



TECHNICAL DATA

**STANDARD RESPONSE/
QUICK RESPONSE
EXTENDED COVERAGE
DRY PENDENT SPRINKLER**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Extended Coverage Adjustable Recessed Dry Pendent Sprinklers are thermo-sensitive spray sprinklers suitable for use in areas subject to freezing. The sprinklers are designed for dry systems and preaction systems where it is necessary to prevent water or condensation from entering the drop nipple before sprinkler operation. They may also be installed in spaces subject to freezing and supplied from a wet system in an adjacent heated area.


The special Polyester and Electroless Nickel PTFE (ENT) coatings have been investigated for installation in corrosive atmospheres and are cULus listed as corrosion resistant as indicated in the Approval Chart.

NOTE: When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.



For Light Hazard Occupancies Only

2. LISTINGS AND APPROVALS

 **cULus Listed:** Category VNIV
NYC Approved: MEA 89-92-E, Volume 15

Refer to the Approval Chart on page 4 and Design Criteria on page 5 for cULus Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 1998.

Minimum Operating Pressure: Refer to the Approval Chart on page 4

Maximum Working Pressure: 175 psi (12 bar). Factory tested pneumatically to 95 psi (6.55 bar)

Thread size: 1" NPT or 25 mm BSP

Nominal K-Factor: 5.6 U.S. (80.6 metric*) for all listed and approved lengths.

* Metric K-factor measurement shown is when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

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

Covered by the following U.S. Patents: 8,636,075

Material Standards:

Frame Casting: Brass UNS-C84400

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

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

Compression Screw: Brass UNS-C36000

Pip Cap: Brass UNS-C36000

Pip Cap Adapter: Brass UNS-C36000

Orifice: Copper UNS-C22000

Tube: ERW Hydraulic Steel Tube

Support (Internal): Stainless Steel UNS-S30400

Barrel: Steel Pipe UNS-G10260, Electrodeposited Epoxy Base finish

Barrel End and Threads: QM Brass

Escutcheon Materials:

Recessed Dry Escutcheons: Cold Rolled Steel UNS-G10080

ENT Coated Adjustable and Recessed Escutcheons: Stainless Steel UNS-S30400

Ordering Information: (Also refer to the current Viking price list.)

Sprinkler: Base Part No. 10541U

Order Extended Coverage Dry Pendent Sprinklers by first adding the appropriate suffix for the sprinkler finish, the appropriate suffix for the temperature rating, and then the suffix for the length ("A" dimension) to sprinkler base part number. Order in a specific length noted as the "A" dimension (see Figure 3). The "A" dimension is the distance from the face of the fitting (tee) to the desired finished surface of the ceiling.

These sprinklers are listed and approved in lengths from 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm).

Finish Suffix: Chrome = F, White Polyester = M-/W, and ENT = JN

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D

BSP threads are available upon special request

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.

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For example, sprinkler VK186 with 1" NPT Threads, a Chrome finish and a 155 °F (68 °C) temperature rating, and "A" length of 10" = Part No. 10541UFB10.

Available Finishes And Temperature Ratings:

Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrench:

Wrench for recessed sprinklers: Part No. 07565W/B** (available since 1991)

**A ½" ratchet is required (not available from Viking).

Replacement Escutcheons:

Recessed Dry Escutcheon Cup: Base Part No. 05459A

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the internal parts to open the waterway. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

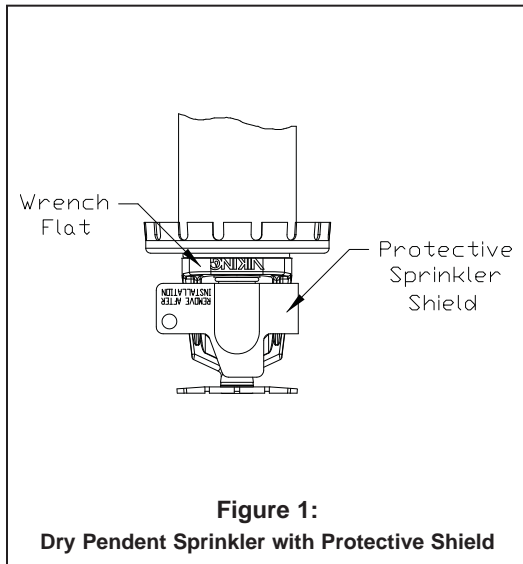
Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Extended Coverage Dry Pendent Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



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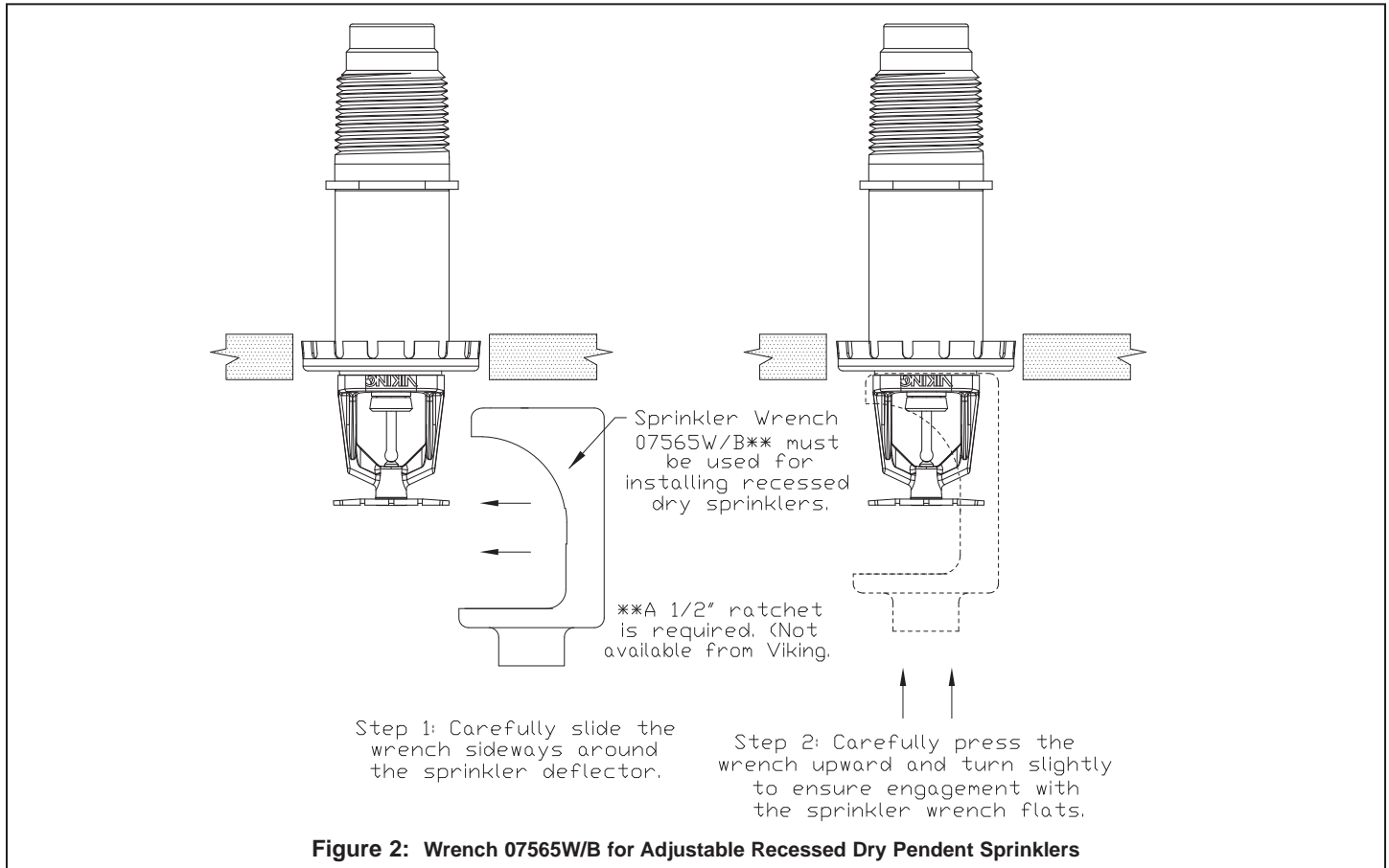
TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

Sprinkler Finishes: Chrome, White Polyester, and ENT
Corrosion-Resistant Coating^{3,4}: White Polyester and ENT in all temperature ratings

Footnotes

- ¹ The sprinkler 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 The corrosion-resistant Polyester and ENT coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Note: These coatings are NOT corrosion proof. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. Polyester and ENT coatings are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings.
- ⁴ When installed in some corrosive environments, the Polyester finish may change color. This natural discoloration over time is not in itself an indication of corrosion and should not be treated as such. All sprinklers installed in corrosive environments should be replaced or tested as described in NFPA 25 on a more frequent basis.



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Approval Chart

**Standard Response/Quick Response Extended Coverage
Adjustable Recessed Dry Pendent Sprinkler VK186
For Light Hazard Occupancies Only
Maximum 175 PSI (12 bar) WWP**

Temperature	KEY
Finish	
A1X ← Escutcheon (if applicable)	

Sprinkler Base Part Number ¹	Thread Size		Maximum Area of Coverage ² Width x Length	Nominal K-Factor ³		Minimum Water Supply Requirements ²	Order Length Increment		Listings and Approvals ⁵ (Refer also to Design Criteria on page 108e.)					
	NPT	BSP ⁹		U.S.	metric ⁴		Inches	mm	cULus ⁶	FM	NYC ⁷	VdS	LPCB	
Quick Response Listings														
10541U	1"	See Footnote 9	16 ft. x 16 ft. (4.9 m x 4.9 m)	5.6	80.6	26 gpm @ 21.6 psi (98.4 L/min @ 1.49 bar)	1/4"	6.35	A1, A2	--	A1	--	--	--
10541U	1"	See Footnote 9	18 ft. x 18 ft. (5.5 m x 5.5 m)	5.6	80.6	33 gpm @ 34.7 psi (124.9 L/min @ 2.39 bar)	1/4"	6.35	A1, A2	--	A1	--	--	--
Standard Response Listings														
10541U	1"	See Footnote 9	20 ft. x 20 ft. (6.1 m x 6.1 m)	5.6	80.6	40 gpm @ 51.0 psi (151.4 L/min @ 3.52 bar)	1/4"	6.35	A1, A2	--	A1	--	--	--
Approved Temperature Ratings A - 155 °F (68 °C) and 175 °F (79 °C)				Approved Finishes and "A" Dimensions 1 - Chrome or White Polyester ⁸ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm) 2 - ENT ⁸ with "A" dimensions 3-1/4" to 47-1/2" (82.5 mm to 1,207 mm)										

Footnotes

¹ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

² For areas of coverage smaller than shown, use the "Minimum Water Supply Requirement" for the next larger "Area of Coverage" listed for the sprinkler used. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the "Minimum Water Supply Requirement" used.

³ K-Factor applies for standard lengths ("A" Dimensions indicated above).

⁴ Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

⁵ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals.

⁶ Listed by Underwriter's Laboratories for use in the U.S. and Canada. Listings are limited to Light-Hazard occupancies with smooth, flat, horizontal ceilings.

⁷ Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 15.

⁸ cULus Listed as corrosion resistant.

⁹ 25 mm BSP threads available upon special request.

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DESIGN CRITERIA
(Also refer to the Approval Chart on page 4.)

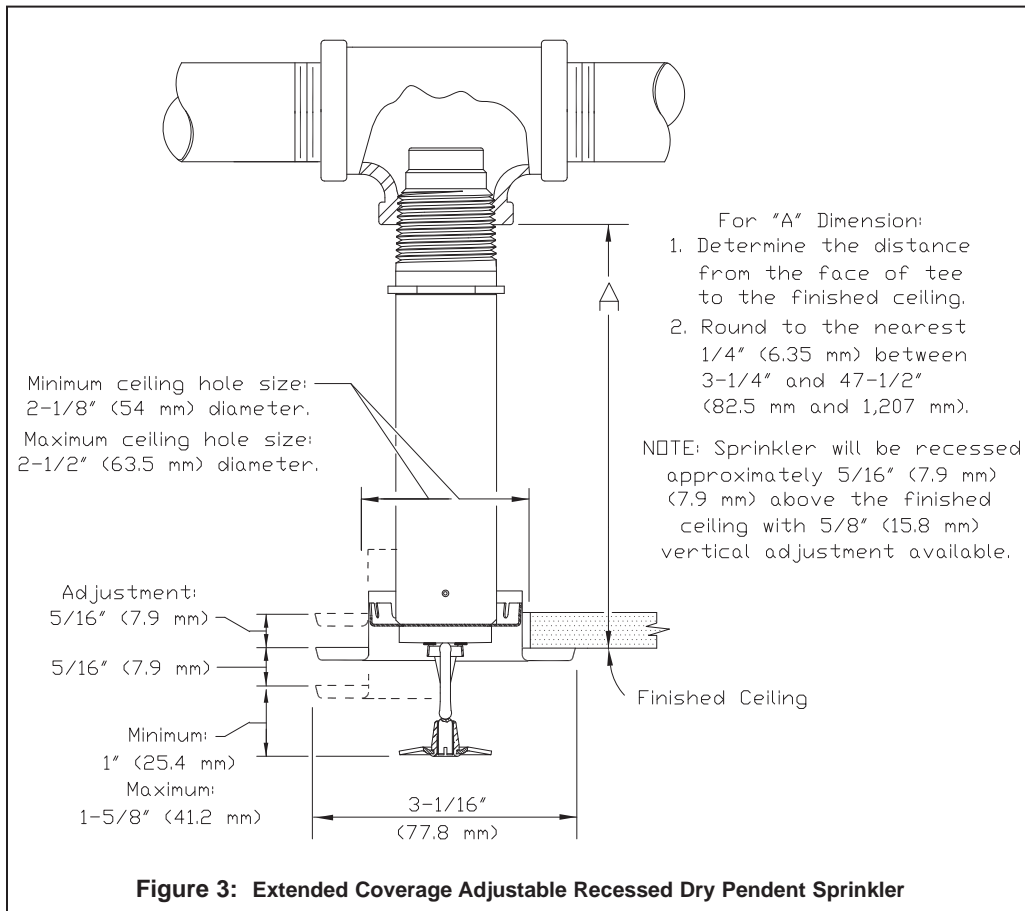
NOTE: When using CPVC fittings with Viking dry sprinklers, use only new Nibco Model 5012-S-BI tees. When selecting other CPVC fittings, contact Viking Technical Services.

cULus Listing Requirements:

Extended Coverage Dry Pendent Sprinklers are cULus Listed as indicated in the Approval Chart for installation in accordance with the latest edition of NFPA 13 for extended coverage pendent spray sprinklers.

- Limited to Light Hazard occupancies, where allowed by the installation standards being applied, with smooth, flat, horizontal ceilings only.
- Minimum spacing allowed is 8 ft. (2.4 m) unless baffles are installed in accordance with NFPA 13.
- Locate no less than 4" (102 mm) from walls.
- Maximum distance from walls shall be no more than one-half of the allowable distance between sprinklers. The distance shall be measured perpendicular to the wall.
- The sprinkler installation and obstruction rules contained in NFPA 13 for extended coverage pendent spray sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page DRY1-3 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.





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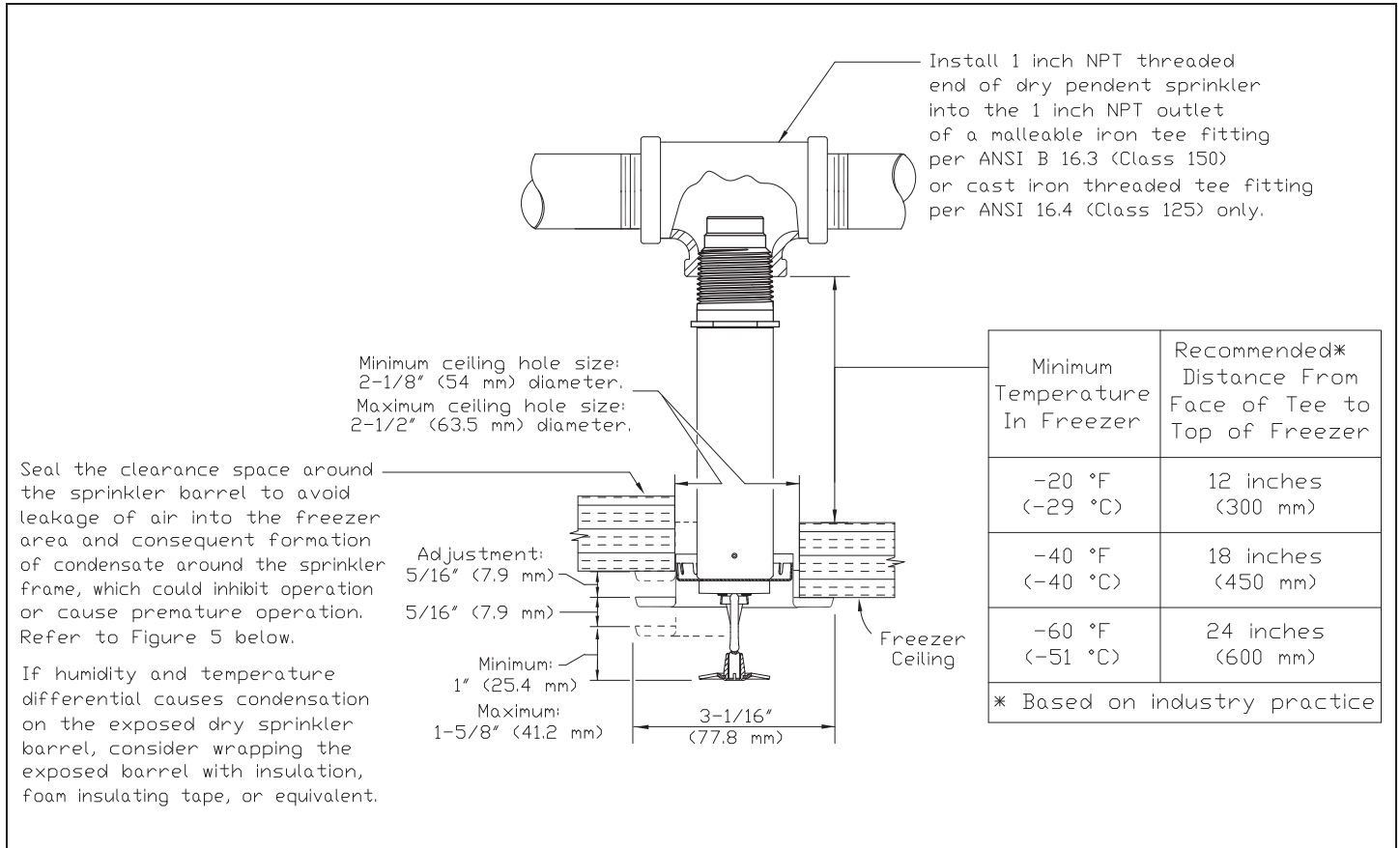


Figure 4: Dry Pendent Sprinkler Required Minimum Barrel Length Based on Ambient Temperature in the Protected Area

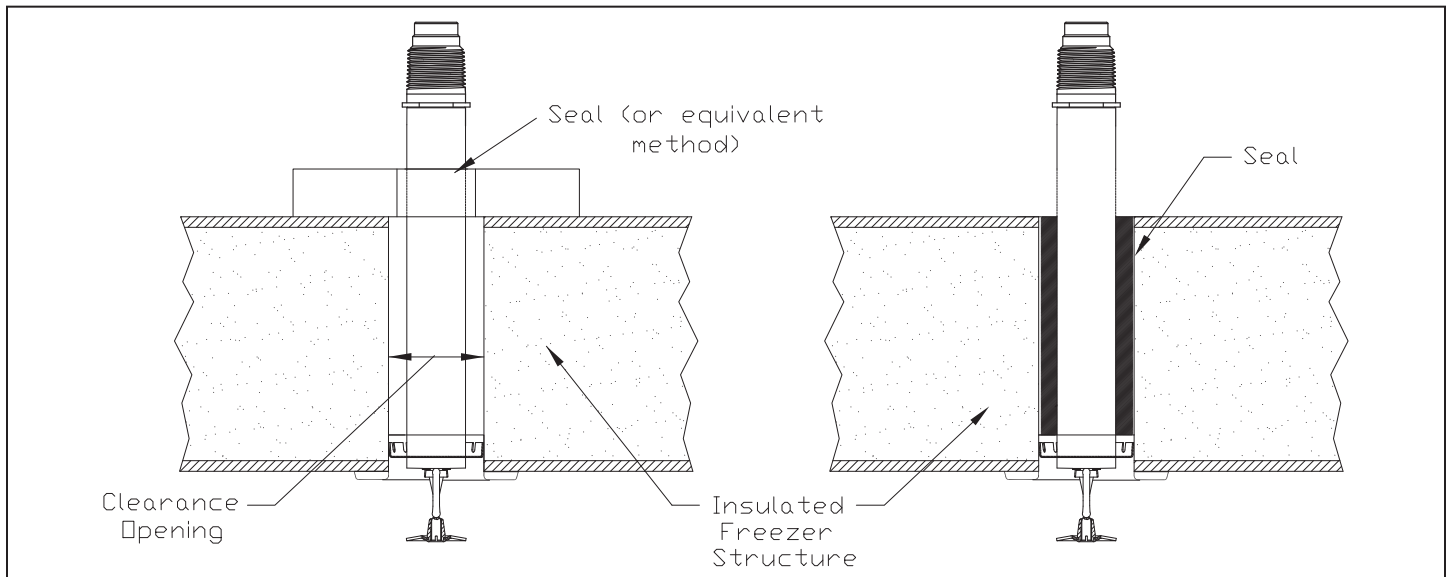


Figure 5: Dry Sprinkler Seal