

# Victaulic® FireLock™ Series FL-SA/IC Specific Application, Interstitial Combustible Concealed Space, Quick Response, Upright, K5.6 (8.0)



## 1.0 PRODUCT DESCRIPTION

SPECIFIC APPLICATION INTERSTITIAL COMBUSTIBLE SPACE SPRINKLERS	
SIN	V5608
ORIENTATION	Upright
K-FACTOR <sup>1</sup>	5.6 Imp./8.1 S.I.
CONNECTION	½" NPT
MAX. WORKING PRESSURE	175 psi (1200 kPa)
GLOBE RE-DESIGNATION	GL5608
MIN. OPERATING PRESSURE	7 psi (48 kPa)

AVAILABLE WRENCHES	
SPRINKLER	V56 Open End
Upright	■

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

**Temperature Rating:** See tables in section 2.0

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

## 2.0 CERTIFICATION/LISTINGS



Sprinkler Series	SIN	Nominal K Factor	Listing Agency/ Approved	Area of Use	Maximum Open Height	Coverage Area
		Imperial	Temperature Ratings		ft	ft <sup>2</sup>
FL-SA/IC	V5608	5.6	175°F/93°C	Horizontal Concealed Spaces	5	256
			200°F/93°C			

### NOTES

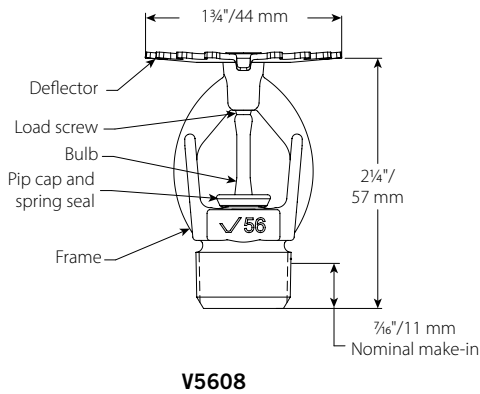
- Listings and approval as of printing.
- Listed to be utilized per NFPA 13 in conformance with the New Technology and Equivalency Sections.

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

### 3.0 SPECIFICATIONS – MATERIAL

- Deflector:** Brass
- Bulb Nominal Diameter:** 3.0 mm
- Load Screw:** Brass
- Pip Cap:** Brass
- Spring Seal Assembly:** PTFE coated Beryllium nickel alloy
- Frame:** Brass
- Installation Wrench:** Ductile iron
- Sprinkler Frame Finishes:** Plain brass

### 4.0 DIMENSIONS



### 5.0 PERFORMANCE

#### V5608 Spacing and Coverage Area

Construction Type	Steel Piping			CPVC Piping			Coverage Area feet <sup>2</sup> meters <sup>2</sup>	Distance Between Sprinklers feet meters
	Open Space Height		Total allowed space height <sup>2</sup>	Open Space Height		Total Allowed Space Height <sup>2</sup>		
	Minimum inches mm	Maximum inches mm		Minimum inches mm	Maximum inches mm			
Unobstructed wood truss	6	60	60	6	60	60	256 23.8 Maximum	6 1.8 Minimum 16 4.9 Maximum
Non-Combustible Bar Joist	152	1524	1524	152	1524	1524		
Obstructed wood truss	6	60	84	–	–	–		
Solid wood joist	152	1524	2134	–	–	–		
Insulation filled joist	6 152	60 1524	72 <sup>3</sup> 1829 <sup>3</sup>	6 152	60 1524	72 <sup>3</sup> 1829 <sup>3</sup>		

<sup>2</sup> When truss or joist space is noninsulation filled, the maximum allowed top member depth is 12" (305 mm).

<sup>3</sup> Up to 12" (305mm) lower member space

**NOTE**

- Metric conversions are approximate.
- Minimum spacing does not apply to additional sprinklers required for protection of CPVC pipe that is offset over an obstruction

**5.0 PERFORMANCE (CONTINUED)**

**Hydraulically Remote Area:**

Construction Type	Piping	System Type	Max Distance Between Sprinklers feet meters	Top Chord Depth/ Orientation	Draft Curtain Requirement	Hydraulic <sup>4,8,9,10</sup> Requirement feet <sup>2</sup> meters <sup>2</sup>
Unobstructed wood truss <sup>7</sup> Non-Combustible Bar Joist	CPVC	Wet	16 4.9	4" or less <sup>6</sup>	Not Required	6 Sprinklers or 1000 ft <sup>2</sup> 93 m <sup>2</sup>
Insulation filled joist				N/A		
Unobstructed wood truss <sup>7</sup> Non-Combustible Bar Joist	Steel	Wet	16 4.9	4" or less <sup>6</sup>	Not Required	6 Sprinklers or 1000 ft <sup>2</sup> 93 m <sup>2</sup>
Obstructed wood truss Solid wood joist				> 4" in depth	1000 ft <sup>2</sup> 93 m <sup>2</sup>	1000 ft <sup>2</sup> 93 m <sup>2</sup>
Insulation filled joist <sup>9</sup>				N/A	Not Required	5 Sprinklers or 900 ft <sup>2</sup> 84 m <sup>2</sup>
Unobstructed wood truss <sup>7</sup> Non-Combustible Bar Joist		Dry <sup>5</sup>	16 4.9	4" or less <sup>6</sup>	Not Required	9 Sprinklers or 1000 ft <sup>2</sup> 93 m <sup>2</sup>
Obstructed wood truss <sup>7</sup> Solid wood joist	> 4" in depth				1000 ft <sup>2</sup> 93 m <sup>2</sup>	1000 ft <sup>2</sup> 93 m <sup>2</sup>
Insulation filled joist <sup>9</sup>	N/A				Not Required	9 Sprinklers or 1000 ft <sup>2</sup> 93 m <sup>2</sup>

<sup>4</sup> Hydraulic requirements are based on the greater of the number of sprinklers shown or 1000 ft<sup>2</sup> as applicable.  
<sup>5</sup> Dry systems allow for a 60s fluid delivery time.  
<sup>6</sup> 4" or less allows for installation of top chord member On-Edge or On-Face for a nominal 2 x 4.  
<sup>7</sup> See NFPA 13 for definition of Obstructed and Unobstructed Construction.  
<sup>8</sup> The remote area does not require any additional flow from the V5608 sprinkler for the protection of CPVC pipe that is offset over an obstruction.  
<sup>9</sup> For steel pipe systems with solid or composite wood construction, where the upper deck is filled with non-combustible insulation, draft curtains are not required. However, the remote area must be calculated per NFPA 13 requirements for light-hazard applications with a smooth, flat ceiling.  
<sup>10</sup> When there are full height separations (i.e. full height draft curtains or walls), the design area can be smaller than 1000 sq ft, if the area being protected is less than 1000 sq ft. All sprinklers within each area must be included in the hydraulic calculations.

**Minimum Required Density:**

- 0.10 gpm/ft<sup>2</sup>/4.1 mm/min

**Sprinkler Coverage area:**

The coverage area of any single combustible concealed specific application sprinkler shall be determined by utilizing the SxL rule for all sprinkler spacings (i.e. 16 x 10 = 160 sq. ft. X 0.10 = 16 gpm).

**Obstruction Criteria:**

For systems where combustible concealed specific application sprinklers are positioned with 15 ft (4.6m) or less between sprinklers the sprinklers must use the obstruction requirements for standard spray upright sprinklers per NFPA 13.

For systems where combustible concealed specific application sprinklers are positioned with greater than 15 ft (4.6m) between sprinklers the sprinkler must use the obstruction requirements for extended coverage upright sprinklers per NFPA 13.

**NOTE**

- Web members and Gussets shall not be considered obstructions provided the minimum 4 ½ inch lateral distance required by the specific application listing is maintained.

**Maximum Roof Pitch: 2/12 (9°)**

## 5.0 PERFORMANCE (CONTINUED)

### Design Criteria

#### CPVC Design Requirements

##### General information

**System Type:** Light hazard, wet pipe system only

**Area of Use:** Horizontal interstitial (concealed) spaces with a roof pitch of 0/12 to 2/12 (9°) maximum constructed of:

- Unobstructed wood trusses and bar joists
- Solid or composite wood joists where the upper deck is filled with non-combustible insulation

#### NOTICE

- **In order to be considered “solid or composite wood joist construction where the upper deck is filled with non-combustible insulation,” the insulation (including insulation provided with a combustible vapor barrier) must completely fill the pockets between the joists and to the bottom of the joists.**
- **The insulation must be secured in place with metal wire netting. The metal wire netting is intended to hold the insulation in place if the insulation becomes wetted by the operation of a sprinkler during a fire.**

##### Solid or Composite Wood Joist Construction Where the Upper Deck is Filled with Non-Combustible Insulation (Figure 2)

**Concealed Space Area:** The area of the concealed space is not limited. Draft curtains (heat collection baffle), are not required in Solid or Composite Wood Joist Construction Where the Upper Deck is Filled with Non-Combustible Insulation.

**Deflector Position:** The clearance from the sprinkler deflector to the bottom of the joist is 1 ½" minimum to 4"/102 mm maximum (refer to Figure 2 Deflector Clearance).

The combustible concealed specific application sprinkler must be installed only in the upright position. When the combustible concealed specific application sprinkler is used in an installation with a pitched roof and a flat ceiling, maintain the specified clearances from the sprinkler deflector to the bottom of the upper deck joist and the maximum height of the pipe run to the ceiling in all locations. The sprinkler deflector must be installed parallel with the plane of the roof.

##### Unobstructed Wood Truss and Bar Joist Construction (Figure 1)

**Concealed Space Area:** The area of the concealed space is not limited. Draft curtains (heat collection baffle) are not required in Unobstructed Construction where the top chord member is less than 4".

**Deflector Position:** The vertical sprinkler-deflector clearance to the bottom of the roof deck is 1 ½"/38.1 mm minimum to 4"/101.6 mm maximum. The lateral sprinkler-deflector clearance from the side of chords or web members is a minimum 4 ½"/114.3 mm to centerline of sprinkler (Refer to Figure 1). The combustible concealed specific application sprinkler must be installed only in the upright position. The sprinkler deflector must be in-stalled parallel with the plane of the roof.

## 5.0 PERFORMANCE (CONTINUED)

### Design Criteria (continued)

#### Additional Information

When combustible concealed specific application sprinklers are used with listed CPVC piping, the bottom of the horizontal run must be no greater than 6"/152.4 mm or 1/3 of the total space above the ceiling (whichever is smaller). In situations where the members at the bottom of the space are greater than 6 inches deep, CPVC piping shall be permitted to be installed directly on top of those members.

The sprinkler system piping can then be used to supply the Combustible Concealed Specific Application Sprinklers as well as the sprinklers below the ceiling.

#### NOTES

- If 12"/304.8 mm trusses are used in Figure 1, the bottom of the horizontal run must be no greater than 4"/101.6 mm above the ceiling. In Figure 2, if the concealed space height from the bottom of the upper deck joist to the top of the ceiling joist is the minimum 6"/152.4 mm requirement, the bottom of the horizontal run must be no greater than 4"/101.6 mm above the ceiling (refer to Figures 1 and 2, Maximum Clearance for CPVC Pipe to Ceiling).
- When sprinkler system piping must be offset up and over an obstruction, and the bottom of the pipe will be located more than 6"/152.4 mm or 1/3 of the total space above the ceiling, additional combustible concealed specific application sprinklers must be installed to protect the CPVC product (refer to Figures 1 and 2, Maximum Space for CPVC Pipe Over an Obstruction). The sprinkler must be installed directly over the obstruction (refer to Figures 1 and 2, Sprinklers Installed Over an Obstruction).
- When using 3/4"/20 mm piping, all sprigs over 12"/304.8 mm must be laterally braced, per NFPA standards.
- When using 1"/25-mm or larger piping, a hanger must be located at the truss closest to a sprig for restraint.
- A minimum lateral distance of 18"/457.2 mm must be maintained between CPVC pipe and heat sources (i.e. fan motors, heat lamps, HVAC heat pump units, etc.).

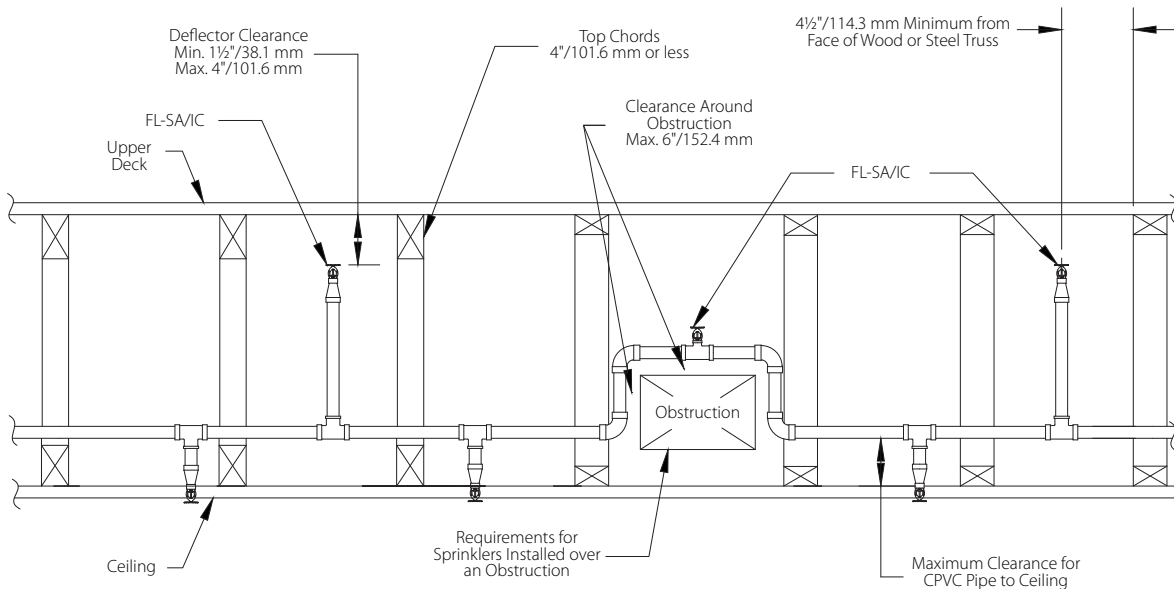


FIGURE 1  
UNOBSTRUCTED WOOD TRUSS OR BAR JOIST CONSTRUCTION INCORPORATING CPVC PIPE  
(CROSS SECTION VIEW)

## 5.0 PERFORMANCE (CONTINUED)

### Design Criteria (continued)

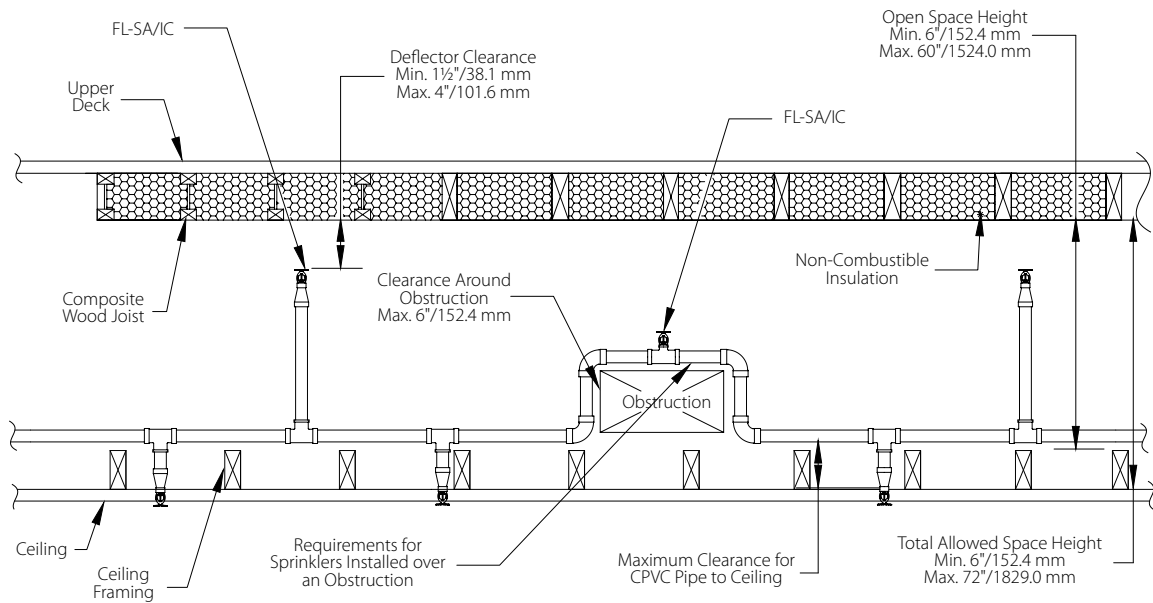


FIGURE 2  
SOLID OR COMPOSITE WOOD JOIST CONSTRUCTION INCORPORATING CPVC PIPE WHERE  
THE UPPER DECK IS FILLED WITH NON-COMBUSTIBLE INSULATION  
(CROSS SECTION VIEW)

## 5.0 PERFORMANCE (CONTINUED)

### Design Criteria

#### Steel Pipe Design Requirements

##### General information

**System Type:** Light hazard – wet pipe, dry pipe, or preaction-type systems supervised with air or inert gas (for steel pipe only). Refer to the “Additional Information” section on the following page.

##### Area of Use:

- Solid wood joists without insulation in the upper deck
- Solid or composite wood joists where the upper deck is filled with non-combustible insulation
- Obstructed or unobstructed wood or steel trusses

#### NOTICE

- **In order to be considered “solid or composite wood joist construction where the upper deck is filled with non-combustible insulation,” the insulation (including insulation provided with a combustible vapor barrier) must completely fill the pockets between the joists and to the bottom of the joists. When the space is completely filled with non-combustible insulation, wood blocking is not required.**
- **The insulation must be secured in place with metal wire netting. The metal wire netting is intended to hold the insulation in place if the insulation becomes wetted by the operation of a combustible concealed specific applicationsprinkler during a fire.**

#### Solid Wood Joist Construction Without Insulation in the Upper Deck and Obstructed Wood Truss or Bar Joist Construction (Figure 3)

**Concealed Space Area:** The concealed space area is not limited. However, blocking between the joists and the upper deck must be constructed of a material that will not allow heat to escape through or above the blocking.

The blocking must be constructed to the full depth of the upper joist and must contain a non-combustible material or a material that is the same composition of the joist construction. The blocking must be located where the draft curtains intersect the channels.

Draft curtains (heat collection baffle) or full-height walls must drop below the joist a minimum of 6"/152.4 mm or 1/3 of the space, whichever is greater, and limit the maximum localized detection area to 1000 ft<sup>2</sup>/93.0 m<sup>2</sup>. Draft curtains (heat collection baffle) or full-height walls must be constructed of a material that will not allow heat to escape through or above the barrier. This material may be 1/4"/6.4 mm thick plywood (refer to Figure 3, Draft Curtain).

**Deflector Position:** The vertical sprinkler deflector clearance to the bottom of the upper deck joist or bottom of upper chord of wood truss or bar joist where the upper chord is greater than 4"/102 mm in depth is 1 1/2"/38.1 mm minimum to 2"/50.8 mm maximum (refer to Figures 3, Deflector Clearance). The sprinkler must be installed only in the upright position. When the Victaulic Model FL-SA/IC Specific Application Sprinkler is used in an installation with a pitched roof and a flat ceiling, maintain the specified clearances from the sprinkler deflector to the bottom of the upper deck joist. The sprinkler deflector must be installed parallel with the plane of the roof.

## 5.0 PERFORMANCE (CONTINUED)

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### Design Criteria (continued)

#### Unobstructed Wood or Steel Open Truss Construction and Solid or Composite Wood Joist Construction Where the Upper Deck is Filled with Non-Combustible Insulation (Figures 4 and 5)

**Concealed Space Area:** Non-insulation filled channels, draft curtains (heat collection baffle) are not required in Unobstructed Wood or Steel Open Truss Construction and Solid or Composite Wood Joist Construction where the Upper Deck is filled with Non-Combustible Insulation.

**Deflector Position:** The vertical sprinkler deflector clearance to the bottom of the upper deck surface is 1 ½"/38.1 mm minimum to 4"/101.6 mm maximum (refer to Figure 4 and 5, Deflector Clearance). The sprinkler must be installed only in the upright position. The sprinkler deflector must be installed parallel with the plane of the roof.

#### Additional Information

- Typically, the upper joists are constructed of solid or composite wood with a maximum depth of 12"/304.8 mm and spaced 16"/406.4 mm on-center minimum.
- Steel pipe may be hung from the upper joist or truss using proper supports.
- Extra sprinklers are not required for protection of pipe when offsetting over obstructions.
- There are no clearance requirements for supply piping to the ceiling.
- Ceiling sprinklers below the concealed space may be fed from the same piping as the combustible concealed specific application sprinklers.



5.0 PERFORMANCE (CONTINUED)

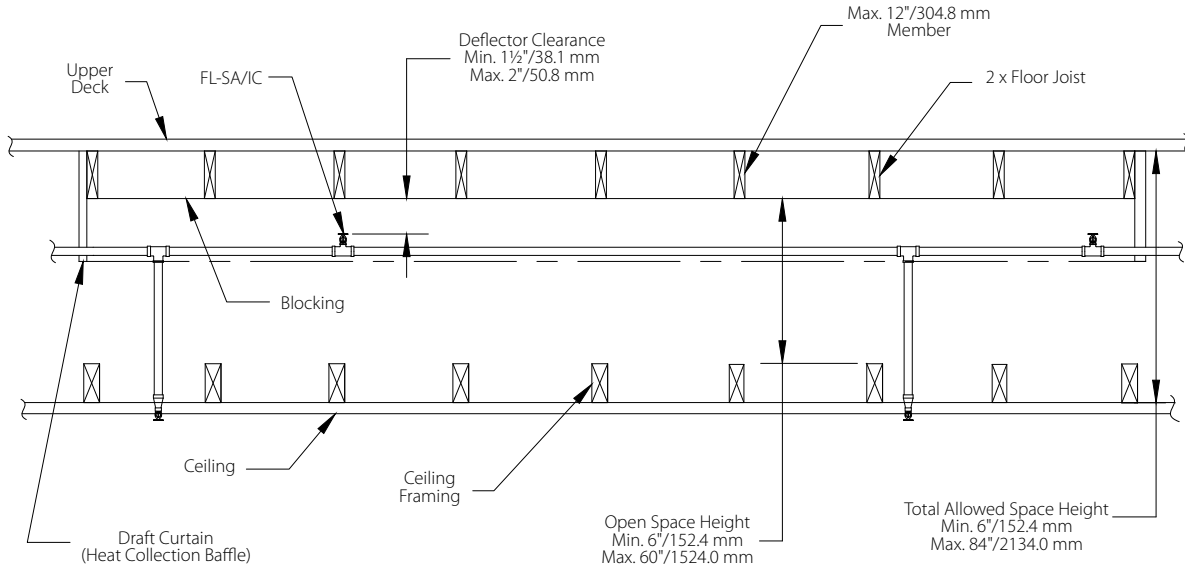


FIGURE 3  
SOLID WOOD JOIST CONSTRUCTION INCORPORATING STEEL PIPE  
(CROSS SECTION VIEW)

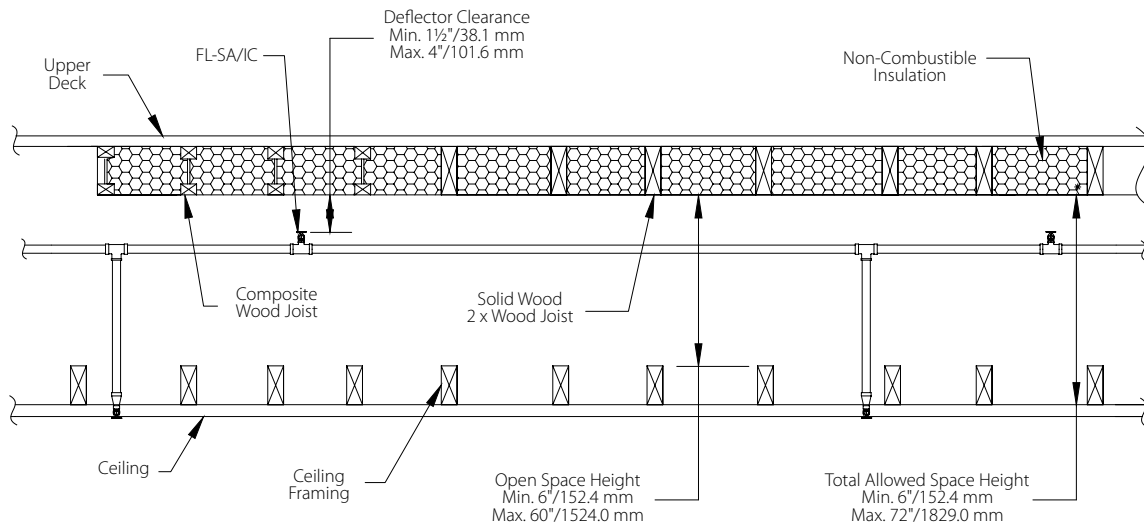


FIGURE 4  
SOLID WOOD JOIST CONSTRUCTION INCORPORATING STEEL PIPE WITHOUT INSULATION OR COMPOSITE WOOD JOIST  
CONSTRUCTION INCORPORATING STEEL PIPE WHERE THE UPPER DECK IS FILLED WITH NON-COMBUSTIBLE INSULATION  
(CROSS SECTION VIEW)

5.0 PERFORMANCE (CONTINUED)

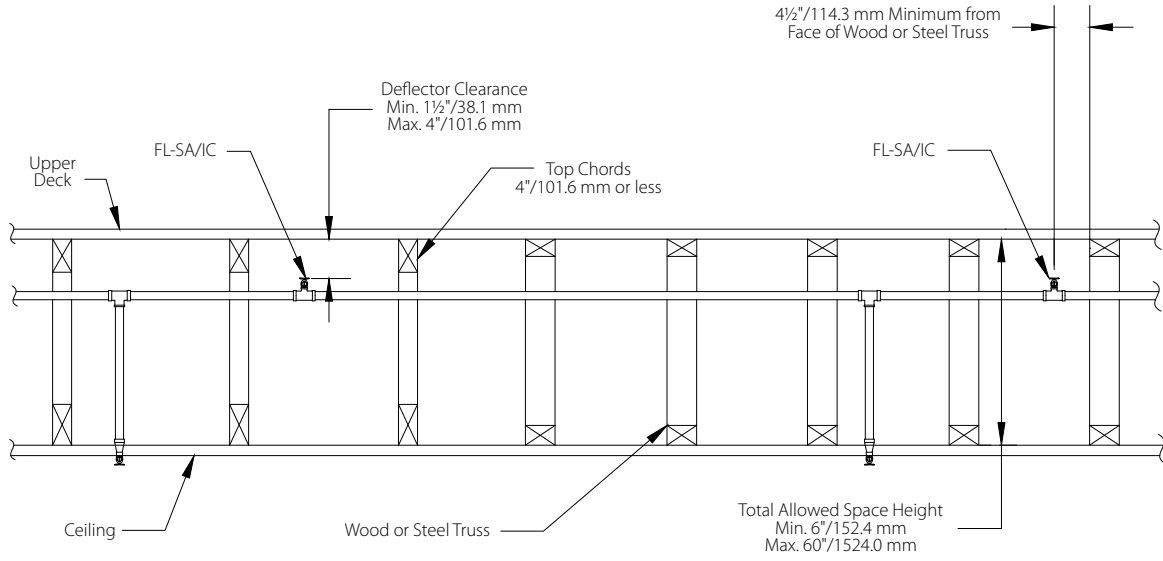







FIGURE 5  
UNOBSTRUCTED WOOD AND STEEL OPEN TRUSS CONSTRUCTION INCORPORATING STEEL PIPE  
(CROSS SECTION VIEW)

## 6.0 NOTIFICATIONS

<b>⚠ WARNING</b>				
				
<ul style="list-style-type: none"><li>• Read and understand all instructions before attempting to install, remove, adjust, or maintain any Victaulic piping products.</li><li>• Depressurize and drain the piping system before attempting to install, remove, adjust, or maintain any Victaulic piping products.</li><li>• Wear safety glasses, hardhat, and foot protection.</li></ul> <p><b>Failure to follow these instructions could result in death or serious personal injury and property damage.</b></p>				

## 7.0 REFERENCE MATERIALS

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

[I-40: Victaulic® FireLock™ Automatic Sprinklers](#)

### User Responsibility for Product Selection and Suitability

Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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### Note

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

### Installation

Reference should always be made to the Victaulic installation handbook or installation instructions of the product you are installing. Handbooks are included with each shipment of Victaulic products, providing complete installation and assembly data, and are available in PDF format on our website at [www.victaulic.com](http://www.victaulic.com).

### Warranty

Refer to the Warranty section of the current Price List or contact Victaulic for details.

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