

1 RCNY §29-09

CHAPTER 29 SPRINKLER SYSTEMS

§29-09 Installation of Chlorinated Poly Vinyl Chloride (CPVC) Sprinkler Pipe and Fittings.

(a) Storage and Handling

CPVC piping shall be stored and carried in the original shipment containers whenever possible. Reasonable care should be exercised in handling the pipes. If improper handling results in splits, gouges or cuts and scratches that are not superficial in nature, the damaged section shall be cut out and discarded. Pipes must be covered with non-transparent material when stored outdoors without the original containers.

(b) Safety Precautions

All solvent cements and primers for CPVC piping are flammable and shall not be used or stored near heat, spark or open flames. Cement shall be stored in closed containers at temperatures between 40 °F (4.4 °C) and 110 °F (43 °C). They shall be used only with adequate ventilation. Containers shall be kept tightly closed when not in use and covered as much as possible when in use.

(c) Certification

Individuals installing CPVC piping shall be trained and certified by the manufacturer. Documentation of such certification of the individual shall be on the job site at all times when installation work is performed.

(d) Installation

(1) General

Sprinkler piping systems shall be laid out so that the piping is not located adjacent to heat producing sources such as light fixtures and ballasts, steam lines, etc. which can produce an ambient temperature exceeding 150 °F (66 °C). CPVC pipes shall not be threaded, grooved or drilled.

(2) Concealed Installation

(i) For concealed installation, the minimum protection shall consist of one layer of 3/8" (10mm) gypsum wallboard or a suspended membrane ceiling with lay-in panels or tiles having a weight of not less than 0.35 pounds per square foot (1.71kg/m²) when installed with metallic support grids, or 1/2" (13mm) plywood pipe enclosure. Plywood used for pipe enclosure shall be fire-retardant treated when used in buildings of non-combustible construction.

(ii) When pipes and fittings are installed in a plenum space, they shall not be positioned directly over open ventilation grills.

(iii) System risers shall not be installed exposed, and shall be provided with minimum protection for concealed installation as stated above.

(3) Exposed Installation

(i) Exposed sprinkler piping shall be installed below a smooth, flat, horizontal ceiling construction. Positioning of sprinkler heads relative to obstructions such as, but not limited to, beams, light fixtures or decorations shall be in accordance with Reference Standard RS 17-2, 17-2A and 17-2B.

(ii) Only quick-response sprinkler heads shall be used on exposed piping.

(iii) Deflectors of pendent sprinklers when installed shall be not more than 4" (102mm) from the ceiling, and sidewall sprinklers not more than 6" (152mm) from the ceiling and not more than 4" (102mm) from the sidewall.

(iv) Upright quick-response sprinklers when installed on exposed piping shall meet the following conditions:

(a) The deflectors shall be not more than 4" (102mm) from the ceiling.

(b) The maximum temperature rating shall be 155 °F (68 °C).

(c) The maximum distance from the ceiling to the centerline of the main run of pipe shall be 7 1/2" (191mm).

(d) The maximum distance from the centerline of a sprinkler head to a hanger shall be 3" (76mm).

(4) Hangers and Supports

The pipe hangers shall comply with all the requirements of RS 17-2, 17-2A and 17-2B. The hanger shall not have rough or sharp edges which come in contact with the pipe. Hangers shall not bind the pipe from movement.

Nomianal Pipe Size		Maximum Support Spacing	
Inches	(millimeters)	Feet	(meters)
3/4	(19)	5 1/2	(1.675)
1	(25)	6	(1.830)
1 1/4	(32)	6 1/2	(1.980)
1 1/2	(38)	7	(2.135)
2	(51)	8	(2.440)
2 1/2	(64)	9	(2.745)
3	(76)	10	(3.050)

TABLE A		
Nominal Pipe Size (In)	Maximum Support Spacing Distance End Line Sprinkler Head Drop Elbow	
	Less than 100 psi (689kPa)	More than 100 psi (689kPa)
¾" (19mm)	9" (229mm)	6" (152mm)
1" (25mm)	12" (305mm)	9" (229mm)
1 ¼" (32mm)	16" (406mm)	12" (305mm)
1 ½"-3" (38-76mm)	24" (610mm)	12" (305mm)

TABLE B		
Nominal Pipe Size (In)	Maximum Support Spacing Distance Inline sprinkler Head Drop Tee	
	Less than 100 psi (689kPa)	More than 100 psi (689kPa)
¾" (19mm)	4' (1.220m)	3' (0.915m)
1" (25mm)	5' (1.525m)	4' (1.220m)
1 ¼" (32mm)	6' (1.830m)	5' (1.525m)
1 ½"-3" (38-76mm)	7' (2.135m)	7' (2.135m)

The support spacing shall be as shown on the following tables and diagram:

(ii) Vertical pipes shall be supported at each floor level or at 10 feet (3.050m) intervals whichever is less.

(iii) Other methods of pipe support shall be as recommended by the manufacturer.

(5) Pipe Cutting

Pipes shall be cut with a wheel-type plastic-tubing cutter. If any indication of damage or cracking is evident, cut off at least 2" (51mm) beyond any visible crack. Burrs and filings can prevent contact between pipe and fittings during assembly, and must be removed from the outside and inside of the pipe. A slight bevel shall be placed at the end of the pipe to ease entry of the pipe into the socket.

(6) Pipe Joints

(i) Primer and cement application.

The pipe and fittings shall be clean and free of any moisture and debris. Primer and cement shall be applied to the joining surfaces using an applicator. Puddling of cement or primer on or within fitting and pipe must be avoided. When cementing in temperatures below 40 °F (4.4 °C) make certain cement has not gelled. Gelled cement must be discarded.

A bead of cement should be evident around the pipe and fitting juncture. If this bead is not continuous around the socket shoulder, it should be rejected and the joint must be cut out, discarded and begun again.

(ii) Set and Cure Time

The assembly must be allowed to set, without any stress on the joint, in accordance with manufacturer's recommendations, which may vary from 1 to 5 minutes depending upon the pipe size and temperature. Refer to manufacturer's recommendation for minimum cure times prior to pressure testing.

(7) Sprinkler Installation

Sprinklers shall be installed only after all pipes and fittings, including sprinkler head adapters, are solvent welded to the piping system and allowed to cure for a minimum of 30 minutes. Sprinkler head fittings should be visually inspected and probed with a wooden dowel to insure that the waterway and threads are clear of any excess cement. Only Teflon tape or equivalent approved by the Commissioner shall be used when installing the sprinkler heads. If a leak is detected on the sprinkler head drop when the system is pressure tested, the sprinkler head must be removed and the joint redone before reinstalling the head.

(8) Firestopping

Pipe penetration through fire rated construction shall be firestopped as per Section 27-343 of the Building Code

(e) Hydrostatic Pressure Testing

After the installation is completed and cured, the system shall be pressure tested as per Section 27-967 of the Building Code. Air or compressed gas must never be used for pressure testing.