



15.1 Open Sprinklers and Open Nozzles.

15.1.1

Open sprinklers and open nozzles shall be permitted to be used in deluge systems to protect special hazards or exposures or in other special locations.

15.1.2

Open sprinklers shall be installed in accordance with all applicable requirements of this standard for their automatic counterpart.

15.1.3 *

Where open sprinklers or open nozzles are used and automatic activation is achieved by hydraulic, pneumatic, or other means, the deflector of the open sprinklers or nozzles shall be permitted to exceed the maximum distance below the ceiling indicated in the applicable section for that style of sprinkler.

15.2 Special Sprinklers.

15.2.1

Special sprinklers that are intended for the protection of specific hazards or construction features shall be permitted where such devices have been evaluated and listed for performance under the following conditions:

- (1) Fire tests related to the intended hazard
- (2) Distribution of the spray pattern with respect to wetting of floors and walls
- (3) Distribution of the spray pattern with respect to obstructions
- (4) Evaluation of the thermal sensitivity of the sprinkler
- (5) Performance under horizontal or sloped ceilings
- (6) Hydraulic design criteria
- (7) Allowable clearance to ceilings

15.2.2

Special sprinklers shall maintain the following characteristics:

- (1) K-factor size shall be in accordance with 7.2.2.
- (2) Temperature ratings shall be in accordance with Table 7.2.4.1(a).
- (3) The protection area of coverage shall not exceed 400 ft² (37 m²) for light hazard and ordinary hazard occupancies.
- (4) The protection area of coverage shall not exceed 196 ft² (18 m²) for extra hazard and high-piled storage occupancies.

15.2.3

Where special sprinklers are listed for protection of features, system design shall be based on the listing requirements identified in the manufacturer's instructions for the individual sprinkler being used, unless otherwise approved.

15.2.4 *

Listed sprinklers that have been tested at an approved testing laboratory for specific special use conditions as indicated in 15.2.1(1) through 15.2.1(7) as applicable shall be permitted to be used for equivalent fire protection schemes developed in accordance with Section 1.5 where acceptable to the AHJ.

15.3 Dry Sprinklers.

15.3.1 *

Where dry sprinklers are connected to wet pipe sprinkler systems protecting areas subject to freezing temperatures, the minimum exposed length of the barrel of the dry sprinkler shall be in accordance with Table 15.3.1(a) or Table 15.3.1(b).

Table 15.3.1(a) Exposed Barrel Lengths for Dry Sprinklers (US Customary Units)

Ambient Temperature Exposed to Discharge End of Sprinkler (°F)	Minimum Exposed Barrel Length when Exposed to 40°F (in.)	Minimum Exposed Barrel Length when Exposed to 50°F (in.)	Minimum Exposed Barrel Length when Exposed to 60°F (in.)
40	0	0	0
30	0	0	0
20	4	0	0
10	8	1	0
0	12	3	0
-10	14	4	1
-20	14	6	3
-30	16	8	4
-40	18	8	4
-50	20	10	6
-60	20	10	6

Table 15.3.1(b) Exposed Barrel Lengths for Dry Sprinklers (Metric Units)

Ambient Temperature Exposed to Discharge End of Sprinkler (°C)	Minimum Exposed Barrel Length when Exposed to 4°C (mm)	Minimum Exposed Barrel Length when Exposed to 10°C (mm)	Minimum Exposed Barrel Length when Exposed to 16°C (mm)
4	0	0	0
-1	0	0	0
-7	100	0	0
-12	200	25	0
-18	300	75	0
-23	350	100	25
-29	350	150	75
-34	400	200	100
-40	450	200	100
-46	500	250	150
-51	500	250	150

15.3.2

The minimum exposed length shall be measured along the length of the dry sprinkler from the face of the fitting to which the dry sprinkler is installed to the inside surface of the insulation, wall, or ceiling leading to the cold space, whichever is closest to the fitting.

15.3.3 *

Where dry sprinklers are connected to wet pipe sprinkler systems protecting insulated freezer structures, the clearance space around the sprinkler barrel shall be sealed.

15.3.4 *

Dry sprinklers shall only be installed in fittings as specified by the sprinkler manufacturer.

15.4 Old-Style Sprinklers.**15.4.1**

Unless required by 9.3.12 or 15.4.2, old-style sprinklers shall not be used in a new installation.

15.4.2

Use of old-style sprinklers shall be permitted where construction features or other special situations require unique water distribution.

15.4.3

Old-style sprinklers protecting fur storage vaults shall be permitted to be placed less than 6 ft (1.8 m) on center.

15.5 Attic Sprinklers.

Attic sprinklers shall be permitted to be used for protecting areas of an attic and shall be installed in accordance with their listing.

15.6 Electrically Operated Sprinklers.

Electrically operated sprinklers shall be permitted where such devices have been evaluated and listed for performance under the following conditions:

- (1) Fire tests related to the intended hazard
- (2) Distribution of the spray pattern with respect to wetting of floors and walls
- (3) Distribution of the spray pattern with respect to obstructions
- (4) Performance under horizontal or sloped ceilings
- (5) Area of design
- (6) Allowable clearance to ceilings