**Chapter 15 Installation Requirements for Special Sprinklers**

15.1 Open Sprinklers

15.1.1

Open sprinklers 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.

15.2 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:

Fire tests related to the intended hazard

Distribution of the spray pattern with respect to wetting of floors and walls

Distribution of the spray pattern with respect to obstructions

Evaluation of the thermal sensitivity of the sprinkler

Performance under horizontal or sloped ceilings

Area of design

Allowable clearance to ceilings

15.2.2

Special sprinklers shall maintain the following characteristics:

K-factor size shall be in accordance with 7.2.2.

Temperature ratings shall be in accordance with Table 7.2.4.1.

The protection area of coverage shall not exceed 400 ft2 (37 m2) for light hazard and ordinary hazard occupancies.

The protection area of coverage shall not exceed 196 ft2 (18 m2) for extra hazard and high-piled storage occupancies.

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 (U.S. 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 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.

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.