

No. 4: Sprinkler Systems

Introduction

Many times the automatic sprinkler system is referred to as the "first line of defense" when it comes to fighting fires. Once the system activates water is applied on the fire to extinguish it or at least hold it in check until firefighting personnel can get there and advance hoselines. In addition to applying water, notification is made to the local fire department.

In occupancies protected by an automatic sprinkler system that are functioning properly, there has been no multiple fire fatalities recorded. This is one of the main reasons the fire service has been trying to get legislation passed to have sprinkler systems installed in single-family residences.

Sprinkler Heads

There are two common types: closed and open.

The closed head has a heat sensitive device that holds the water in the piping. This device can be a frangible bulb, fusible link chemical pellet, or a quick response mechanism. These devices are preset to a specific temperature for activation.

Open heads are used on a deluge system. The sprinkler heads come in three different styles: pendent, upright, and sidewall.

Sprinkler Systems

There are two distinctly different sprinkler systems that we will run into: the wet system and the dry system.

The wet system will get water onto the fire the quickest as the piping is filled with water. The water, as mentioned above, is held back by a heat sensitive device on the sprinkler head. Note: this system cannot be used in areas exposed to freezing.

The dry system consists of compressed air in the piping which holds the water back below the dry pipe valve. The sprinkler heads are the same used in a wet system. Once a head is activated, the air pressure is released allowing water to flow into the piping and out the activated head.

The dry pipe system is commonly found in areas where the pipes are susceptible to freezing. Some dry pipe systems will have a pre-action device that is basically a separate detection



Photo by Peter Matthews/Firehouse.com

system (heat, flame, or smoke) which detects and activates the pre-action valve, sending water into the system ahead of the sprinkler head activating

The deluge system would be found in occupancies with a heavy fuel load, such as a lumber yard or hanger. It operates on a pre-action system (as all the sprinkler heads are open orifices).

Sprinkler System Components

The control valves are used to control the flow of water into the system. Generally, there are two types of valves: the post indicator valves (PIV) which is commonly located outside of a building; and the outside screw and yoke (OS&Y) which is generally located inside a building.

Most sprinkler system operates off the municipal water system, but sometimes water is supplied to the system by means of an elevated tank, pressure tank, or a static water source that uses fire pumps to move the water through the system. In any one of these situations it is important that the fire department augment the system once on scene by hooking up to the fire department connections (FDC). Follow your department's SOP on how much pressure to pump into the FDC.

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