



10.1 General.

Standard pendent, upright, and sidewall sprinklers shall be selected for use and installation as indicated in this chapter and shall be positioned and spaced in accordance with Section 9.5.

10.2 Standard Pendent and Upright Spray Sprinklers.

10.2.1 General.

All requirements of Section 9.5 shall apply to standard pendent and upright spray sprinklers except as modified in Section 10.2.

10.2.2

Upright and pendent spray sprinklers shall be permitted in all occupancy hazard classifications and building construction types unless the requirements of 9.3.2 apply.

10.2.3

Quick-response sprinklers shall not be permitted for use in extra hazard occupancies under the density/area design method.

10.2.4 Protection Areas per Sprinkler (Standard Pendent and Upright Spray Sprinklers).

10.2.4.1 Determination of Protection Area of Coverage.

10.2.4.1.1

Except as permitted by 10.2.4.1.2, the protection area of coverage per sprinkler (A_s) shall be determined in accordance with 9.5.2.1.

10.2.4.1.2

The requirements of 10.2.4.1.1 shall not apply in a small room as defined in 3.3.214.

10.2.4.1.2.1

The protection area of coverage for each sprinkler in the small room shall be the area of the room divided by the number of sprinklers in the room.

10.2.4.2 Maximum Protection Area of Coverage.

10.2.4.2.1 *

The maximum allowable protection area of coverage for a sprinkler (A_s) shall be in accordance with the value indicated in Table 10.2.4.2.1(a) through Table 10.2.4.2.1(d).

Table 10.2.4.2.1(a) Protection Areas and Maximum Spacing of Standard Pendent and Upright Spray Sprinklers for Light Hazard

Construction Type	System Type	Maximum Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m
Noncombustible unobstructed	Hydraulically calculated	225	20	15	4.6
Noncombustible unobstructed	Pipe schedule	200	18	15	4.6
Noncombustible obstructed	Hydraulically calculated	225	20	15	4.6
Noncombustible obstructed	Pipe schedule	200	18	15	4.6
Combustible unobstructed with no exposed members	Hydraulically calculated	225	20	15	4.6

Construction Type	System Type	Maximum Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m
Combustible unobstructed with no exposed members	Pipe schedule	200	18	15	4.6
Combustible unobstructed with exposed members 3 ft (910 mm) or more on center	Hydraulically calculated	225	20	15	4.6
Combustible unobstructed with exposed members 3 ft (910 mm) or more on center	Pipe schedule	200	18	15	4.6
Combustible unobstructed with members less than 3 ft (910 mm) on center	All	130	12	15	4.6
Combustible obstructed with exposed members 3 ft (910 mm) or more on center	All	168	16	15	4.6
Combustible obstructed with members less than 3 ft (910 mm) on center	All	130	12	15	4.6
Combustible concealed spaces in accordance with 10.2.6.1.4	All	120	11	15 parallel to the slope 10 perpendicular to the slope*	4.6 parallel to the slope 3.0 perpendicular to the slope*

*See 10.2.6.1.4.4.

Table 10.2.4.2.1(b) Protection Areas and Maximum Spacing of Standard Pendent and Upright Spray Sprinklers for Ordinary Hazard

Construction Type	System Type	Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m
All	All	130	12	15	4.6

Table 10.2.4.2.1(c) Protection Areas and Maximum Spacing of Standard Pendent and Upright Spray Sprinklers for Extra Hazard

Construction Type	System Type	Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m
All	Pipe schedule	90	8.4	12*	3.7*
All	Hydraulically calculated with density ≥ 0.25 gpm/ft ² (10.2 mm/min)	100	9	12*	3.7*
All	Hydraulically calculated with density < 0.25 gpm/ft ² (10.2 mm/min)	130	12	15	4.6

*In buildings where solid structural members create bays up to 25 ft (7.6 m) wide, maximum spacing between sprinklers is permitted up to 12 ft 6 in. (3.8 m).

Table 10.2.4.2.1(d) Protection Areas and Maximum Spacing of Standard Pendent and Upright Spray Sprinklers for High-Piled Storage

Construction Type	System Type	Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m

Construction Type	System Type	Protection Area		Maximum Spacing	
		ft ²	m ²	ft	m
All	Hydraulically calculated with density ≥0.25 gpm/ft ² (10.2 mm/min)	100	9	12*	3.7*
All	Hydraulically calculated with density <0.25 gpm/ft ² (10.2 mm/min)	130	12	15	4.6

*In buildings where solid structural members create bays up to 25 ft (7.6 m) wide, maximum spacing between sprinklers is permitted up to 12 ft 6 in. (3.8 m).

10.2.4.2.2

In any case, the maximum area of coverage of a sprinkler shall not exceed 225 ft² (20 m²).

10.2.5 Sprinklers in Ordinary Hazard Group 2 Occupancies with Ceilings Over 30 ft (9.1 m).

Standard-response standard-coverage sprinklers shall not be permitted for use in Ordinary Hazard Group 2 occupancies where the ceiling height is greater than 30 ft (9.1 m).

10.2.6 Sprinkler Spacing (Standard Pendent and Upright Spray Sprinklers).

10.2.6.1 Maximum Distance Between Sprinklers.

The maximum distance permitted between sprinklers shall comply with Table 10.2.4.2.1(a) through Table 10.2.4.2.1(d).

10.2.6.2 Maximum Distance from Walls.

10.2.6.2.1

The distance from sprinklers to walls shall not exceed one-half of the allowable distance between sprinklers as indicated in Table 10.2.4.2.1(a) through Table 10.2.4.2.1(d).

10.2.6.2.2 *

The requirements of 10.2.6.2.1 shall not apply where walls are angled or irregular, and the maximum horizontal distance between a sprinkler and any point of floor area protected by that sprinkler shall not exceed 0.75 times the allowable distance permitted between sprinklers, provided the maximum perpendicular distance is not exceeded.

10.2.6.2.3 *

The requirements of 10.2.6.2.1 shall not apply within small rooms as defined in 3.3.214.

10.2.6.2.3.1

Sprinklers shall be permitted to be located not more than 9 ft (2.7 m) from any single wall.

10.2.6.2.3.2

Sprinkler spacing limitations of 10.2.6 and area limitations of Table 10.2.4.2.1(a) shall not be exceeded.

10.2.6.2.4

Under curved surfaces, the horizontal distance shall be measured at the floor level from the wall, or the intersection of the curved surface and the floor to the nearest sprinkler shall not be greater than one-half the allowable distance between sprinklers.

10.2.6.3 Minimum Distances from Walls.

Sprinklers shall be located a minimum of 4 in. (100 mm) from a wall.

10.2.6.4 Minimum Distances Between Sprinklers.

10.2.6.4.1

Unless the requirements of 10.2.6.4.2 or 10.2.6.4.4 are met, sprinklers shall be spaced not less than 6 ft (1.8 m) on center.

10.2.6.4.2

Sprinklers shall be permitted to be placed less than 6 ft (1.8 m) on center where the following conditions are satisfied:

- (1) Baffles shall be arranged to protect the actuating elements.
- (2) Baffles shall be of solid and rigid material that will stay in place before and during sprinkler operation.
- (3) Baffles shall be not less than 8 in. (200 mm) long and 6 in. (150 mm) high.
- (4) The tops of baffles shall extend between 2 in. and 3 in. (50 mm and 75 mm) above the deflectors of upright sprinklers.
- (5) The bottoms of baffles shall extend downward to a level at least even with the deflectors of pendent sprinklers.

10.2.6.4.3

Where sprinklers are installed in every channel formed by solid obstructed construction with the deflectors above the bottom of the structural members, the structural members shall be considered baffles in accordance with 10.2.6.4.2.

10.2.6.4.4

In-rack sprinklers shall be permitted to be placed less than 6 ft (1.8 m) on center.

10.2.7 Deflector Position (Standard Pendent and Upright Spray Sprinklers).

10.2.7.1 Distance Below Ceilings.

10.2.7.1.1 Unobstructed Construction.

10.2.7.1.1.1

Under unobstructed construction, the distance between the sprinkler deflector and the ceiling shall be a minimum of 1 in. (25 mm) and a maximum of 12 in. (300 mm) throughout the area of coverage of the sprinkler.

10.2.7.1.1.2

The requirements of 10.2.7.1.1.1 shall not apply where ceiling-type sprinklers (concealed, recessed, and flush types) have the operating element above the ceiling and the deflector located nearer to the ceiling where installed in accordance with their listing.

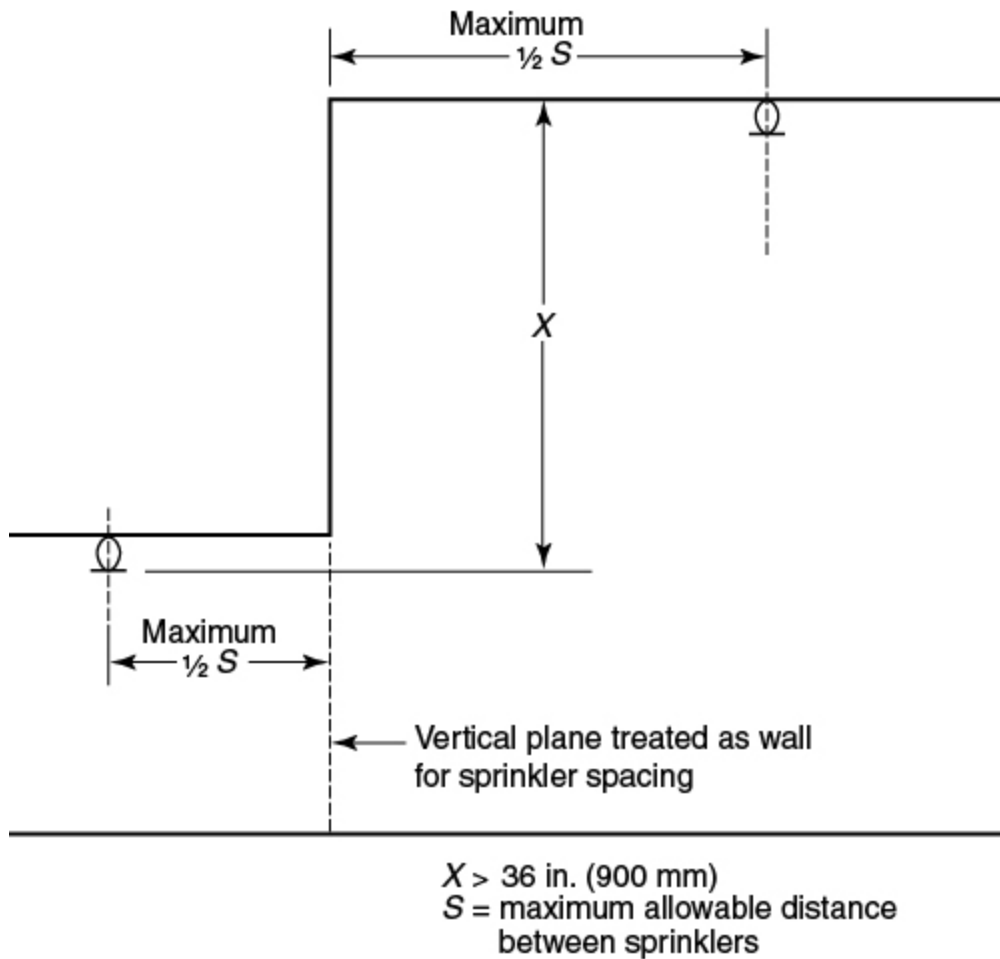
10.2.7.1.1.3

The requirements of 10.2.7.1.1.1 shall not apply for light and ordinary hazard occupancies with ceilings of noncombustible or limited-combustible construction where either 10.2.7.1.1.3(A) or 10.2.7.1.1.3(B) applies.

(A)

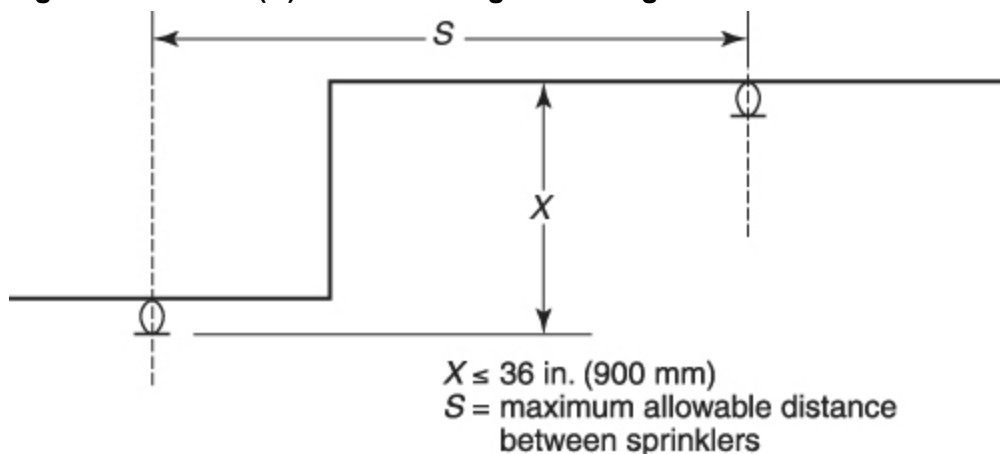
Where a vertical change in ceiling elevation within the area of coverage of the sprinkler creates a distance of more than 36 in. (900 mm) between the upper ceiling and the sprinkler deflector, a vertical plane extending down from the ceiling at the change in elevation shall be considered a wall for the purpose of sprinkler spacing as shown in Figure 10.2.7.1.1.3(A).

Figure 10.2.7.1.1.3(A) Vertical Change in Ceiling Elevation Greater Than 36 in. (900 mm).

**(B)**

Where the distance between the upper ceiling and the sprinkler deflector is less than or equal to 36 in. (900 mm), the sprinklers shall be permitted to be spaced as though the ceiling was flat, provided the obstruction rules are observed as shown in Figure 10.2.7.1.1.3(B).

Figure 10.2.7.1.1.3(B) Vertical Change in Ceiling Elevation Less Than or Equal to 36 in. (900 mm).



10.2.7.1.2 Obstructed Construction.

Under obstructed construction, the sprinkler deflector shall be located in accordance with one of the following arrangements:

- (1) Installed with the deflectors within the horizontal planes of 1 in. to 6 in. (25 mm to 150 mm) below the structural members and a maximum distance of 22 in. (550 mm) below the ceiling/roof deck
- (2) Installed with the deflectors at or above the bottom of the structural member to a maximum of 22 in. (550 mm) below the ceiling/roof deck where the sprinkler is installed in conformance with 10.2.7.2
- (3) Installed in each bay of obstructed construction, with the deflectors located a minimum of 1 in. (25 mm) and a maximum of 12 in. (300 mm) below the ceiling

- (4) Installed with the deflectors within the horizontal planes 1 in. to 6 in. (25 mm to 150 mm) below composite wood joists to a maximum distance of 22 in. (550 mm) below the ceiling/roof deck only where joist channels are provided with blocking to the full depth of the joists with material at least equivalent to the web construction so that individual channel areas do not exceed 300 ft² (28 m²)
- (5)* Installed with deflectors of sprinklers under concrete tee construction with stems spaced less than 7 1/2 ft (2.3 m) on centers and a maximum depth of the stems of 30 in. (750 mm), located at or above a horizontal plane 1 in. (25 mm) below the bottom of the stems of the tees and complying with Table 10.2.8.2(a) or Table 10.2.8.2(b)

10.2.7.1.3 Peaked Roofs and Ceilings.

10.2.7.1.3.1

Unless the requirements of 10.2.7.1.3.2 or 10.2.7.1.3.3 are met, sprinklers under or near the peak of a roof or ceiling shall have deflectors located not more than 36 in. (900 mm) vertically down from the peak as indicated in Figure 10.2.7.1.3.1(a) and Figure 10.2.7.1.3.1(b).

Figure 10.2.7.1.3.1(a) Sprinklers Under Pitched Roof with Sprinkler Directly Under Peak; Branch Lines Run Up Slopes.

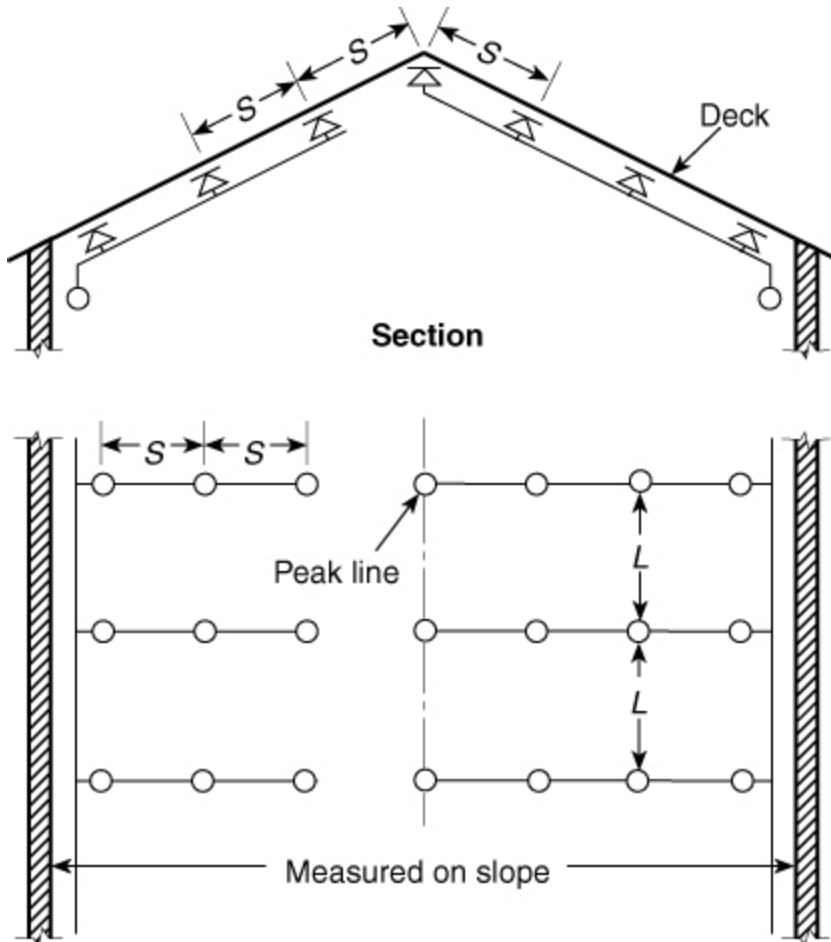
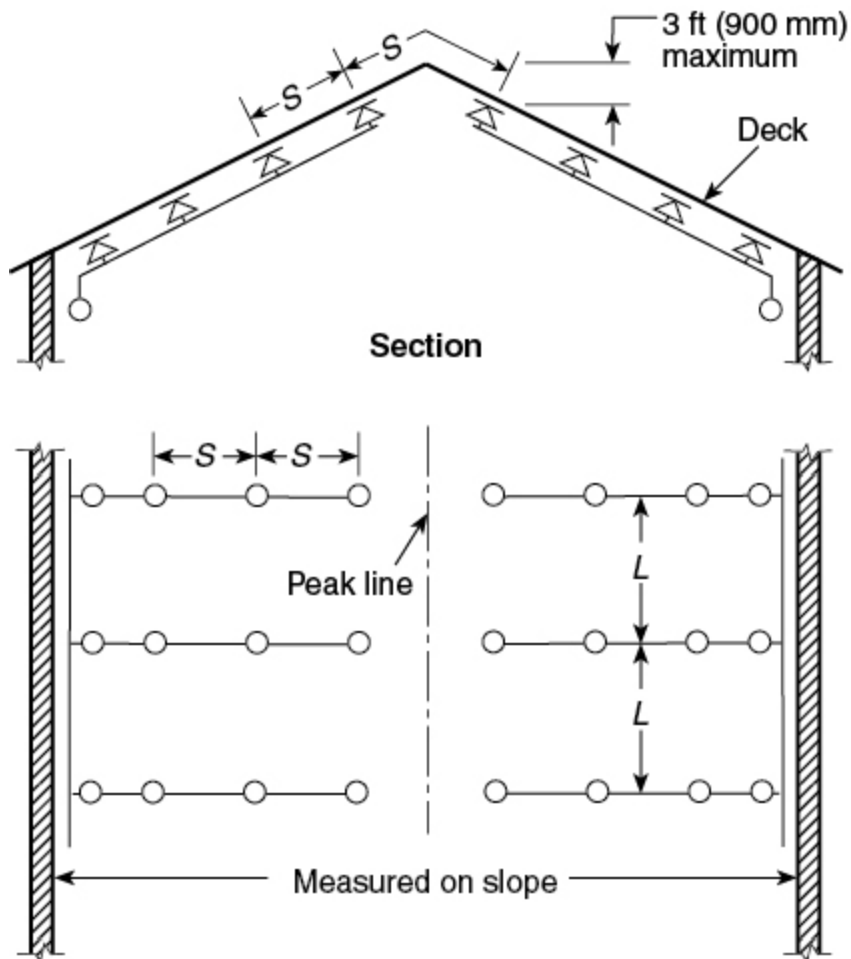


Figure 10.2.7.1.3.1(b) Sprinklers at Pitched Roof; Branch Lines Run Up Slopes.

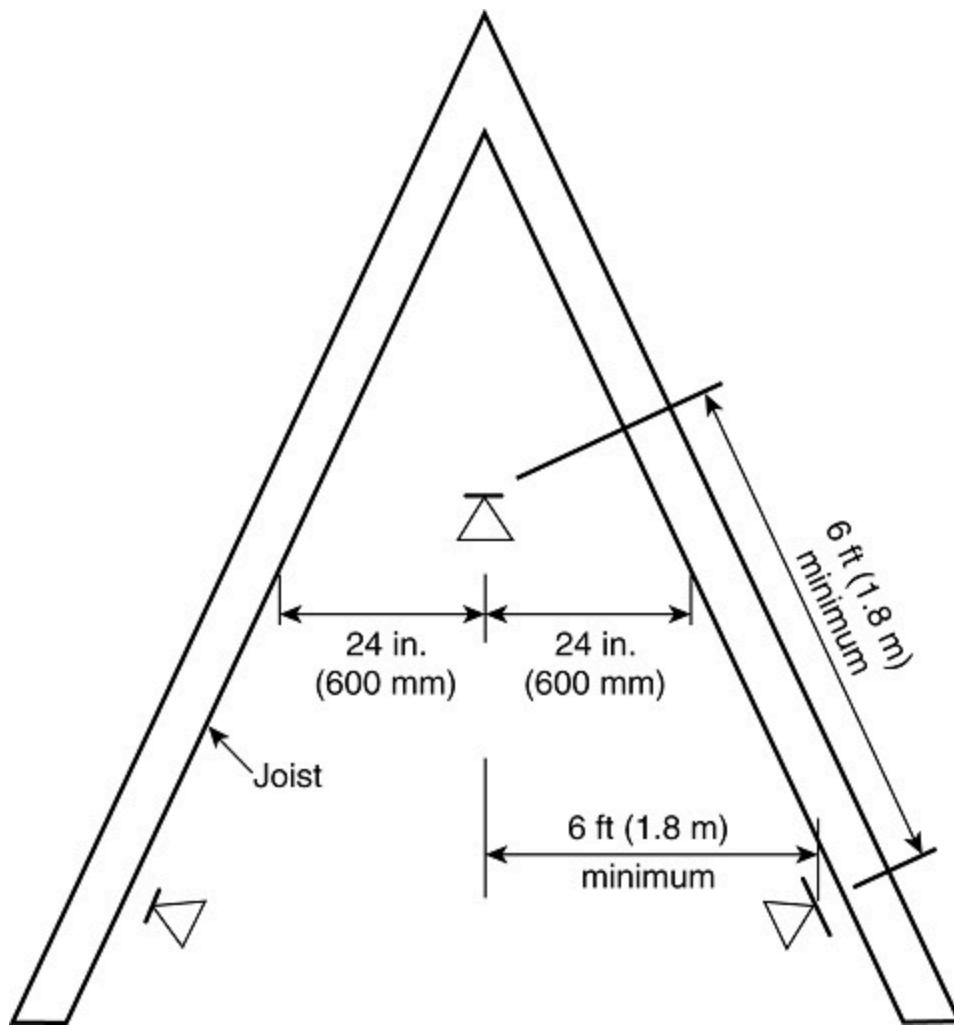
**10.2.7.1.3.2 ***

Under saw-toothed roofs, sprinklers at the highest elevation shall not exceed a distance of 36 in. (900 mm) measured down the slope from the peak.

10.2.7.1.3.3 *

Under a steeply pitched surface, the distance from the peak to the deflectors shall be permitted to be increased to maintain a horizontal clearance of 24 in. (600 mm) from other structural members as indicated in Figure 10.2.7.1.3.3.

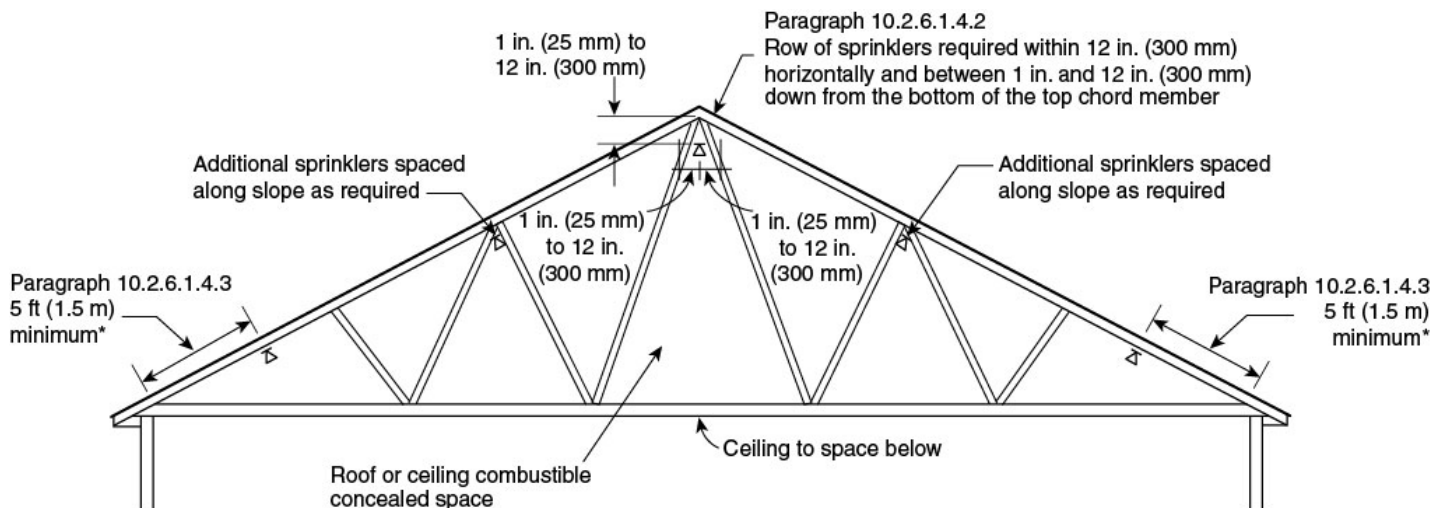
Figure 10.2.7.1.3.3 Horizontal Clearance for Sprinkler at Peak of Pitched Roof.



10.2.7.1.4

Sprinklers under a roof or ceiling in combustible concealed spaces of wood joist or wood truss construction with members less than 3 ft (900 mm) on center with a slope having a pitch of 4 in 12 or greater shall be positioned in accordance with Figure 10.2.7.1.4 and the requirements of 10.2.7.1.4.1 through 10.2.7.1.4.6.

Figure 10.2.7.1.4 Sprinklers Under Roof or Ceiling in Combustible Concealed Spaces of Wood Joist or Wood Truss Construction with Members Less Than 3 ft (900 mm) on Center with a Slope Having a Pitch of 4 in 12 or Greater.



*The 5 ft minimum dimension is measured from the intersection of the upper and lower truss chords or the wood rafters and ceiling joists.

10.2.7.1.4.1

Sprinklers shall be quick-response.

10.2.7.1.4.2

Sprinklers shall be installed so that a row of sprinklers is installed within 12 in. (300 mm) horizontally of the peak and between 1 in. and 12 in. (25 mm and 300 mm) down from the bottom of the top chord member.

10.2.7.1.4.3 *

Sprinklers shall be installed so that the sprinklers installed along the eave are located not less than 5 ft (1.5 m) from the intersection of the upper and lower truss chords or the wood rafters and ceiling joists.

10.2.7.1.4.4 *

Sprinklers installed where the dimension perpendicular to the slope exceeds 8 ft (2.4 m) shall have a minimum pressure of 20 psi (1.4 bar).

10.2.7.1.4.5 *

The requirements of 10.2.7.1.4.3 or 10.2.7.1.4.4 shall not apply to sprinklers installed at the corner of the eave of a hip type roof where located directly under the hip line spaced in accordance with 10.2.6.2.2 or located on the slope plane not less than 5 ft (1.5 m) from the intersection of the upper and lower truss chords or the wood rafters and ceiling joists on the eave and no more than 5 ft (1.5 m) from the hip line.

10.2.7.1.4.6

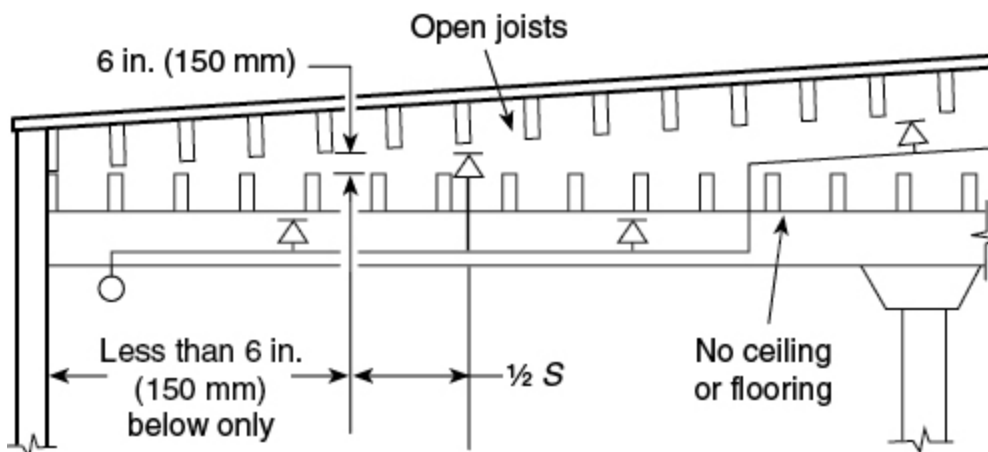
The special requirements of 10.2.4.2.1 and 10.2.7.1.4 shall not apply when the exposed combustible sheathing in the roof or ceiling space are constructed of pressure impregnated fire retardant-treated wood as defined by NFPA 703.

10.2.7.1.5 Double Joist Obstructions.

10.2.7.1.5.1

Unless the requirements of 10.2.7.1.5.2 are met, where two sets of joists are under a roof or ceiling, and no flooring is over the lower set, sprinklers shall be installed above and below the lower set of joists where a clearance of 6 in. (150 mm) or more is between the top of the lower joist and the bottom of the upper joist as indicated in Figure 10.2.7.1.5.1.

Figure 10.2.7.1.5.1 Arrangement of Sprinklers Under Two Sets of Open Joists — No Sheathing on Lower Joists.



10.2.7.1.5.2

Sprinklers shall be permitted to be omitted from below the lower set of joists where at least 18 in. (450 mm) is maintained between the sprinkler deflector and the top of the lower joist.

10.2.7.2 Deflector Orientation.

10.2.7.2.1

Unless the requirements of 10.2.7.2.2 or 10.2.7.2.3 are met, deflectors of sprinklers shall be aligned parallel to ceilings, roofs, hips, or the incline of stairs.

10.2.7.2.2

Where sprinklers are installed in the peak below a sloped ceiling or roof surface, the sprinkler shall be installed with the deflector parallel to the floor.

10.2.7.2.3

Where roofs having a pitch not exceeding 2 in 12 (16.7 percent) are considered horizontal in the application of 10.2.7.2, and sprinklers are installed under horizontal ceilings, the sprinklers shall be permitted to be installed with deflectors parallel to the floor.

10.2.8 Obstructions to Sprinkler Discharge (Standard Pendent and Upright Spray Sprinklers).**10.2.8.1 General.**

Sprinklers shall be located so as to minimize obstructions to discharge as defined in 10.2.8, or additional sprinklers shall be provided to ensure adequate coverage of the hazard.

10.2.8.2 * Obstructions At or Above the Deflector Affecting Sprinkler Discharge Pattern Development.

Where the top of the obstruction is level with or above the plane of the deflector, sprinklers shall be arranged to comply with one of the following:

- (1) Subsection 9.5.5.2, Table 10.2.8.2(a) or Table 10.2.8.2(b), and Figure 10.2.8.2(a) shall be followed.
- (2) Sprinklers shall be permitted to be spaced on opposite sides of obstructions not exceeding 4 ft (1.2 m) in width, provided the distance from the centerline of the obstruction to the sprinklers does not exceed one-half the allowable distance permitted between sprinklers.
- (3) Obstructions located against the wall and that are not over 30 in. (750 mm) in width shall be permitted to be protected in accordance with Figure 10.2.8.2(b).
- (4) Obstructions located against the wall and that are not over 24 in. (600 mm) in width shall be permitted to be protected in accordance with Figure 10.2.8.2(c). The maximum distance between the sprinkler and the wall shall be measured from the sprinkler to the wall behind the obstruction and not to the face of the obstruction.
- (5) Obstructions no greater than 12 in. (300 mm) in width in hallways up to 6 ft (1.8 m) in width shall be permitted in accordance with Figure 10.2.8.2(d) when the sprinkler is located within the allowable obstruction zone and the closest edge of the obstruction is a minimum of 12 in. (300 mm) away from the centerline of the sprinkler.
- (6) Sprinklers shall be installed below fixed obstructions over 4 ft (1.2 m) wide.
- (7) Sprinklers shall not be required under obstructions 4 ft. (1.2 m) or less wide when the provisions of Table 10.2.8.2(a) or Table 10.2.8.2(b) and Figure 10.2.8.2(a) are maintained.

Table 10.2.8.2(a) Positioning of Sprinklers to Avoid Obstructions to Discharge [Standard Spray Upright/Standard Spray Pendent (SSU/SSP)]

Distance from Sprinkler to Side of Obstruction (A) (ft)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (in.)
Less than 1	0
1 or more	2½ or less
1½ or more	3½ or less
2 or more	5½ or less
2½ or more	7½ or less
3 or more	9½ or less
3½ or more	12 or less
4 or more	14 or less
4½ or more	16½ or less
5 or more	18 or less
5½ or more	20 or less
6 or more	24 or less
6½ or more	30 or less
7 or more	35 or less

Note: For A and B, refer to Figure 10.2.8.2(a).

Table 10.2.8.2(b) Positioning of Sprinklers to Avoid Obstructions to Discharge [Standard Spray Upright/Standard Spray Pendent (SSU/SSP)]

Distance from Sprinkler to Side of Obstruction (A) (mm)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (mm)
Less than 300	0
300 or more	65 or less
450 or more	90 or less
600 or more	140 or less
750 or more	190 or less
900 or more	240 or less
1100 or more	300 or less
1200 or more	350 or less
1400 or more	420 or less
1500 or more	450 or less
1700 or more	510 or less
1800 or more	600 or less
2000 or more	750 or less
2100 or more	875 or less

Note: For A and B, refer to Figure 10.2.8.2(a).

Figure 10.2.8.2(a) Positioning of Sprinkler to Avoid Obstruction to Discharge (SSU/SSP).

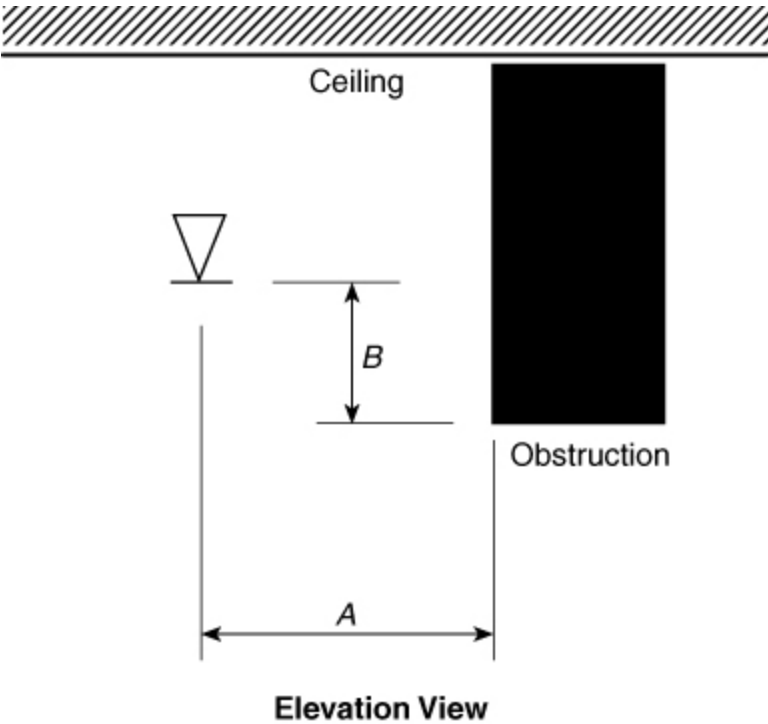


Figure 10.2.8.2(b) Obstruction Against Wall (SSU/SSP).

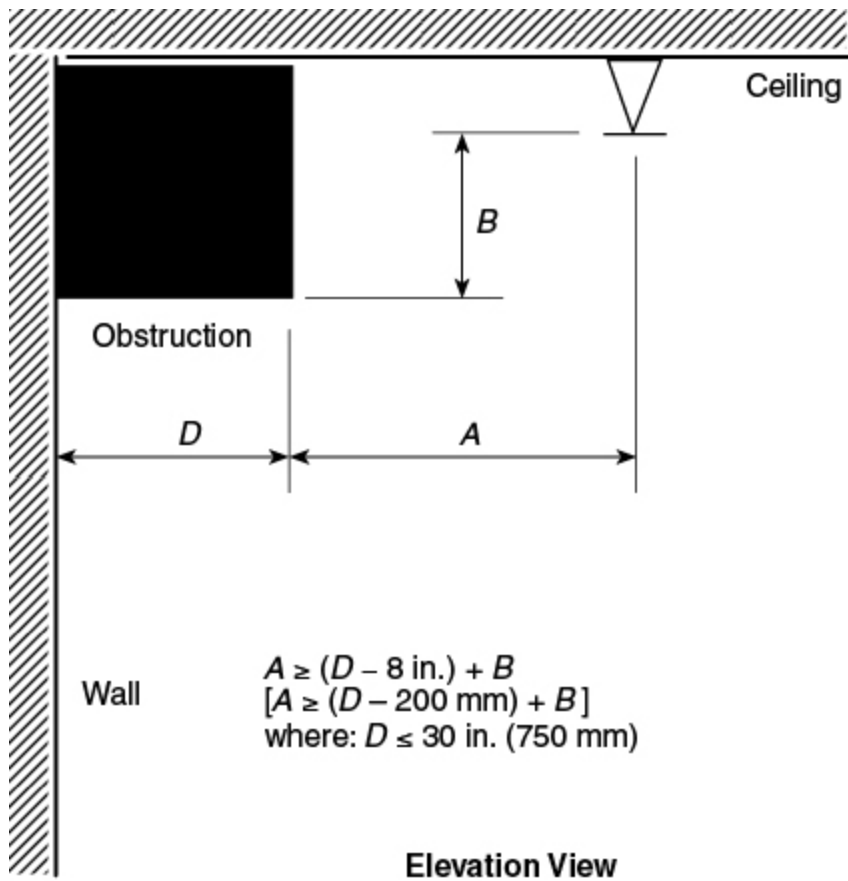


Figure 10.2.8.2(c) Obstructions Against Walls (SSU/SSP).

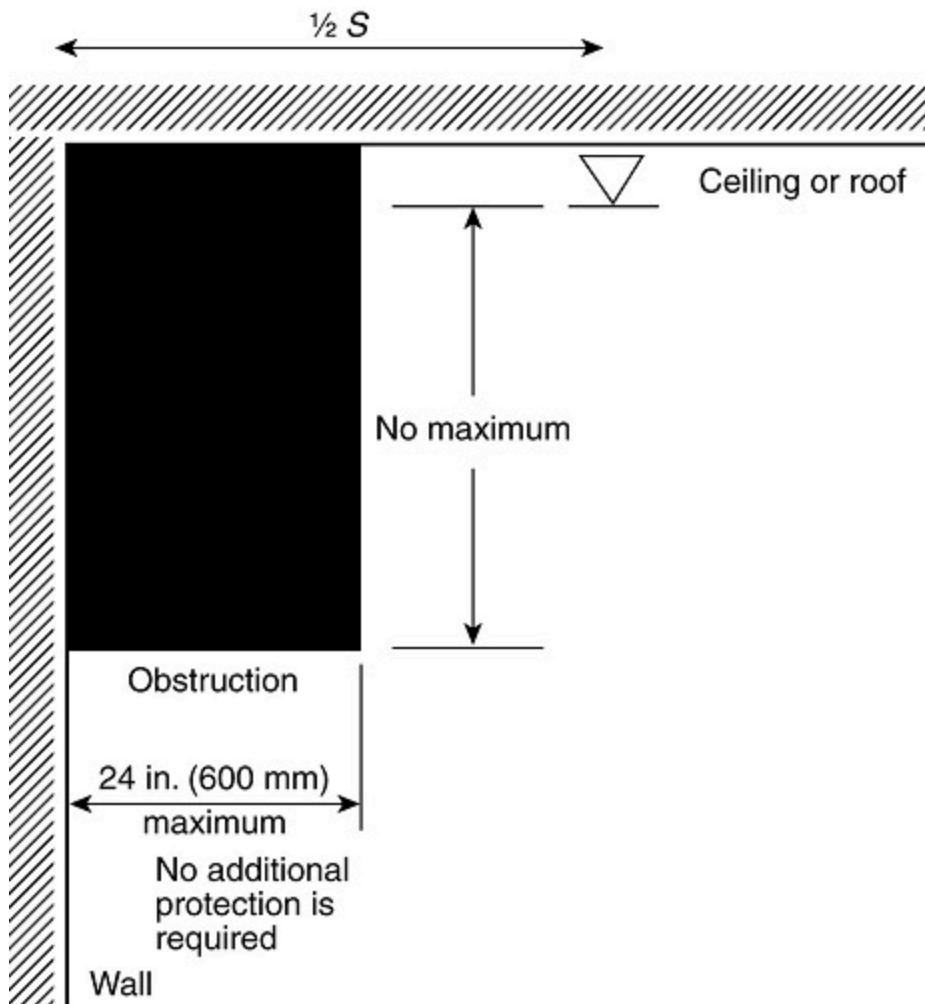
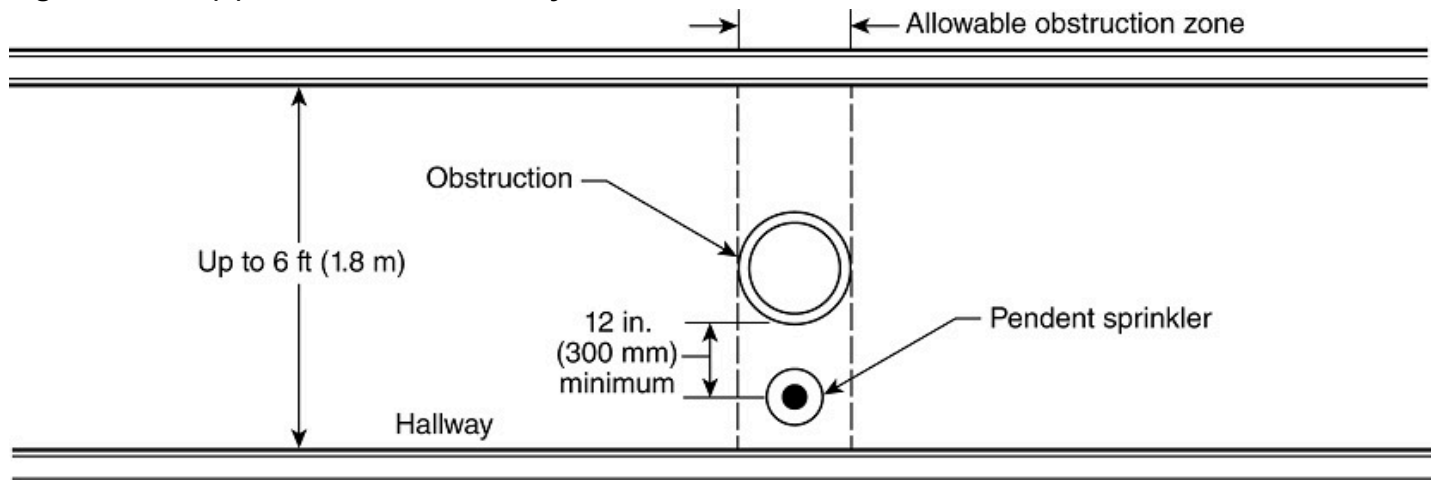


Figure 10.2.8.2(d) Obstruction in Hallway.**10.2.8.3 Obstructions Below the Deflector Affecting Sprinkler Discharge Pattern Development.****10.2.8.3.1 General.****10.2.8.3.1.1**

Continuous or noncontinuous obstructions less than or equal to 18 in. (450 mm) below the sprinkler deflector that prevent the pattern from fully developing shall comply with 10.2.8.3.

10.2.8.3.1.2

Regardless of the rules of 10.2.8.3, solid continuous obstructions, where the top of the obstruction is level with or above the plane of the deflector, shall meet the applicable requirements of 10.2.8.2.

10.2.8.3.1.3 * Clearance Below Sprinklers in Alcoves and Below Soffits.

In light hazard occupancies, obstructions below pendent sprinklers in alcove ceilings and under soffits shall not be required to maintain an 18 in. (450 mm) clearance to the sprinkler deflector as long as all of the following conditions are met:

- (1) The height of the alcove ceiling or bottom of the soffit doesn't exceed 10 ft (3 m) above the finished floor.
- (2) The floor area of the alcove or the protection area below the soffit doesn't exceed 50 ft² (4.5 m²).
- (3) The top of the obstruction is at least 1 in. (25 mm) below the plane of the sprinkler deflector.

10.2.8.3.1.4 * Minimum Distance from Obstructions.

Unless the requirements of 10.2.8.3.1.5 through 10.2.8.3.1.10 are met, sprinklers shall be positioned away from obstructions a minimum distance of three times the maximum dimension of the obstruction (e.g., structural members, pipe, columns, and fixtures) in accordance with Figure 10.2.8.3.1.4(a) and Figure 10.2.8.3.1.4(b).

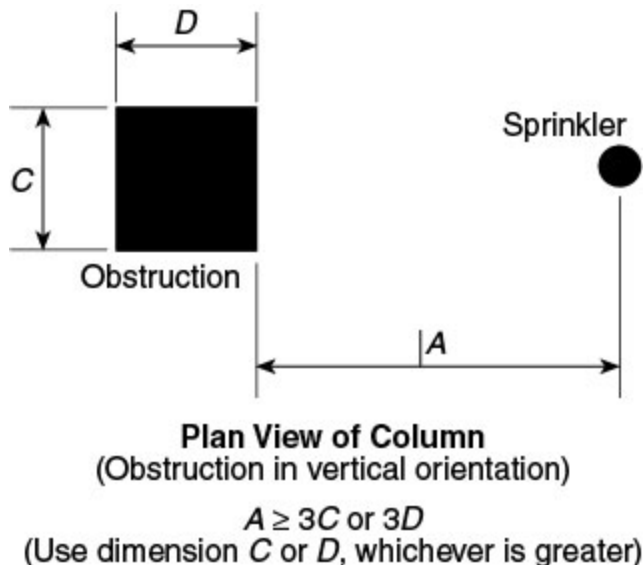
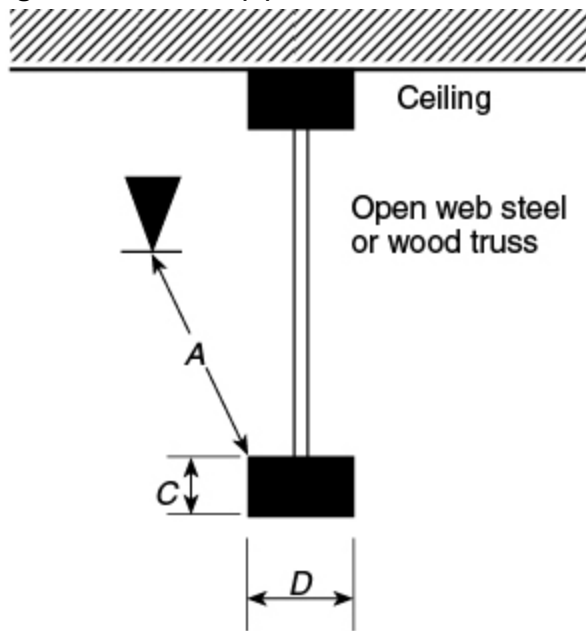
Figure 10.2.8.3.1.4(a) Minimum Distance from an Obstruction in the Vertical Orientation (SSU/SSP).

Figure 10.2.8.3.1.4(b) Minimum Distance from an Obstruction in the Horizontal Orientation (SSU/SSP).

Elevation View of Truss
(Obstruction in horizontal orientation)

$$A \geq 3C \text{ or } 3D$$

$$A \leq 24 \text{ in. (600 mm)}$$

(Use dimension *C* or *D*, whichever is greater)

(A)

The maximum clear distance required shall be 24 in. (600 mm).

(B)

The maximum clear distance shall not be applied to obstructions in the vertical orientation (e.g., columns).

10.2.8.3.1.5

For light and ordinary hazard occupancies, structural members only shall be considered when applying the requirements of 10.2.8.3.1.4.

10.2.8.3.1.6

Sprinklers shall be permitted to be spaced on opposite sides of the obstruction not exceeding 4 ft (1.2 m) in width, where the distance from the centerline of the obstruction to the sprinklers does not exceed one-half the allowable distance between sprinklers.

10.2.8.3.1.7

Sprinklers shall be permitted to be located one-half the distance between the obstructions where the obstruction consists of open trusses 20 in. (500 mm) or greater apart [24 in. (600 mm) on center], provided that all truss members are not greater than 4 in. (100 mm) (nominal) in width.

10.2.8.3.1.8

Sprinklers shall be permitted to be installed on the centerline of a truss or bar joist or directly above a beam, provided that the truss chord or beam dimension is not more than 8 in. (200 mm) and the sprinkler deflector is located at least 6 in. (150 mm) above the structural member and where the sprinkler is positioned at a distance three times greater than the maximum dimension of the web members away from the web members.

10.2.8.3.1.9

The requirements of 10.2.8.3.1.4 shall not apply to sprinkler system piping less than 3 in. (80 mm) in diameter.

10.2.8.3.1.10

The requirements of 10.2.8.3.1.4 shall not apply to sprinklers positioned with respect to obstructions in accordance with 10.2.8.2.

10.2.8.3.1.11 *

Sprinklers shall be permitted to be placed without regard to the blades of ceiling fans less than 60 in. (1.5 m) in diameter, provided the plan view of the fan is at least 50 percent open.

10.2.8.3.2 Suspended or Floor-Mounted Vertical Obstructions.

10.2.8.3.2.1

The distance from sprinklers to privacy curtains, freestanding partitions, room dividers, and similar obstructions in light hazard occupancies shall be in accordance with Table 10.2.8.3.2.1(a) or Table 10.2.8.3.2.1(b) and Figure 10.2.8.3.2.1.

Table 10.2.8.3.2.1(a) Suspended or Floor-Mounted Obstructions in Light Hazard Occupancies Only (SSU/SSP)

Horizontal Distance (A) (in.)	Minimum Vertical Distance Below Deflector (B) (in.)
6 or less	3 or more
9 or less	4 or more
12 or less	6 or more
15 or less	8 or more
18 or less	9½ or more
24 or less	12½ or more
30 or less	15½ or more
More than 30	18 or more

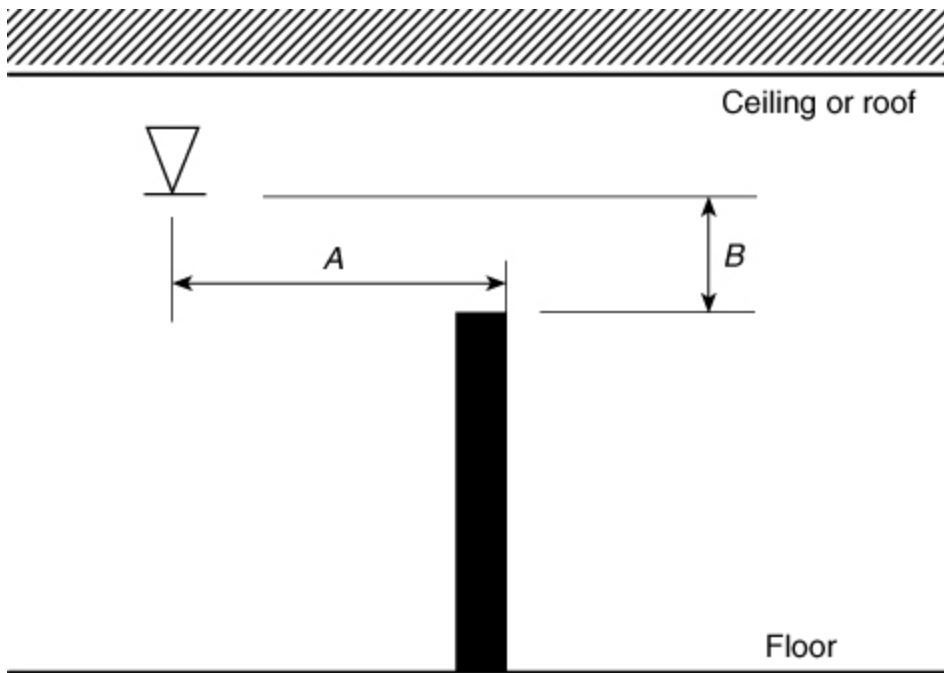
Note: For A and B, refer to Figure 10.2.8.3.2.1.

Table 10.2.8.3.2.1(b) Suspended or Floor-Mounted Obstructions in Light Hazard Occupancies Only (SSU/SSP)

Horizontal Distance (A) (mm)	Minimum Vertical Distance Below Deflector (B) (mm)
150 or less	75 or more
225 or less	100 or more
300 or less	150 or more
375 or less	200 or more
450 or less	240 or more
600 or less	315 or more
750 or less	390 or more
More than 750	450 or more

Note: For A and B, refer to Figure 10.2.8.3.2.1.

Figure 10.2.8.3.2.1 Suspended or Floor-Mounted Obstruction in Light Hazard Occupancies Only (SSU/SSP).

**10.2.8.3.2.2 ***

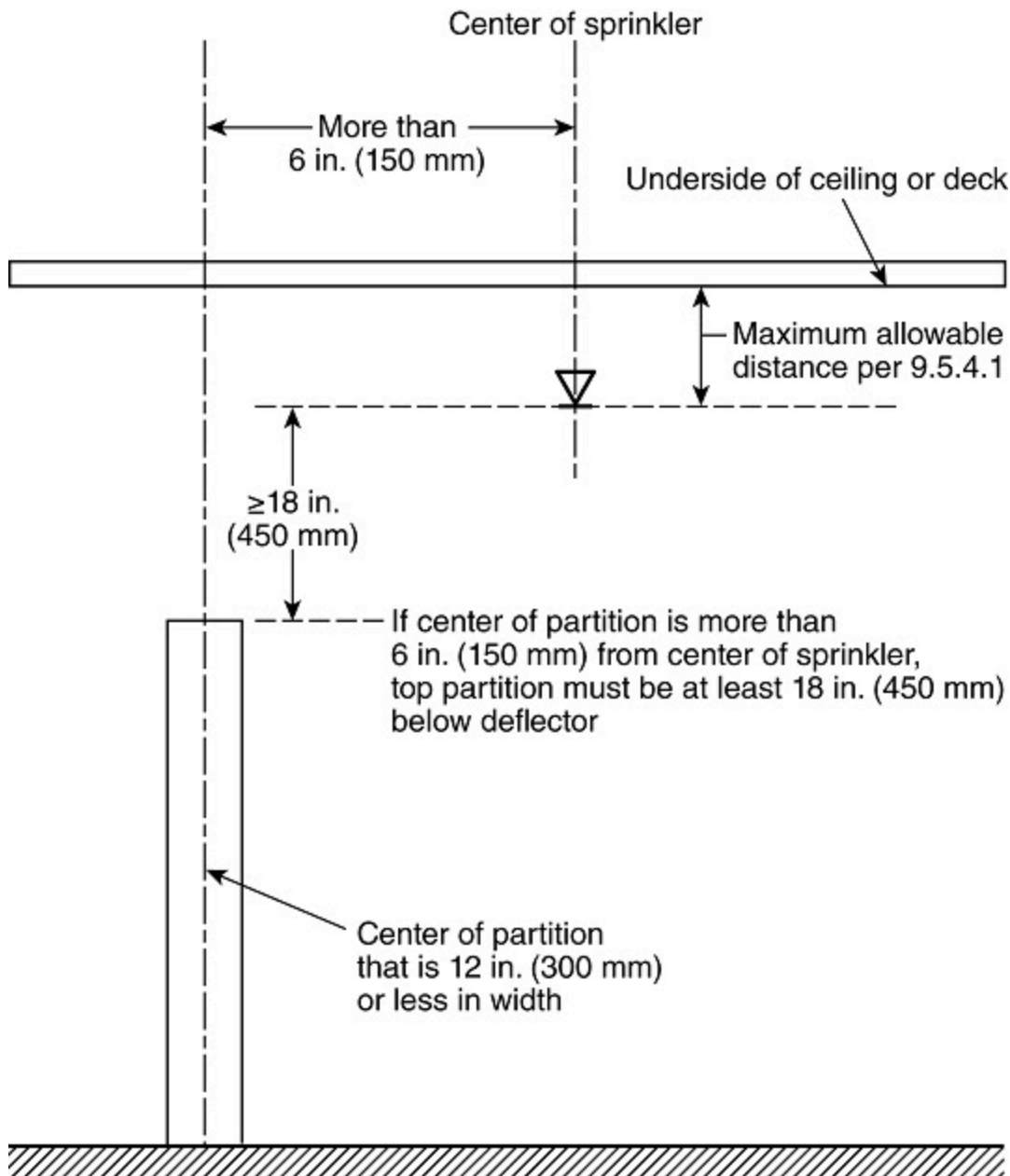
In light hazard occupancies, privacy curtains, as shown in Figure 10.2.8.3.2.1, shall not be considered obstructions where all of the following are met:

- (1) The curtains are supported by fabric mesh on ceiling track.
- (2) Openings in the mesh are equal to 70 percent or greater.
- (3) The mesh extends a minimum of 20 in. (500 mm) down from the sprinkler deflector.

10.2.8.3.2.3

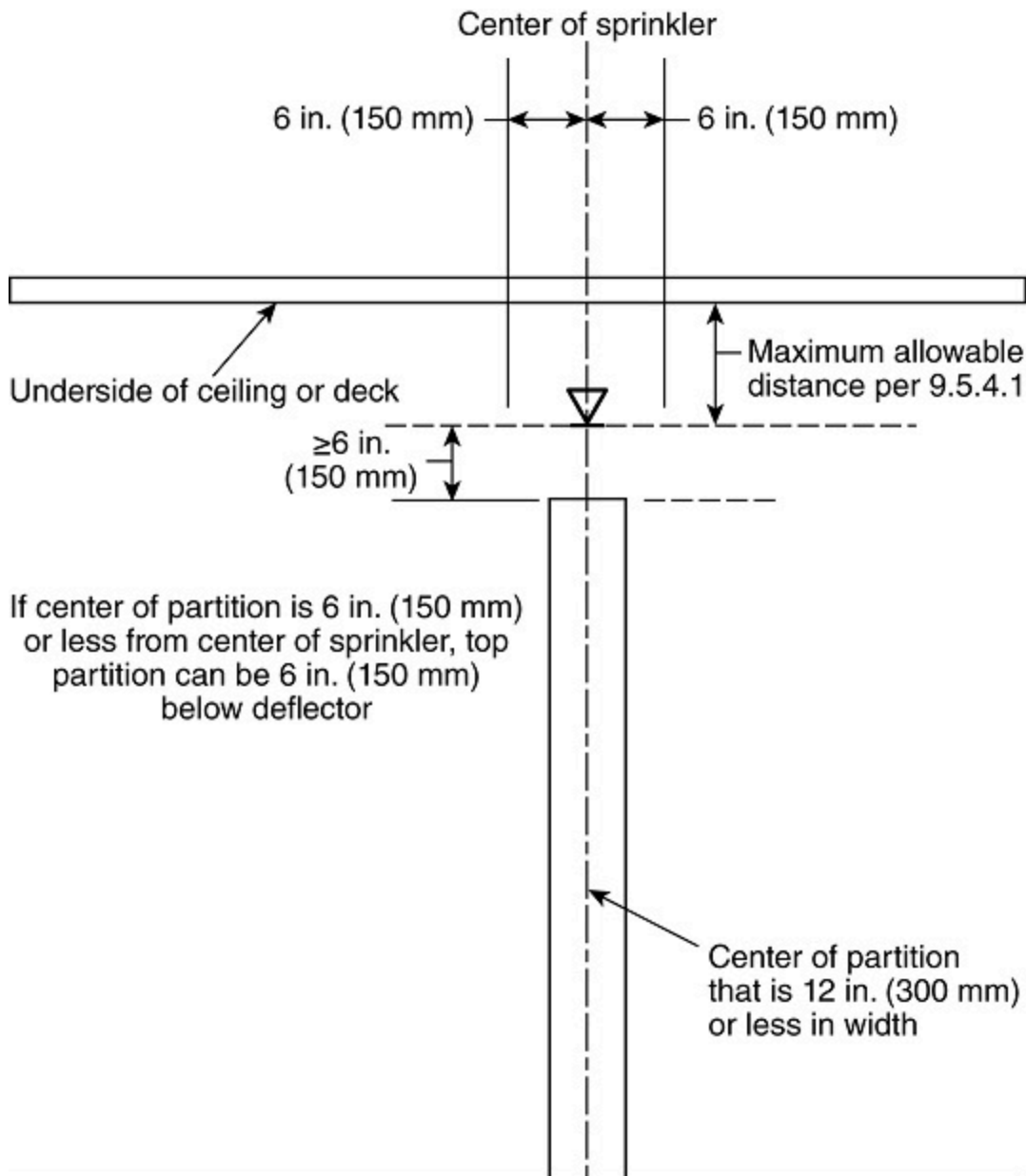
In ordinary hazard occupancies, where sprinklers are installed above freestanding partitions, room dividers, and similar obstructions, the distance from the sprinkler deflector to the top of the obstruction shall be 18 in. (450 mm) or greater per Figure 10.2.8.3.2.3.

Figure 10.2.8.3.2.3 Location of Suspended or Floor-Mounted Obstruction in Ordinary Hazard Occupancies (Sprinkler Located to the Side) (SSU/SSP).

**10.2.8.3.2.4**

In ordinary hazard occupancies, where sprinklers are installed within 6 in. (150 mm) horizontally of the centerline of freestanding partitions, room dividers, and similar obstructions no greater than 12 in. (300 mm) in width, the distance from the sprinkler deflector to the top of the obstruction shall be permitted to be installed 6 in. (150 mm) or greater vertically per Figure 10.2.8.3.2.4.

Figure 10.2.8.3.2.4 Location of Suspended or Floor-Mounted Obstruction in Ordinary Hazard Occupancies (Sprinkler Located Directly Above) (SSU/SSP).



10.2.8.4 Obstructions that Prevent Sprinkler Discharge from Reaching Hazard.

Continuous or noncontinuous obstructions that interrupt the water discharge in a horizontal plane more than 18 in. (450 mm) below the sprinkler deflector in a manner to limit the distribution from reaching the protected hazard shall comply with 9.5.5.3. (See A.9.5.5.3.1.)

10.2.9 Clearance to Storage (Standard Pendent and Upright Spray Sprinklers).

10.2.9.1 *

The clearance between the deflector and the top of storage shall be 18 in. (450 mm) or greater.

10.2.9.2

The 18 in. (450 mm) dimension shall not limit the height of shelving on a wall or shelving against a wall in accordance with 10.2.9.1.

10.2.9.2.1

Where shelving is installed on a wall and is not directly below sprinklers, the shelves, including storage thereon, shall be permitted to extend above the level of a plane located 18 in. (450 mm) below ceiling sprinkler deflectors.

10.2.9.2.2

Shelving, and any storage thereon, directly below the sprinklers shall not extend above a plane located 18 in. (450 mm) below the ceiling sprinkler deflectors.

10.2.9.3

The clearance between the top of storage to sprinkler deflectors shall not be less than 36 in. (900 mm) where rubber tires are stored.

10.2.9.4

Where other standards specify greater clearance to storage minimums, they shall be followed.

10.2.10 Ceiling Pockets (Standard Pendent and Upright Spray Sprinklers).**10.2.10.1 ***

Except as provided in 10.2.10.2 and 10.2.10.3, sprinklers shall be required in all ceiling pockets.

10.2.10.2

Sprinklers shall not be required in ceiling pockets where all of the following are met:

- (1) The total volume of the unprotected ceiling pocket does not exceed 1000 ft³ (28 m³).
- (2) The depth of the unprotected ceiling pocket does not exceed 36 in. (900 mm).
- (3) The entire floor under the unprotected ceiling pocket is protected by sprinklers at the lower ceiling elevation.
- (4)* The total size of all unprotected ceiling pockets in the same compartment within 10 ft (3 m) of each other does not exceed 1000 ft³ (28 m³).
- (5) The unprotected ceiling pocket has noncombustible or limited-combustible finishes.
- (6) Quick-response sprinklers are utilized throughout the compartment.

10.2.10.3

Sprinklers shall not be required in skylights and similar pockets in accordance with 9.3.16.

10.3 Sidewall Standard Spray Sprinklers.**10.3.1 General.**

All requirements of Section 9.5 shall apply to sidewall standard spray sprinklers except as modified in Section 10.3.

10.3.2 Sidewall Spray Sprinklers.

Sidewall sprinklers shall only be installed as follows:

- (1) In light hazard occupancies with smooth, horizontal ceilings
- (2) In light hazard occupancies with sloped, flat ceilings
- (3) In ordinary hazard occupancies with smooth, flat ceilings, where specifically listed for such use, and ceiling height does not exceed 30 ft (9.1 m)
- (4) To protect areas below overhead doors
- (5) At the top and bottom of elevator hoistways
- (6) For the protection of steel building columns
- (7) Under obstructions that require sprinklers
- (8) For the protection of exterior projections and similar structures
- (9)* Under cars in car stackers and car lift systems with cars stacked vertically placed under each level of cars

10.3.2.1

For purposes of 10.3.2(1) and 10.3.2(3), corrugated metal deck with channel depths up to 4 in. (100 mm) shall be considered as smooth ceilings.

10.3.3 Protection Areas per Sprinkler (Standard Sidewall Spray Sprinklers).**10.3.3.1 Determination of Protection Area of Coverage.****10.3.3.1.1**

The protection area of coverage per sprinkler (A_s) shall be determined as follows:

- (1) Along the wall as follows:
 - (a) Determine the distance between sprinklers along the wall (or to the end wall or obstruction in the case of the end sprinkler on the branch line) upstream and downstream
 - (b) Choose the larger of either twice the distance to the end wall or the distance to the next sprinkler

(c) Define dimension as S

(2) Across the room as follows:

(a) Determine the distance from the wall on which the sprinkler is installed to the wall opposite the sprinklers or to the midpoint of the room where sprinklers are installed on two opposite walls (see 10.3.4.1.5 and 10.3.4.1.6)

(b) Define dimension as L

10.3.3.1.2

The protection area of the sprinkler shall be established by multiplying the S dimension by the L dimension, as follows:

$$A_s = S \times L \quad [10.3.3.1.2]$$

10.3.3.2 Maximum Protection Area of Coverage.

10.3.3.2.1

The maximum allowable protection area of coverage for a sprinkler (A_s) shall be in accordance with the value indicated in Table 10.3.3.2.1.

Table 10.3.3.2.1 Protection Areas and Maximum Spacing (Standard Sidewall Spray Sprinkler)

	Light Hazard		Ordinary Hazard	
	Combustible Ceiling Finish	Noncombustible or Limited- Combustible Ceiling Finish	Combustible Ceiling Finish	Noncombustible or Limited- Combustible Ceiling Finish
Maximum distance along the wall (S) (ft) [m]	14 [4.3]	14 [4.3]	10 [3.0]	10 [3.0]
Maximum room width (L) (ft) [m]	12 [3.7]	14 [4.3]	10 [3.0]	10 [3.0]
Maximum protection area (ft ²) [m ²]	120 [11]	196 [18]	80 [7.4]	100 [9.3]

10.3.3.2.2

In any case, the maximum area of coverage of a sprinkler shall not exceed 196 ft² (18 m²).

10.3.4 Sprinkler Spacing (Standard Sidewall Spray Sprinklers).

10.3.4.1 Maximum Distance Between Sprinklers.

10.3.4.1.1

The maximum distance permitted between sidewall spray sprinklers shall be based on the centerline distance between sprinklers on the branch line.

10.3.4.1.2

The maximum distance between sidewall spray sprinklers or to a wall shall be measured along the slope of the ceiling.

10.3.4.1.3

Where sidewall spray sprinklers are installed along the length of a single wall of rooms or bays, they shall be spaced in accordance with the maximum spacing provisions of Table 10.3.3.2.1.

10.3.4.1.4

Sidewall spray sprinklers shall not be installed back-to-back without being separated by a continuous lintel or soffit.

10.3.4.1.4.1

The maximum width of the lintel or soffit shall not exceed 16 in. (400 mm).

10.3.4.1.4.2

The lintel or soffit shall project a minimum of 4 in. (100 mm) below the deflector of the back-to-back horizontal sidewall sprinklers.

10.3.4.1.4.3

The maximum width of the lintel or soffit can exceed 16 in. (400 mm) when a pendent sprinkler is installed under the lintel or soffit.

10.3.4.1.5

Where sidewall spray sprinklers are installed on two opposite walls or sides of bays, the maximum width of the room or bay shall be permitted to be up to 24 ft (7.3 m) for light hazard occupancy or 20 ft (6.1 m) for ordinary hazard occupancy, with spacing as required by Table 10.3.3.2.1.

10.3.4.1.6

Sidewall spray sprinklers shall be permitted to be installed on opposing or adjacent walls, provided no sprinkler is located within the maximum protection area of another sprinkler.

10.3.4.1.7

Where sidewall standard spray sprinklers are installed to protect areas below overhead doors within ordinary hazard occupancy spaces or rooms, protection area and maximum sprinkler spacing for light hazard as specified in Table 10.3.3.2.1 shall be permitted under the overhead doors.

10.3.4.2 Maximum Distance from Walls.

The distance from sprinklers to the end walls shall not exceed one-half of the allowable distance permitted between sprinklers as indicated in Table 10.3.3.2.1.

10.3.4.3 Minimum Distance from Walls.**10.3.4.3.1**

Sprinklers shall be located a minimum of 4 in. (100 mm) from an end wall.

10.3.4.4 Minimum Distance Between Sprinklers.

Sprinklers shall be spaced not less than 6 ft (1.8 m) on center unless required by 10.3.5.1.3.1 or unless the sprinklers are separated by baffles that comply with the following:

- (1) Baffles shall be arranged to protect the actuating elements.
- (2) Baffles shall be of solid and rigid material that will stay in place before and during sprinkler operation.
- (3) Baffles shall be not less than 8 in. (200 mm) long and 6 in. (150 mm) high.
- (4) The tops of baffles shall extend between 2 in. and 3 in. (50 mm and 75 mm) above the deflectors.
- (5) The bottoms of baffles shall extend downward to a level at least even with the deflectors.

10.3.5 Deflector Position from Ceilings and Walls (Standard Sidewall Spray Sprinklers).**10.3.5.1 Distance Below Ceilings and from Walls.****10.3.5.1.1 Ceilings.****10.3.5.1.1.1**

Unless the requirements of 10.3.5.1.1.2 are met, sidewall sprinkler deflectors shall be located not more than 6 in. (150 mm) or less than 4 in. (100 mm) from ceilings.

10.3.5.1.1.2

Horizontal sidewall sprinklers shall be permitted to be located in a zone 6 in. to 12 in. (150 mm to 300 mm) or 12 in. to 18 in. (300 mm to 450 mm) below noncombustible and limited-combustible ceilings where listed for such use.

10.3.5.1.2 Walls.**10.3.5.1.2.1 ***

Vertical sidewall sprinkler deflectors shall be located not more than 6 in. (150 mm) or less than 4 in. (100 mm) from the wall from which they are projecting.

10.3.5.1.2.2

Horizontal sidewall sprinkler deflectors shall be located no more than 6 in. (150 mm), and shall be permitted to be located with their deflectors less than 4 in. (100 mm), from the wall on which they are mounted.

10.3.5.1.3 Lintels and Soffits.**10.3.5.1.3.1**

Where soffits used for the installation of sidewall sprinklers exceed 8 in. (200 mm) in width or projection from the wall, additional sprinklers shall be installed below the soffit.

10.3.5.1.3.2 *

Where soffits used for the installation of sidewall sprinklers are less than or equal to 8 in. (200 mm) in width or projection from the wall, additional sprinklers shall not be required below the soffit when the sidewall sprinkler is installed on the soffit.

10.3.5.1.3.3 *

A sidewall sprinkler shall be permitted to be installed under a soffit when both the minimum distance from the sprinkler deflector to the bottom of the soffit and maximum distance from the sprinkler deflector to the high ceiling is maintained.

10.3.5.1.4 * Soffits and Cabinets.

Where soffits are used for the installation of sidewall sprinklers, the sprinklers and soffits shall be installed in accordance with 10.3.5.1.4.1, 10.3.5.1.4.2, or 10.3.5.1.4.3.

10.3.5.1.4.1

Where soffits exceed more than 8 in. (200 mm) in width or projection from the wall, pendent sprinklers shall be installed under the soffit.

10.3.5.1.4.2

Sidewall sprinklers shall be permitted to be installed in the face of a soffit located directly over cabinets, without requiring additional sprinklers below the soffit or cabinets, where the soffit does not project horizontally more than 12 in. (300 mm) from the wall.

10.3.5.1.4.3

Where sidewall sprinklers are more than 36 in. (900 mm) above the top of cabinets, the sprinkler shall be permitted to be installed on the wall above the cabinets where the cabinets are no greater than 12 in. (300 mm) from the wall.

10.3.5.2 Deflector Orientation.**10.3.5.2.1**

Sidewall sprinklers, where installed under a sloped ceiling with a slope exceeding 2 in 12, shall be located at the high point of the slope and positioned to discharge downward along the slope.

10.3.6 Obstructions to Sprinkler Discharge (Standard Sidewall Spray Sprinklers).**10.3.6.1 Performance Objective.****10.3.6.1.1**

Sprinklers shall be located so as to minimize obstructions to discharge as defined in 9.5.5.2 and 9.5.5.3, or additional sprinklers shall be provided to ensure adequate coverage of the hazard.

10.3.6.1.2

Sidewall sprinklers shall not be installed less than 4 ft (1.2 m) from light fixtures or similar obstructions unless the requirements of 10.3.6.1.2.1 or 10.3.6.1.2.2 are met.

10.3.6.1.2.1

For obstructions such as light fixtures, where the greatest dimension of the obstruction is less than 2 ft (0.6 m), sidewall sprinklers shall be permitted to be installed at a minimum distance of three times the greatest dimension.

10.3.6.1.2.2

The bottom of light fixtures and similar obstructions located less than 4 ft (1.2 m) from the sprinkler shall be above the plane of the sprinkler deflector.

10.3.6.1.3

The distance between light fixtures or similar obstructions located 4 ft (1.2 m) or greater from the sprinkler shall be in conformity with Table 10.3.6.1.3(a) or Table 10.3.6.1.3(b) and Figure 10.3.6.1.3.

Table 10.3.6.1.3(a) Positioning of Sprinklers to Avoid Obstructions to Discharge (Standard Spray Sidewall)

Distance from Sprinkler to Side of Obstruction (A) (ft)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (in.)
Less than 4	0
4 or more	1 or less
5 or more	2 or less
5½ or more	3 or less
6 or more	4 or less
6½ or more	6 or less
7 or more	7 or less
7½ or more	9 or less
8 or more	11 or less
8½ or more	14 or less

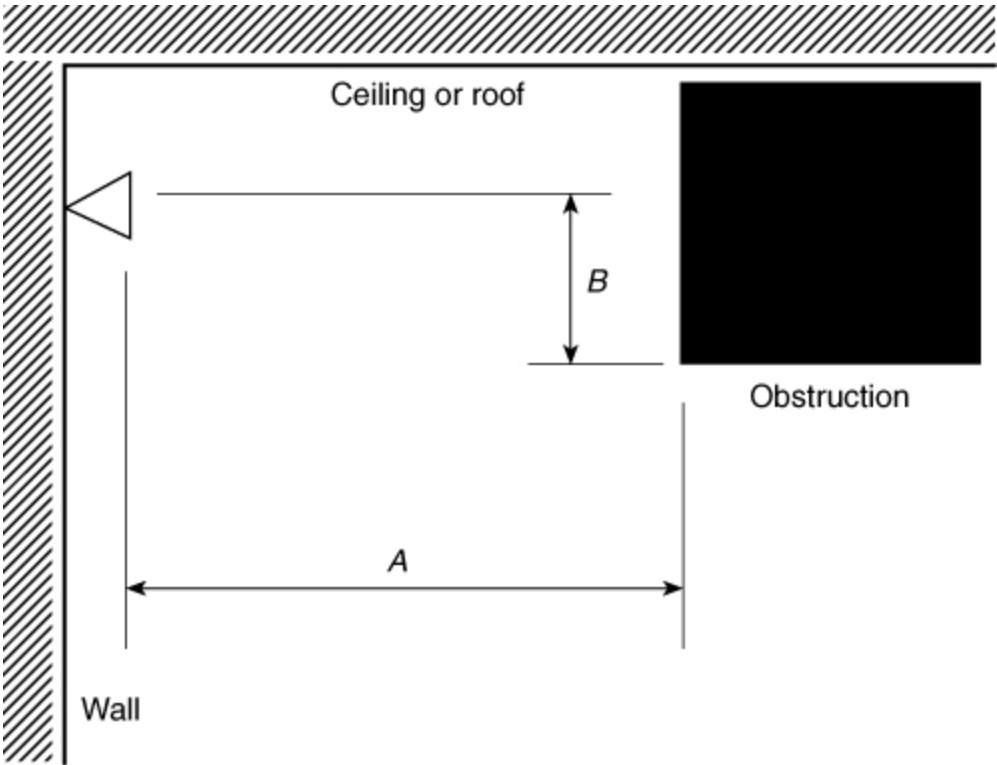
Note: For A and B, refer to Figure 10.3.6.1.3.

Table 10.3.6.1.3(b) Positioning of Sprinklers to Avoid Obstructions to Discharge (Standard Spray Sidewall)

Distance from Sprinkler to Side of Obstruction (A) (mm)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (mm)
Less than 1200	0
1200 or more	25 or less
1500 or more	50 or less
1700 or more	75 or less
1800 or more	100 or less
2000 or more	150 or less
2100 or more	175 or less
2300 or more	225 or less
2400 or more	275 or less
2600 or more	350 or less

Note: For A and B, refer to Figure 10.3.6.1.3.

Figure 10.3.6.1.3 Positioning of Sprinkler to Avoid Obstruction (Standard Sidewall Spray Sprinklers).



Elevation View

10.3.6.1.4

Obstructions projecting from the same wall as the one on which the sidewall sprinkler is mounted shall be in accordance with one of the following:

- (1) Sprinklers shall be installed in accordance with Table 10.3.6.1.4(a) or Table 10.3.6.1.4(b) and Figure 10.3.6.1.4(a).
- (2) Sprinklers shall be permitted to be spaced on opposite sides of obstructions less than 4 ft (1.2 m) in width where the distance from the centerline of the obstruction to the sprinklers does not exceed one-half the allowable distance between sprinklers.
- (3) Obstructions located against a wall and that are not over 30 in. (750 mm) in width shall be permitted to be protected in accordance with Figure 10.3.6.1.4(b).
- (4) Obstructions located against a wall and that are not over 24 in. (600 mm) in width shall be permitted to be protected in accordance with Figure 10.3.6.1.4(c). The maximum distance between the sprinkler and the wall shall be measured from the sprinkler to the wall behind the obstruction and not to the face of the obstruction.

Table 10.3.6.1.4(a) Positioning of Sprinklers to Avoid Obstructions Along Wall (Standard Spray Sidewall Sprinklers)

Distance from Sprinkler to Side of Obstruction (A)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (in.)
Less than 4 in.	0
4 in. or more	1 or less
6 in. or more	2 or less
1 ft or more	3 or less
1 1/2 ft or more	4 1/2 or less
2 ft or more	5 3/4 or less
2 1/2 ft or more	7 or less
3 ft or more	8 or less
3 1/2 ft or more	9 1/4 or less
4 ft or more	10 or less

Distance from Sprinkler to Side of Obstruction (A)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (in.)
4½ ft or more	11½ or less
5 ft or more	12¾ or less
5½ ft or more	14 or less
6 ft or more	15 or less
6½ ft or more	16¼ or less
7 ft or more	17½ or less

Note: For A and B, refer to Figure 10.3.6.1.4(a).

Table 10.3.6.1.4(b) Positioning of Sprinklers to Avoid Obstructions Along Wall (Standard Spray Sidewall Sprinklers)

Distance from Sprinkler to Side of Obstruction (A) (mm)	Allowable Distance of Deflector Above Bottom of Obstruction (B) (mm)
Less than 100	0
100 or more	25 or less
150 or more	50 or less
300 or more	75 or less
450 or more	115 or less
600 or more	145 or less
750 or more	175 or less
900 or more	200 or less
1100 or more	230 or less
1200 or more	250 or less
1400 or more	290 or less
1500 or more	320 or less
1700 or more	350 or less
1800 or more	375 or less
2000 or more	410 or less
2200 or more	440 or less

Note: For A and B, refer to Figure 10.3.6.1.4(a).

Figure 10.3.6.1.4(a) Positioning of Sprinkler to Avoid Obstruction Along Wall (Standard Sidewall Spray Sprinklers).

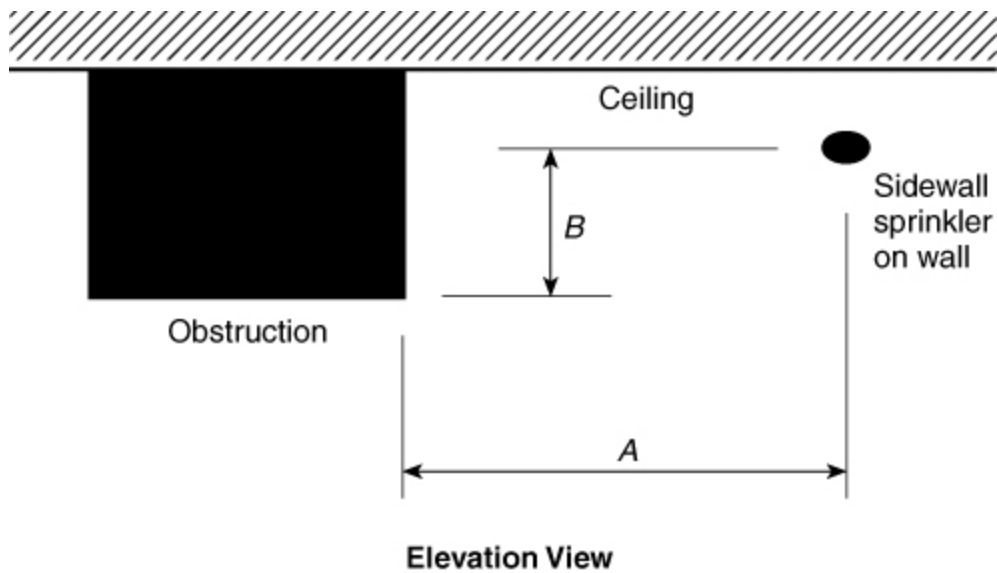


Figure 10.3.6.1.4(b) Obstruction Against Wall (Standard Sidewall Spray Sprinklers).

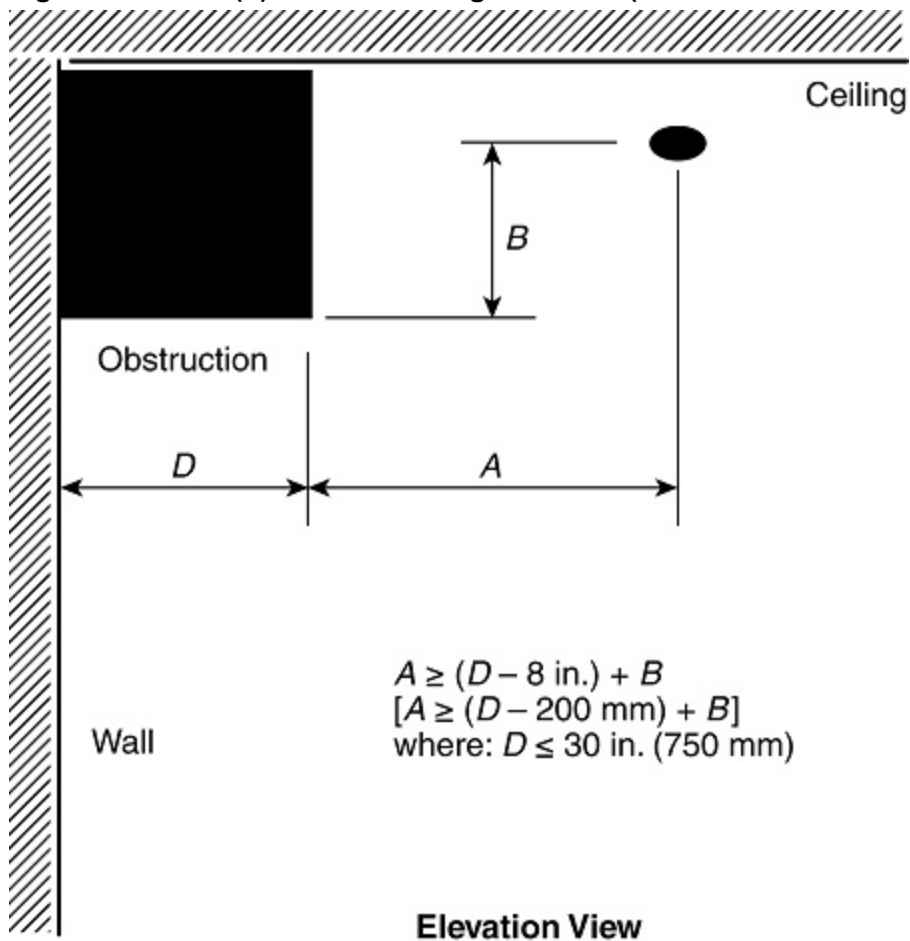
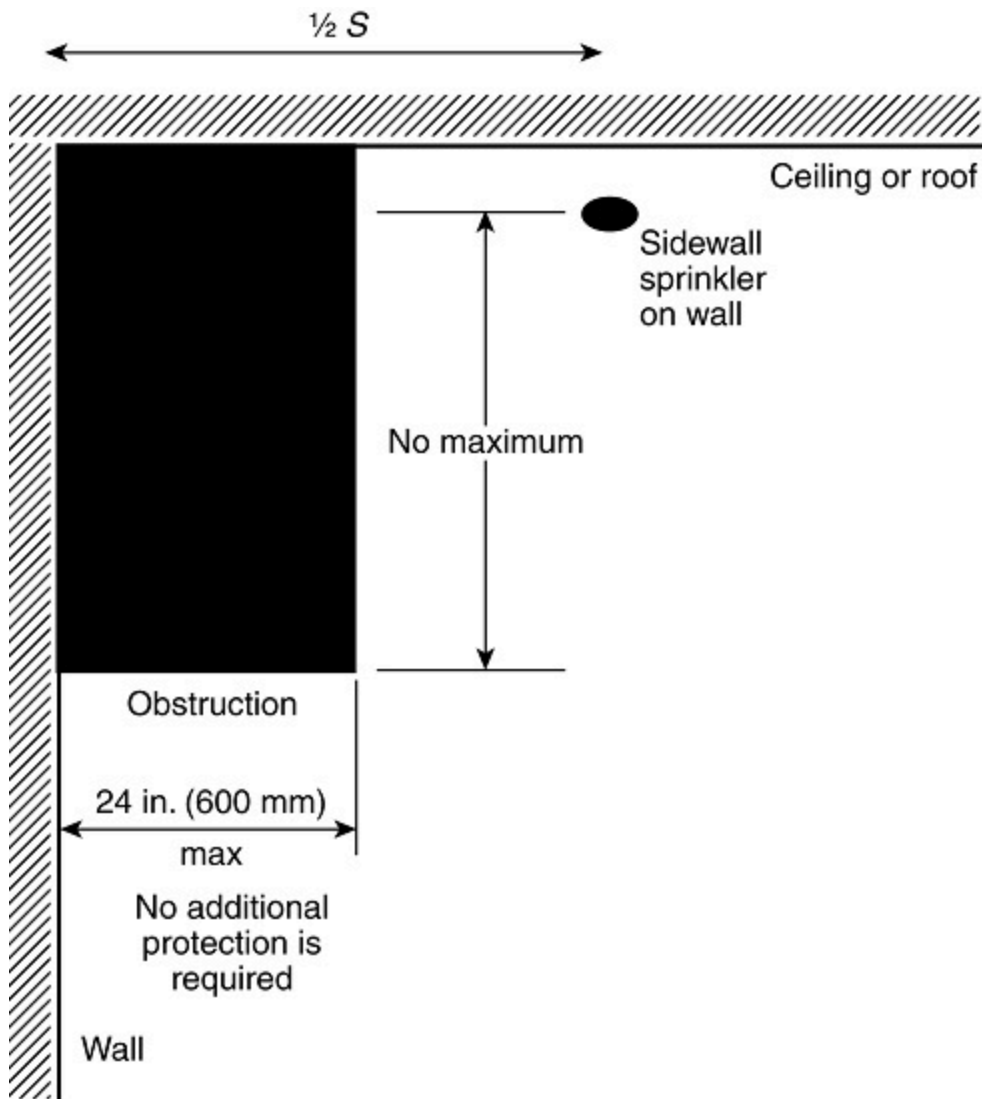


Figure 10.3.6.1.4(c) Obstruction Against Wall (Standard Sidewall Spray Sprinklers).

**10.3.6.1.4.1**

Isolated obstructions projecting from the same wall as the one on which the sidewall sprinkler is mounted shall be located a minimum of 4 in. (100 mm) from the sidewall sprinkler.

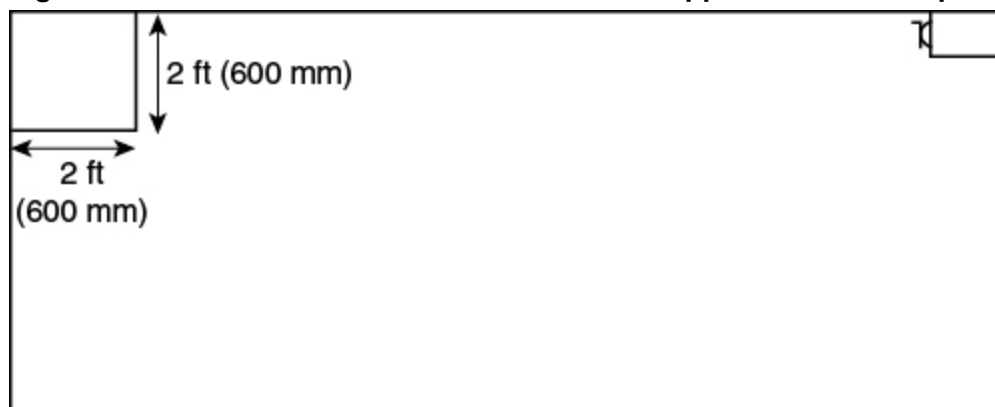
10.3.6.1.5

Sprinklers shall be permitted to be spaced on opposite sides of obstructions less than 4 ft (1.2 m) in width where the distance from the centerline of the obstruction to the sprinklers does not exceed one-half the allowable distance between sprinklers.

10.3.6.1.6

Obstructions on the wall opposite from the sidewall sprinkler shall be permitted in accordance with Figure 10.3.6.1.6.

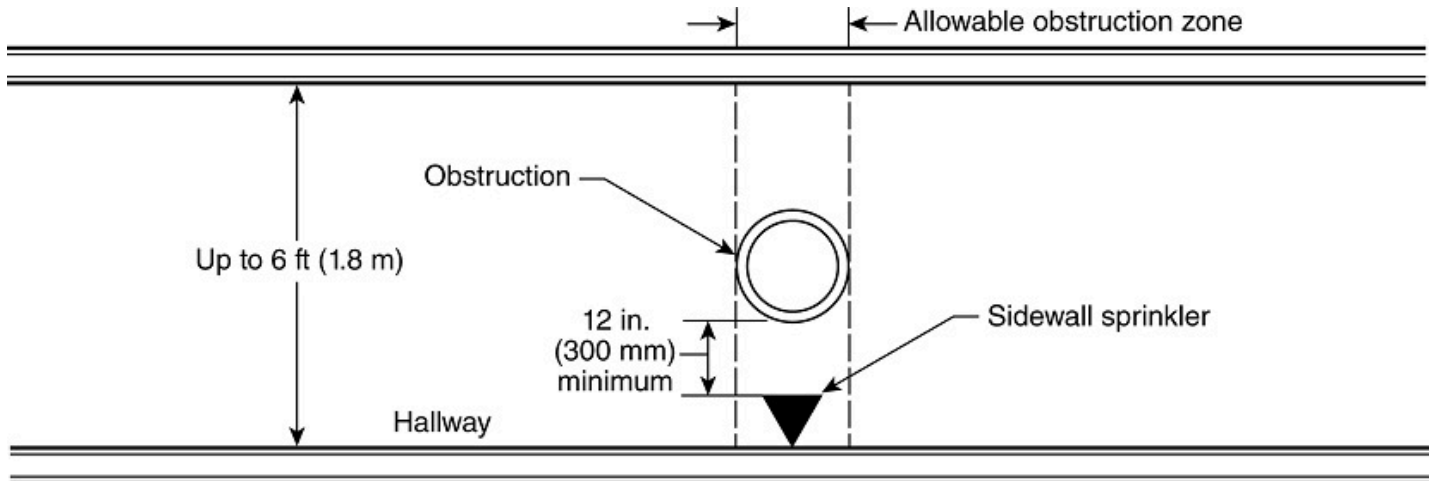
Figure 10.3.6.1.6 Permitted Obstruction on Wall Opposite Sidewall Sprinkler.



10.3.6.1.7

Obstructions up to 12 in. (300 mm) in width in hallways up to 6 ft (1.8 m) in width shall be permitted in accordance with Figure 10.3.6.1.7 when the sprinkler is located in the allowable obstruction zone and the closest edge of the obstruction is a minimum of 12 in. (300 mm) away from the deflector.

Figure 10.3.6.1.7 Sprinkler Obstruction in Hallways (Standard Spray Sidewall Sprinklers).

**10.3.6.2 Obstructions to Sprinkler Discharge Pattern Development.****10.3.6.2.1 General.****10.3.6.2.1.1**

Continuous or noncontinuous obstructions less than or equal to 18 in. (450 mm) below the sprinkler deflector that prevent the pattern from fully developing shall comply with this section.

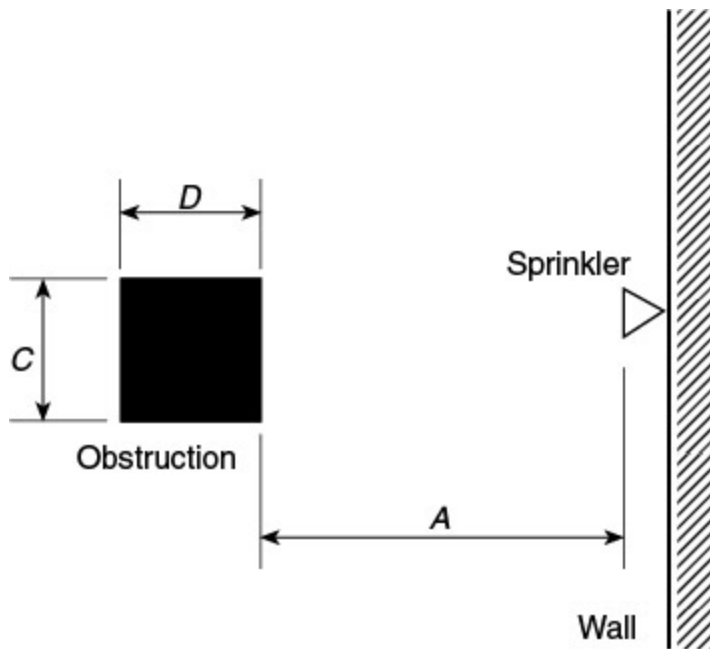
10.3.6.2.1.2

Regardless of the rules of this section, solid continuous obstructions shall meet the requirements of 10.3.6.1.2 and 10.3.6.1.3.

10.3.6.2.1.3 *

Unless the requirements of 10.3.6.2.1.4 or 10.3.6.2.1.5 are met, sprinklers shall be positioned away from obstructions a minimum distance of three times the maximum dimension of the obstruction (e.g., truss webs and chords, pipe, columns, and fixtures) in accordance with Figure 10.3.6.2.1.3(a) and Figure 10.3.6.2.1.3(b).

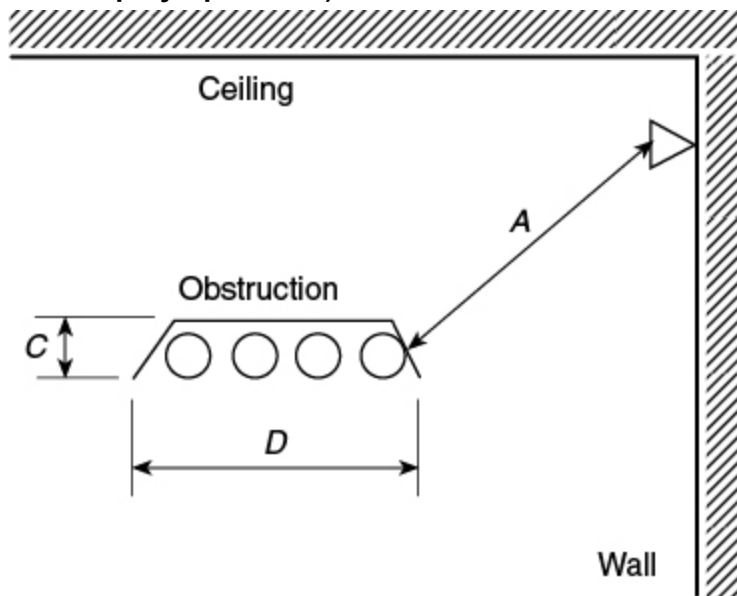
Figure 10.3.6.2.1.3(a) Minimum Distance from an Obstruction in the Vertical Orientation (Standard Sidewall Spray Sprinklers).



Plan View of Column
(Obstruction in vertical orientation)

$A \geq 3C$ or $3D$
(Use dimension C or D , whichever is greater)

Figure 10.3.6.2.1.3(b) Minimum Distance from an Obstruction in the Horizontal Orientation (Standard Sidewall Spray Sprinklers).



Elevation View of Pipe Conduit or Light Fixture

$A \geq 3C$ or $3D$
 $A \leq 24$ in. (600 mm)

(Use dimension C or D , whichever is greater)

(A)

The maximum clear distance required to obstructions in the horizontal orientation (e.g., light fixtures and truss chords) shall be 24 in. (600 mm).

(B)

The maximum clear distance shall not be applied to obstructions in the vertical orientation (e.g., columns).

10.3.6.2.1.4

The requirements of 10.3.6.2.1.3 shall not apply to sprinkler system piping less than 3 in. (80 mm) in diameter.

10.3.6.2.1.5

The requirements of 10.3.6.2.1.3 shall not apply where sprinklers are positioned with respect to obstructions in accordance with 10.3.6.1.2, 10.3.6.1.3, and 10.3.6.1.4.

10.3.6.2.1.6 *

Sprinklers shall be permitted to be placed without regard to the blades of ceiling fans less than 60 in. (1.5 m) in diameter, provided the plan view of the fan is at least 50 percent open.

10.3.6.2.2 Suspended or Floor-Mounted Vertical Obstructions.

The distance from sprinklers to privacy curtains, free-standing partitions, room dividers, and similar obstructions in light hazard occupancies shall be in accordance with Table 10.3.6.2.2(a) or Table 10.3.6.2.2(b) and Figure 10.3.6.2.2.

Table 10.3.6.2.2(a) Suspended or Floor-Mounted Obstructions in Light Hazard Occupancies Only (Standard Spray Sidewalls)

Horizontal Distance (A) (in.)	Minimum Vertical Distance Below Deflector (B) (in.)
6 or less	3 or more
9 or less	4 or more
12 or less	6 or more
15 or less	8 or more
18 or less	9½ or more
24 or less	12½ or more
30 or less	15½ or more
More than 30	18 or more

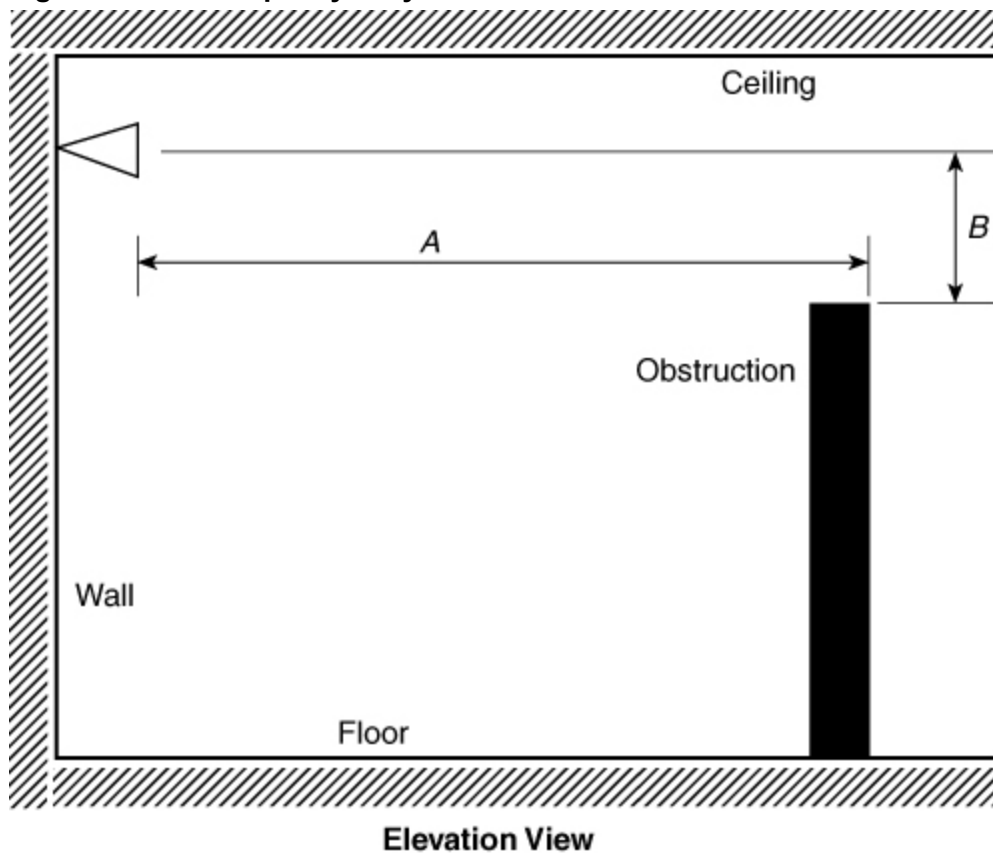
Note: For A and B, refer to Figure 10.3.6.2.2.

Table 10.3.6.2.2(b) Suspended or Floor-Mounted Obstructions in Light Hazard Occupancies Only (Standard Spray Sidewalls)

Horizontal Distance (A) (mm)	Minimum Vertical Distance Below Deflector (B) (mm)
150 or less	75 or more
225 or less	100 or more
300 or less	150 or more
375 or less	200 or more
450 or less	240 or more
600 or less	315 or more
750 or less	390 or more
More than 750	450 or more

Note: For A and B, refer to Figure 10.3.6.2.2.

Figure 10.3.6.2.2 Suspended or Floor-Mounted Obstruction (Standard Sidewall Spray Sprinklers) in Light Hazard Occupancy Only.



10.3.6.2.2.1 *

In light hazard occupancies, privacy curtains, as shown in Figure 10.3.6.2.2, shall not be considered obstructions where all of the following are met:

- (1) The curtains are supported by fabric mesh on ceiling track.
- (2) Openings in the mesh are equal to 70 percent or greater.
- (3) The mesh extends a minimum of 20 in. (500 mm) down from the sprinkler deflector.

10.3.6.3 Obstructions that Prevent Sprinkler Discharge from Reaching Hazard.

Supplemental sprinklers shall be installed below continuous or noncontinuous fixed obstructions over 4 ft (1.2 m) in width that interrupt the water discharge in a horizontal plane more than 18 in. (450 mm) below the ceiling sprinkler deflector. (See A.9.5.5.3.1.)

10.3.7 Clearance to Storage (Standard Sidewall Spray Sprinklers). (See 10.2.9.4.)

10.3.7.1

The clearance between the deflector and the top of storage shall be 18 in. (450 mm) or greater.

10.3.7.2

The 18 in. (450 mm) dimension shall not limit the height of shelving on a wall or shelving against a wall in accordance with 10.3.7.1.

10.3.7.2.1

Where shelving is installed on a wall and is not directly below sprinklers, the shelves, including storage thereon, shall be permitted to extend above the level of a plane located 18 in. (450 mm) below ceiling sprinkler deflectors.

10.3.7.2.2

Shelving, and any storage thereon, directly below the sprinklers shall not extend above a plane located 18 in. (450 mm) below the ceiling sprinkler deflectors.

10.3.7.3

Where other standards specify greater clearance to storage minimums, they shall be followed.