



# QUICK RESPONSE

*Saving life and property through effective licensing, plan review, and inspection of fire protection systems.*

December 2010

## GLASS BULB – FLUID



The amount of **fluid** in the glass bulb plays a critical role in the proper activation of the sprinkler head. The **fluid** in the glass bulb expands when exposed to heat. When the rated temperature is reached, the internal pressure from the expanding **fluid** is sufficient to shatter the glass bulb, allowing the sprinkler to activate and water to flow. Missing or an insufficient amount of **fluid** will prevent the buildup of pressure inside the bulb thus preventing the sprinkler from operating until the glass melts, which is well beyond the intended operating time.

The small air bubble within the glass bulb determines the activating temperature of the sprinkler. As heat expands the **fluid**, the air bubble is compressed and absorbed. When the bubble disappears the pressure rises rapidly until the bulb shatters. The larger the air bubble the longer it takes before the sprinkler activates.

**Exhibit 1** shows a properly filled glass bulb. The arrow points to the air bubble that determines the operating temperature of the sprinkler.

**Exhibit 2** shows two glass bulbs with the improper amount of **fluid**.

**Exhibit 3** shows a glass bulb with no **fluid**.

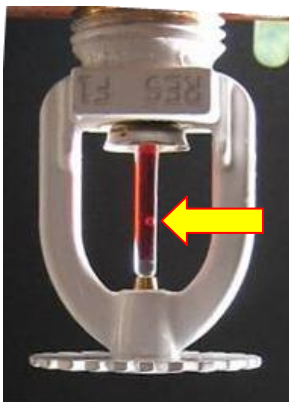


Exhibit 1

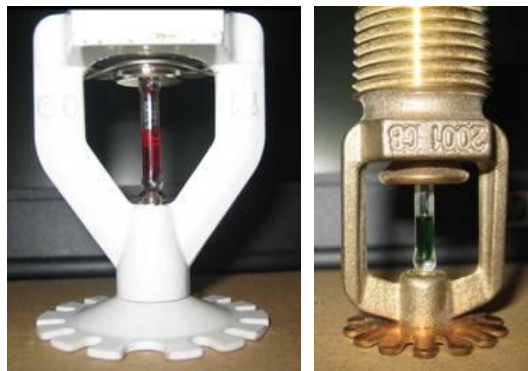


Exhibit 2



Exhibit 3