Victaulic® FireLock™ Series FL-SA/WS
Specific Application, Window Sprinklers K5.6 (8.1)

46.04

Patented

1.0 PRODUCT DESCRIPTION

VERTICAL SIDEWALL/CONCEALED PENDENT SPRINKLERS		
SIN	**V2752**	**V5648**
ORIENTATION	VERTICAL SIDEWALL	CONCEALED PENDENT
K-FACTOR[1]	5.6 Imp./8.1 S.I.	5.6 Imp./8.1 S.I.
CONNECTION	½ NPT	½ NPT
MAX. WORKING PRESSURE	cULus 175 psi (1200 kPa) TFRI 175 psi (1,207 kPa)	cULus 175 psi (1200 kPa) –

AVAILABLE WRENCHES		
SPRINKLER	**V27 Open End**	**V56 Concealed**
VERTICAL SIDEWALL	■	–
CONCEALED PENDENT	–	■

Factory Hydrostatic Test: 100% @ 500 psi/3447 kPa/34 bar

Temperature Rating: See tables in section 2.0

1 For K-Factor when pressure is measured in bar, multiply S.I. units by 10.0.

2.0 CERTIFICATION/LISTINGS

SIN	Listing Agency	Flow GPM L/min	Pressure PSI bar	Approved Sprinkler Temperature Ratings F°/C°	Approved Coverplate Temperature Ratings F°/C	Minimum Linear Spacing Ft. m	Maximum Linear Spacing Ft. m
V5648[2] Concealed	cULus	20 75.7	12.7 0.87	155°F/68°C 200°F/93°C	135°F/57°C 155°F/68°C	6.0[3] 1.5	12.0 3.6
V2752[2] Vertical Sidewall	cULus	15 56.8	7.2 0.49	155°F/68°C 200°F/93°C	–	6.0 1.8	12.0 3.6
	TFRI	20 75.7	12.7 0.87	155°F/68°C			8.0 2.4

2 Additional recognition by the ICC Evaluation Services (ESR-4913)

3 Can be reduced to 5.0 ft when utilizing Cold Solder Umbrella Escutcheon

NOTES

- Listings and approval as of printing.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

3.0 SPECIFICATIONS – MATERIAL

	V2752	V5648
Deflector:	Brass	Bronze
Bulb Nominal Diameter:	3mm	3mm
Load Screw:	Bronze	Brass
Pip Cap:	Bronze	Brass
Spring Seal Assembly:	PTFE Coated Berylium Nickel	PTFE Coated Berylium Nickel
Frame:	Copper Alloy	Copper Alloy or Brass
Lodgment Spring:	Stainless Steel	Stainless Steel
Escutcheon/Cover Plate:	–	Chrome plated
	–	White painted
	–	Flat black painted
	–	Custom painted
Installation Wrench:	Ductile iron	Ductile iron
Sprinkler Frame Finishes:	Plain brass	–
	Chrome plated	–
	White polyester painted[4]	–
	Flat black polyester painted[4]	–
	Custom polyester painted[4]	–
	VC-250[4]	–

[4] UL Listed for corrosion resistance.

4.0 DIMENSIONS

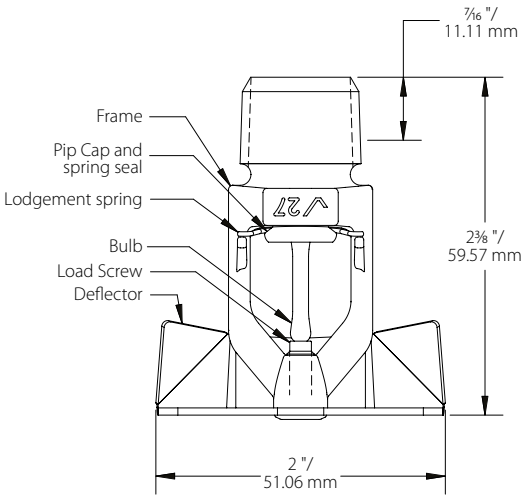

Figure 1a: V2752

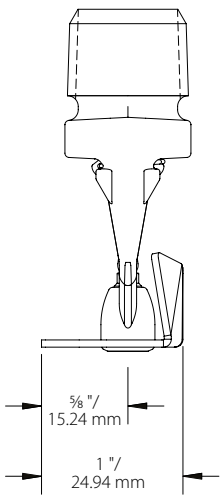

Figure 1b: V2752

4.0 DIMENSIONS (CONTINUED)

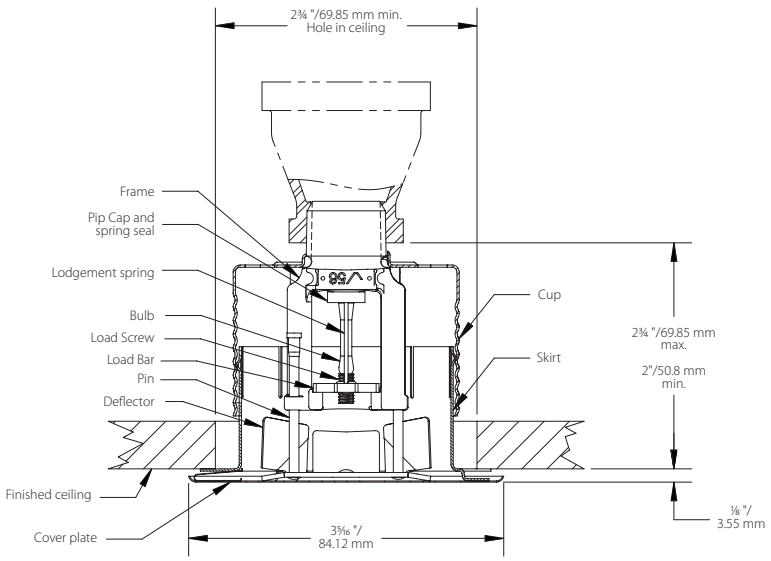

Figure 2a: V5648

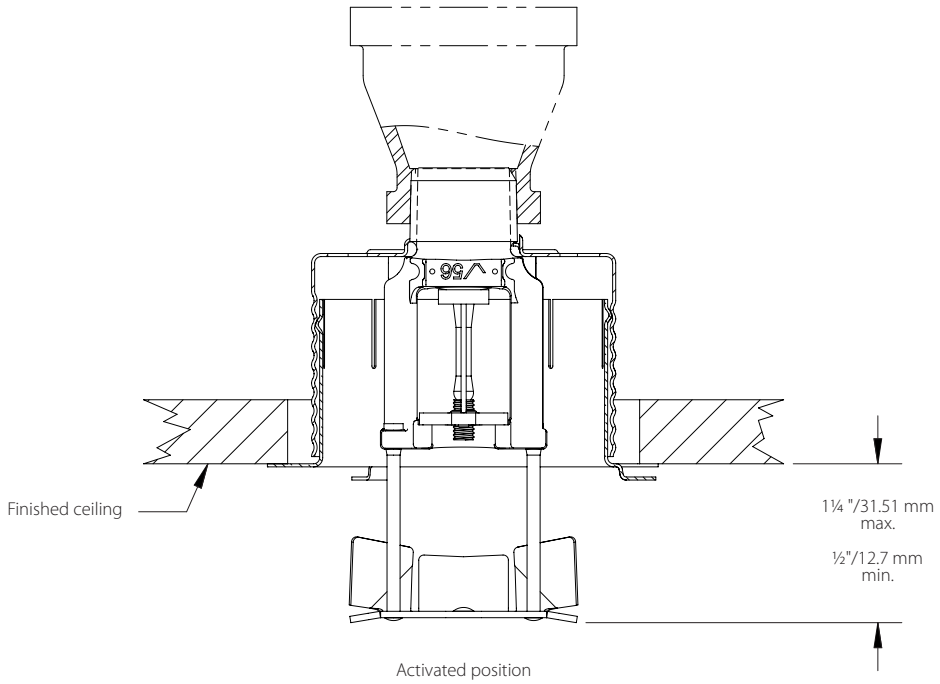

Figure 2b: V5648

4.0 DIMENSIONS (CONTINUED)

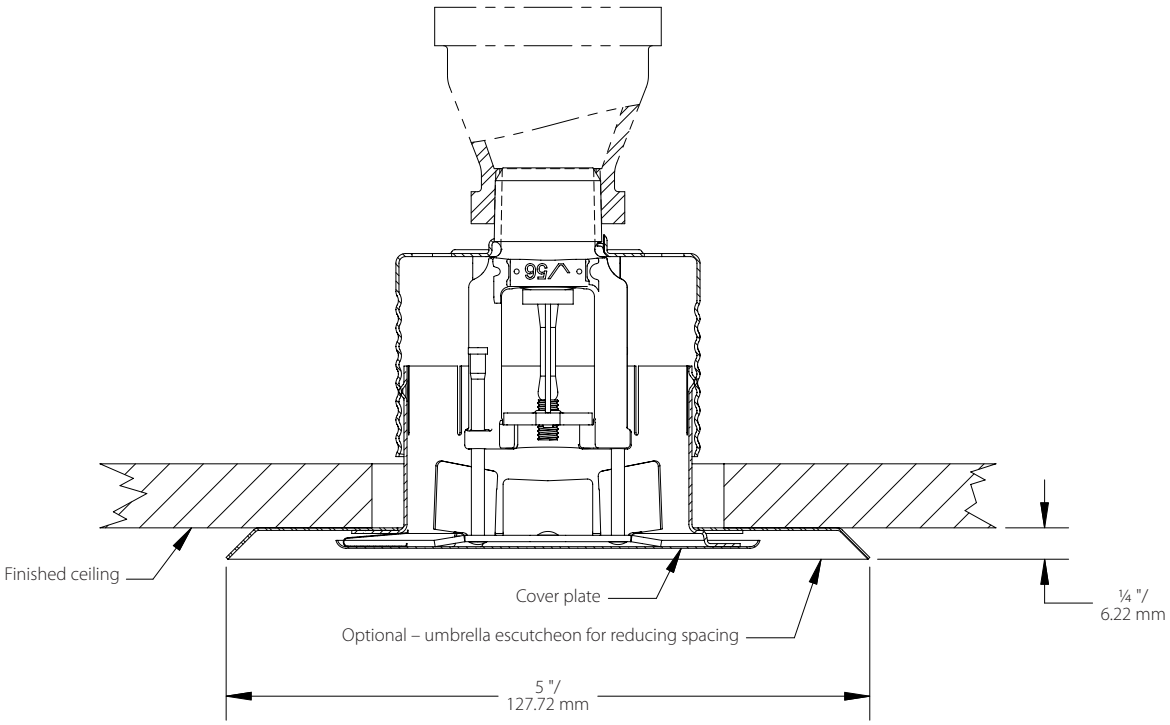

Figure 2c: V5648

NOTES

- The umbrella escutcheon can be utilized for the purpose of reducing the minimum required Cold Solder spacing from 6 feet to 5 feet when needed.
- The umbrella escutcheon does not affect min/max installation dimensions or deflector position.
- To install, place umbrella escutcheon over the finished cover plate assembly, oriented with the flat surface of the umbrella escutcheon flush with the finished ceiling. See figure 2c.
- Series FL-SA/WS Concealed Window Sprinkler (V5648) sprinklers must not be installed in ceilings with positive pressure in the space above. Ensure that the slots in the cup are open and unobstructed following installation.

5.0 PERFORMANCE

The Series FL-QR/SA/WS Sprinklers described herein must be installed and designed in compliance with this document, as well as any applicable local standards or authorities having jurisdiction.

Performance Objective

When acceptable to the Authority Having Jurisdiction, the Victaulic Model FL-SA/WS may be used in either a sprinklered or unsprinklered building to protect non-operable window openings that are part of a fire separation provided:

- in an interior fire rated separation, the window sprinklers are installed on both sides of the window See Fig. A
- where exterior separation from adjacent space is defined as protecting an adjacent building from a fire in your building, window sprinklers are installed on the interior side of the window. See Fig. B
- where exterior exposure protection is required, open window sprinklers are installed on the exterior side of the building fed by a deluge system. (See Fig. C) Calculate all sprinklers controlled by the Deluge valve in accordance with the design requirements of NFPA 13 for Outside Exposure Protection.

NOTE:

- Outside Exposure installation is not applicable to the Concealed Window Sprinkler (V5648)

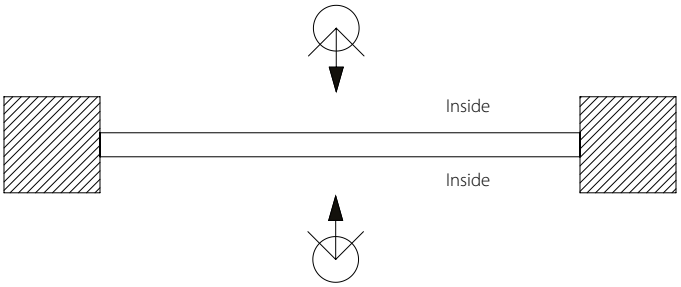

Figure A: Interior Fire Separation

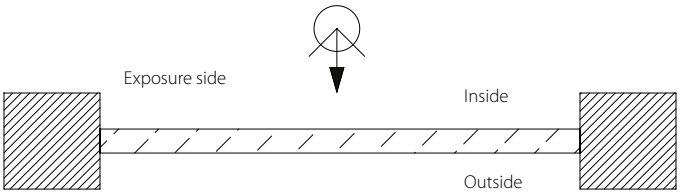

Figure B: Exposure Protection Sprinklers Inside

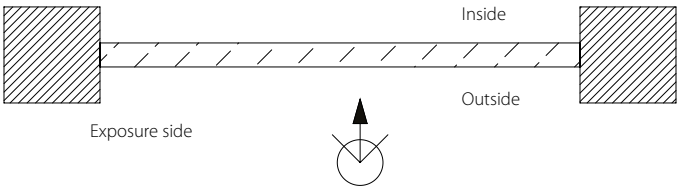

Figure C: Exposure Protection Sprinklers Outside

Typical Non-Operable Windows

5.0 PERFORMANCE (CONTINUED)

System Protection Type

- Interior: Wet Systems
- Outside Exposure: Deluge

Glass Type

The following types and thicknesses of glass are recognized for use with Victaulic Model FL-SA/WS Specific Application Window Sprinklers:

- Non-operable, heat-strengthened, tempered, single-glazed (single pane), not less than ¼" (6 mm) thick;
- Non-operable, heat-strengthened, tempered, double-glazed (double pane or insulated), not less than ¼" (6 mm) thick;
- Non-operable, stronger glass window assemblies, not less than ¼ in. (6 mm) thick.

Glazing Assembly

Non-combustible Frame with a standard EPDM rubber gasket seal. Vertical joints of glass panes must be connected by butt-joints using a silicone sealant between the individual panes or by Noncombustible Mullions. See Fig. D and Fig. E

Glazing	Dimensions	Figure Reference
Maximum Glazing Length	Unlimited	F, G, J and K
Maximum Glazing Height	13 ft (4.0 m)	
Minimum Clearance to face of glazing to combustible materials	2" (50mm)[5]	
Horizontal Mullions	Not allowed	

[5] Minimum 36" (900mm) pony wall or other method acceptable to the AHJ

Sprinkler Installation Location Concealed

Sprinkler	Glazing Assembly	Position	Distance	Figure Reference
Concealed	Exposed Vertical Mullion	Max. spacing between sprinklers	12 ft (3.6 m)	Figure D
		Min. spacing between sprinklers	6 ft (1.8 m)[6, 7]	
		Max. to mullion	6 ft (1.8 m)	
		Min. to mullion	4" (100 mm)	
		Deflector distance from glazing	6 – 12" (150 mm – 300 mm)	Figure F, G
	Butt Joint	Max. spacing between sprinklers	12 ft (3.6m)	Figure E
		Min. spacing between sprinklers	6 ft (1.8 m)[6, 7]	
		Deflector distance from glazing	6 – 12" (150 mm – 300 mm)	Figure F, G

[6] Unless separated by a baffle or mullion of sufficient depth to act as a baffle. A mullion will act as a baffle when the mullion extends to the back of the sprinkler deflector.

[7] Concealed Sprinkler can be reduced to 5.0 ft (1.5 m) when utilizing optional Cold Solder Umbrella Escutcheon in Figure 2c

5.0 PERFORMANCE (CONTINUED)

Sprinkler Installation Location Concealed

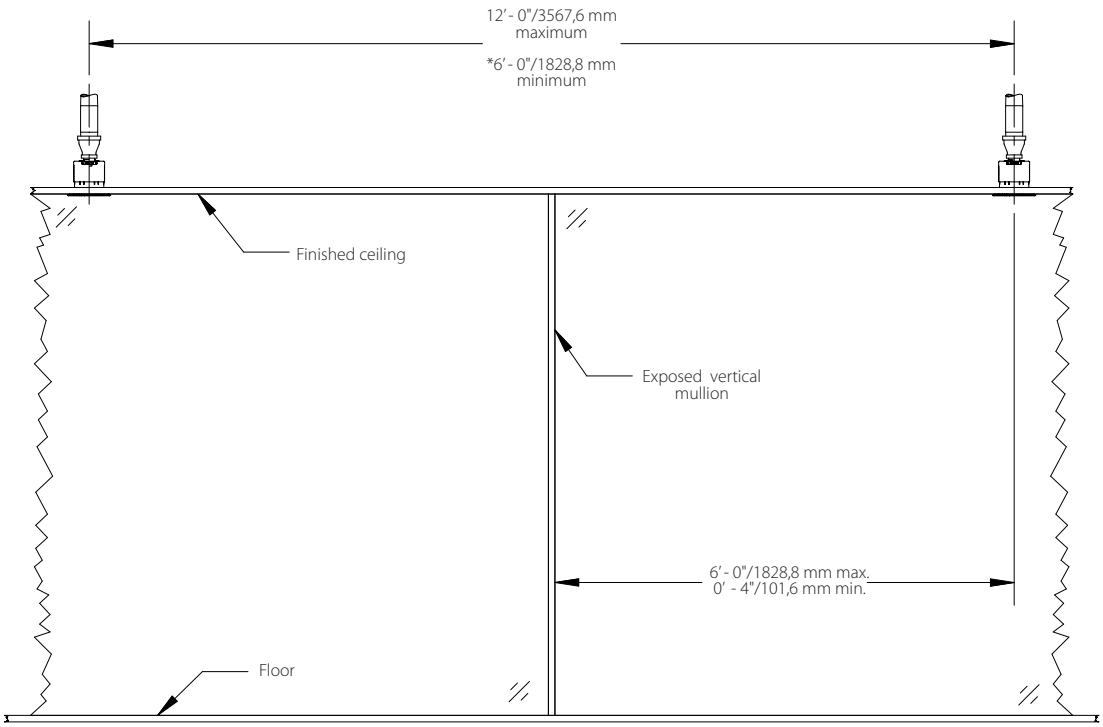

Figure D: V5648

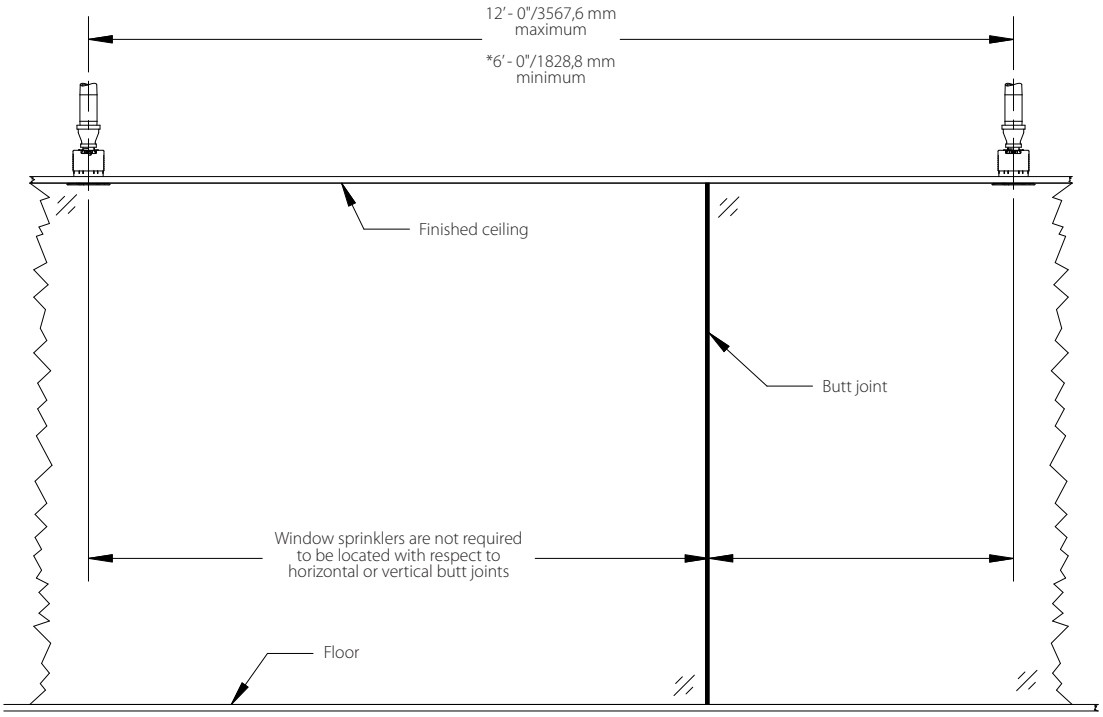

Figure E: V5648

Sprinkler Location Relative to Glazing

- A minimum of 1 Window Sprinkler is required within each pane where separated by vertical mullions (maximum spacing requirements apply)
- Sprinklers may be located on maximum allowed spacing regardless of butt joint locations

5.0 PERFORMANCE (CONTINUED)

Sprinkler Installation Location Concealed

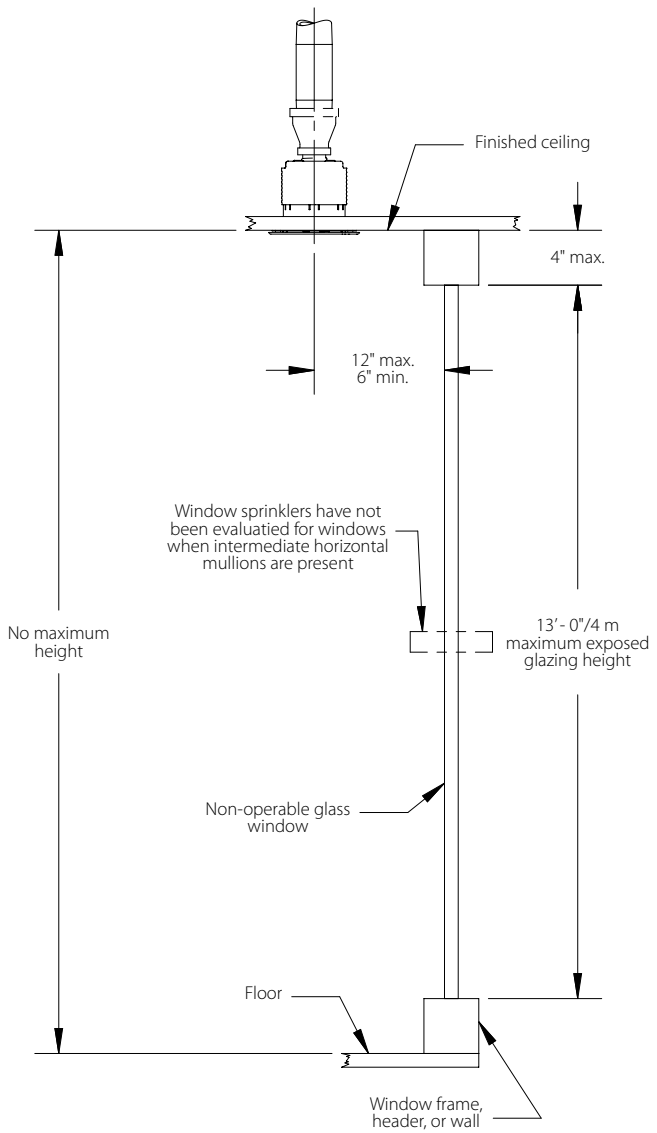

Figure F: V5648

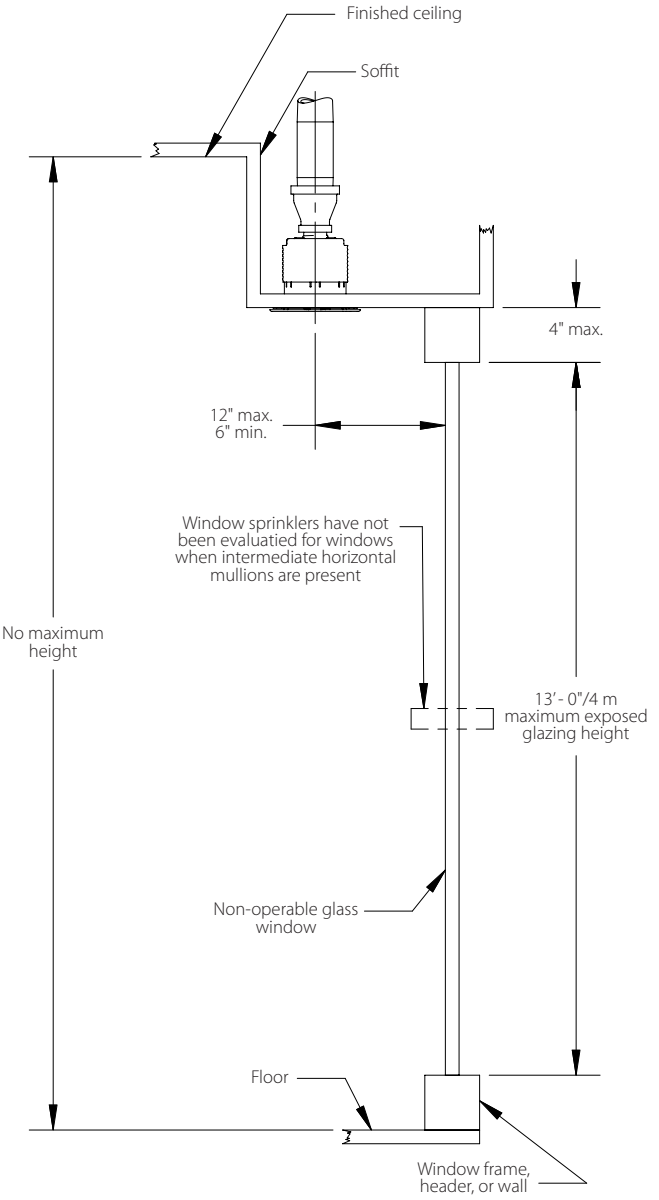

Figure G: V5648

- Position sprinkler with the frame arms aligned parallel to glazing and flow arrow on deflector pointed towards the glazing.
- All combustible materials must be kept a minimum of 2" (50 mm) from face of glazing. A minimum 36" (900 mm) high "Pony Wall" may be used or ather method acceptible to the authority having jurisdiction to meet the intent.
- The use of window coverings (i.e. blinds, shades, etc.) are not allowed to be installed between the sprinkler and glazing.

5.0 PERFORMANCE (CONTINUED)

Sprinkler Installation Location Exposed

Sprinkler	Glazing Assembly	Position	Distance	Figure Reference
Pendent	Exposed Vertical Mullion	Max. spacing between sprinklers	12 ft (3.6 m)	Figure H
		Min. spacing between sprinklers	6 ft (1.8 m)[8]	
		Max. to mullion	6 ft (1.8 m)	
		Min. to mullion	4" (100 mm)	
		Deflector distance from glazing	4 – 12" (102 mm – 300 mm)	Figure K, L
	Butt Joint	Max. spacing between sprinklers	12 ft (3.6m)	Figure J
		Min. spacing between sprinklers	6 ft (1.8 m)[8]	
		Deflector distance from glazing	4 – 12" (102 mm – 300 mm)	Figure K, L

[8] Unless separated by a baffle or mullion of sufficient depth to act as a baffle. A mullion will act as a baffle when the mullion extends to the back of the sprinkler deflector.

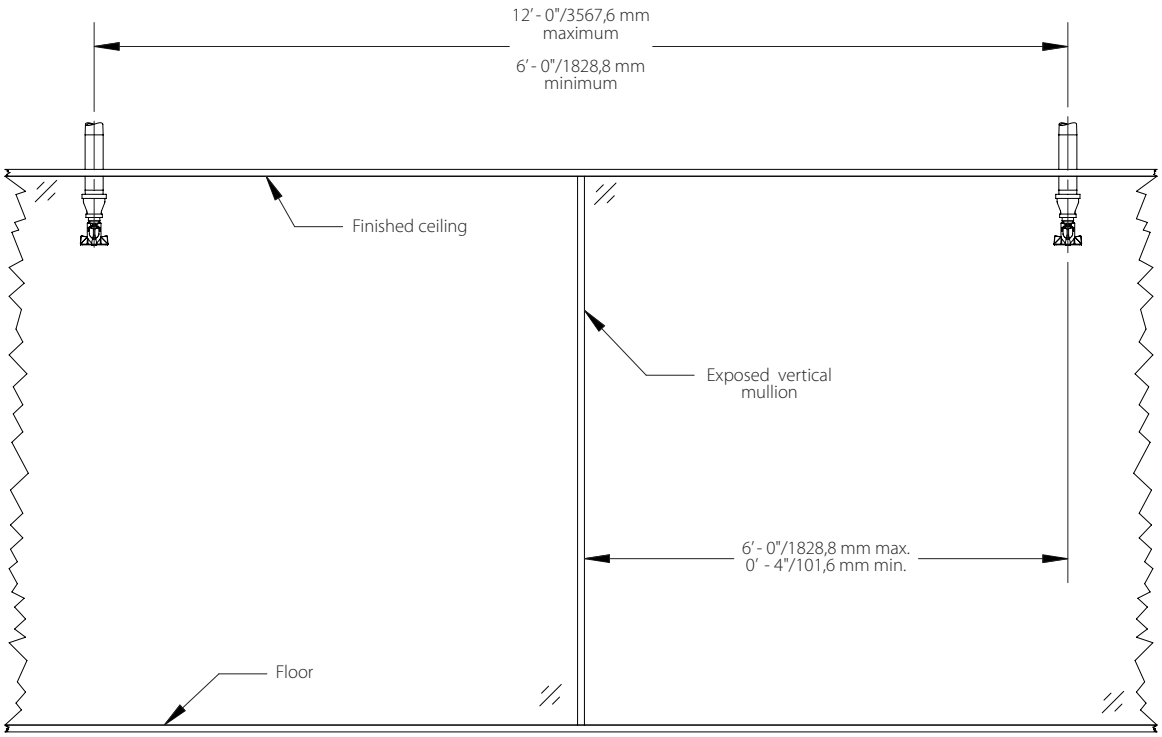

Figure H: V2752

5.0 PERFORMANCE (CONTINUED)

Sprinkler Installation Location Exposed

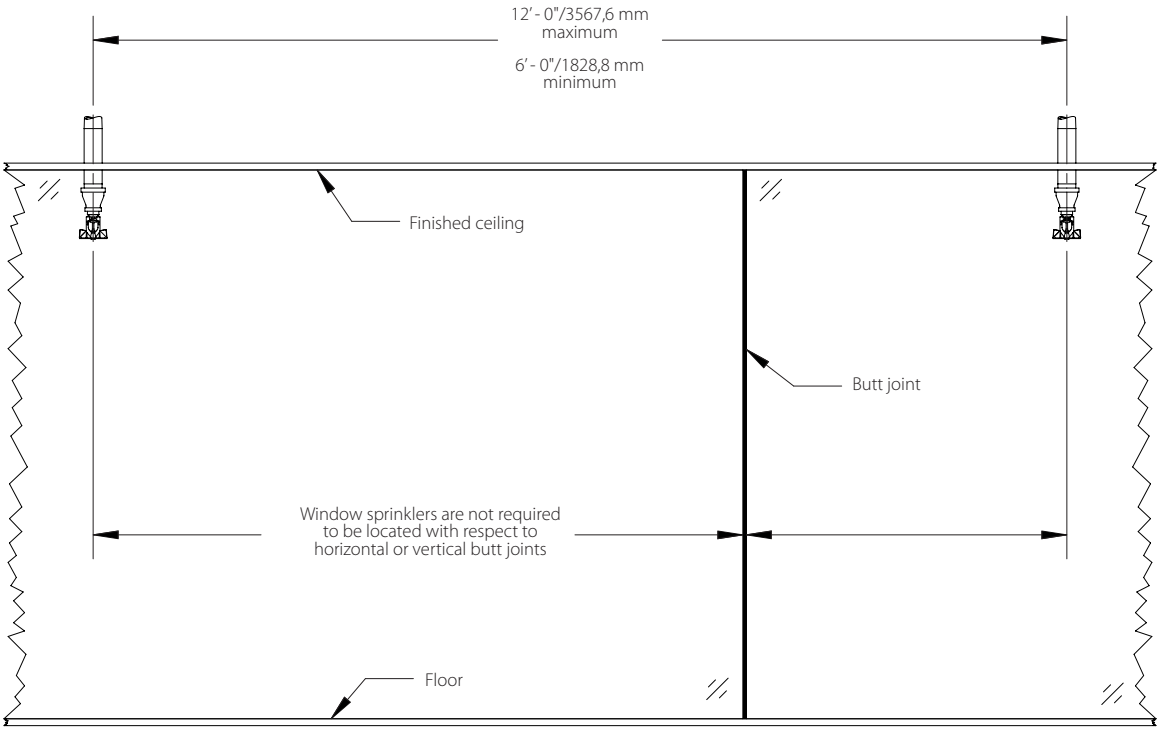

Figure J: V2752

5.0 PERFORMANCE (CONTINUED)

Sprinkler Installation Location Exposed

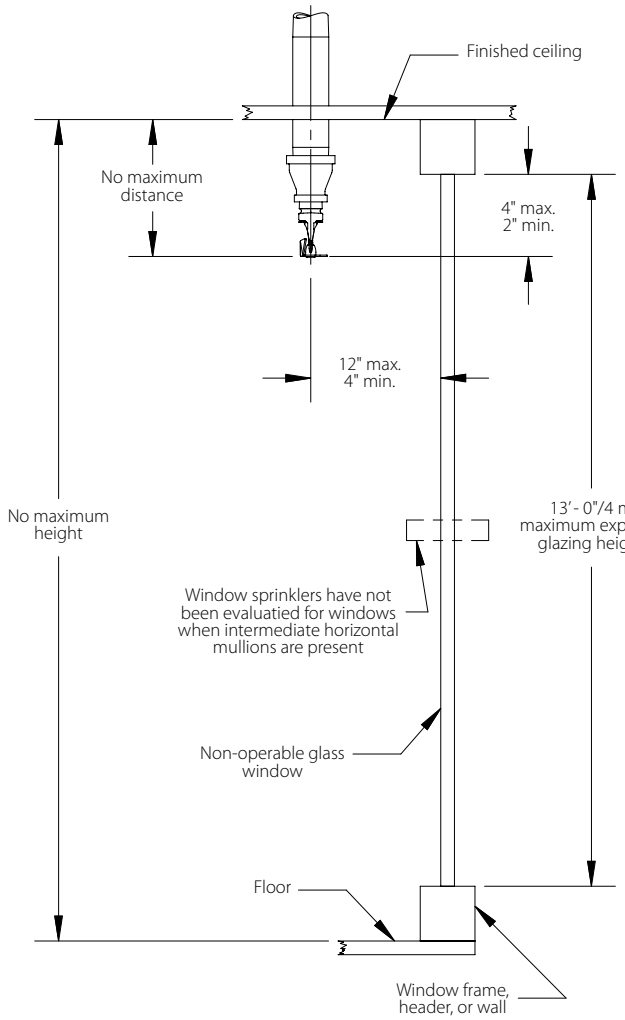

Figure K: V2752

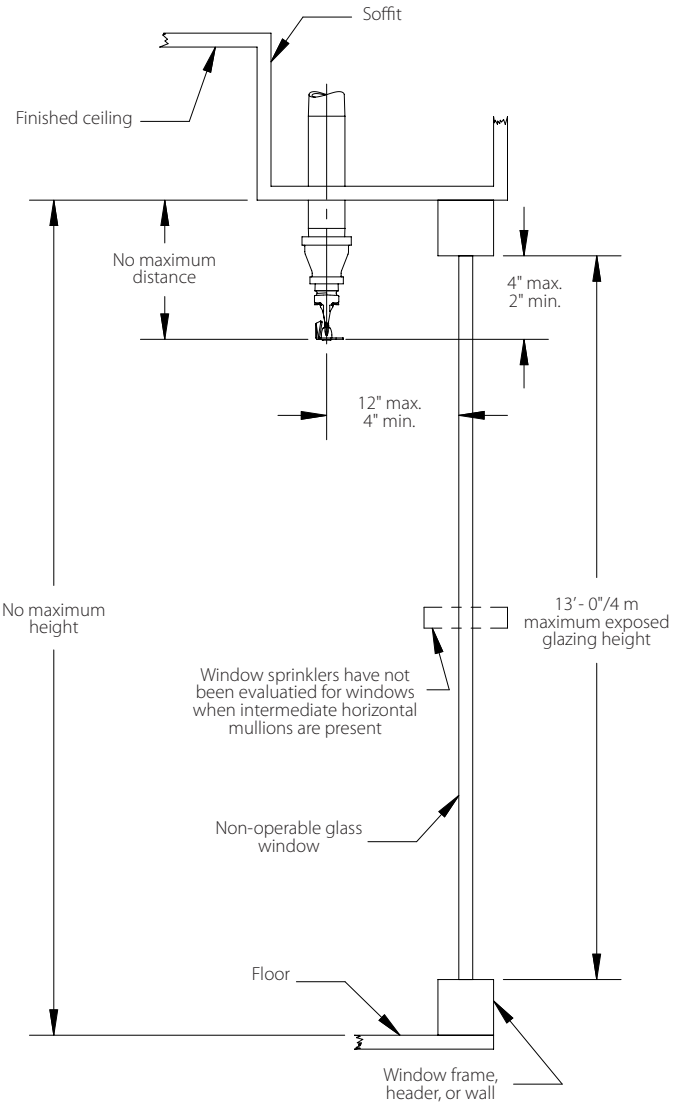

Figure L: V2752

- Position sprinkler with the frame arms aligned parallel to glazing and flow arrow on deflector pointed towards the glazing.
- All combustible materials must be kept a minimum of 2" (50 mm) from face of glazing. A minimum 36" (900 mm) high "Pony Wall" may be used or ather method acceptible to the authority having jurisdiction to meet the intent.
- The use of window coverings (i.e. blinds, shades, etc.) are not allowed to be installed between the sprinkler and glazing.

5.0 PERFORMANCE (CONTINUED)

Recommended Hydraulic Requirements

All applications of the Window Sprinkler should be evaluated separately depending on the described performance objectives. The Authority Having Jurisdiction should be consulted to determine the hydraulic requirements for each installation.

Interior Protection with Sprinklers at Ceiling Level – Calculation Method 1

1. Identify which compartmented area has the most hydraulically demanding window sprinklers.
2. Calculate up to the most demanding 46.5 linear ft (14.2 m) of Model FL-SA/WS Window Sprinklers on one side of the glazing.
   a The 46.5 linear feet (14.2 m) is based upon 1.2 x the square root of the system area of operation
      i when the system area of operation is 1500 ft^2 (139 m^2) in accordance with NFPA 13 Light/Ordinary Hazard density curves, or other local standards.
   b If an area reduction for quick response sprinklers is utilized (900 ft^2/84 m^2), the linear length of the calculated window sprinklers may be reduced, but in no case shall be less than 36 linear feet (11 m), calculated by 1.2 x √reduced area.
   c Where the length of the Glazing is less than 46.5 linear feet (14.2 m), all window sprinklers on one side of the glazing shall be calculated.
3. If a single fire can be expected to operate Model FL-SA-WS Window Sprinklers and sprinklers within the design area of a hydraulically calculated system, the water demand of the window sprinklers shall be added to the water demand of the hydraulic calculations and shall be balanced to the calculated area demand.
4. If the window sprinklers are located in an area other than the hydraulic design area, the demand of the window sprinklers is not required to be added to the demand of the remote hydraulic design area. However, it is necessary to prove hydraulically the simultaneous operation of the Model FL-SA-WS Window Sprinklers and the ceiling sprinklers adjacent to the window sprinklers.

Interior Protection Non-Sprinklered Building

Calculate all sprinklers on the most demanding side of the glazing assembly within the enclosure.

Duration of Water Supply

If window sprinklers are used to provide the equivalency of a fire rating, the water supply must be capable of supplying water for the required rating period.

6.0 NOTIFICATIONS

⚠ WARNING

- **Read and understand all instructions before attempting to install any Victaulic products.**
- **Always verify that the piping system has been completely depressurized and drained immediately prior to installation, removal, adjustment, or maintenance of any Victaulic products.**
- **Wear safety glasses, hardhat, and foot protection.**

Failure to follow these instructions could result in death or serious personal injury and property damage.

- **These products shall be used only in fire protection systems that are designed and installed in accordance with current, applicable National Fire Protection Association (NFPA 13, 13D, 13R, etc.) standards, or equivalent standards, and in accordance with applicable building and fire codes. These standards and codes contain important information regarding protection of systems from freezing temperatures, corrosion, mechanical damage, etc.**
- **The installer shall understand the use of this product and why it was specified for the particular application.**
- **The installer shall understand common industry safety standards and potential consequences of improper product installation.**
- **It is the system designer's responsibility to verify suitability of materials for use with the intended fluid media within the piping system and external environment.**
- **The material specifier shall evaluate the effect of chemical composition, pH level, operating temperature, chloride level, oxygen level, and flow rate on materials to confirm system life will be acceptable for the intended service.**

Failure to follow installation requirements and local and national codes and standards could compromise system integrity or cause system failure, resulting in death or serious personal injury and property damage.

7.0 REFERENCE MATERIALS

Ratings: All glass bulbs are rated for temperatures from -67°F/-55°C.

I-40: Victaulic® FireLock™ Automatic Sprinklers Installation and Maintenance Instructions

