

U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Sprinkler Performance Categories

Learning objective: The student shall be able to distinguish between control mode and suppression mode automatic sprinklers.

Many people don't realize that, until recently, automatic fire sprinklers were not intended to suppress a fire when they operate. Sprinklers were designed to detect, control, and report a fire; holding it in check until the fire suppression forces arrived to complete extinguishment with hoselines.

The sprinkler designer--in concert with the building owner and code enforcement officer--must decide what performance objectives are needed on a specific project.

- **Control-mode sprinklers** confine a fire by prewetting combustibles surrounding the fire area and by cooling hot gases at the ceiling.

| CONTROL MODE SPRINKLERS | |
|----------------------------------|-------------------------------------|
| TYPE | TYPE |
| Standard Spray Pendent | Standard Spray Upright |
| Large Drop | Old Style/Conventional |
| Quick Response Extended Coverage | Standard Response Extended Coverage |
| Horizontal Sidewall | Vertical Sidewall |
| Residential | Flush, Recessed, Concealed |
| Flow Control (On-Off) | Corrosion Resistant |
| High Temperature, Wax Coated | Intermediate Level (Water Shielded) |
| Nozzles | Open |
| Quick Response | Special |
| Specific Application | Spray |

- **Suppression-mode sprinklers**, such as Early Suppression, Fast-Response (ESFR) sprinklers are designed to knock down a fire as fast as possible using an aggressive large-drop spray and a flame-penetrating central core of water.

| SUPPRESSION MODE SPRINKLERS | |
|----------------------------------|------------------------------------|
| TYPE | TYPE |
| Early Suppression, Fast Response | Quick Response, Early Suppression* |

* Not yet available.

For additional information, refer to National Fire Protection Association (NFPA) 13, *Standard for the Installation of Sprinkler Systems*TM, Chapter 3; and the Underwriters Laboratories (UL) *Fire Protection Equipment Directory*, product categories VNIV, VNWH, and VKKW.

