26.1 * General.

26.1.1 *

This chapter shall cover special sprinkler system designs for storage protection.

26.1.2

The requirements of Chapter 20 shall apply unless modified by this chapter.

26.2 Plastic Motor Vehicle Components.

Group A plastic automotive components and associated packaging material shall be permitted to be protected in accordance with Table 26.2. *(See A.20.4.13.)*

Table 26.2 ESFR Sprinkler Design Criteria K-25.2 (360) for Portable Racks (Closed Array) Without Solid Shelves Containing Automotive Components and Associated Packaging Material

Maximum Storage Height		Maximum Ceiling/Roof Height		Type of System	Maximum Sprinkler Spacing[a]		Number of Design Sprinklers by Minimum Operating Pressure[b,c]		Maximum Deflector Distance Below Ceiling[d]		Hose Stream Allowance		Water Supply Duration (hours)
ft	m	ft	m		ft^2	m^2	psi	bar	in.	mm	gpm	L/min	
25	7.6	35	10.7	Wet	100	9.3	16 at 37 psi	16 at 2.5 bar	18	450	500	1900	2

Note: Closed array means the portable rack array is tightly nested without any flue spaces.

[a]Sprinkler spacing can exceed 100 ft^2 (9.3 m^2) where sprinklers are listed for larger spacing.

[b]System hydraulic design is also capable of delivering a discharge density of 0.60 gpm/ft^2 (24.4 mm/min) over the most hydraulically remote 4000 ft^2 (370 m^2) area.

[c]The design area consists of the hydraulically most demanding 16 sprinklers with five sprinklers on three branch lines and one sprinkler on the fourth branch line.

[d]Maximum deflector distance below ceiling is permitted to exceed 18 in. (450 mm) where sprinklers are listed for greater distances.

26.3 * Sprinkler Design Criteria for Storage and Display of Class I Through Class IV Commodities, Cartoned Nonexpanded Group A Plastics, and Nonexpanded Exposed Group A Plastics in Retail Stores.

26.3.1

A wet pipe system designed to meet two separate design points — 0.6 gpm/ft^2 (24.5 mm/min) density over 2000 ft^2 (185 m^2) and 0.7 gpm/ft^2 (28.6 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted to protect single- and double-row slatted shelf racks when the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Shelves shall be either open shelving or slatted using a 2 in. (50 mm) thick by maximum 6 in. (150 mm) wide slat held in place by spacers that maintain a minimum 2 in. (50 mm) opening between each slat.
(3) There shall be no slatted shelf levels in the rack above nominal 12 ft (3.7 m) level. Wire mesh (greater than 50 percent opening) shall be permitted for shelf levels above 12 ft (3.7 m).

(4) A single level of solid shelving 3½ ft × 8 ft 3 in. (1.1 m × 2.5 m) shall be permissible at an elevation of not more than 5 ft (1.5 m).
(5) Perforated metal (open area of 40 percent or more) shall be permitted over either the open shelving or the slatted shelves up to the 5 ft (1.5 m) level.
(6) Other than what is allowed in this section, solid plywood or similar materials shall not be placed on the slatted shelves.
(7) Solid displays shall be permissible provided that all flues are maintained and only one display is installed per bay.
(8) Maximum roof height shall be 30 ft (9.1 m) in the protected area.
(9) Maximum storage height shall be 22 ft (6.7 m).
(10) Aisle widths shall be a minimum of 8 ft (2.4 m).
(11) Minimum transverse flue spaces of 3 in. every 10 ft (75 mm every 3.0 m) horizontally shall be provided.
(12) Minimum longitudinal flue spaces of 6 in. (150 mm) shall be provided for double-row racks.
(13) Storage in the aisle shall be permissible provided the aisle storage is no more than 4 ft (1.2 m) high and a minimum clear aisle of 4 ft (1.2 m) is maintained.

26.3.2

A wet pipe system designed to meet two separate design points — 0.425 gpm/ft^2 (17.3 mm/min) density over 2000 ft^2 (185 m^2) and 0.50 gpm/ft^2 (20.4 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted in solid steel cantilever-style retail shelving racks (gondola racks) when the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Storage height shall not exceed 12 ft (3.7 m).
(3) Ceiling height shall not exceed 22 ft (6.7 m) in the protected area.
(4) Gondola rack structure shall not exceed 48 in. (1.2 m) in aggregate depth or 78 in. (1.9 m) in height.
(5) A minimum aisle of 5 ft (1.5 m) between storage shall be maintained.
(6) Rack lengths shall be no more than 70 ft (21 m).

26.3.3

A wet pipe system designed to meet two separate design points — 0.425 gpm/ft^2 (17.3 mm/min) density over 2000 ft^2 (185 m^2) and 0.50 gpm/ft^2 (20.4 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted in solid steel cantilever-style retail shelving racks (gondola racks) when the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Storage height shall not exceed 15 ft (4.6 m).
(3) Ceiling height shall not exceed 25 ft (7.6 m) in the protected area.
(4) Gondola rack structure shall not exceed 60 in. (1.5 m) in aggregate depth or 8 ft (2.4 m) in height.
(5) A perforated metal deck at the 8 ft (2.4 m) level shall be permissible with storage placed on top with or without flue spaces to a maximum height from floor of 15 ft (4.6 m).
(6) Rack lengths shall not exceed 70 ft (21 m).
(7) A minimum aisle space of 6 ft (1.8 m) shall be provided.

26.3.4

A wet pipe system designed to meet two separate design points — 0.45 gpm/ft^2 (18.4 mm/min) density over 2000 ft^2 (185 m^2) and 0.55 gpm/ft^2 (22.4 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted without the use of in-rack sprinklers when the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Storage height shall not exceed 15 ft (4.6 m).
(3) Ceiling height shall not exceed 25 ft (7.6 m).
(4) Shelving structure shall not exceed 48 in. (1.2 m) aggregate depth or 12 ft (3.7 m) in height.
(5) Shelving shall be permitted to be made of solid particleboard.
(6) A minimum aisle space of 3 ft (900 mm) shall be maintained.
(7) Shelving length shall be a maximum of 70 ft (21 m).

26.3.5

A wet pipe system designed to meet two separate design points — 0.38 gpm/ft^2 (15.5 mm/min) density over 2000 ft^2 (185 m^2) and 0.45 gpm/ft^2 (18.4 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted without the use of in-rack sprinklers in steel retail sales floor shelving racks where the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Storage height shall not exceed 14 ft (4.3 m).
(3) Ceiling height shall not exceed 20 ft (6.1 m).
(4) Solid metal shelving shall be permissible up to the 72 in. (1.8 m) level and wire shelving shall be permissible up to the 10 ft (3.0 m) level.
(5) Solid metal shelving shall not exceed 66 in. (1.7 m) in aggregate depth with a 6 in. (150 mm) longitudinal flue between two 30 in. (750 mm) deep shelves.
(6) A minimum aisle space of 5 ft (1.5 m) shall be maintained.
(7) A minimum longitudinal flue of 6 in. (150 mm) shall be maintained.
(8) Rack length shall be a maximum of 70 ft (21 m).

26.3.6

A wet pipe system designed to meet two separate design points — 0.49 gpm/ft^2 (20 mm/min) density over 2000 ft^2 (185 m^2) and 0.55 gpm/ft^2 (22.4 mm/min) density for the four hydraulically most demanding sprinklers with 500 gpm (1900 L/min) hose stream allowance for a 2-hour duration — shall be permitted without the use of in-rack sprinklers in retail solid shelved steel rack structures when the following conditions are met:

(1) An extended coverage sprinkler with a nominal K-factor of K-25.2 (360) listed for storage occupancies shall be provided.
(2) Storage height shall not exceed 16.5 ft (5.0 m).
(3) Ceiling height shall not exceed 22 ft (6.7 m).
(4) Shelving structure shall not exceed 51 in. (1.3 m) aggregate depth or 148 in. (3.7 m) in height.
(5) The intersection of perpendicular steel racks shall be permissible as long as no storage is placed within the void space at the junction of the racks.
(6) The top shelf shall be wire mesh.
(7) A minimum aisle width of 4 ft (1.2 m) shall be maintained between shelf units and other displays.

26.3.7

A sprinkler system with K-25.2 (360) ESFR sprinklers operating at a minimum pressure of 15 psi (1 bar) shall be permitted to protect single- and double-row racks with solid displays without the use of in-rack sprinklers in retail sales floors where the following conditions are met:

(1) Storage height shall not exceed 20 ft (6.1 m).
(2) Solid veneered particleboard/plywood displays shall be permissible, provided that all flues are maintained and only one display is installed per bay.
(3) A single display shall be permitted to have one or two solid horizontal or slanted members and a solid back.
(4) Maximum roof height shall be 30 ft (9.1 m) in the protected area.
(5) Aisle widths shall be a minimum of 6 ft (1.8 m).
(6) Minimum transverse flue spaces of 3 in. every 10 ft (75 mm every 3.0 m) horizontally shall be provided.
(7) Minimum longitudinal flue spaces of 6 in. (150 mm) shall be provided for double-row racks.

26.4 Special Design for Rack Storage of Class I Through Class IV Commodities and Group A Plastics Stored Up to and Including 20 ft (6.1 m) in Height.

26.4.1 Slatted Shelves.

26.4.1.1

Slatted rack shelves shall be considered equivalent to solid rack shelves where the shelving is not considered open rack shelving or where the requirements of 26.4.1.2 or 26.4.1.3 are not met.

26.4.1.2

A wet pipe system that is designed to provide a minimum of 0.6 gpm/ft^2 (24.5 mm/min) density over a minimum area of 2000 ft^2 (185 m^2) shall be permitted to protect single- and double-row racks with slatted rack shelving where all of the following conditions are met *(see Section C.20)*:

(1) Sprinklers shall be K-11.2 (160), K-14.0 (200), or K-16.8 (240) orifice spray sprinklers with a temperature rating of ordinary, intermediate, or high and shall be listed for storage occupancies.
(2) The protected commodities shall be limited to Class I through Class IV, Group B plastics, Group C plastics, cartoned (expanded and nonexpanded) Group A plastics, and exposed (nonexpanded) Group A plastics.
(3) Slats in slatted rack shelving shall be a minimum nominal 2 in. (50 mm) thick by maximum nominal 6 in. (150 mm) wide, with the slats held in place by spacers that maintain a minimum 2 in. (50 mm) opening between each slat.

(4) There shall be no slatted shelf levels in the rack above 12 ft (3.7 m) and open rack shelving using wire mesh shall be permitted for shelf levels above 12 ft (3.7 m).
(5) Transverse flue spaces at least 3 in. (75 mm) wide shall be provided at least every 10 ft (3.0 m) horizontally.
(6) Longitudinal flue spaces at least 6 in. (150 mm) wide shall be provided for double-row racks.
(7) The aisle widths shall be at least 7 ½ ft (2.3 m).
(8) The maximum roof height shall be 27 ft (8.2 m).
(9) The maximum storage height shall be 20 ft (6.1 m).
(10) Solid plywood or similar materials shall not be placed on the slatted shelves so that they block the 2 in. (50 mm) spaces between slats, nor shall they be placed on wire mesh shelves.

26.4.1.3

A wet pipe system that is designed to provide K-14.0 (200) ESFR sprinklers operating at a minimum of 50 psi (3.4 bar), K-16.8 (240) ESFR sprinklers operating at a minimum of 32 psi (2.2 bar), or K-25.2 (360) ESFR sprinklers operating at a minimum of 15 psi (1.0 bar) shall be permitted to protect single- and double-row racks with slatted rack shelving where all of the following conditions are met:

(1) The protected commodities shall be limited to Class I through Class IV, Group B plastics, Group C plastics, cartoned (expanded and nonexpanded) Group A plastics, and exposed (nonexpanded) Group A plastics.
(2) Slats in slatted rack shelving shall be a minimum nominal 2 in. (50 mm) thick by maximum nominal 6 in. (150 mm) wide with the slats held in place by spacers that maintain a minimum 2 in. (50 mm) opening between each slat.
(3) Longitudinal flue spaces at least 6 in. (150 mm) wide shall be provided for double-row racks.
(4) Transverse flue spaces at least 3 in. (75 mm) wide shall be provided at least every 10 ft (3.0 m) horizontally.
(5) The aisle widths shall be at least 7 ½ ft (2.3 m).
(6) The maximum roof height shall be 30 ft (9.1 m).
(7) The maximum storage height shall be 20 ft (6.1 m).
(8) Solid plywood or similar materials shall not be placed on the slatted shelves so that they block the 2 in. (50 mm) spaces between slats, nor shall they be placed on the wire mesh shelves.
(9) There shall be no slatted shelf levels in the rack above 12 ft (3.7 m).
(10) Open rack shelving using wire mesh shall be permitted for shelf levels above 12 ft (3.7 m).

26.5 * Control Mode Density/Area Sprinkler Protection Criteria for Baled Cotton Storage.

26.5.1

For tiered or rack storage up to a nominal 15 ft (4.6 m) in height, sprinkler discharge densities and areas of application shall be in accordance with Table 26.5.1.

Table 26.5.1 Baled Cotton Storage Up to and Including 15 ft (4.6 m)

	Discharge Density per Area [gpm/ft^2 over ft^2 (mm/min over m^2)]		
System Type	Tiered Storage	Rack Storage	Untiered Storage
Wet	0.25/3000 (10.2/280)	0.33/3000 (13.5/280)	0.15/3000 (6.1/280)
Dry	0.25/3900 (10.2/360)	0.33/3900 (13.5/360)	0.15/3900 (6.1/360)

26.5.2

Where roof or ceiling heights would prohibit storage above a nominal 10 ft (3.0 m), the sprinkler discharge density shall be permitted to be reduced by 20 percent of that indicated in Table 26.5.1 but shall not be reduced to less than 0.15 gpm/ft^2 (6.1 mm/min).

26.6 Control Mode Density/Area Sprinkler Protection Criteria for Cartoned Records Storage with Catwalk Access.

26.6.1

Cartoned records storage shall be permitted to be protected in accordance with Section 26.6. *(See Section C.25.)*

26.6.2

Cartoned records storage shall be permitted to be supported on shelving that is a minimum of 50 percent open from approved flue space to approved flue space.

26.6.2.1

Transverse flue spaces of a nominal 6 in. (150 mm) width shall be located at each rack upright.

26.6.2.2

Rack uprights shall be installed on a maximum of 10 ft 6 in. (3.2 m) centers.

26.6.2.3

Longitudinal flues shall not be required.

26.6.3

The storage rack structure for cartoned records storage shall consist of either of the following:

(1) A single-row rack not greater than 72 in. (1.8 m) deep
(2) Double-row racks having a total depth of not greater than 102 in. (2.6 m) aisle to aisle

26.6.3.1

Each storage rack shall be separated from other storage racks by aisles that are not less than 30 in. (750 mm) and not more than 36 in. (900 mm) in width.

26.6.3.2

Aisles used for ingress and egress shall be permitted to be up to 44 in. (1.1 m) wide when solid decking is used.

26.6.4

Catwalk aisles between racks shall be constructed of open metal grating that is at least 50 percent open.

26.6.4.1

Catwalk aisles at the ends of racks shall be permitted to be constructed of solid materials.

26.6.5

Catwalks shall be installed at a maximum of 12 ft (3.7 m) apart vertically.

26.6.6 Sprinkler Criteria. ***(See Section C.25.)***

26.6.6.1

Cartoned record storage in racks with access utilizing catwalks shall be protected in accordance with this subsection.

26.6.6.2

The design criteria for the ceiling sprinkler system shall be in accordance with Table 26.6.6.2.

Table 26.6.6.2 Ceiling Sprinkler Design Criteria for Cartoned Record Storage

	Up to 25 ft (7.6 m) High Storage		Over 25 ft (7.6 m) High Storage	
	Ordinary Temperature	High Temperature	Ordinary Temperature	High Temperature
Density				
gpm/ft^2	0.33	0.29	0.3	0.4
mm/min	13.4	11.8	12.2	16.3
Area				
ft^2	2000	2000	2000	2000
m^2	185	185	185	185
Hose Allowance				
gpm	500	500	500	500
L/m	1900	1900	1900	1900
Duration				
hours	2	2	2	2

26.6.6.2.1

Ceiling sprinklers spaced to cover a maximum of 100 ft^2 (9.3 m^2) shall be standard-response spray sprinklers with K-factors in accordance with Section 21.1.

26.6.6.3

Intermediate-level sprinklers shall be installed at each catwalk level in accordance with 26.6.6.3.1 through 26.6.6.3.4 and shall be quick-response, ordinary temperature, nominal K-5.6 (80), K-8.0 (115), or K-11.2 (160).

26.6.6.3.1

Intermediate-level sprinklers shall be installed in the center ±4 in. (100 mm) of each aisle below each catwalk level.

26.6.6.3.2

Intermediate-level sprinklers shall be installed a minimum 6 in. (150 mm) above the top of storage.

26.6.6.3.3

Sprinklers shall be supplied from the in-rack sprinkler system.

26.6.6.3.4

Spacing of sprinklers within the aisles shall be located to align with the transverse flues and the center of the storage unit when staggered and shall not exceed 10 ft 6 in. (3.2 m) on center.

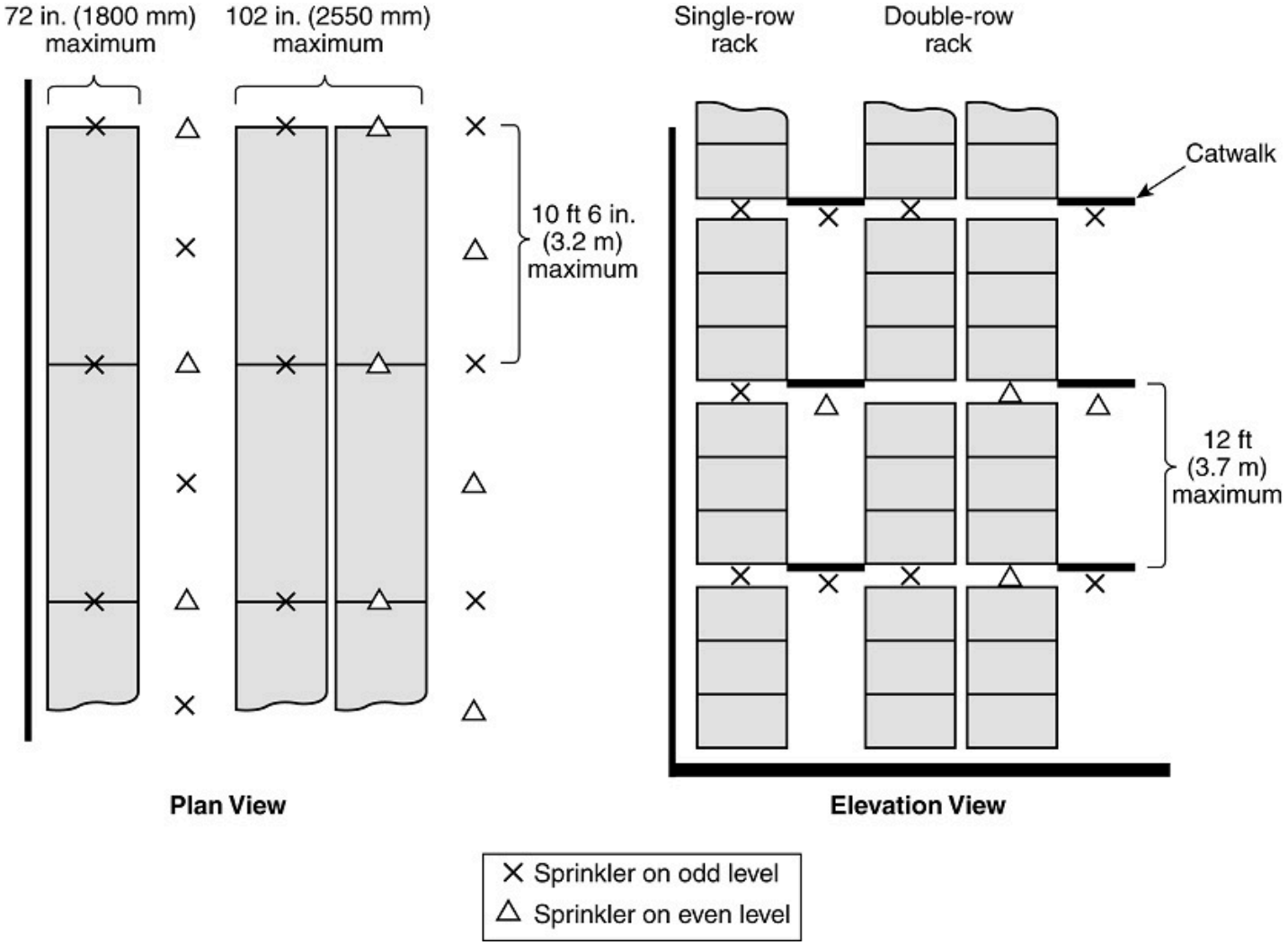
26.6.6.3.5 *

Sprinklers installed below each catwalk level shall be staggered vertically and horizontally. *[See Figure A.26.6.6.3.5(a) through Figure A.26.6.6.3.5(c).]*

26.6.6.4

Sprinklers shall be provided in transverse flue spaces in accordance with 26.6.6.4.1 and 26.6.6.4.2 and Figure 26.6.6.4.

Figure 26.6.6.4 Sprinkler Location and Spacing in Transverse Flues.



26.6.6.4.1 Single-Row Racks.

26.6.6.4.1.1

For single-row racks, in-rack sprinklers shall be installed in the transverse flue at each catwalk level.

26.6.6.4.1.2

For single-row racks, sprinklers installed in the transverse flues shall be installed not less than 18 in. (450 mm) but not greater than 24 in. (600 mm) from the face of the rack on the catwalk side.

26.6.6.4.2 Double- and Multiple-Row Racks.

26.6.6.4.2.1

For double- and multiple-row racks, in-rack sprinklers shall be installed in the transverse flues at each catwalk level and shall be staggered vertically.

26.6.6.4.2.2

Where only one catwalk level has been installed, both the “X” and “Δ” in-rack sprinklers as shown in Figure 26.6.6.4 shall be installed.

26.6.6.4.2.3

For double- and multiple-row racks, sprinklers installed in the transverse flues shall be located not less than 18 in. (450 mm) but not greater than 24 in. (600 mm) from the face of the rack on the catwalk side.

26.6.6.4.3

In-rack sprinklers shall be installed a minimum 6 in. (150 mm) above the top of storage.

26.6.6.4.4

Transverse flue sprinklers shall be quick-response, ordinary temperature, nominal K-5.6 (80), K-8.0 (115), or K-11.2 (160) and installed in accordance with Figure A.26.6.6.3.5(b) and Figure A.26.6.6.3.5(c).

26.6.6.5 Catwalk Systems.

26.6.6.5.1 Single-Level.

26.6.6.5.1.1

For single-level catwalks, a minimum of six sprinklers shall be calculated with a minimum flow rate at 30 gpm (115 L/min) per sprinkler.

26.6.6.5.1.2

Calculated sprinklers shall be the hydraulically most demanding.

26.6.6.5.2 Multiple-Level.

26.6.6.5.2.1

For multiple-level catwalk systems, a minimum of 10 sprinklers, five on each of the top two levels, shall be calculated with a minimum flow rate of 30 gpm (115 L/min) per sprinkler.

26.6.6.5.2.2

Calculated sprinklers shall be the hydraulically most demanding on each level.

26.6.6.5.3

The in-rack sprinkler system shall be balanced in with the ceiling system.

26.7 Control Mode Density/Area Protection Criteria for Compact Storage of Commodities Consisting of Paper Files, Magazines, Books, and Similar Documents in Folders and Miscellaneous Supplies with No More Than 5 Percent Plastics Up to 8 ft (2.4 m) High.

26.7.1 *

Compact storage modules up to 8 ft (2.4 m) high storing commodities consisting of paper files, magazines, books, and similar documents in folders and miscellaneous supplies with no more than 5 percent plastics shall be permitted to be classified as light hazard. *(See Section C.24.)*

26.7.2

The top of the compact storage module shall be at least 18 in. (450 mm) below the sprinkler deflector.

26.7.3

Sprinklers shall be ordinary temperature, quick-response, standard spray upright or pendent.

26.7.4

The compact storage module shall be provided with minimum solid steel 24 gauge (0.6 mm) metal longitudinal barriers installed every third carriage.

26.7.5 *

Solid 24 gauge (0.6 mm) metal transverse barriers shall be spaced not more than 4 ft (1.2 m) apart.

26.7.6

Compact storage module sizes shall not exceed 250 ft^2 (23 m^2).

26.7.6.1

The size of a module shall be defined as the area of compact storage bound by the length of the carriages times the distance between longitudinal barriers or to the outward edge of a fixed storage unit in the module, including the width of the aisle in the module.

26.7.6.2

The lengths of the carriages shall be measured to the end of the carriages enclosed by solid metal transverse panels and separated by a minimum 28 in. (700 mm) aisle to a storage unit perpendicular to the carriage.

26.8 Protection of High Bay Records Storage.

26.8.1 * Mobile High Bay Records Storage.

The requirements in this section shall be permitted to apply to ceiling-only sprinkler protection of paper products, including paper files, magazines, books, and similar paper documents in corrugated containers either closed or open top, to include corrugated totes, with no more than 5 percent plastics stored in mobile shelving units greater than 12 ft (3.7 m) and up to 34 ft (10 m) high and up to 30 shelving units (storage tiers) high, when the shelving unit structure meets all of the requirements in 26.8.3.

26.8.2 Fixed High Bay Records Storage.

High bay record storage shall be permitted to be fixed in place when meeting the limitations of 26.8.1 and 26.8.3.

26.8.3 High Bay Shelving.

26.8.3.1

A wet pipe sprinkler system with nominal K-25.2 (360) ESFR sprinklers operating at a minimum of 40 psi (2.8 bar) shall be provided.

26.8.3.2

The shelving units shall be subject to the following limitations:

(1) Back-to-back storage shelving units, each no greater than 36 in. (900 mm) deep, separated by longitudinal flue space not less than 6 in. (150 mm) wide
(2) Solid steel shelving units not exceeding 54 in. (1.4 m) wide separated by steel barriers mechanically fastened to upright steel framing that forms a transverse flue space not less than 3 in. (75 mm) wide
(3) Upright steel framing not completely blocking transverse flue space between adjacent shelving units
(4) Noncombustible shelving backstops and side shelf supports, also referred to as side box guides, projecting not less than 3 in. (75 mm) above the shelves and that prevent stored commodities from encroaching into transverse and longitudinal flue spaces
(5) Solid steel shelving not greater than 18 in. (450 mm) on centers vertically
(6) Solid steel tops over top shelving units except at the tops of transverse and longitudinal flue spaces
(7) Open-ended, hollow tubular steel vertical (upright) shelving columns at the top of the shelving system
(8) Shelving system framing and power tracks not exceeding 3 in. (75 mm) in width and not less than 1 ft (300 mm) on centers and not less than 6 in. (150 mm) below sprinkler deflectors
(9) Minimum clearance of 36 in. (900 mm) above the top solid steel cover over the top storage shelf to the sprinkler deflector

26.8.3.3 Mobile Shelving Systems.

26.8.3.3.1

Mobile shelving systems arranged to shift automatically shall be arranged to initiate the shifting 60 seconds after activation of ceiling-mounted smoke detectors or upon sprinkler flow, whichever is first.

26.8.3.3.2

Mobile shelving systems arranged to shift automatically shall form a uniform nominal 6 in. (150 mm) clearance clear space between mobile carriages supporting back-to-back shelving units.

26.8.3.3.3

Mobile shelving system carriage electrical motors shall be listed and integral to the mobile carriage systems for normal functions.

26.8.3.3.4

Mobile shelving systems carriage electrical motors shall not be required to have emergency power back-up.

26.9 Special Design for Palletized, Solid-Piled, Bin Box, or Shelf Storage of Class I Through Class IV Commodities.

26.9.1 Bin Box and Shelf Storage.

26.9.1.1

Bin box and shelf storage that is over 12 ft (3.7 m) but not in excess of the height limits of 21.2.1 and that is provided with walkways at vertical intervals of not over 12 ft (3.7 m) shall be protected with automatic sprinklers under the walkway(s).

26.9.1.2

Protection shall be as follows:

(1) Ceiling design density shall be based on the total height of storage within the building as provided in Chapter 21.
(2) Automatic sprinklers under walkways shall be designed to maintain a minimum discharge pressure of 15 psi (1.0 bar) for the most hydraulically demanding six sprinklers on each level. Walkway sprinkler demand shall not be required to be added to the ceiling sprinkler demand. Sprinklers under walkways shall not be spaced more than 8 ft (2.4 m) apart horizontally.