FireLock® Residential Sprinklers

V2730 and V2732 Pendent (V2730 and V2732 Recessed Pendent Not Shown)

V2734, V2736, and V2742 Concealed Pendents

V2738 Horizontal Sidewall (V2738 Recessed Horizontal Sidewall Not Shown)

V2740 Pendent (V2740 Recessed Pendent Not Shown)

V2744 Recessed Horizontal Sidewall (V2744 Horizontal Sidewall Not Shown)

V2902 Extended Pendent

V2902 Flush Pendent

V3426 Pendent (V3426 Recessed Pendent Not Shown)

V3806 Concealed Pendent

WARNING

⚠ WARNING

Failure to follow instructions and warnings can cause product failure, resulting in serious personal injury and property damage.

- Read and understand all instructions before attempting to install any Victaulic piping products.
- Wear safety glasses, hardhat, and foot protection.
- Save this design, installation, and maintenance guide for future reference.

If you need additional copies of any literature, or if you have any questions concerning the safe installation of these products, contact Victaulic, P.O. Box 31, Easton, PA 18044-0031, USA, Telephone: 1-800 PICK VIC, e-mail: pickvic@victaulic.com.

REV_A

FireLock® Residential Sprinklers

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HAZARD IDENTIFICATION

Definitions for identifying the various hazard levels are provided below. When you see this symbol, be alert to the possibility of personal injury. Carefully read and fully understand the message that follows.

WARNING

- **The use of the word “WARNING” identifies the presence of hazards or unsafe practices that could result in death or serious personal injury if instructions, including recommended precautions, are not followed.**

NOTICE

- **The use of the word “NOTICE” identifies special instructions that are important but not related to hazards.**

FireLock® Residential Sprinklers

IMPORTANT INFORMATION

⚠ WARNING

- **Read and understand all instructions before attempting to install any Victaulic sprinklers.**
- **Wear safety glasses, hardhat, and foot protection during installation.**

Failure to follow these instructions could cause improper sprinkler operation, resulting in serious personal injury and property damage.

⚠ WARNING

- **This design, installation, and maintenance guide is intended for an experienced, trained sprinkler system designer and installer.**
- **The user must understand the purpose of these products, common industry standards for safety, and the potential consequences of improper product installation.**

Failure to follow these instructions could cause improper sprinkler operation, resulting in serious personal injury and property damage.

- Victaulic automatic sprinklers must be installed according to current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards or equivalent standards. Deviations from these standards or alterations to sprinklers (including painting and coating) will void any Victaulic warranty. In addition, installations must meet provisions of the local authority having jurisdiction and local codes, as applicable.
- **Refer to the specific product submittal for applications and listing information. These submittals are located in Section 40 of the Victaulic Catalog or on the Internet at www.victaulic.com.**
- Transport and store sprinklers in their original packaging. Store sprinklers in a cool, dry place. **DO NOT** empty sprinklers into bags or buckets, because damage may occur.
- **DO NOT** install sprinkler system piping through heating ducts. **DO NOT** connect sprinkler system piping to domestic hot water systems. **DO NOT** install sprinklers where they will be exposed to temperatures that exceed the maximum ambient temperature rating for the sprinkler.
- **DO NOT** install sprinklers that have been dropped or struck by another object, even if they do not appear damaged. Never install glass bulb sprinklers if the bulb is cracked or if there is a loss of liquid from the bulb. Discard and replace any sprinklers that are damaged or show signs of corrosion.
- Before installation, verify that the sprinkler is the proper model, orifice size, and temperature rating for the intended service.
- Protect wet piping systems from freezing temperatures.
- Size the piping system to provide the minimum required flow rate for the sprinkler system.
- To avoid product damage, install sprinklers into the fittings only after the sprinkler system piping is in place.
- Flush the system to remove foreign material. Continue to flush the system until water runs clear.
- **DO NOT** paint, coat, plate, or alter sprinklers. Sprinklers that have been altered from their manufactured condition may not function properly and will void any agency listings and/or approvals.
- **DO NOT** test sprinklers with a heat source. The glass bulb can weaken or shatter if exposed to a heat source during testing.
- **DO NOT** clean sprinklers with soapy water, detergents, ammonia, cleaning fluids, or other chemicals. Remove any dust, lint, etc. with a soft, dry cloth.
- Sprinklers that have operated cannot be reassembled or reused. When replacing sprinklers, use new sprinklers of the same type, orifice, temperature, and response.

- Sprinklers that have operated cannot be reassembled or reused. When replacing sprinklers, use new sprinklers of the same type, orifice, temperature, and response.
- Inspect sprinklers on a regular basis for corrosion, mechanical damage, obstructions, etc. The frequency of inspections may vary due to corrosive atmospheres/water supplies and activities around the sprinklers.
- **DO NOT** hang anything from or attach anything to sprinklers. Obstructing the discharge pattern will prevent the sprinkler from operating properly.
- If construction is altered, refer to applicable standards to determine if additional sprinklers are required.
- The owner is responsible for maintaining the fire protection system in proper operating condition.
- For minimum maintenance and inspection requirements, refer to the NFPA pamphlet that describes the care and maintenance of sprinkler systems. In addition, the authority having jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

Bulb Protector/Protective Cover Removal

⚠ WARNING

- **Sprinklers are shipped with bulb protectors/protective covers, which protect glass bulbs from damage during shipment and installation.**
- **Bulb protectors/protective covers must be removed from all sprinklers before the sprinkler system is placed in service. Sprinklers cannot operate properly with bulb protectors/ protective covers in place.**
- **Do not use any tools to remove bulb protectors/protective covers.**

Failure to follow these instructions will cause improper sprinkler operation, resulting in serious personal injury and property damage.

1. Remove the bulb protector/protective cover from all sprinklers carefully by hand before the sprinkler system is placed in service.
2. Bulb protectors/protective covers on all upright sprinklers, or on any sprinklers installed more than 10 feet (3 m) above the floor, can be removed immediately following installation.

Paint Shield Information

Paint shields are available from Victaulic and are recommended to protect installed sprinklers from paint overspray.

FireLock® Residential Sprinklers

INTRODUCTION

NOTICE

- **If there are any discrepancies between the information presented in this design, installation, and maintenance guide and any current NFPA Standards, the NFPA Standard shall take precedence.**
- **Residential sprinklers designated as "Retrofit Only" are not covered in this guide.**
- **Drawings and/or pictures in this design, installation, and maintenance guide may be exaggerated for clarity.**
- **These products and this design, installation, and maintenance guide contain trademarks, copyrights, and/or patented features that are the exclusive property of Victaulic.**

Victaulic residential sprinklers are quick-response, automatic sprinklers that utilize a fast-response thermal element. The sprinkler models listed in Table "A" of this guide are intended to be used only in wet pipe residential sprinkler systems designed in accordance with the following National Fire Protection Association (NFPA) Standards:

- NFPA 13, "Standard for the Installation of Sprinkler Systems"
- NFPA 13D, "Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes"
- NFPA 13R, "Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height"

Residential sprinkler systems must be designed and installed only by individuals who are experienced, trained, and completely familiar with automatic sprinkler system design and installation based on current NFPA requirements and requirements of the local authority having jurisdiction.

RESIDENTIAL SPRINKLER SYSTEM DESIGN

Approval

All Victaulic residential sprinklers have been designed and tested in accordance with UL 1626, "Standard for Residential Sprinklers" and are listed under UL 1626 with specific published spacings, flows, and pressures. These ratings are referenced in Section 40 submittals of the Victaulic G-100 General Catalog for all Victaulic residential sprinkler models.

General Requirements of Hydraulic Design Based on NFPA Standards

- The piping system shall provide at least the flow required to produce a minimum discharge density of 0.05 gpm/ft^2 (2.04 mm/min) to the sprinklers and not less than the minimum shown in the current Victaulic submittal for the applicable sprinkler.
- A compartment enclosure shall be permitted to have openings in walls, provided the openings have a minimum lintel depth of 8 inches (203 mm) from the ceiling.

NFPA 13D

Per NFPA 13D, the number of sprinklers required for a coverage area shall be two; these sprinklers should require the greatest hydraulic demand. For actual coverage areas less than or between those indicated in the current Victaulic submittal for the applicable sprinkler, it is necessary to use the minimum required flow for the next largest area. **EXAMPLE:** For the actual coverage area of 12 x 14 feet (3.7 x 4.3 m) or 13 x 13 feet (4.0 x 4.0 m), the minimum flow requirement must be what is shown for a 14 x 14-foot (4.3 x 4.3-m) coverage area, as indicated in the current Victaulic submittal for the applicable sprinkler.

NFPA 13R

Per NFPA 13R, the number of sprinklers shall include all sprinklers within a compartment, up to a maximum of four sprinklers, where specific Underwriters Laboratories Inc. (UL) Listed flows are provided. For actual coverage areas less than or between those indicated in the current Victaulic submittal for the applicable sprinkler, it is necessary to use the minimum required flow for the next largest area.

NFPA 13

A minimum density of 0.1 gpm/ft^2 (0.4 lpm/m^2) over the design area should be applied to the four most hydraulically demanding sprinklers for the actual coverage areas being protected by the four sprinklers. The largest dimension of the actual coverage area cannot be any greater than the maximum coverage area referenced in the current Victaulic submittal for the applicable sprinkler.

EXAMPLE: If a room is 14 x 20 feet (4.3 x 6.1 m), the coverage area is 280 ft^2 (26.0 m^2). Using a Model V2730 Pendent Sprinkler, the flow for a 20 x 20-foot (6.1 x 6.1-m) coverage area is 20 gpm (76 lpm). However, based on a minimum density of 0.1 gpm/ft^2 (0.4 lpm/m^2), the flow rate required is 28 gpm (106 lpm). Therefore, 28 gpm (106 lpm) is the minimum flow required for each sprinkler.

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Sloped Ceilings

All Victaulic residential sprinklers for sloped (up to 2/12 [9.4°]) ceilings are UL Listed for specific flows, pressures, and coverage areas. **NOTE:** A pitch of up to 2/12 (9.4°) is considered flat. In addition, some sprinklers for sloped ceilings up to 4/12 (18.4°) and/or 8/12 (33.7°) are UL Listed. For more information, refer to the current Victaulic submittal for the applicable sprinkler.

The number of sprinklers is the same as that specified for horizontal ceilings, with the exception of the Model V2738 Horizontal Sidewall Sprinkler installed on sloped ceilings between 4/12 (18.4°) pitch and 8/12 (33.7°) pitch. In this case, the installation requires a minimum of three Model V2738 Horizontal Sidewall Sprinklers in a compartment when discharging across the slope, as specified in the current version of Victaulic Submittal 40.54.

For systems designed to NFPA 13, 13D, and 13R, and where specific UL Listed flows have not been provided for sloped ceilings, contact the local authority having jurisdiction in regard to the number of sprinklers for ceilings with a slope greater than 2/12 (9.4°).

UL Listed flows and pressures do not exist for sloped ceilings with a pitch greater than 8/12 (33.7°).

For guidance on system designs that fall outside of Victaulic listing requirements, contact Victaulic at 1-800-PICK VIC.

Positioning and Spacing

The typical coverage areas of Victaulic residential sprinklers are 12 x 12 feet (3.7 x 3.7 m) up to 20 x 20 feet (6.1 x 6.1 m) for pendent sprinklers and up to 16 x 20 feet (4.9 x 6.1 m) for horizontal sidewall sprinklers. For more information, refer to the current Victaulic submittal for the applicable sprinkler.

The minimum required flow rate per sprinkler in various room sizes is referenced in the current Victaulic submittal for the applicable sprinkler. In addition, requirements for sprinkler coverage areas and spacing with minimum flow rates per sprinkler are referenced in the current Victaulic submittal for the applicable sprinkler.

Continuous and Non-Continuous Obstructions to Water Distribution

When locating residential sprinklers, obstructions to water distribution must be considered based upon NFPA 13, "Obstruction Rule for Residential Sprinklers." Refer to Figures 1 through 8 in this guide for the location of sprinklers relative to obstructions.

Residential sprinklers can be located up to 10 feet (3.0 m) from a wall or obstruction, based on upright or pendent sprinklers located in a 20 x 20-foot (6.1 x 6.1-m) coverage area.

The 2007 Edition of NFPA 13 extrapolated the arc formed from the current information to extend up to 10 feet (3.0 m) from the obstruction. The allowable measurements with this change are shown in Figures 8 and 9 in this guide.

Nominal Wetting Pattern

For approximate wall-wetting patterns, refer to the current Victaulic submittal for the applicable sprinkler.

Temperature Rating

Ordinary temperature rated sprinklers (155° F [68° C]) are used for installations where the maximum ambient ceiling temperature will not exceed 100° F (38° C). Where ambient ceiling temperatures are expected to exceed 100° F (38° C), use intermediate-temperature-rated residential sprinklers (175° F [79° C]).

Sprinklers must be positioned a sufficient distance away from heat sources indicated in Table "B" in this guide. For additional information, refer to the current Victaulic submittal for the applicable sprinkler.

Design of Beamed Ceilings

Victaulic Models V2730 and V2732 Residential Pendent Sprinklers are UL Listed for beamed ceiling applications in residential occupancies. The basic concept of this design is to locate the sprinklers on the underside of the beams, to identify the main beams that run in one direction as "primary beams," and to identify the beams that run perpendicular to the primary beams as "secondary beams." Refer to the current version of Victaulic Submittal 40.41.

Care, Installation, and Maintenance

⚠ WARNING

- **The building owner or their representative is responsible for maintaining the fire protection system in proper operating condition.**
- **To ensure proper operation, Victaulic recommends an annual inspection of the fire protection system (or on a frequency required by the local authority having jurisdiction, whichever is more stringent).**
- **Inspection, maintenance, and servicing should be conducted only by a qualified inspection service. Always refer to the I-40 Victaulic Automatic Sprinklers Installation and Maintenance Instructions for additional inspection and testing requirements.**
- **The frequency of inspections must be increased in the presence of contaminated water supplies, corrosive/scaling water supplies, and corrosive atmospheres.**
- **Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic products.**

Failure to follow these instructions could cause system failure, resulting in death, serious personal injury, and property damage.

The I-40 Victaulic Automatic Sprinklers Installation and Maintenance Instructions identify proper installation techniques.

In addition to the I-40 Installation and Maintenance Instructions, refer to the I-800 Victaulic FireLock CPVC Sprinkler System Products Design and Installation Manual for applications where residential sprinklers are being installed into a CPVC piping system.

For wrench selection and use, refer to the current version of Victaulic Submittal 40.80.

All Victaulic residential sprinklers must be inspected, maintained, and serviced by a qualified inspection service. Always refer to the I-40 Victaulic Automatic Sprinklers Installation and Maintenance Instructions and the current Victaulic submittal for additional inspection and maintenance requirements.

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TABLE "A" - Victaulic Residential Sprinklers

	Model S.I.N.	Submittal †	Description	K-Factor	Maximum Recess Adjustment	Room Sizes Up To	Ceilings		Best When Used On Systems Designed Per NFPA ...
							Sloped Up To	Beams	
	V2730	40.41	Residential Pendent	4.9	½ inch (12.7 mm)	16 x 16 feet (4.9 X 4.9 m)	8/12 (33.7°)	Yes	13D and 13R
	V2732	40.41	Residential Pendent	4.9	½ inch (12.7 mm)	20 x 20 feet (6.1 x 6.1 m)	8/12 (33.7°)	Yes	13D and 13R
	V2734	40.42	Residential Concealed Pendent (Domed)	4.9	⅜ inch (9.5 mm)	16 x 16 feet (4.9 x 4.9 m)	8/12 (33.7°)	No	13D and 13R
	V2736	40.42	Residential Concealed Pendent (Domed)	4.9	⅜ inch (9.5 mm)	20 x 20 feet (6.1 x 6.1 m)	4/12 (18.4°)	No	13D and 13R
	V2738	40.54	Residential Horizontal Sidewall	4.2	¾ inch (19.1 mm)	16 x 20 feet (4.9 x 6.1 m)	8/12 (33.7°) *	No	13D and 13R
	V2740	40.47	Residential Pendent	4.9	¾ inch ‡ (19.1 mm) ‡	20 x 20 feet (6.1 x 6.1 m)	8/12 (33.7°) §	No	13D and 13R
	V2742	40.52	Residential Concealed Pendent (Domed)	4.9	⅜ inch (9.5 mm)	20 x 20 feet (6.1 x 6.1 m)	Flat #	No	13D and 13R
	V2744	40.49	Residential Horizontal Sidewall	5.6	¾ inch (19.1 mm)	16 x 20 feet (4.9 x 6.1 m)	Flat #	No	13D and 13R or Residential Portions of 13
	V2902	40.44	Residential Pendent Flush and Extended Type	4.1	½ inch (12.7 mm)	20 x 20 feet (6.1 x 6.1 m)	8/12 (33.7°)	No	13D and 13R
	V3426	40.48	Residential Pendent	6.9	¾ inch (19.1 mm)	20 x 20 feet (6.1 x 6.1 m)	Flat #	No	Residential Portions of 13
	V3806	40.43	Residential Concealed Pendent (Flat)	5.6	¼ inch (6.4 mm)	20 x 20 feet (6.1 x 6.1 m)	4/12 (18.4°) @	No	13D and 13R or Residential Portions of 13

† Refer to the current submittal for complete information
‡ ½ inch (12.7 mm) for 20-foot (6.1-m) room sizes, ¾ inch (19.1 mm) for all smaller room sizes
§ New UL 1626 sloped ceiling criteria
* 4 - 12 inches (101.6 - 304.8 mm) below the ceiling spraying down or across
@ Up to 18-foot (5.5-m) room sizes
# A pitch of up to 2/12 (9.4°) is considered flat

FireLock® Residential Sprinklers

TABLE "B" - Minimum Distances for Ordinary and Intermediate-Temperature-Rated Residential Sprinklers

Heat Source	From Edge of Heat Source to Ordinary-Temperature-Rated Residential Sprinkler inches/mm	From Edge of Heat Source to Intermediate-Temperature-Rated Residential Sprinkler inches/mm
Side of Open or Recessed Fireplace	36 914.4	12 304.8
Front of Recessed Fireplace	60 1524.0	36 914.4
Coal- or Wood-Burning Stove	42 1066.8	12 304.8
Kitchen Range	18 457.2	9 228.6
Wall Oven	18 457.2	9 228.6
Hot Air Flues	18 457.2	9 228.6
Heat Ducts (Not Insulated)	18 457.2	9 228.6
Hot Water Pipes (Not Insulated)	12 304.8	6 152.4
Side of Ceiling- or Wall-Mounted Hot Air Diffusers	24 609.6	12 304.8
Front of Wall-Mounted Hot Air Diffusers	36 914.4	18 457.2
Hot Water Heater or Furnace	6 152.4	3 76.2
Light Fixture (0 - 250 watts)	6 152.4	3 76.2
Light Fixture (250 - 499 watts)	12 304.8	6 152.4

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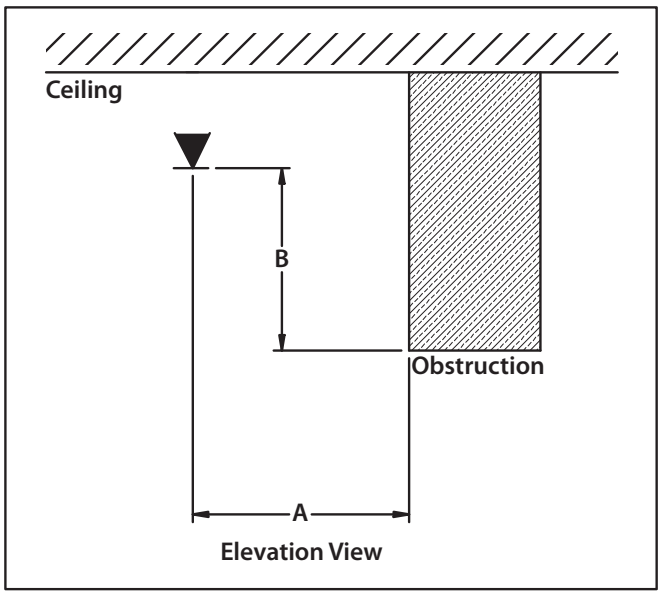
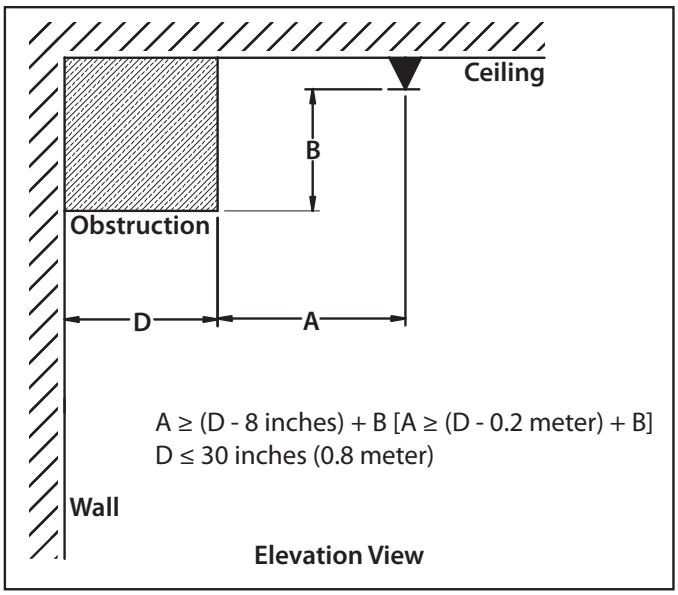
FIGURE 1 - Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)





Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)	
Distance from Sprinklers to Side of Obstruction (*A*)	Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)
A < 1 foot A < 0.3 meter	0 0
1 foot ≤ A < 1½ feet 0.3 meter ≤ A < 0.5 meter	0 0
1½ feet ≤ A < 2 feet 0.5 meter ≤ A < 0.6 meter	1 25.4
2 feet ≤ A < 2½ feet 0.6 meter ≤ A < 0.8 meter	1 25.4
2½ feet ≤ A < 3 feet 0.8 meter ≤ A < 0.9 meter	1 25.4
3 feet ≤ A < 3½ feet 0.9 meter ≤ A < 1.1 meters	3 76.2
3½ feet ≤ A < 4 feet 1.1 meters ≤ A < 1.2 meters	3 76.2
4 feet ≤ A < 4½ feet 1.2 meters ≤ A < 1.4 meters	5 127.0
4½ feet ≤ A < 5 feet 1.4 meters ≤ A < 1.5 meters	7 177.8
5 feet ≤ A < 5½ feet 1.5 meters ≤ A < 1.7 meters	7 177.8

Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)	
Distance from Sprinklers to Side of Obstruction (*A*)	Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)
5½ feet ≤ A < 6 feet 1.7 meters ≤ A < 1.8 meters	7 177.8
6 feet ≤ A < 6½ feet 1.8 meters ≤ A < 2.0 meters	9 228.6
6½ feet ≤ A < 7 feet 2.0 meters ≤ A < 2.1 meters	11 279.4
7 feet ≤ A < 7½ feet 2.1 meters ≤ A < 2.3 meters	14 355.6
7½ feet ≤ A < 8 feet 2.3 meters ≤ A < 2.4 meters	14 355.6
8 feet ≤ A < 8½ feet 2.4 meters ≤ A < 2.6 meters	15 381.0
8½ feet ≤ A < 9 feet 2.6 meters ≤ A < 2.7 meters	17 431.8
9 feet ≤ A < 9½ feet 2.7 meters ≤ A < 2.9 meters	19 482.6
9½ feet ≤ A < 10 feet 2.9 meters ≤ A < 3.0 meters	21 533.4

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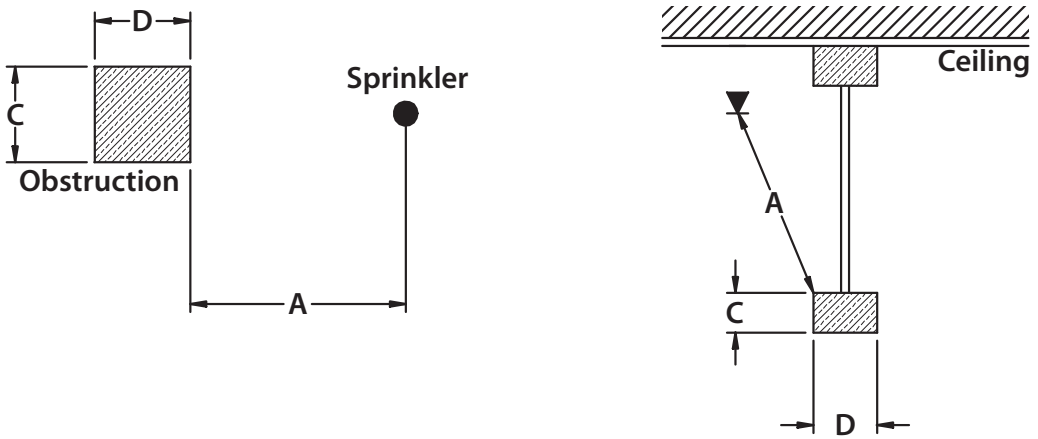
FIGURE 2 - Minimum Distance from Obstruction (Residential Pendent Sprinklers)



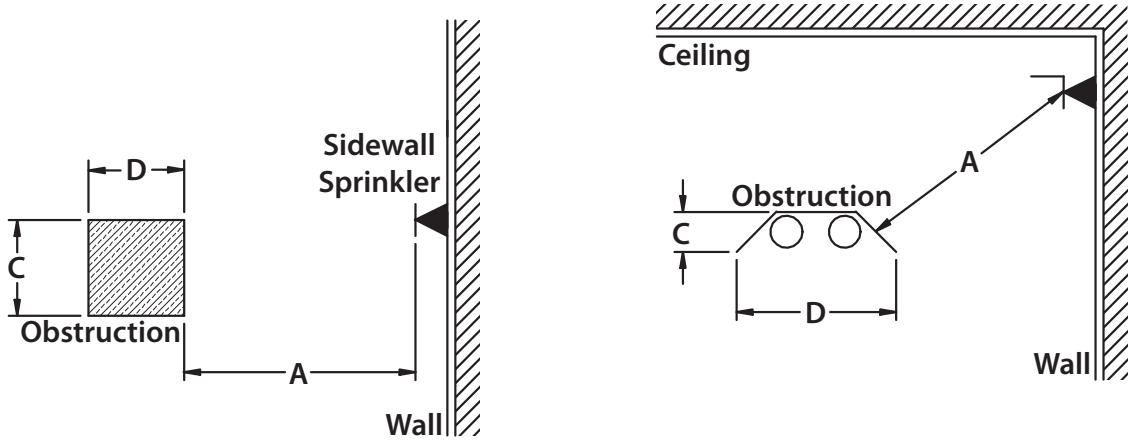
Plan View of Column

Elevation View of Truss or Ceiling Fan Housing

A ≥ 4C or 4D
A ≤ 36 inches (0.91 meter)

(Use dimension C or D, whichever is greater)

FIGURE 3 - Minimum Distance from Obstruction (Residential Sidewall Sprinklers)



Plan View of Column

Elevation View of Pipe Conduit or Light Fixture

A ≥ 4C or 4D
A ≤ 36 inches (0.91 meter)

(Use dimension C or D, whichever is greater)

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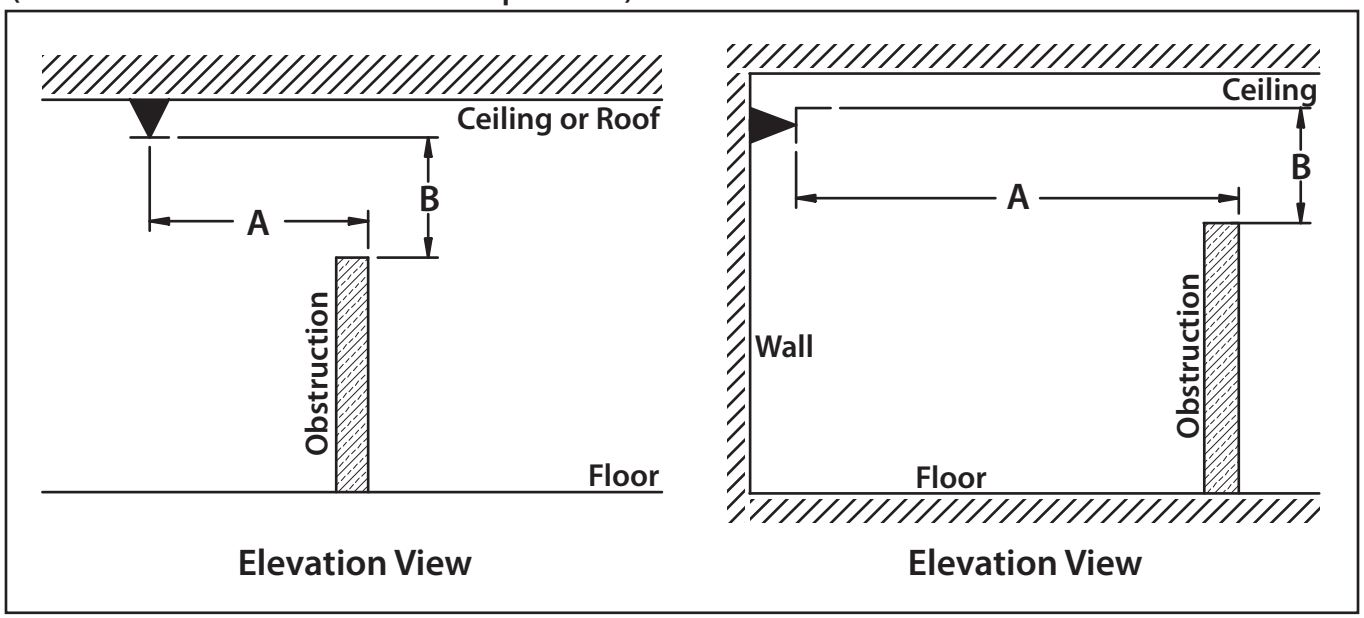
FIGURE 4 - Suspended or Floor-Mounted Obstructions (Residential Pendent and Sidewall Sprinklers)



Suspended or Floor-Mounted Obstructions (Residential Pendent and Sidewall Sprinklers)	
Horizontal Distance (*A*)	Minimum Vertical Distance Below Deflector inches/mm (*B*)
A ≤ 6 inches A ≤ 152.4 mm	3 76.2
6 inches < A ≤ 9 inches 152.4 mm < A ≤ 228.6 mm	4 101.6
9 inches < A ≤ 12 inches 228.6 mm < A ≤ 304.8 mm	6 152.4
12 inches < A ≤ 15 inches 304.8 mm < A ≤ 381.0 mm	8 203.2
15 inches < A ≤ 18 inches 381.0 mm < A ≤ 457.2 mm	9½ 241.3
18 inches < A ≤ 24 inches 457.2 mm < A ≤ 609.6 mm	12½ 317.5
24 inches < A ≤ 30 inches 609.6 mm < A ≤ 762.0 mm	15½ 393.7
A > 30 inches A > 762.0 mm	18 457.2

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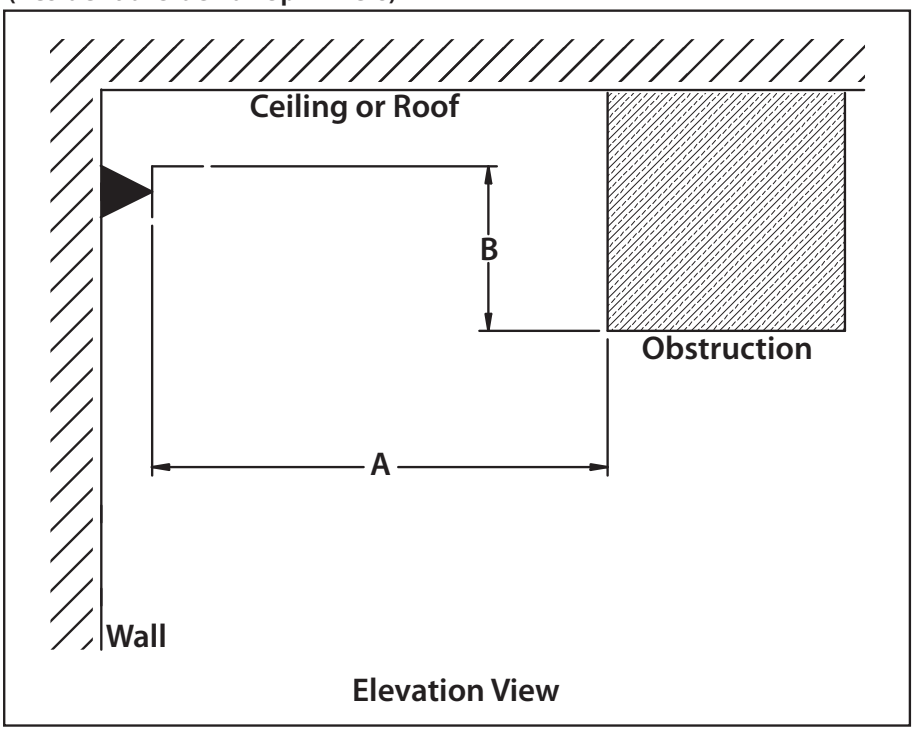
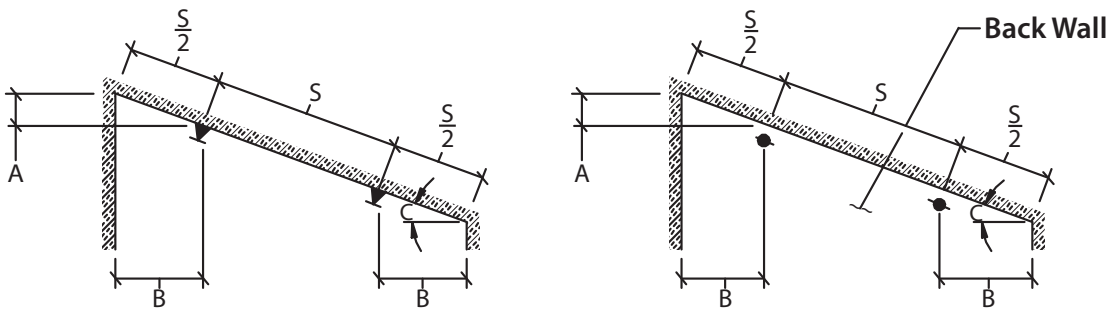
FIGURE 5 - Positioning of Sprinklers to Avoid Obstructions (Residential Sidewall Sprinklers)



Positioning of Sprinklers to Avoid Obstructions (Residential Sidewall Sprinklers)	
Distance from Sidewall Sprinkler to Side of Obstruction (*A*)	**Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)**
A < 8 feet 2.4 meters	Not Allowed
8 feet ≤ A < 10 feet 2.4 meters ≤ A < 3.0 meters	1 25.4
10 feet ≤ A < 11 feet 3.0 meters ≤ A < 3.4 meters	2 50.8
11 feet ≤ A < 12 feet 3.4 meters ≤ A < 3.7 meters	3 76.2
12 feet ≤ A < 13 feet 3.7 meters ≤ A < 4.0 meters	4 101.6
13 feet ≤ A < 14 feet 4.0 meters ≤ A < 4.3 meters	6 152.4
14 feet ≤ A < 15 feet 4.3 meters ≤ A < 4.6 meters	7 177.8
15 feet ≤ A < 16 feet 4.6 meters ≤ A < 4.9 meters	9 228.6
16 feet ≤ A < 17 feet 4.9 meters ≤ A < 5.2 meters	11 279.4
A ≥ 17 feet A ≥ 5.2 meters	14 355.6

FireLock® Residential Sprinklers

FIGURE 6 - Sprinkler Spacing Under a Sloped Ceiling



Pendent Sprinkler Elevation

Sidewall Sprinkler Elevation

$\frac{S}{2}$ - Maximum: One half the maximum sprinkler spacing for the coverage area (Refer to the current Victaulic submittal for the applicable sprinkler)

S - Maximum: The maximum sprinkler spacing for the coverage area (Refer to the current Victaulic submittal for the applicable sprinkler)

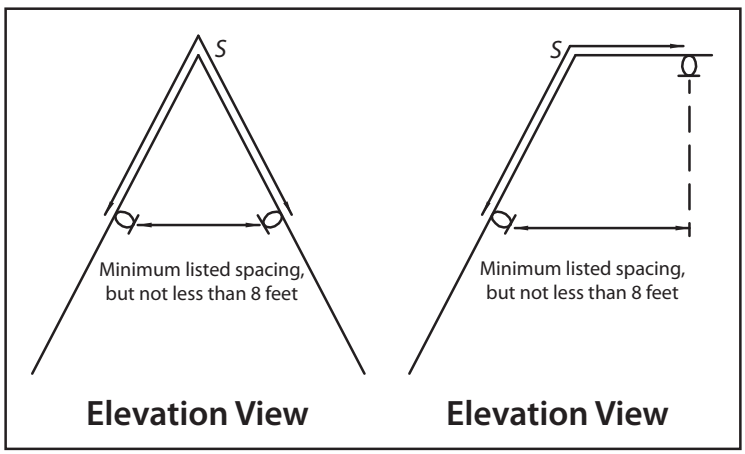
S - Minimum: 8 feet, 0 inches (2.4 meters, 0 mm)

A - Maximum: 3 feet, 0 inches (0.9 meter, 0 mm)

C - Ceiling Angle (Refer to the current Victaulic submittal for the applicable sprinkler)

B - Minimum: 4 inches (101.6 mm)

FIGURE 6A



Elevation View

Elevation View

FIGURE 6B - Maximum Distance Between Sprinklers in a Sloped Ceiling Application - Configuration 1

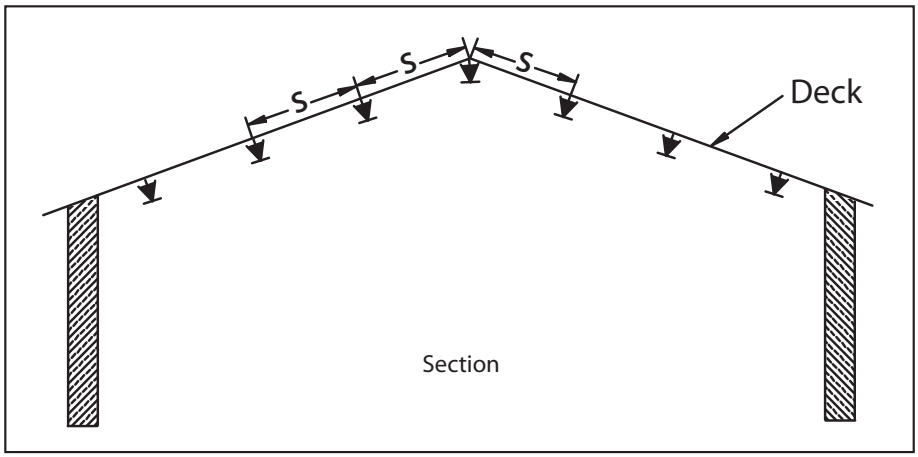


FIGURE 6C - Maximum Distance Between Sprinklers in a Sloped Ceiling Application - Configuration 2

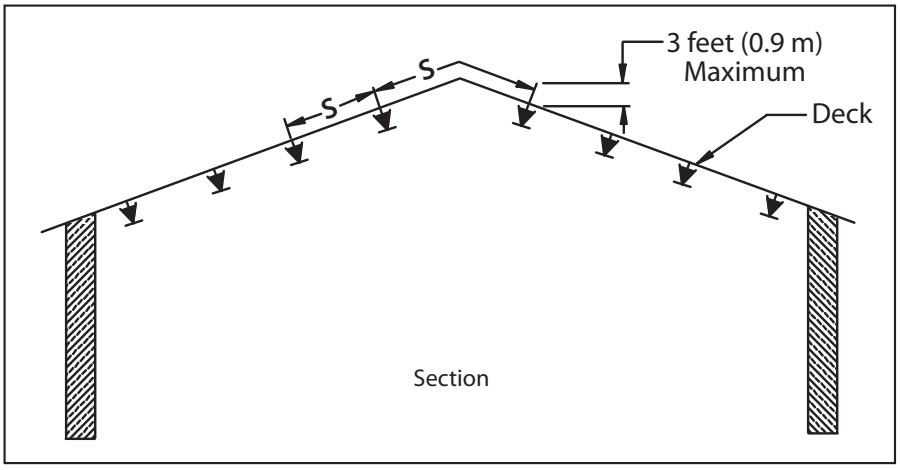


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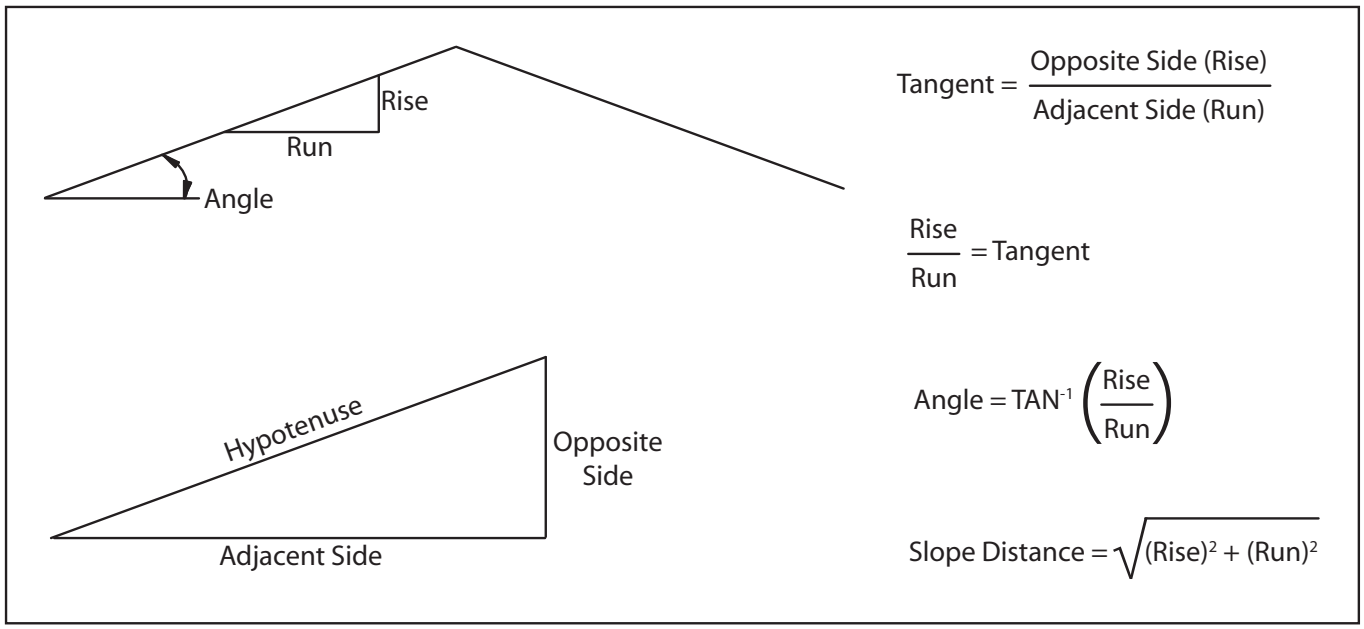
FIGURE 6D - Rise Over Run Conversion to Degrees of Slope



Rise Over Run Conversion to Degrees of Slope				
Rise	Run	Tangent	Angle	Slope Distance
2	12	0.1666	9.5°	12.1
3	12	0.2500	1.4°	12.3
4	12	0.3333	18.4°	12.6
5	12	0.4166	22.6°	13.0
6	12	0.5000	26.5°	13.4
7	12	0.5833	30.2°	13.8
8	12	0.6666	33.6°	14.4
9	12	0.7500	36.8°	15.0
10	12	0.8333	39.8°	15.6
11	12	0.9166	42.5°	16.2
12	12	1.0000	45.0°	17.0

This table applies to any unit of measurement, as long as the unit of measurement used is consistent

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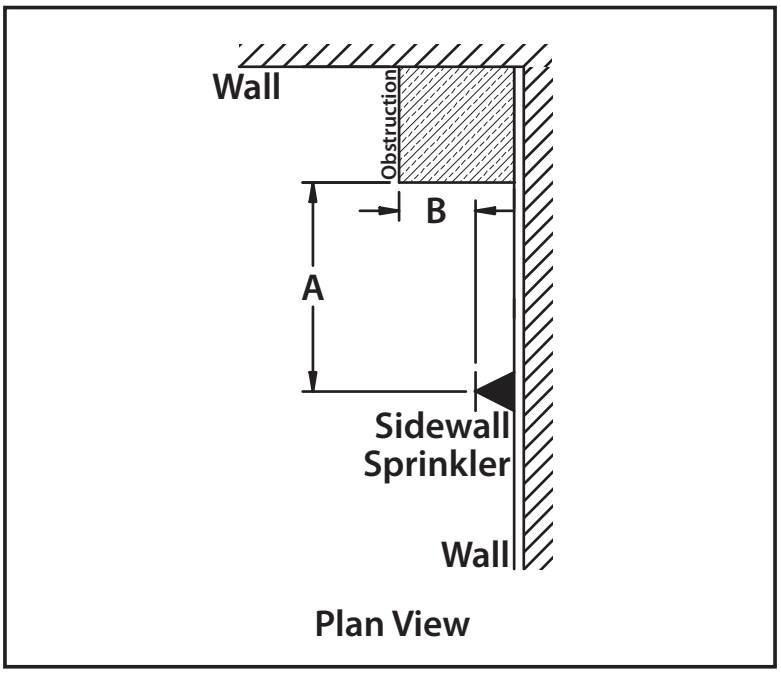
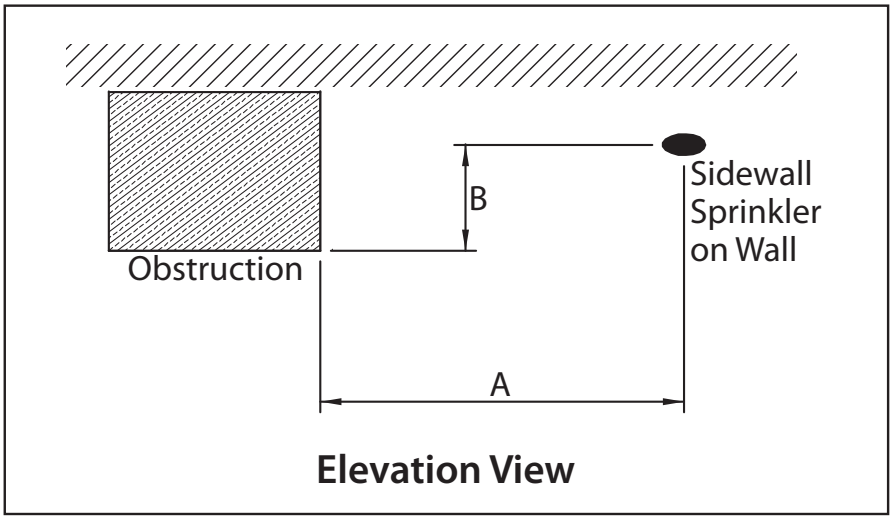
FIGURE 7 - Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)



Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)	
Distance from Sprinklers to Side of Obstruction (*A*)	Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)
A < 1 foot A < 0.3 meter	0 0
1 foot ≤ A < 1½ feet 0.3 meter ≤ A < 0.5 meter	0 0
1½ feet ≤ A < 2 feet 0.5 meter ≤ A < 0.6 meter	1 25.4
2 feet ≤ A < 2½ feet 0.6 meter ≤ A < 0.8 meter	1 25.4
2½ feet ≤ A < 3 feet 0.8 meter ≤ A < 0.9 meter	1 25.4
3 feet ≤ A < 3½ feet 0.9 meter ≤ A < 1.1 meters	3 76.2
3½ feet ≤ A < 4 feet 1.1 meters ≤ A < 1.2 meters	3 76.2
4 feet ≤ A < 4½ feet 1.2 meters ≤ A < 1.4 meters	5 127.0
4½ feet ≤ A < 5 feet 1.4 meters ≤ A < 1.5 meters	7 177.8
5 feet ≤ A < 5½ feet 1.5 meters ≤ A < 1.7 meters	7 177.8

Positioning of Sprinklers to Avoid Obstructions to Discharge (Residential Sprinklers)	
Distance from Sprinklers to Side of Obstruction (*A*)	Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)
5½ feet ≤ A < 6 feet 1.7 meters ≤ A < 1.8 meters	7 177.8
6 feet ≤ A < 6½ feet 1.8 meters ≤ A < 2.0 meters	9 228.6
6½ feet ≤ A < 7 feet 2.0 meters ≤ A < 2.1 meters	11 279.4
7 feet ≤ A < 7½ feet 2.1 meters ≤ A < 2.3 meters	14 355.6
7½ feet ≤ A < 8 feet 2.3 meters ≤ A < 2.4 meters	14 355.6
8 feet ≤ A < 8½ feet 2.4 meters ≤ A < 2.6 meters	15 381.0
8½ feet ≤ A < 9 feet 2.6 meters ≤ A < 2.7 meters	17 431.8
9 feet ≤ A < 9½ feet 2.7 meters ≤ A < 2.9 meters	19 482.6
9½ feet ≤ A < 10 feet 2.9 meters ≤ A < 3.0 meters	21 533.4

FIGURE 8 - Positioning of Sprinklers to Avoid Obstructions Along the Wall (Residential Sidewall Sprinklers)



Positioning of Sprinklers to Avoid Obstructions Along the Wall (Residential Sidewall Sprinklers)	
Distance from Sidewall Sprinkler to Side of Obstruction (*A*)	Maximum Allowable Distance of Deflector Above Bottom of Obstruction inches/mm (*B*)
A < 1½ feet A < 0.5 meter	0 0
1½ feet ≤ A < 3 feet 0.5 meter ≤ A < 0.9 meter	1 25.4
3 feet ≤ A < 4 feet 0.9 meter ≤ A < 1.2 meters	3 76.2
4 feet ≤ A < 4½ feet 1.2 meters ≤ A < 1.4 meters	5 127.0
4½ feet ≤ A < 6 feet 1.4 meters ≤ A < 1.8 meters	7 177.8
6 feet ≤ A < 6½ feet 1.8 meters ≤ A < 2.0 meters	9 228.6
6½ feet ≤ A < 7 feet 2.0 meters ≤ A < 2.1 meters	11 279.4
7 feet ≤ A < 7½ feet 2.1 meters ≤ A < 2.3 meters	14 355.6

NOTES

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