed pipe with listing limitations that do not include piping support requirements, shall be supported from structural members using support methods comparable to those required by applicable local plumbing codes.

7.4.3

Piping laid on open joists or rafters shall be supported in a manner that prevents lateral movement.

7.4.4\*

Sprinkler piping shall be supported in a manner that prevents the movement of piping upon sprinkler operation.

7.4.5\*

Where sprinkler piping is exposed to the sprinkler protected area, it shall be supported with metal hangers or hangers made of the same material as the structure.

7.5 Sprinklers

7.5.1\*

Listed residential sprinklers shall be used unless another type is permitted by 7.5.3, 7.5.4, or 7.5.5. (See A.10.2.)

7.5.2

Residential sprinklers shall not be used on systems other than wet pipe systems unless specifically listed for use on that particular type of system.

7.5.3

Listed residential or quick-response standard spray dry pendent or dry sidewall sprinklers shall be permitted to be extended into unheated areas not intended for living purposes.

7.5.4

Quick-response sprinklers shall be permitted to be used in mechanical closets.

7.5.5\*

Quick-response spray sprinklers shall be permitted to be used in saunas and steam rooms in accordance with 7.5.6.3(4).

7.5.6 Temperature Ratings

7.5.6.1

Sprinklers installed where maximum ambient ceiling temperatures do not exceed 100°F (38°C) shall be ordinary temperature-rated or intermediate-temperature rated sprinklers throughout unless modified by the requirements of 7.5.6.3.

7.5.6.2

Sprinklers installed where maximum ambient ceiling temperatures are between 101°F and 150°F (38°C and 65°C) shall be intermediate temperature-rated sprinklers unless modified by 7.5.6.3.

7.5.6.3\*

The following practices shall be observed when installing residential sprinklers unless higher expected ambient temperatures require a higher temperature rating:

Sprinklers under glass or plastic skylights exposed to direct rays of the sun shall be of intermediate temperature classification.

Sprinklers in an unventilated concealed space under an uninsulated roof or in an unventilated attic shall be of intermediate temperature classification.

\* Sprinklers installed near specific heat sources that are identified in Table 7.5.6.3 shall be of the temperature rating indicated in Table 7.5.6.3 unless sprinklers are listed for positioning closer to the heat source.

Sprinklers installed in saunas and steam rooms where the maximum ambient ceiling temperatures are between 151°F and 225°F (66°C to 107°C) shall be high temperature-rated spray sprinklers.

Sprinklers in closets containing ventless clothes dryers shall be of the intermediate temperature classification or higher.

Table 7.5.6.3 Minimum Distances for Ordinary and Intermediate Temperature Residential Sprinklers

Heat Source From Edge of Source to Ordinary Temperature Sprinkler From Edge of Source to Intermediate Temperature Sprinkler

in. mm in. mm

Side of open or recessed fireplace 36 900 12 300

Front of recessed fireplace 60 1500 36 900

Coal- or wood-burning stove 42 1050 12 300

Kitchen range 18 450 9 225

Wall oven 18 450 9 225

Hot air flues 18 450 9 225

Uninsulated heat ducts 18 450 9 225

Uninsulated hot water pipes 12 300 6 150

Side of ceiling- or wall-mounted hot air diffusers 24 600 12 300

Front of wall-mounted hot air diffusers 36 900 18 450

Hot water heater or furnace 6 150 3 75

Light fixture

0 W-250 W

6 150 3 75

250 W-499 W

12 300 6 150

shall not be painted or enameled unless applied by the manufacturer and the has been listed with such finishes.

7.5.8 Escutcheon Plates

Where nonmetallic sprinkler ceiling plates (escutcheons) or recessed escutcheons (metallic or nonmetallic) are used, they shall be listed based on testing of the assembly as a residential sprinkler.

7.5.9 Solvent Cement

Where solvent cement is used as the pipe and fittings bonding agent, sprinklers shall not be installed in the fittings prior to the fittings being cemented in place.

7.6\* Alarms

Local waterflow alarms shall be provided on all sprinkler systems in homes not equipped with smoke alarms or smoke detectors in accordance with NFPA 72.

7.7 Attics

When nonmetallic piping is installed in attics, adequate insulation shall be provided on the attic side of the piping to avoid exposure of the piping to temperatures in excess of the pipe's rated temperature.