

Firehouse.com WEEKLY DRILL

DRILL # 30: SPRINKLER SYSTEMS – PART 1

Introduction

One item that the fire service has been able to rely on over the years is the Automatic Sprinkler System. Sprinklers have a highly successful efficiency standard going for them when they are properly maintained. There has never been a loss of life in a structure that has had a properly operating sprinkler system.

One-third of the building fires that had a properly maintained automatic sprinkler system in them saw the system completely extinguish the fire before fire department personnel arrived. Because sprinkler systems are so reliant at getting water to the seat of the fire so fast, they have received the nickname “Minuteman.” The chance of a head failure happening is about one in a million each year. However, from time to time, there could be a failure of a system. Generally, when a sprinkler fails to produce the water flow for which they are designed, it is because of one of the following reasons:

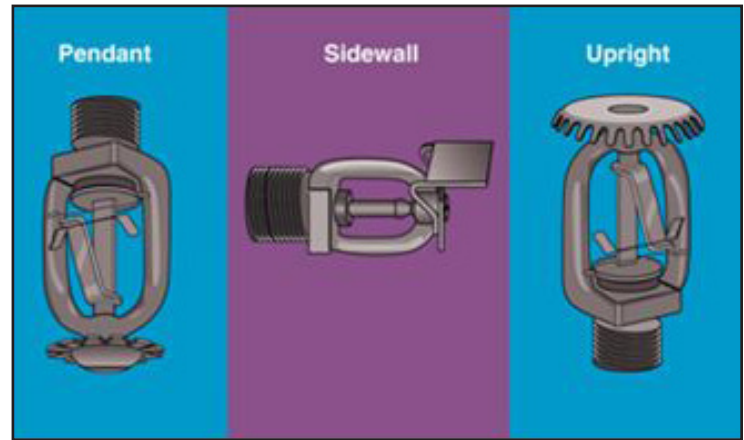
- Partial system
- System is too antiquated or has never been retrofitted for the current occupancy
- System has been neglected or poorly maintained
- Explosion or flash fire overtakes the sprinkler system

Many time’s conflagrations in sprinklered buildings are due to the direct result of the system being shut down for one reason or another, generally being for repairs.

In practice there are three types of water control valves used on automatic sprinkler systems:

1. The Outside Screw & Yoke (OS&Y)
2. The Post Indicator Valve (PIV)
3. Wall Post Indicator Valve (Wall PIV)

When a system is active and operational, all valves should be in the fully open position. With the OS&Y valve, a firefighter can quickly determine whether the



valve is in the open position because the valves stem (screw) protruding out past the wheel the full distance of the valve. On both the PIV and the Wall PIV, each has a glass window with the words “Open” or “Closed” which the firefighter can read. Obviously, in order for the system to be active, this window will display the word Open.

Sprinklers come in three basic designs. The first design is the upright sprinkler. This sprinkler sits on the top of the piping and as the water leaves the orifice it strikes the deflector plate and redirects the water in a downward direction, while at the same time breaking up the stream forming water droplets.

The second design is the pendent sprinkler. This sprinkler head is located on the bottom side of the pipe and as the water leaves the orifice it strikes the deflector plate as well. However, unlike the upright sprinkler head, water does not have to be redirected downward, as it is already coming out the bottom of the pipe. The deflector plate in this instance is used to break the water stream into droplets.

Lastly, there is the horizontal sidewall sprinkler head. As water leaves the orifice, it gets broken up into water droplets and redirected in a fan-shape pattern spreading out across the ceiling and room area.

—Prepared by Russell Merrick