

LivSafe is a conscious safety initiative of Liberty General Insurance Limited to help people live safer, secure lives through an education series of proactive and preventative suggestions in the safety arena. This document does not purport to promote any product, directly, or indirectly.

### Background:

A sprinkler system's primary function is to protect the property where it is installed. However, sprinkler systems also help to provide a significant reduction in the number of deaths per thousand fires.

We at Liberty General Insurance value the importance of active fire protection and intend to elaborate upon the basics of a Sprinkler System. We sincerely hope this document will help you in learning the basic components of sprinkler systems and how it operates, helping to implement effective human element programs, policies, and procedures to ensure its reliability.

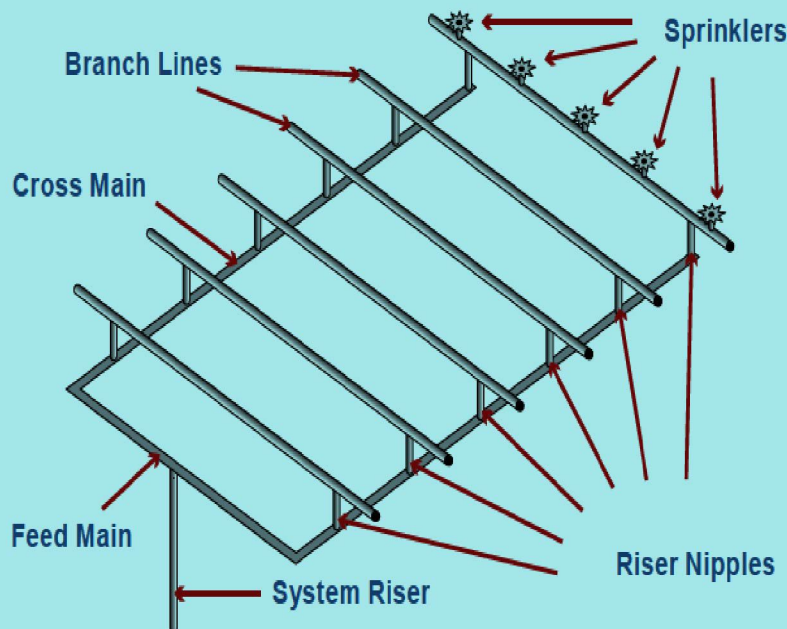


### Basic Information on Sprinkler:

Sprinkler systems can detect fire, transmit an alarm, and control or suppress a fire. In most systems, individual sprinklers are activated by the heat of a fire and discharge water where they can effectively protect both the structure and its contents.

- **Components of Sprinkler system:**

A sprinkler system can be defined as a combination of underground and overhead piping connected to an automatic water supply, installed throughout a building.



- **Operation:**

Each closed-head sprinkler is held closed by either a heat-sensitive glass bulb or a two-part metal link held together with fusible alloy. Sprinkler systems only release water from the sprinkler heads that have been activated by heat causing the glass bulb or fusible link to fail, resulting in water flow.

## • Types of Automatic Sprinkler Systems:

Wet-pipe systems are filled with pressurized water from the water supply, so when a sprinkler head operates, water is immediately discharged. These are most common type of system. They should only be used in areas where the temperature is maintained above 40°F. Piping in a wet system is filled with pressurized water. Closed sprinklers open when activated by heat and immediately discharge water.

Dry-pipe systems are filled with compressed air or nitrogen that holds back the water until the air pressure drops enough to allow the dry pipe valve to trip. Once this occurs, water must fill the piping and displace any remaining compressed gas before water can reach the sprinkler head(s) that have operated. The size and design of dry systems must account for this delay.

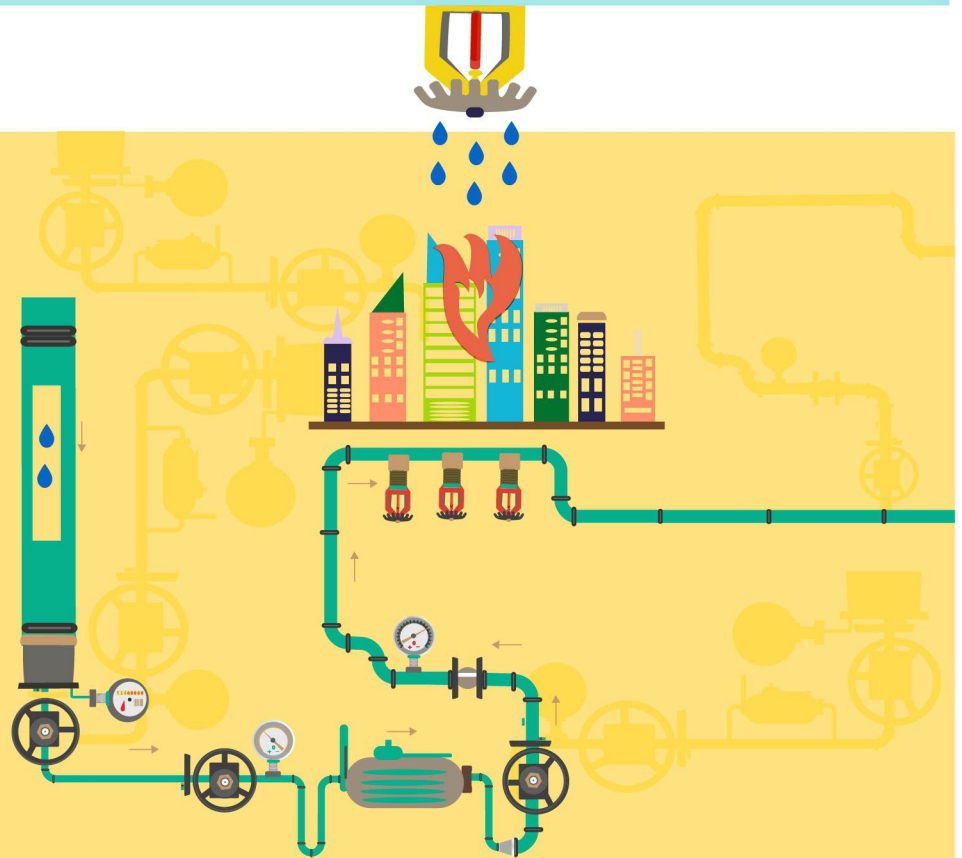
## • Temperature Rating:

Closed sprinklers have various temperature ratings and designs, based on normal air temperatures and hazardous elements within the occupancy. The metal frame or glass bulb of a sprinkler is color-coded to indicate its specific temperature rating.

	57°C / 135°F Orange
	68°C / 155°F Red
	79°C / 174°F Yellow
	93°C / 200°F Green
	141°C / 286°F Blue
	182°C / 360°F Purple

## Trivia:

- A common myth associated with sprinkler systems is that all sprinkler heads flow water when the system is activated.
- When sprinkler systems do not operate correctly, the leading cause is human error. There are certain situations where a sprinkler system would not be effective, such as flash fires or explosions. However, about 60 percent of the time a sprinkler system fails, it is because the system has been manually shut off. Human intervention with sprinkler systems is the most significant source of failure.
- A sprinkler activation will do less water damage than a fire department hose stream, which provide approximately 900 litres/min. A typical sprinkler used for industrial manufacturing occupancies discharge about 75-150 litres/min.
- When sprinklers operated, they were effective 96% of the time.



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