



NFPA 13 Update - 2019

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A Historical Perspective

1991 Complete rewrite of the Standard

1999 Major reorganization of the Sprinkler Project

- Correlating Committee
- New Technical Committees for Installation, Design Criteria, Hangers/Bracing, Residential

2002 Manual of Style changes and reorganization of storage

2019 Reorganization

The Problems

Storage Redundancies and Gaps

Chapter 8 is the “catch-all bucket”

Requirements scattered throughout the document

Lack of a sequential logic to using the standard

The New Arrangement

Sequential Layout

Two General Requirements Chapters

Chapter 8 split into multiple chapters

Storage Chapters reorganized around type of sprinkler

In-rack sprinkler requirements located to one chapter

Existing system modification chapter added

New Chapter Layout

Chapters 1 and 2 to remain the same

Chapter 3 to be organized alphabetically

Chapter 4 General Requirements (to be expanded as “true” general requirements chapter)

Chapter 5 Water Supplies

Chapter 6 Installation Underground Piping

Chapter 7 System Components and Hardware

New Chapter Layout

Chapter 8 System Requirements

Chapter 9 Sprinkler Location Requirements

Chapter 10 Installation Requirements for Standard Spray Sprinklers

Chapter 11 Installation Requirements for Extended Coverage Sprinklers

Chapter 12 Installation Requirements for Residential Sprinklers

Chapter 13 Installation Requirements for CMSA Sprinklers

New Chapter Layout

Chapter 14 Installation Requirements for ESFR Sprinklers

Chapter 15 Installation Requirements for Special Sprinklers

Chapter 16 Installation of Piping, Valves, and Appurtenances

Chapter 17 Installation Requirements for Hanging and Support Systems

Chapter 18 Installation Requirements for Seismic Protection

New Chapter Layout

Chapter 19 Design Approaches and Calculations

Chapter 20 General Requirements for Storage

Chapter 21 Standard Spray Sprinkler Requirements for Storage Applications

Chapter 22 CMSA Requirements for Storage Applications

Chapter 23 ESFR Requirements for Storage Applications

New Chapter Layout

Chapter 24 Alternative Sprinkler System Designs

Chapter 25 In-rack Sprinklers

Chapter 26 Special Occupancy Requirements

Chapter 27 Systems Acceptance

Chapter 28 Existing System Modifications

Chapter 29 Marine Systems

Chapter 30 System Inspection, Testing, and Maintenance

Ch. 8 Installation Requirements

- 8.1 Basic Requirements **moves to 9.1**
- 8.2 System Protection Area Limitations **moves to 4.5**
- 8.3 Use of Sprinklers **moves to 9.4**
- 8.4 Application of Sprinkler Types **moves to Chap 10, 11 & 14**
- 8.5 Position, Location, Spacing, and Use of Sprinklers **moves to 9.5**
- 8.6 Standard Pendent and Upright Spray Sprinklers **Chap 10**
- 8.7 Sidewall Standard Spray Sprinklers **Chap 10**
- 8.8 Extended Coverage Upright and Pendent Spray Sprinklers **Chap 11**
- 8.9 Extended Coverage Sidewall Spray Sprinklers **Chap 11**

Ch. 8 Installation Requirements

- 8.10 Residential Sprinklers **Chap 12**
- 8.11 CMSA Sprinklers **Chap 13**
- 8.12 Early Suppression Fast-Response Sprinklers **Chap 14**
- 8.13 In-Rack Sprinklers **moves to Chap 25**
- 8.14 Pilot Line Detectors **moves to 8.10**
- 8.15 Special Situations **moves to 9.2**
- 8.16 Piping Installation **Chap 16**
- 8.17 System Attachments **Chap16**
- 8.18 Electrical Bonding and Grounding **Chap 16**

The “Road Map”

2019 Edition Section Numbers	2016 Edition Section Numbers
Chapter 4 General Requirements	Chapter 4 General Requirements
4.1	4.1
4.1.1	4.1
4.1.2	4.2
4.1.2.1	4.2.1
4.1.2.2	4.2.2
4.2*	4.3*
4.3*	5.1*
4.3.1	
4.3.1.1	5.1.1
4.3.1.2	5.1.2
4.3.1.3	
4.3.1.4*	
4.3.1.4.1	
4.3.1.4.2	
4.3.1.4.3	
4.3.1.5	

Metric

- Hard and soft conversions
- Database of conversions used in NFPA 13
- 2019
 - 1053 adjustments to conversions
 - Like units (inches to mm, feet to meters)
 - NFPA 13 and NFPA 13M

Hanging and Bracing

- Request before the NFPA Standards Council for a new project!
- **Committee Scope:** This committee shall have responsibility for developing criteria for the use and installation of components and devices used for the support of fire protection system piping and for developing criteria for the protection of fire protection systems against seismic events.
- NFPA 11, 13, 14, 15, 16, 20, 22, 24 & 750.
 - 12, 17, 17A, 2001

Hanging and Bracing

- Standard Council Action
 - Requested NFPA Staff to report back with additional information on how this would affect the scope of other documents and requested input from affected Technical Committees

Ch. 8 System Types and Requirements

Where an air compressor is the dedicated air supply, it shall be installed in accordance with *NFPA 70*, Article 430.

The disconnecting means for an automatic air compressor shall not be a general-use light switch or a cord-and-plug connected motor.

Effective January 1, 2021, removal of an electric actuator from the preaction or deluge valve that it controls shall result in an audible and visual indication of system impairment at the system releasing control panel.

Ch. 9 Sprinkler Location Requirements

Sidewall spray sprinklers shall be installed at the bottom of each elevator hoistway not more than 2 ft (600 mm) above the floor of the pit.

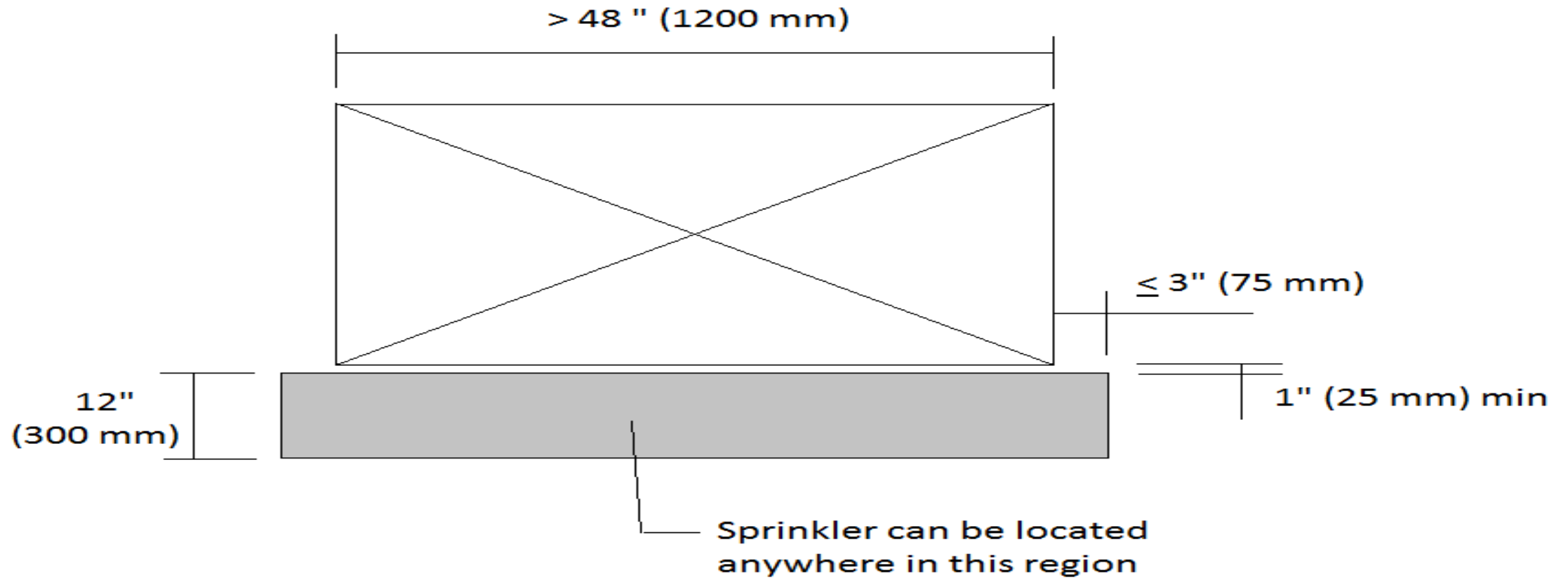
The sprinkler required at the bottom of the elevator hoistway by 9.3.6.1 shall not be required for enclosed, noncombustible elevator shafts that do not contain combustible hydraulic fluids. [NITMAM]

Vestibule. Sprinkler protection shall not be required within an entrance vestibule of noncombustible and limited-combustible construction that does not contain combustibles and is 150 ft² (13.9 m²) or less in area. [NITMAM]

Ch. 9 Sprinkler Location Requirements

Insulation used to measure sprinkler deflector distance shall be batt insulation or insulation that withstands 3 lb/ft² (0.13 kg/m²) uplift force.

Ch. 9 Sprinkler Location Requirements



Ch. 12 Installation Requirements for Residential Sprinklers

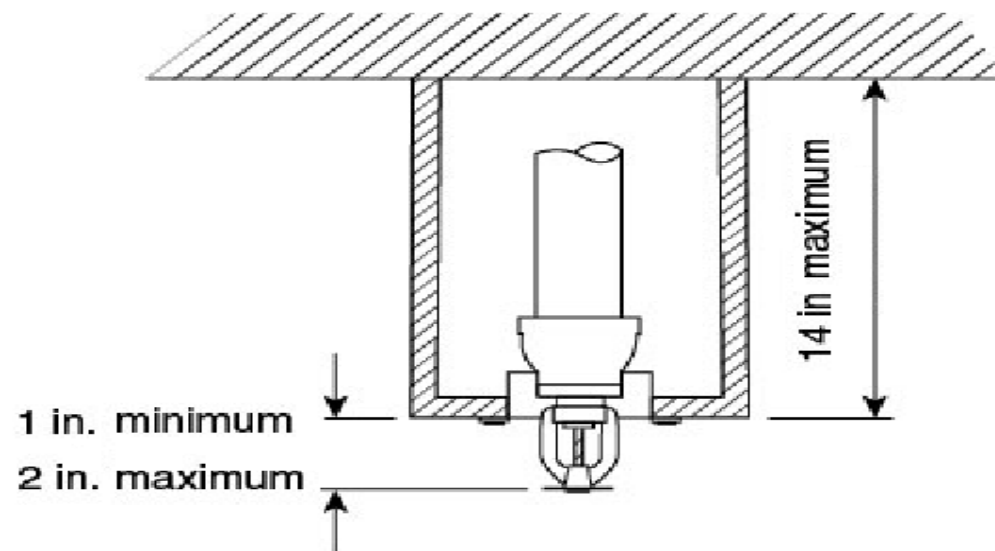
Residential sprinklers shall be permitted in dwelling units and their adjoining corridors, provided they are installed in conformance with their listing and when installed under the following conditions:

- A flat, smooth, horizontal ceiling
- A flat, horizontal, beamed ceiling,
- A smooth, flat, sloped ceiling with no beams
- A sloped ceiling with beams up to 14 in. (355 mm) deep
- A sloped ceiling with beams of any depth

Where construction features or other special conditions exist that are outside the scope of sprinkler listings, listed sprinklers shall be permitted to be installed beyond their listing limitations when acceptable to the authority having jurisdiction.

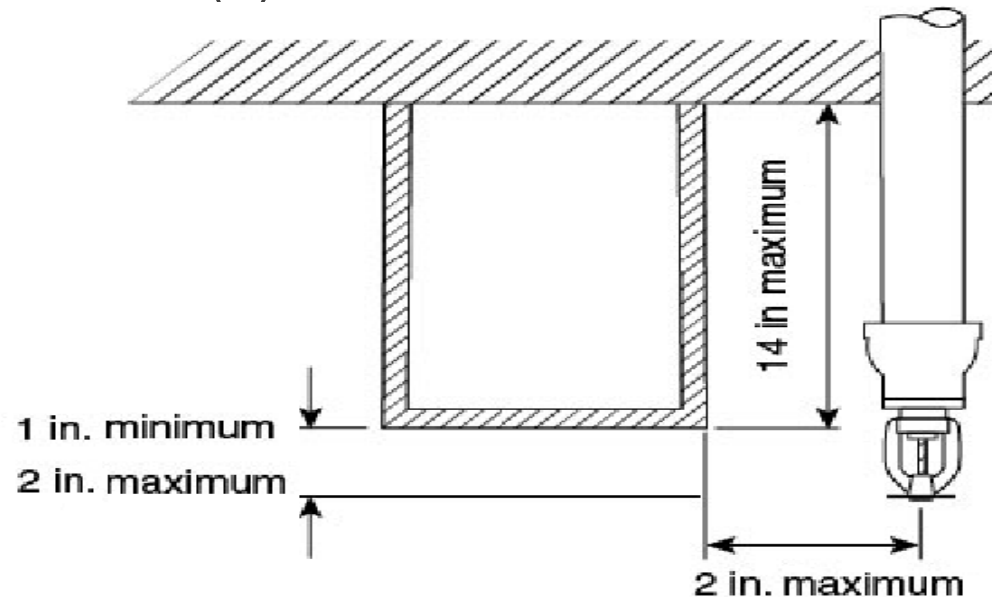
Ch. 12 Installation Requirements for Residential Sprinklers

Pendent, recessed pendent, and flush-type pendent sprinklers shall be permitted to be installed directly under a beam having a maximum depth of 14 in. (350 mm) with the sprinkler deflector 1 in. to 2 in. (25 mm to 50 mm) below the beam, or in accordance with the manufacturer's instructions for recessed or flush sprinklers if the deflector is less than 1 in. (25 mm) below the **beam**, as shown in Figure 12.1.8.1.2(a).



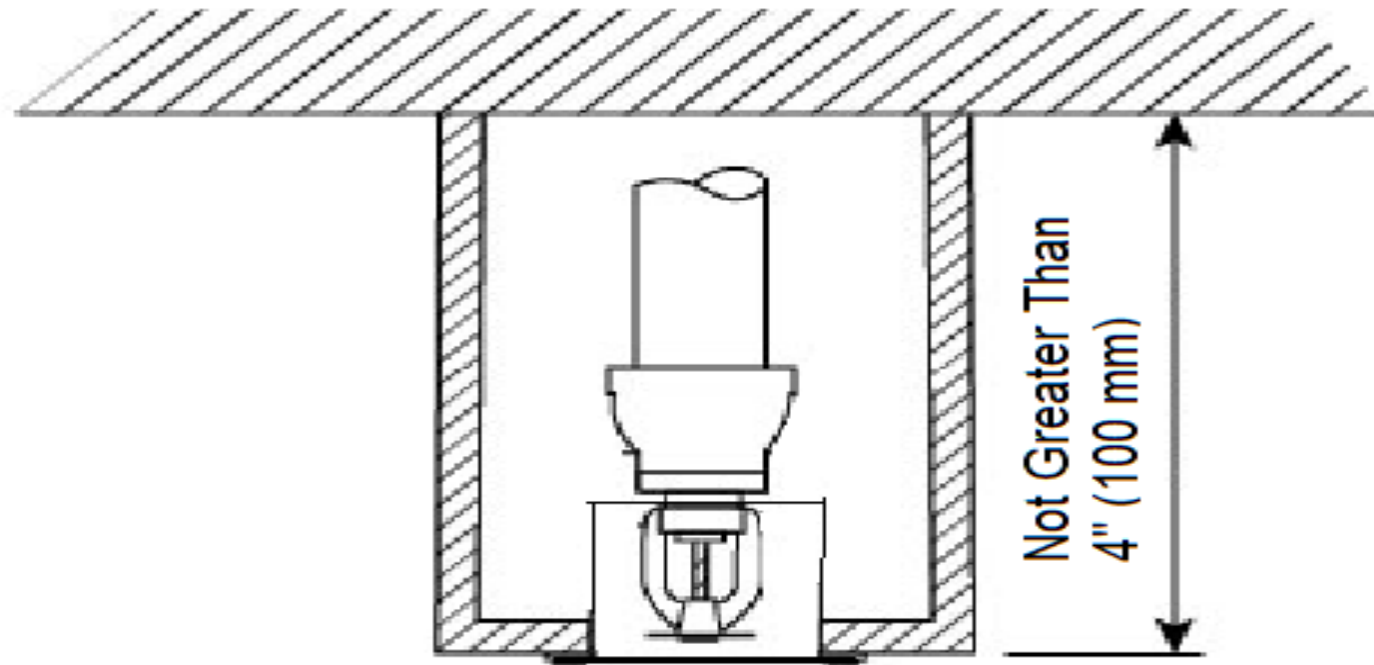
Ch. 12 Installation Requirements for Residential Sprinklers

Pendent sprinklers shall be permitted to be installed adjacent to beams where the vertical centerline of the sprinkler is no greater than 2 in. (50 mm) from the edge of the beam and with the sprinkler deflector 1 in. to 2 in. (25 mm to 50 mm) below the beam, or in accordance with the manufacturer's instructions for flush sprinklers if the deflector is less than 1 in. (25 mm) below the beam, as shown in Figure 12.1.8.1.2(b).



Ch. 12 Installation Requirements for Residential Sprinklers

Concealed sprinklers shall be permitted to be installed in beams not greater than 4 in. (100 mm) in depth.



Ch. 16 Installation of Piping, Valves, and Appurtenances

Where nonmetallic pipe installed in accordance with 16.3.9.6 supplies sprinklers in a private garage within a dwelling unit not exceeding 1000 ft² (93 m²) in area, it shall be permitted to be protected from the garage compartment by not less than the same wall or ceiling sheathing that is required by the applicable building code.

Automated Valves.

- A listed indicating valve with automated controls shall be permitted.
- A listed automated water control valve assembly with a reliable position indication connected to a remote supervisory station shall be permitted.
- An automated water control valve shall be able to be operated manually as well as automatically.

Ch. 18 Installation Requirements for Seismic Protection



Ch. 19 Design Approaches

The following unsprinklered concealed spaces shall not require a minimum area of sprinkler operation of 3000 ft² (279 m²):

- Cavities within unsprinklered wall spaces.

Ch. 20 General Requirements for Storage

New tables summarizing excessive clearance requirements

Table 20.6.4.3 Class I Through Class IV Commodities

Storage Configuration	Where the clearance to ceiling exceeds	Protection is based upon the storage height that would result in a clearance to ceiling of...	In-rack Sprinklers*
Palletized, solid-piled, bin box, shelf, or back-to-back shelf storage	20 ft (6.1 m)	20 ft (6.1 m)	N/A

Ch. 22 CMSA Requirements for Storage Applications

25.2 K-Factor design criteria has been added to the CMSA design criteria tables based on testing from UL

Table 22.3 CMSA Sprinkler Design Criteria for Palletized and Solid-Piled Storage of Group A Plastic Commodities

Storage Arrangement	Commodity Class	Maximum Storage Height		Maximum Ceiling/Roof Height		K-Factor/Orientation	Type of System	Number of Design Sprinklers	Minimum Operating Pressure	
		ft	m	ft	m				psi	bar
Palletized	Cartoned nonexpanded plastics	20	6.1	30	9.1	11.2 (160) Upright	Wet	25	25	1.7
						16.8 (240) Upright	Wet	15	22	1.5
						19.6 (280) Pendent	Wet	15	16	1.1
						25.2 (360) Pendent	Wet	15	10	0.7
				40	12	25.2 (360) Pendent	Wet	15	23	1.6
		25	7.6	30	9.1	16.8 (240) Upright	Wet	15	22	1.5
						19.6 (280) Pendent	Wet	15	16	1.1
						25.2 (360) Pendent	Wet	15	10	0.7
						40	12	25.2 (360) Pendent	Wet	15

Ch. 25 In-Rack Sprinklers

New requirements for in-rack sprinklers in combination with ESFR ceiling level design

New criteria for exposed expanded group A plastic

Ch. 27 Plans and Calculations

Working plan submittals shall include the following:

- Working plans of the system(s), per 4.6.3
- Hydraulic calculations where systems are required to be calculated
- Data sheets for the system components where required by the AHJ
- *Signed owner's certificate

Submittals shall be permitted to be in electronic format when approved by the authority having jurisdiction.

A copy of the approved plans shall be given to the owner or owner's representative.

Ch. 27 Plans and Calculations

Velocity Limitations.

Unless required by other NFPA standards, the velocity of water flow shall not be limited when hydraulic calculations are performed using the Hazen Williams and/or Darcy Weisbach formulas.

Ch. 28 System Acceptance

Automated Inspection and Testing Devices and Equipment.

- Automated inspection and testing devices and equipment installed on the sprinkler system shall be tested to ensure the desired result of the automated inspection or test is realized.
- Automated inspection devices and equipment shall be shown to be as effective as a visual examination.
- Automated testing devices and equipment shall produce the same action required by this standard to test a device.
- Failure of automated inspection and testing devices and equipment shall not impair the operation of the system unless indicated by an audible and visual trouble signal in accordance with *NFPA 72*.

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C O L O M B I A

Thanks for your attention!!!!