



QUICK RESPONSE

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

June 2009

SPRINKLER DISCHARGE PATTERNS – STANDARD SPRINKLERS

When a fire sprinkler operates the water stream discharging from the orifice impacts a deflector, which produces a specific spray **discharge pattern**. Minor differences in deflector design can have major differences in discharge characteristics.

The **discharge pattern** of standard spray upright and pendent sprinklers is a half paraboloid (umbrella shaped) pattern completely filled with water droplets (**Figure 1**). Deflectors deflect the water stream to discharge to cover a circular floor area. The **discharge pattern** for most sprinklers is fully developed at about a four foot distance below the sprinkler. Standard spray sprinklers operate on the concept of fire control. They are to provide sufficient discharge so that a fire does not spread beyond the system design area.

The deflectors on standard spray sidewall sprinklers are designed to throw water across a room in a crescent-shaped pattern. A small portion of the discharge wets the wall behind the sprinkler. The discharge from sidewall sprinklers is less effective compared to upright and pendent sprinklers. As such, they have more specific limitations associated with their application and ceiling configurations.

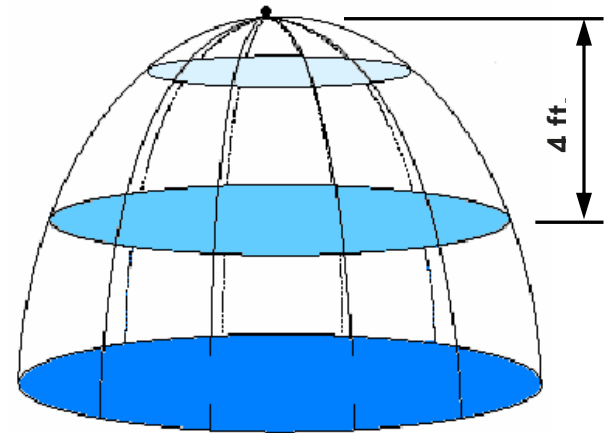
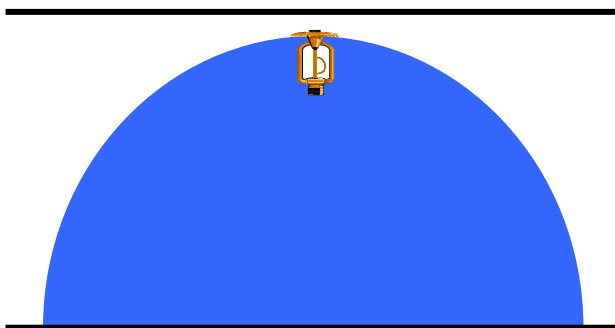
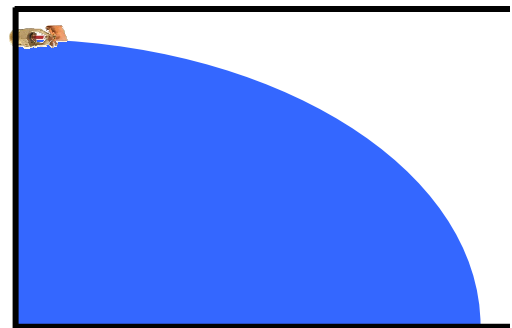


Figure 1



Upright / Pendent Spray Pattern



Sidewall Spray Pattern

Quick Response is presented monthly by the
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