

RAVEN 5.6K Institutional Sprinklers Pendent and Horizontal Sidewall Quick Response, Standard and Extended Coverage

General Description

TYCO RAVEN 5.6K Institutional Pendent and Horizontal Sidewall (HSW) Sprinklers are quick response spray sprinklers designed for use in areas such as correctional, detention, and mental health care facilities as well as other commercial buildings. Both the pendent and horizontal sidewall styles are available for Standard Coverage (light and ordinary hazard) or Extended Coverage (light hazard) applications.

- The assembly is designed with tamper-resistant features to help prohibit a false activation.
- This sprinkler is designed to operate when the Inner Link (Ref. Figure 1) is removed manually. While the design of this sprinkler makes manual removal of the Inner Link less likely, this feature negates the possibility of a tampered sprinkler placed in a condition where it would not operate in the event of a fire due to prior part removal.
- This protected, unobtrusive design helps reduce the opportunity for individuals to injure themselves or others with piecemeal components of the sprinkler.
- The flush design is aesthetically appealing by concealing all operating parts.

IMPORTANT

Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely.

NOTICE

RAVEN Institutional Sprinklers described herein must be installed and maintained in compliance with this document and with the applicable standards of the NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

Johnson Controls specifically disclaims any liability for damages or injury (including death) arising out of or caused by manipulation, dismantling, or misuse of RAVEN Institutional Sprinklers or the use or attempted use of the RAVEN Institutional Sprinklers or any component thereof as an instrument unrelated to its intended function as a fire protection device.

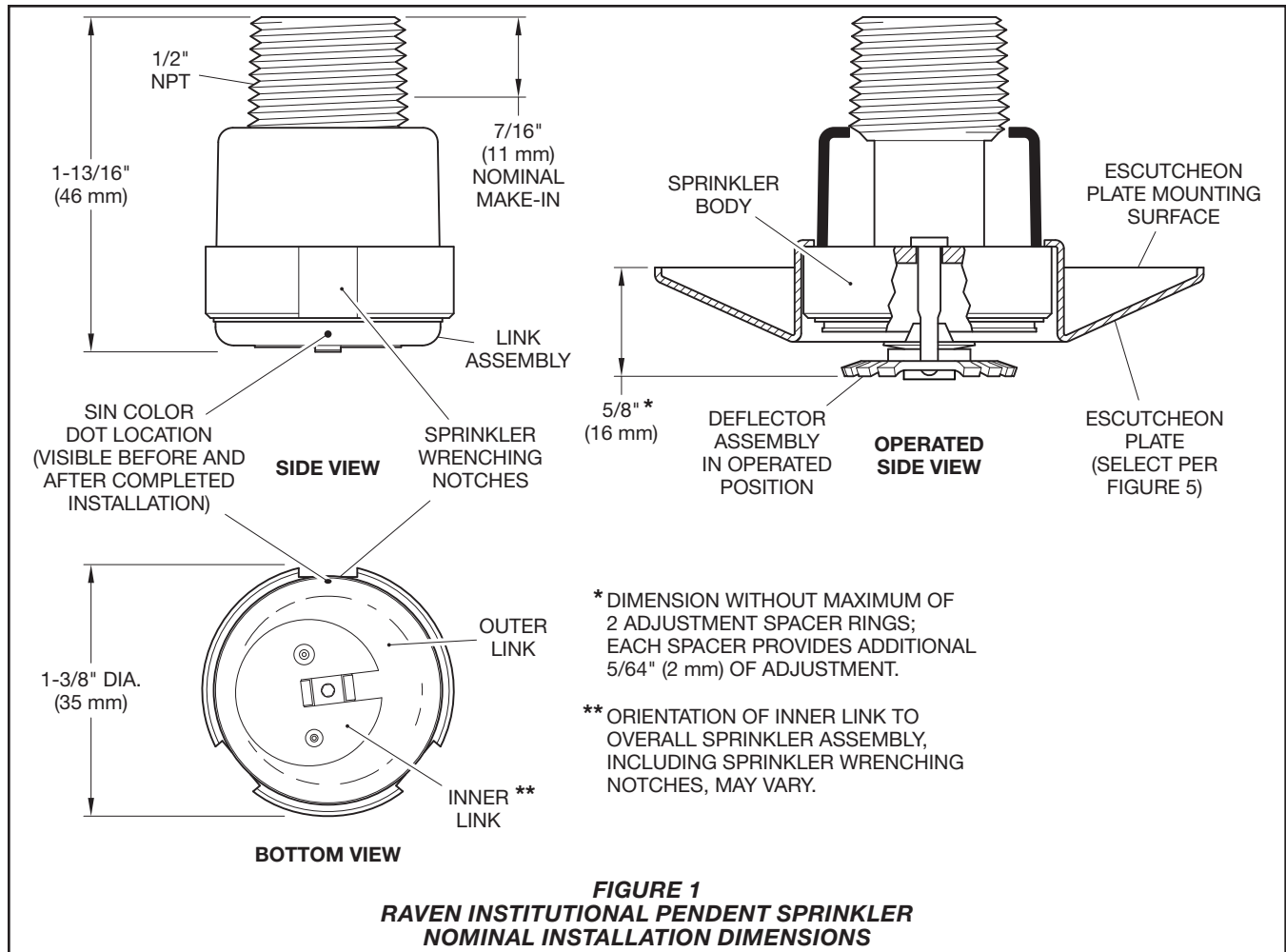
The owner is responsible for maintaining their fire protection system and devices in proper operating condition. Contact the installing contractor or product manufacturer with any questions.



Sprinkler Identification Numbers (SINs)

SIN	DOT COLOR*	APPLICATION
TY3281	Black	Pendent Standard Coverage
TY3282	Green	Pendent Extended Coverage
TY3381	Red	HSW Standard Coverage
TY3382	Purple	HSW Extended Coverage

* Refer to Figures 1 through 4 for SIN Color Dot location.



Technical Data

Approvals

UL and C-UL Listed

Maximum Working Pressure

175 psi (12,1 bar)

Inlet Thread Connection

1/2 in. NPT

Discharge Coefficient

$K=5.6 \text{ GPM/psi}^{1/2}$ (80,6 LPM/bar^{1/2})

Temperature Rating

165°F (74°C)

Finish

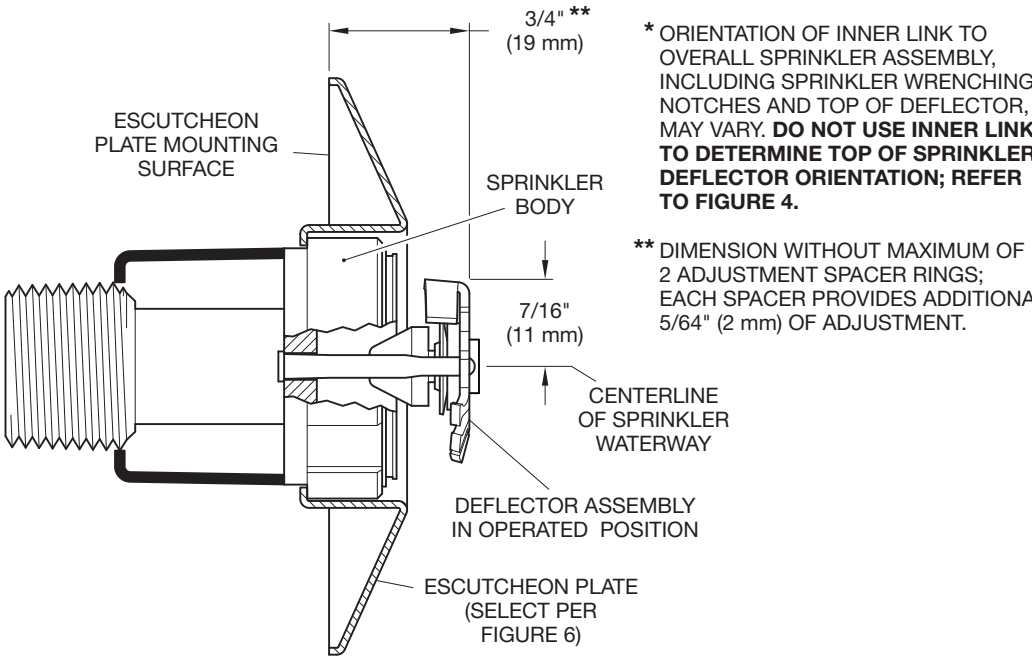
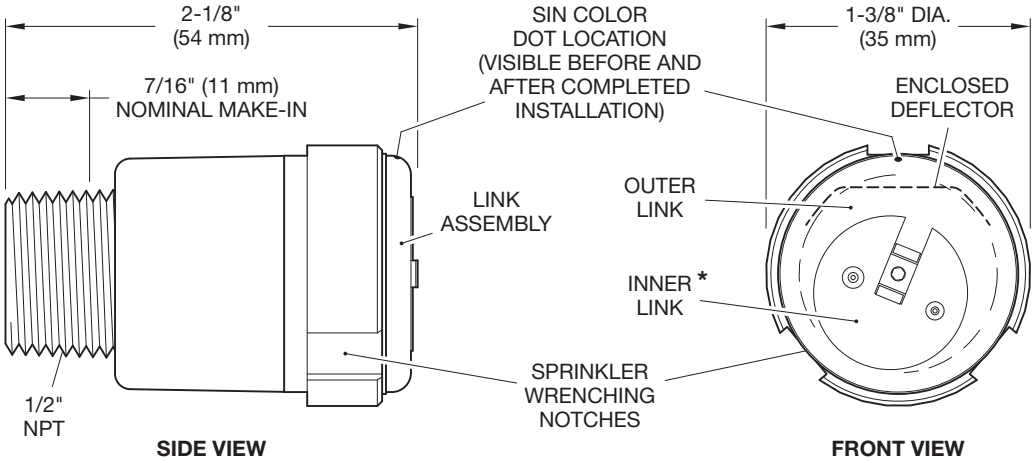
Sprinkler: White or Grey

Escutcheon: White, Grey, Chrome Coated (Carbon Steel only), or Electropolished* (Stainless Steel only)

Physical Characteristics

Body Brass
 Deflector Assembly..... Bronze
 Sealing Assembly .. Beryllium Nickel w/TEFLON
 Link Assembly..... Copper
 Escutcheon..... Carbon Steel or
 Stainless Steel

* Chrome-coated appearance

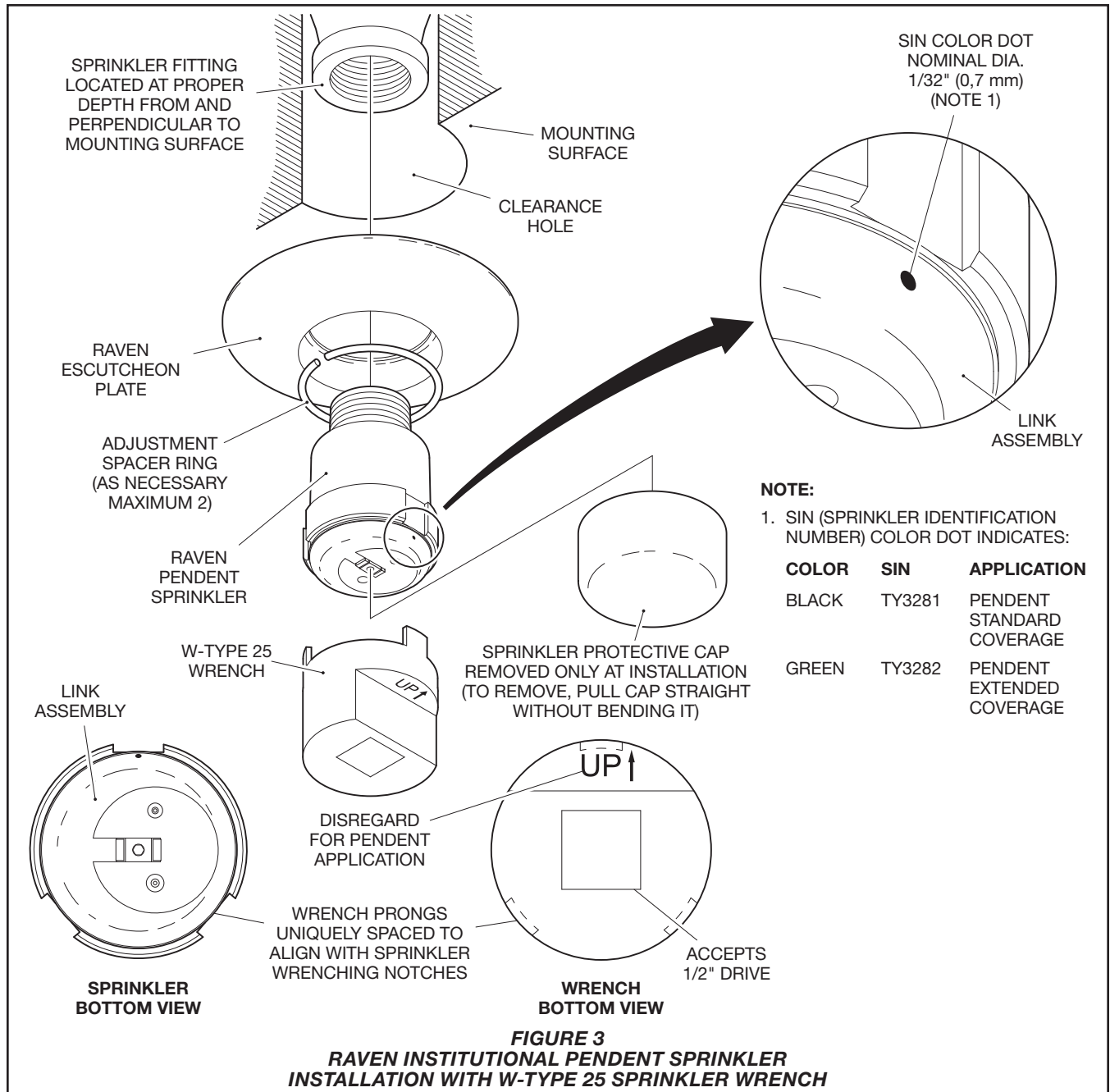


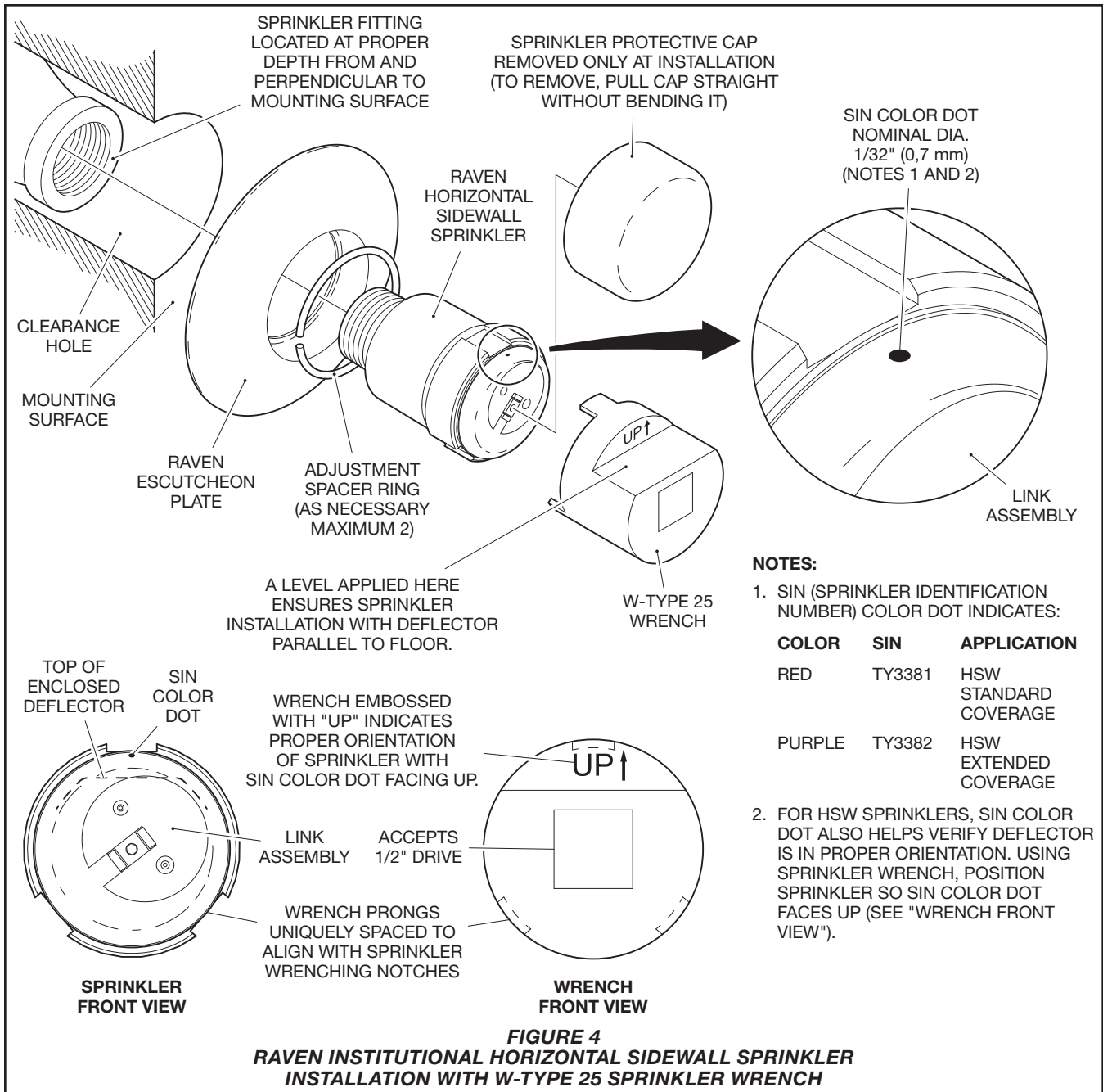
* ORIENTATION OF INNER LINK TO OVERALL SPRINKLER ASSEMBLY, INCLUDING SPRINKLER WRENCHING NOTCHES AND TOP OF DEFLECTOR, MAY VARY. **DO NOT USE INNER LINK TO DETERMINE TOP OF SPRINKLER DEFLECTOR ORIENTATION; REFER TO FIGURE 4.**

** DIMENSION WITHOUT MAXIMUM OF 2 ADJUSTMENT SPACER RINGS; EACH SPACER PROVIDES ADDITIONAL 5/64" (2 mm) OF ADJUSTMENT.

OPERATED SIDE VIEW

FIGURE 2
RAVEN INSTITUTIONAL HORIZONTAL SIDEWALL SPRINKLER
NOMINAL INSTALLATION DIMENSIONS





5.6K Extended Coverage Pendent (TY3282)						
Response Rating	Coverage Area ft x ft (m x m)	Minimum Flow ¹ gpm (lpm)	Minimum Pressure ² psi (bar)	Deflector-to-Ceiling Distance Inches (mm)	Sprinkler Temperature Rating °F (°C)	Minimum Spacing ft (m)
Quick	16 x 16 (4,9 x 4,9)	26 (98)	21.6 (1,49)	Flush Mounted	165 (74)	8 (2,4)
5.6K Extended Coverage Horizontal Sidewall (TY3382)						
Response Rating	Coverage Area ft x ft (m x m)	Minimum Flow ¹ gpm (lpm)	Minimum Pressure ² psi (bar)	Deflector-to-Ceiling Distance ³ Inches (mm)	Sprinkler Temperature Rating °F (°C)	Lateral Minimum Spacing ⁴ ft (m)
Quick	16 x 16 (4,9 x 4,9)	26 (98)	21.6 (1,49)	4 to 12 (100 to 300)	165 (74)	8 (2,4)

Notes:

1. Requirement is based on minimum flow in gpm (lpm) from each sprinkler.
2. Indicated residual pressures are based on the nominal K-factor.
3. Centerline of the sprinkler waterway is located 7/16 in. (11,1 mm) below the deflector (Ref. Figure 7).
4. Minimum spacing is for lateral distance between sprinklers located along a single wall. Otherwise adjacent sprinklers (i.e., sidewall sprinklers on an adjacent wall, on an opposite wall, or pendent sprinklers) must be located outside of the maximum listed protection area of the extended coverage sidewall sprinkler being utilized.

TABLE A
RAVEN INSTITUTIONAL SPRINKLERS
UL AND C-UL LISTING EXTENDED COVERAGE AND FLOW RATE CRITERIA

Design Criteria

General Criteria

Only escutcheons shown in Figures 5 and 6 can be utilized with TYCO RAVEN 5.6K Institutional Pendent and Horizontal Sidewall Sprinklers. A maximum of two spacers can be used to adjust the escutcheons.

NOTICE

Use of more than two spacers may result in disabling the tamper-resistant design of TYCO RAVEN Institutional Sprinklers and, thereby, also disable its principle functions of helping to avoid false sprinkler operations and avoid the opportunity for individuals to injure themselves or others with components of the sprinkler.

Standard Coverage Criteria

RAVEN Standard Coverage, Institutional Pendent and Horizontal Sidewall Sprinklers (TY3281 and TY3381) are intended for use with fire protection systems designed in accordance with the standard installation rules recognized by the applicable listing or approval agency (e.g., UL Listing is based on NFPA 13 requirements).

RAVEN Horizontal Sidewall Sprinklers (TY3381) must be installed with a deflector-to-ceiling distance of 4 in. to 12 in. (100 to 300 mm). To meet this requirement, the centerline of the sprinkler waterway must be located 4-7/16 in. to 12-7/16 in. (112,7 mm to 315,9 mm) below the ceiling (Ref. Figure 7).

Extended Coverage Criteria

RAVEN Extended Coverage, Institutional Pendent and Horizontal Sidewall Sprinklers (TY3282 and TY3382) must be installed in accordance with the flow rate criteria provided in Table A. They must be installed and utilized in light hazard occupancies under smooth, flat, horizontal ceilings as outlined in the applicable installation standard recognized by the listing or approval agency (e.g., UL Listing is based on NFPA 13 requirements).

RAVEN Extended Coverage, Horizontal Sidewall Sprinklers (TY3382) must be installed with a deflector-to-ceiling distance of 4 in. to 12 in. (100 mm to 300 mm). To meet this requirement, the centerline of the sprinkler waterway must be located 4-7/16 in. to 12-7/16 in. (112,7 mm to 315,9 mm) below the ceiling (Ref. Figure 7).

Operation

In standby condition, the unique assembly of RAVEN Institutional Pendent and Horizontal Sidewall Sprinklers is designed with tamper-resistant features to help prohibit a false activation and help reduce the opportunity for individuals to injure themselves or others with components of a fire sprinkler. RAVEN Institutional Sprinklers are specifically designed to minimize components, as well as holes or shapes, that could provide a point for securing an external non-sprinkler associated object. Also, when properly installed, the escutcheon is held fast to the ceiling or wall to deter its removal. The shape of the sprinkler and escutcheon cannot be grasped easily, which further deters tampering.

For information on the break-away load of RAVEN Institutional Sprinklers, contact Technical Services.

A link assembly covers the sealing assembly. The link is soldered with an eutectic solder that melts when exposed to heat. When the link reaches its rated temperature, the link separates and releases the sealing assembly, allowing the deflector assembly to extend from the body and water to flow.

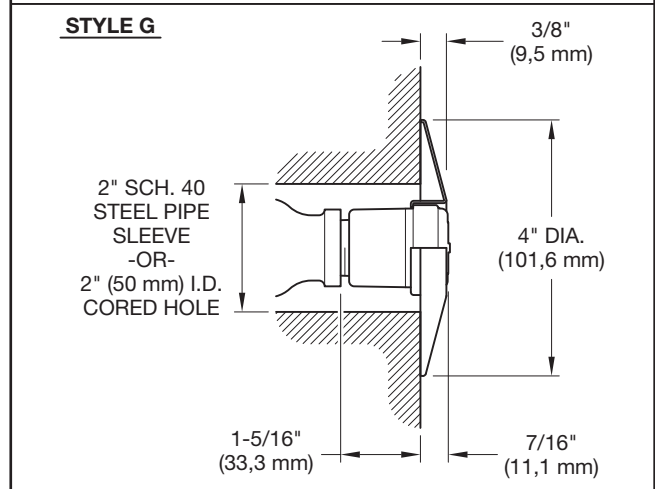
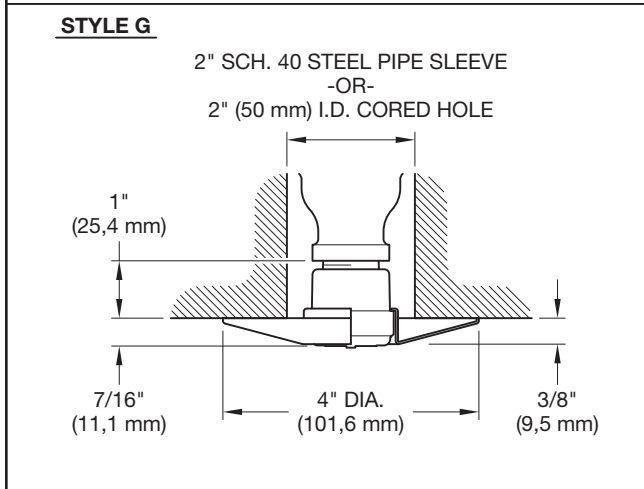
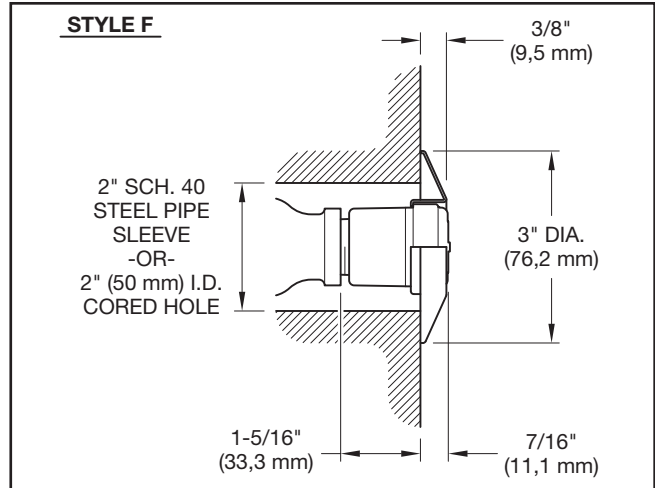
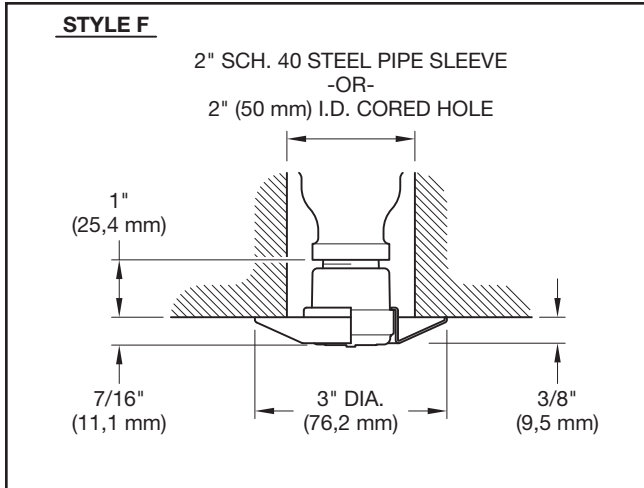


FIGURE 5
RAVEN INSTITUTIONAL PENDENT SPRINKLER ESCUTCHEON OPTIONS

FIGURE 6
RAVEN INSTITUTIONAL HSW SPRINKLER ESCUTCHEON OPTIONS

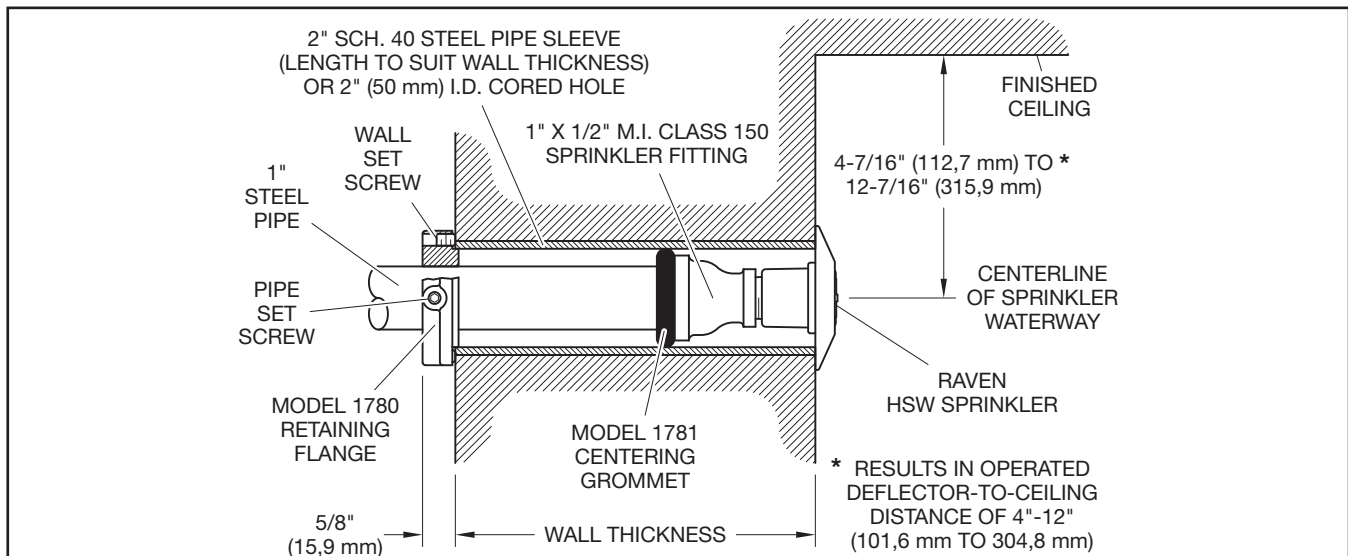


FIGURE 7
MODEL 1780 RETAINING FLANGE AND MODEL 1781 CENTERING GROMMET HORIZONTAL INSTALLATION FOR PENDENT