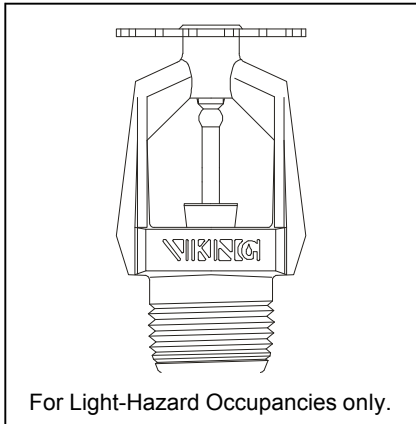




TECHNICAL DATA

MICROFAST[®] COIN[™]
QUICK RESPONSE UPRIGHT
SPRINKLER SIN VK900
(SPECIFIC APPLICATION)



For Light-Hazard Occupancies only.

1. PRODUCT NAME

Viking Microfast[®] COIN[™] QR Combustible Interstitial Space Upright Sprinkler SIN VK900† (Specific Application)

- Sprinkler Part Number 12493AD

†The Sprinkler Identification Number (SIN) is stamped on the sprinkler deflector.

2. MANUFACTURER

The Viking Corporation
 210 N. Industrial Park Road
 Hastings, Michigan 49058, USA
 Telephone: (269) 945-9501
 (877) 384-5464
 Fax: (269) 945-9599
 e-mail: techsvcs@vikingcorp.com

3. PRODUCT DESCRIPTION

Viking Microfast[®] QR COIN[™] Sprinklers are quick response specific application sprinklers for combustible interstitial (concealed) spaces. These upright sprinklers are designed for use in specific light hazard combustible, as well as non-combustible, concealed spaces requiring sprinkler protection.

FEATURES

- In some cases COIN[™] Sprinklers can allow the use of CPVC piping within the concealed spaces of applications requiring sprinkler protection in open truss construction of both wood and steel trusses (see Figure 1) and solid wood or composite wood joist with upper deck filled with non-combustible insulation (see Figure 2).
- COIN[™] Sprinklers can also be installed with steel pipe in protected areas constructed of solid wood joists (see Figure 3), and solid wood or composite wood joist with upper deck filled with non-combustible insulation (see Figure 4), and in open truss construction of both wood and steel trusses (see Figure 5).
- When using steel pipe, COIN[™] Sprinklers can be applied as a dry system using air or gas as a supervisory medium (Figures 3, 4, and 5).

The COIN[™] Sprinkler has been tested to address the proper application density for shallow concealed combustible space fire protection when installed in accordance with this technical data page.

WARNING: System design and installation must be in accordance with the latest edition of Viking technical data, the latest applicable standards of the National Fire Protection Association, and any other Authorities Having Jurisdiction.

4. OPERATION

The orifice design of the Viking Microfast[®] QR COIN[™] Sprinkler, with a nominal K-Factor of 4.3, allows efficient use of available water supplies for hydraulically designed fire protection systems. The 3 mm glass bulb and special deflector combine speed of operation and area of coverage to meet the crucial fire protection requirement for shallow space combustible concealed spaces. During a fire condition, the heat sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern to extinguish or control the fire, and protect the piping in the interstitial space. The COIN[™] Sprinkler must be installed in the upright position as specified in the appropriate application described in Figures 1-5. The clearance from the sprinkler deflector to the roof is critical to operation of the sprinkler (refer to Figures 1-5). The clearances from pipe to lower ceiling for CPVC pipe is critical for protection of CPVC pipe. For open truss

and joist spaces, the maximum detection area is important for proper installation. Draft curtains or heat collection baffles or solid walls are required using wood or other product that will not allow heat to escape. The maximum detection space shall be limited to 1000 sq ft (93 sq m). The draft curtain is required to protrude down from the top deck surface as specified herein.

5. TECHNICAL DATA

Glass-bulb fluid temperature rated to -65 °F (-55 °C).

Rated to 175 psi (1 207 kPa) water working pressure.

Factory tested hydrostatically to 500 psi (3 448 kPa).

Spring: U.S.A. Patent No. 4,167,974

Bulb: U.S.A. Patent No. 4,796,710

Testing: U.S.A. Patent No. 4,831,870

Thread Size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.3 U.S. (6.2 metric*)

* Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.

Overall Length: 2-1/4" (57 mm)

SPRINKLER MATERIALS

Frame: Brass Castings UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

ACCESSORIES

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A

Temperature Classification	Nominal Temperature Rating ¹ (Fusing Point)	Maximum Ambient Ceiling Temp. ²	Bulb Color
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

Approval Chart						KEY																														
Viking Microfast [®] QR COIN [™] Specific Application Upright Sprinkler SIN VK900						Temperature	Finish																													
<table border="1"> <thead> <tr> <th>NPT Thread Size</th> <th>Maximum Pressure</th> <th>Base Part</th> <th>Nominal K-Factor</th> <th>Overall Length</th> <th>Approvals⁵</th> </tr> <tr> <th>Inches</th> <th>mm</th> <th>PSI</th> <th>kPa</th> <th>Number³</th> <th>U.S.</th> <th>metric⁴</th> <th>Inch</th> <th>mm</th> <th>cULus⁶</th> <th>FM</th> <th>NYC</th> </tr> </thead> <tbody> <tr> <td>1/2</td> <td>15</td> <td>175</td> <td>1 207</td> <td>12493AD</td> <td>4.3</td> <td>6,2</td> <td>2-1/4</td> <td>57</td> <td>A1</td> <td>-</td> <td>-</td> </tr> </tbody> </table>						NPT Thread Size	Maximum Pressure	Base Part	Nominal K-Factor	Overall Length	Approvals ⁵	Inches	mm	PSI	kPa	Number ³	U.S.	metric ⁴	Inch	mm	cULus ⁶	FM	NYC	1/2	15	175	1 207	12493AD	4.3	6,2	2-1/4	57	A1	-	-	
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Footnotes

¹ The temperature rating is stamped on the deflector.
² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
³ For complete part number, refer to the price list.
⁴ Metric K-Factor shown is for use when pressure is measured in kPa. When pressure is measured in BAR, multiply the metric K-Factor shown by 10.0.
⁵ This table shows listings and approvals available at the time of printing. Other approvals may be in process.
⁶ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada.

VIKING®

TECHNICAL DATA

MICROFAST® COIN™ QUICK RESPONSE UPRIGHT SPRINKLER SIN VK900 (SPECIFIC APPLICATION)

B. Twelve-head capacity: Part No. 01725A
Available since 1971.

Sprinkler Wrenches:

Standard wrench: Part Number 10896W/B
(available since 2000)

Refer to the "Sprinkler Accessories" section of the *Viking Engineering and Design Data* book for information on sprinkler accessories.

6. SPRINKLER INSTALLATION

Refer to technical data page QR1-2 for care, installation, and maintenance information. The Viking COIN™ Sprinkler MUST be installed in the upright position and as specified in the following instructions.

7. DESIGN GUIDELINES

- CPVC PIPE (FIGURES 1 and 2) APPLICATION

Horizontal interstitial concealed spaces constructed of engineered open wood trusses, non-combustible bar joist, and non-combustible insulation filled solid or composite wood joist construction having roof pitch of 0/12 to 2/12.

NOTE: In order to be considered "non-combustible insulation filled solid wood or composite wood joist construction", the insulation (including insulation provided with a combustible vapor barrier), must completely fill the pockets between the joists to the bottom of the joists, and the insulation must be secured in place with metal wire netting. The metal wire netting is intended to hold the insulation in place should the insulation become wetted by the operation of the COIN™ Sprinklers in the event of a fire.

A. Concealed Space Limitations

The concealed space is not limited in size:

- Draft curtains (heat collection baffle) or full height walls must be provided to limit the maximum area in order to confine heat of localized detection area to 1000 sq ft (93 sq m).
- The draft curtain must be at least 1/3 the depth of the concealed space or 8" (200 mm), whichever is greater, for open truss construction.
- For joist construction of solid wood or composite wood with solid filled non-combustible insulation, a solid wall or draft curtain (heat collection baffle) must drop below the joist a minimum of 6" (152 mm) and run laterally with the joist spaced at 25 ft (8 m) width maximum with maximum detection area of 1000 sq ft (93 sq m). The draft curtain must be constructed of material that will not allow heat to escape through or above it; this may be ¼" (6,4 mm) thick plywood.

B. Concealed Space Height

Wood truss or non-combustible bar joist (Figure 1):

- Maximum height of the space: 36" (914 mm).
- Minimum height: 12" (305 mm)
- Maximum roof pitch: 2/12 (9°)

Where applied to pitch roof and flat ceiling, maintain specified clearances from sprinkler deflector to truss and maximum height of pipe run to ceiling in all locations. NOTE: The sprinkler deflector shall be installed parallel with the roof plane.

Solid wood or composite wood joist with non-combustible filled insulation only (Figure 2):

- Maximum depth of concealed space is 36" (914 mm) from bottom of upper deck joist to top of ceiling joist.
- Minimum depth is 6" (152 mm) from bottom of upper deck joist to top of ceiling joist.

C. System Type

- Light Hazard, Wet Pipe System

D. Minimum Density

- 0.10 gpm/sq ft (4,1 mm/min).

E. Spacing of COIN™ Sprinklers

- Minimum Spacing: 7 ft (2,4 m)
- Maximum Spacing: 12 ft (3,7 m)

NOTE: The spacing does not include additional sprinklers required for obstructions for use of CPVC pipe that includes offsets.

F. Maximum Area of Coverage

- 144 sq ft (13,4 sq m)

G. Minimum Operating Pressure

- 8.0 psi (55 kPa)

H. Obstructions

- All obstruction criteria per NFPA 13 shall apply unless specified differently in this data sheet.

I. Remote Area

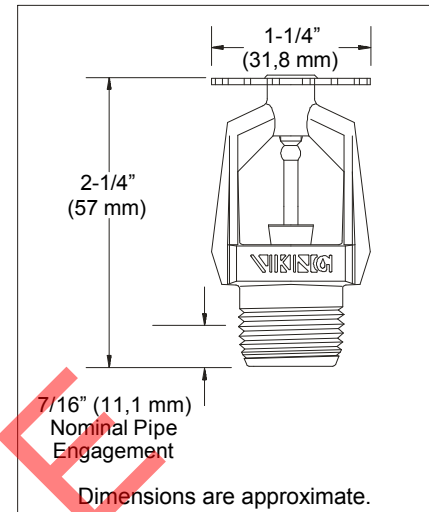
- 1000 sq ft (93 sq m)

NOTE: This area does not include additional sprinklers for protection of CPVC pipe over obstructions.

The remote area for non-combustible insulation filled solid wood joist or composite wood joist construction (Figure 2) is to be calculated per the requirements of NFPA 13.

J. UL Listed CPVC Pipe for use with COIN™ Sprinklers

The Viking COIN™ Sprinkler is UL Listed for use with BlazeMaster or Victaulic Fire-Lock® CPVC pipe products listed for use in concealed spaces with sprinklers. In order to use CPVC products, the bottom of the horizontal run must be no greater than 6" (152 mm) or 1/3 of the total space, whichever is smaller, above the ceiling. The CPVC pipe can supply the COIN™ Sprinklers and the ceiling sprinklers below. Use all guidelines and installation instructions as specified by the CPVC pipe manufacturer BlazeMaster or Victaulic FireLock®



unless specified differently in this data sheet. When using 1" (DN25) pipe or larger, a hanger must be located at the truss nearest the sprig for restraint. If using ¾" (DN20), all sprigs over 12" (305 mm) must include lateral bracing per NFPA standards.

For use of listed CPVC pipe products in concealed spaces using the COIN™ Sprinkler, a minimum lateral distance of 18" (450 mm) must be maintained between the CPVC pipe and the heat sources (e.g. HVAC heat pump units, fan motors, and heat lamps, etc.)

Where CPVC pipe must be installed above the maximum distance of 6" (152 mm) or 1/3 of the total space, whichever is smaller, above the ceiling when piping around obstructions, additional COIN™ Sprinklers must be installed as shown in Figures 1 and 2 in order to protect the CPVC product.

The vertical sprinkler deflector clearance to the bottom of the roof deck is 2" to 4" (51 mm to 100 mm) for open truss construction wood or steel. For solid wood or composite wood joist construction with solid fill non-combustible insulation, the clearance from the sprinkler deflector to the bottom of the joist is 1-1/2" to 2" (40 mm to 50 mm). Also, a draft curtain (heat baffle) made of plywood at least ¼" thick must drop below the joist 6" (152 mm) or 1/3 the space, whichever is smaller, and run laterally with the joist, spaced at 25 ft (8 m) width maximum, or solid wall construction to limit the area of detection coverage to 1000 sq ft (93 sq m).

When applying CPVC pipe with the COIN™ Sprinkler, the system must be a wet pipe system only.

Also, with solid wood or wood composite joist construction, the upper joist must be completely filled with non-combustible insulation.



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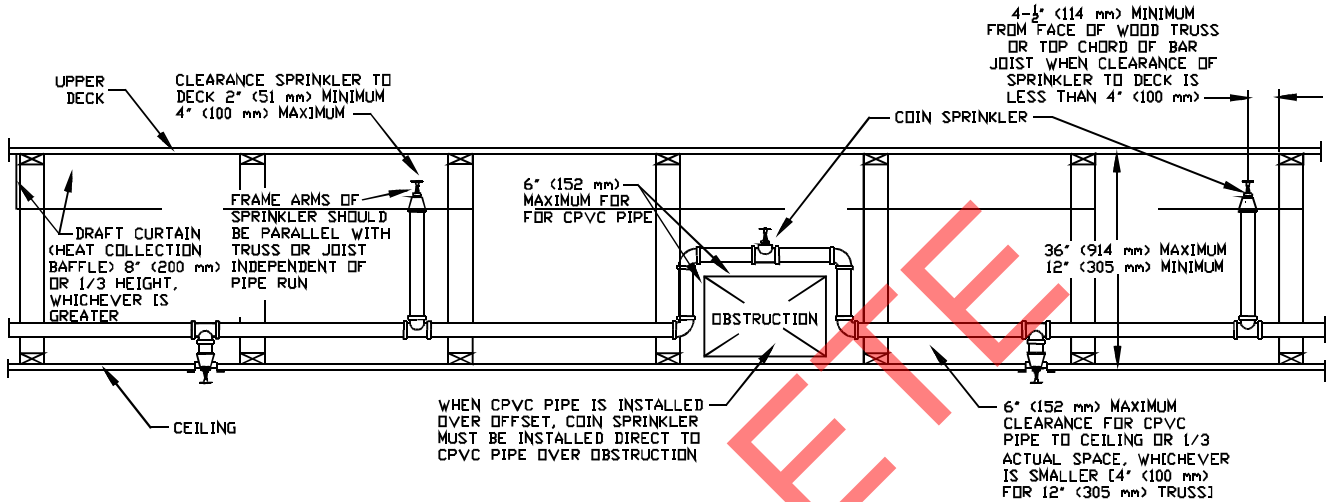


Figure 1: Wood and Steel Open Truss Construction Using CPVC Pipe (Cross Section View)

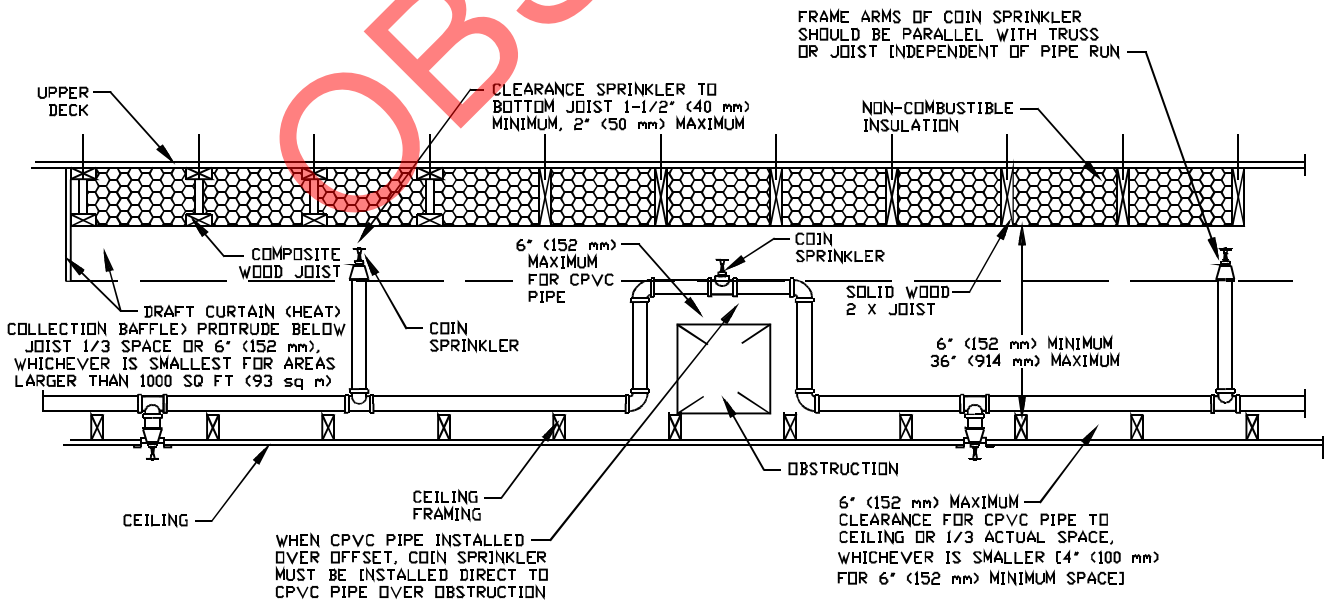


Figure 2: Solid Wood or Composite Wood Joist Construction with Non-Combustible Insulation Filling Upper Deck Using CPVC Pipe (Cross Section View)



TECHNICAL DATA

MICROFAST® COIN™ QUICK RESPONSE UPRIGHT SPRINKLER SIN VK900 (SPECIFIC APPLICATION)

8. DESIGN GUIDELINES - STEEL PIPE (FIGURES 3, 4 & 5) APPLICATION

Horizontal concealed spaces of solid wood joist construction with a roof pitch of 0/12 to 2/12 maximum. The upper joist is constructed of solid wood or composite wood with a maximum depth of 12" (305 mm) typically on center of 16" (400 mm) minimum spacing. Also, steel pipe may be applied in truss construction and solid filled non-combustible insulation in upper deck and wood or composite joist construction similar to that shown in Figures 1 & 2 with the exception of extra sprinklers are not required over obstructions. Also, there is no minimum clearance for supply pipe to upper joists.

With the COIN™ Sprinkler applied using steel pipe, the system may be wet, dry, or preaction type for truss wood or steel construction; solid wood; or solid wood or composite with non-combustible solid fill insulation.

NOTE: In order to be considered "non-combustible insulation filled solid wood or composite wood joist construction", the insulation (including insulation provided with a combustible vapor barrier), must completely fill the pockets between the joists to the bottom of the joists, and the insulation must be secured in place with metal wire netting. The metal wire netting is intended to hold the insulation in place should the insulation become wetted by the operation of the COIN™ Sprinklers in the event of a fire.

A. Concealed Space Limitations

The total concealed space is not limited, but blocking between joists and upper deck must be constructed of 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 be constructed using a non-combustible material or a material that is the same as that of the joist construction. A maximum channel space for blocking is 32 ft (9,75 m) intervals.

Also, solid wall construction or draft curtains (heat collection baffles) must protrude below the joist a minimum of 6" (152 mm) or 1/3 the space, whichever is small-

est, and run laterally with the joist spaced at 25 ft (8 m) width maximum to limit the heat detection space to a maximum of 1000 sq ft (93 sq m). The draft curtain may be constructed of ¼" (6,4 mm) thick plywood to prevent heat from escaping beyond.

NOTE: When non-combustible solid filled insulation is used, the wood blocking is not required.

B. Concealed Space Height Joist Construction:

- Maximum depth or height of concealed space: 36" (914 mm) from bottom of upper deck joist to top of ceiling joist.
- Minimum depth or height of concealed space: 6" (152 mm) from bottom of upper deck joist to top of ceiling frame joist.

Truss Wood or Steel:

- Maximum height from inside ceiling to inside deck of concealed space: 36" (914 mm).
- Minimum height from inside ceiling to inside deck of concealed space: 12" (305 mm).

C. System Type

- Light hazard, wet pipe system, or dry pipe or preaction system supervised with air or gas when using steel pipe only.

D. Minimum Density

0.10 gpm/sq. ft. (4,1 mm/min).

E. Spacing of COIN™ Sprinklers

- Minimum Space Between Sprinklers: 7 ft (2,1 m)
- Maximum Space Between Sprinklers: 12 ft (3,7 m)

F. Maximum Area of Coverage

- 144 sq ft (13,4 sq m)

G. Minimum Operating Pressure

- 8.0 psi (55 kPa)

H. COIN™ Sprinkler Deflector Position

The COIN™ Sprinkler must be installed in the upright position, with frame arms parallel with the joist of upper deck or with the pipe**.

**Viking recommends positioning the sprinkler with the frame arms parallel with the joist.

For solid wood joist without insulation (Figure 3) or solid or composite wood with non-combustible filled joist (Figure 4):

- The sprinkler deflector must be 1-1/2" to 2" (40 mm to 50 mm) from the bottom of the upper deck joist. When the roof is pitched, the deflector must run parallel with the roof joist maintaining minimum and maximum clearances as specified.

For truss construction, wood or steel bar joist (Figure 5):

- Sprinkler deflector must be 2" to 4" (51 mm to 100 mm) to upper deck bottom surface.

Obstruction criteria per NFPA for standard spray sprinklers apply, unless specified differently in this data sheet.

I. Remote Area

The remote area for wood truss construction or bar joist construction (Figure 5) or solid wood joist construction (Figure 3) is 1000 sq ft (93 sq m) for wet pipe systems or 1300 sq ft (121 sq m) for dry pipe systems. The remote area for non-combustible insulation filled solid wood joist or wood composite joist construction (Figure 4) is to be calculated per the requirements of NFPA13.

J. Piping System

Steel pipe installed in accordance with NFPA 13 standards for spray sprinklers may be applied. The steel pipe may be hung from the upper joist or truss using proper supports. The sprinkler deflector must be positioned as indicated in paragraph H above. Extra sprinklers are not required or protection of pipe when offsetting for obstructions. Ceiling sprinklers below the concealed space may be fed from the same piping as the COIN™ Sprinklers.

As indicated in NFPA 13, piping is to be corrosion resistant or internally galvanized for dry systems, due to the sprinkler's nominal 4.3 K-Factor.



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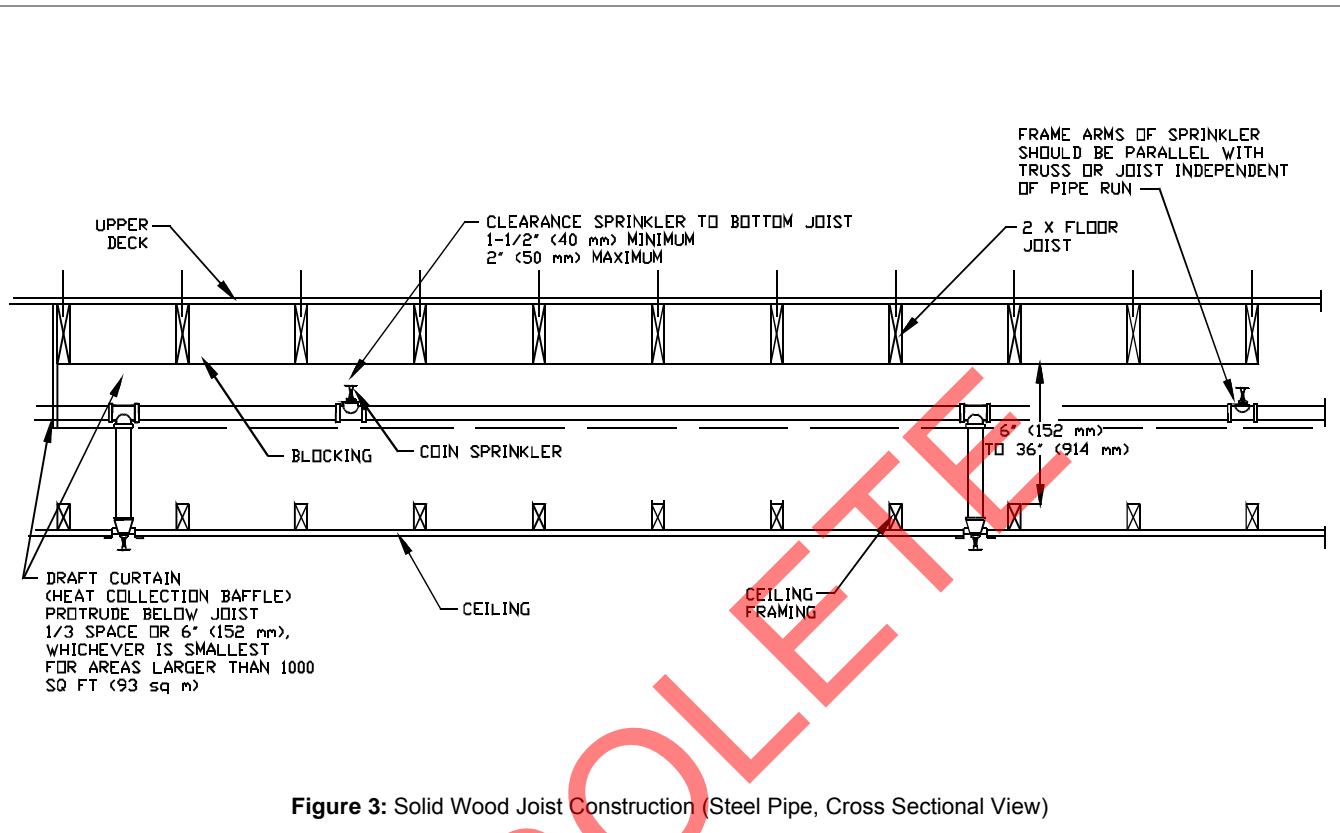


Figure 3: Solid Wood Joist Construction (Steel Pipe, Cross Sectional View)

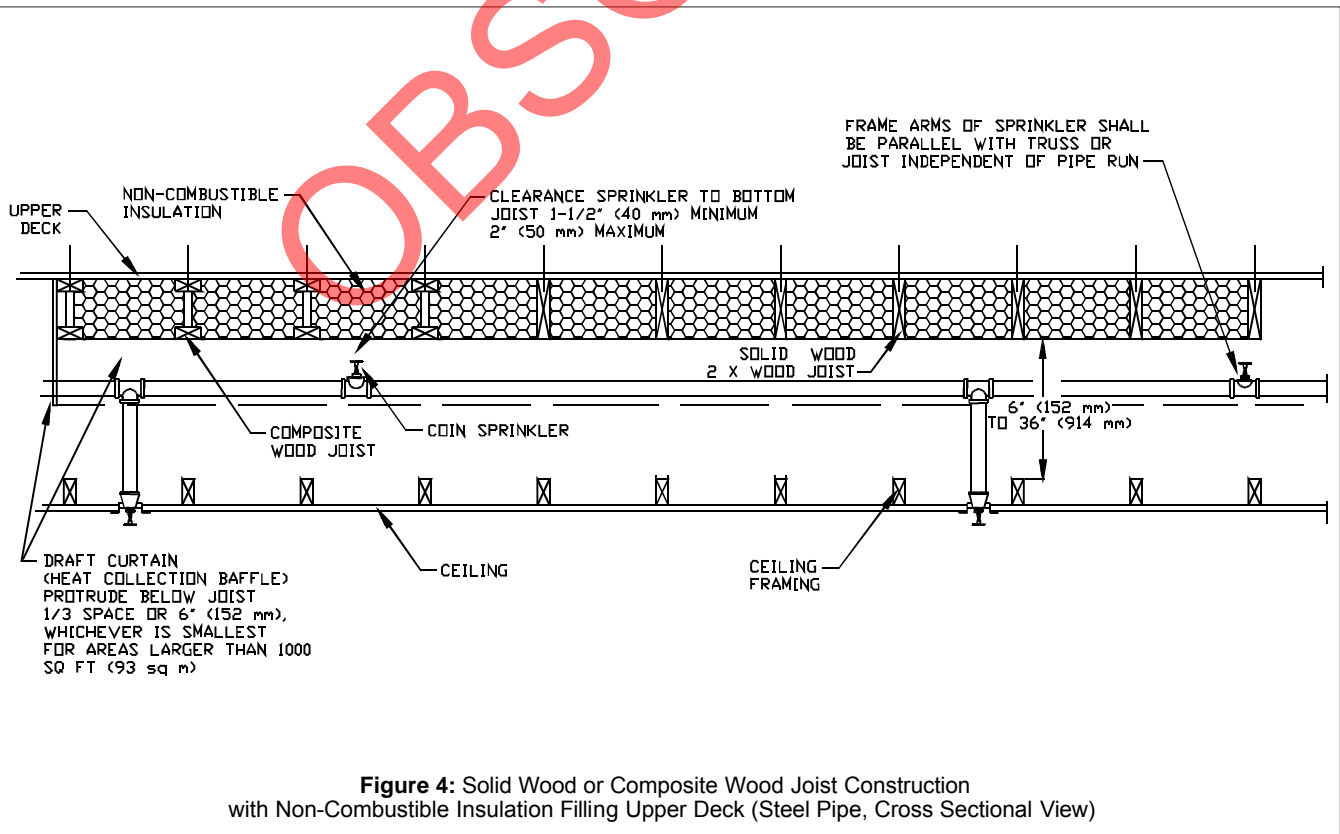
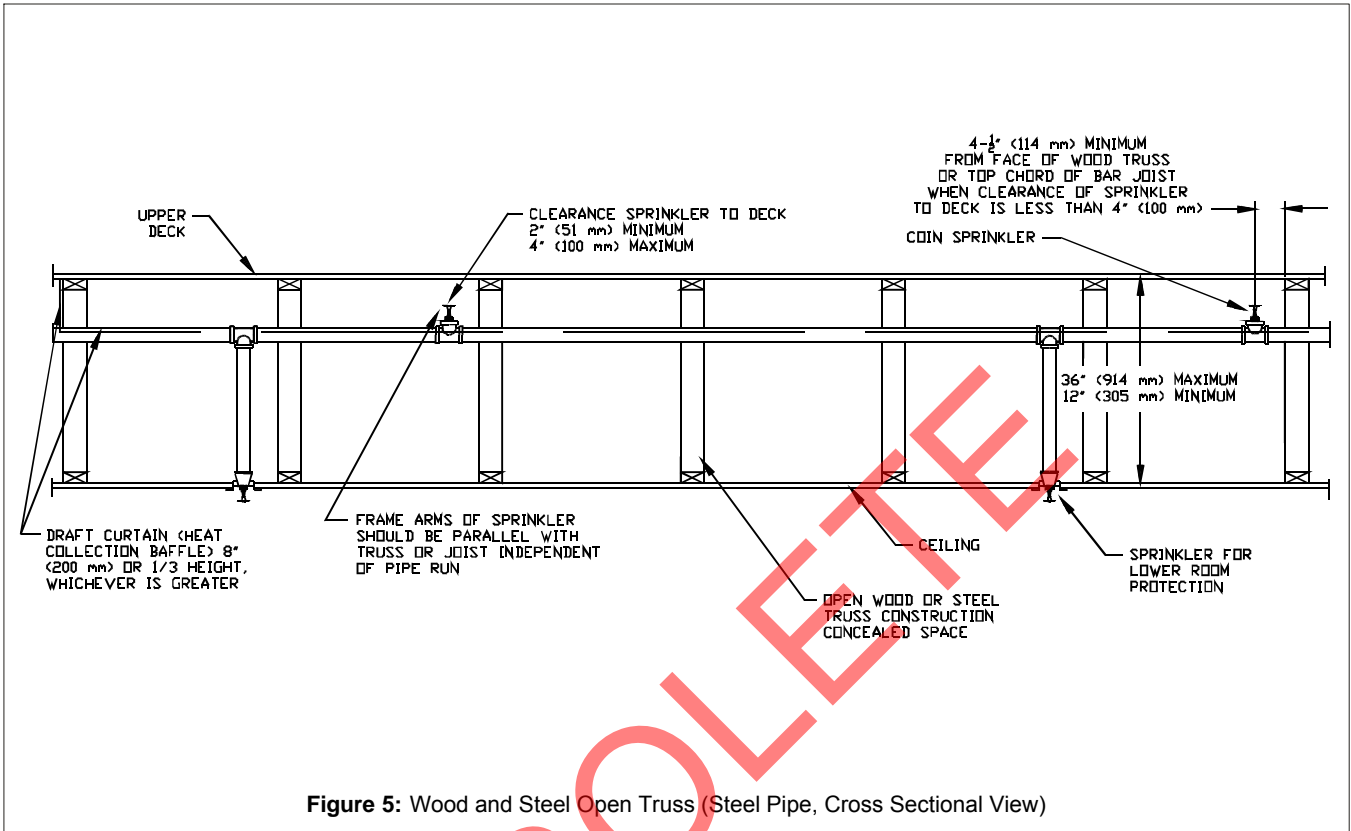


Figure 4: Solid Wood or Composite Wood Joist Construction with Non-Combustible Insulation Filling Upper Deck (Steel Pipe, Cross Sectional View)

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<p>MICROFAST[®] COIN[™] QUICK RESPONSE UPRIGHT SPRINKLER SIN VK900 (SPECIFIC APPLICATION)</p>
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OBSOLETE