

# Fire Sprinkler Safety Information

## *A plan for safe facilities*

### What are Fire Sprinklers?



*You never know when or where a fire will start in your chapter house. What if you could have a firefighter stationed in every room 24 hours a day, ready to stop a fire the minute it broke out? That is what fire sprinklers are - instant firefighters. They are installed in the ceiling or high on a wall and are attached to the same water supply that feeds plumbing fixtures.*

### Why is this so important?



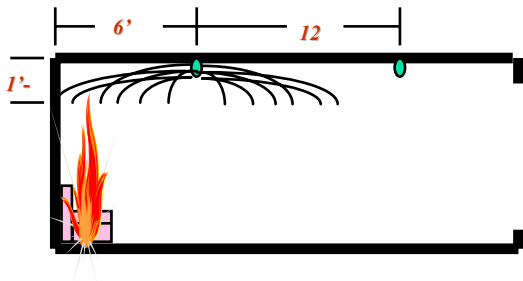
*When a fire starts you have only minutes to take action. Fires develop very rapidly and can become uncontrollable before you even know there is a problem. In one test, a typical dorm/residential room furniture ignited by smoking materials resulted in dense smoke and temperatures of exceeding 1,000 degrees farenheight in 3 ¼ **minutes!** When temperatures reach this level a condition that firefighters call "flashover" can occur. In a flashover, superheated fire gases instantly ignite any combustible material in a room with explosive force. Once this happens, it is too late to properly control the fire. Fire sprinkler systems prevent fires from reaching the flashover stage.*

### What about smoke detectors?



*Smoke detectors provide valuable early warning of a fire, but they cannot do anything to actually control the fire. When a smoke detector goes off, the residents must make decisions about what to do and take action very quickly in order to survive. Experience shows that people frequently make the wrong decisions regarding exits and fire safely and unfortunately parish. Even a trained firefighter with protective clothing and breathing air has a difficult time finding his way in a smoke filled room. Should we expect a collegiate awakened at 3 am to do a better job? Smoke detectors area valuable safety device but they do not put out the fire, sprinkler systems do. In fact, studies show that having both smoke alarms and fire sprinklers reduces the risk of death in a home fire by 82%.*

## How do sprinklers work?



You already have water running throughout your home to sinks, showers, toilets and washing machines. Fire sprinklers use the same water supply to extinguish a fire.

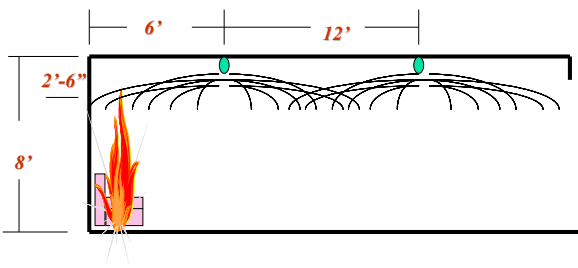
A sprinkler is similar to a hose nozzle because it breaks the stream of water into a fine spray. Water cannot spray until a fire heats the sprinkler valve. A metal seal over the waterway holds the water back.

The cap is held in place by either a glass bulb or metal fusible link. Both are very rugged but are designed to break or melt in the high heat of a fire.

A fire creates a narrow plume of hot air and gases that rise to the ceiling and spread out. When the hot gases reach the nearest sprinkler they will heat the fusible element that holds

the cap in place. The cap will fall away and the sprinkler will spray water on the fire. Because the water immediately cools the hot fire gases in the plume, the other sprinklers will not open because there is not enough heat to melt their fusible element. This rapid cooling effect also prevents the deadly flashover, minimizing damage caused by the fire and smoke.

## Sprinklers will cause excessive water damage!



**FACT:** The odds of accidental sprinkler discharge due to manufacturing defect are 1 in 16 million.

**FACT:** Fire sprinklers use only a fraction of the water used by fire department hoses. Sprinklers put out less water in five minutes than a fire hose does in one minute.

**FACT:** Only the sprinkler directly over the fire will activate spraying water directly on the fire. Fire records show that 93% of fires are contained by the operation of just one sprinkler.

**FACT:** Sprinkler systems can be connected to an alarm system to notify neighbors or alarm companies whenever water flows. This will also give prompt notification to the fire department.

**FACT:** The cost of fire without a sprinkler far exceeds the minimal repair needed from a fire extinguished and controlled with a sprinkler.

**Residential sprinklers are ugly and will spoil the appearance of our house.**



**FACT:** Modern sprinklers are inconspicuous and can be mounted flush with walls or ceilings. In most cases, no one will even know that they are there. Only the plain white disk or low profile deflector show when they are mounted on a ceiling.

**FACT:** When was the last time you noticed a sprinkler head in a restaurant, hotel or business?

**FACT:** Having a house that is protected by a sprinkler system is a major added value for potential residents and their families and can actually help sell your house as an alternative to on campus housing without a sprinkler system.

**Fire sprinkler systems are just too expensive.**



**FACT:** New fire codes permit the use of modern materials and installation methods for Residential Sprinkler Systems that greatly reduce the cost. Every building is different and every city has different building codes but a typical job should cost less than \$2.00 per square foot or about the cost of good quality carpeting!

**FACT:** Your fire insurance company will provide a discount on your insurance for sprinkler protection. They will also waive the requirement for the hardwired smoke detectors. (Note, however, that some jurisdictions may also require hardwired smoke detectors.)

**FACT:** New technology allows sprinkler piping to be run against walls and ceilings and covered by attractive moldings to limit the expense of working inside walls and between floors.

**FACT:**  
An average return on investment of a sprinkler system is eight years from premium savings. A facility and chapter may never recover from a major loss, certainly one including a loss of life.

**Our house is fireproof what is there to burn?**



**FACT:** Most of what burns in a fire are contents, not the building itself. In fact, brick walls can act like an oven allowing heat to buildup contributing to flashover.

*Adopted from resources of MJ Insurance  
and Buddy Dewar, National Fire Sprinkler Association*

**FACT:** People die in fires from inhaling gases from the fire, carbon monoxide or the lack of oxygen. All of these dangers can exist well before the building itself is even involved in the fire.

**Sprinklers are not practical in cold climates, the pipes will freeze and cause water damage.**



**FACT:** Anchorage, Alaska has had a residential sprinkler by law in place for more than ten years and residents have not reported a single sprinkler system freeze-up.

**FACT:** Residential sprinkler systems utilize plastic or copper piping similar to that used for domestic water systems. If the heat in a house drops to a level where the sprinkler system will freeze, it is likely that the domestic system will also freeze. There is no unique danger of freezing with sprinkler systems that does not already exist with domestic water systems.

**FACT:** Damage from leaking sprinklers is covered by your insurance policy.

**I don't feel comfortable working with a sprinkler contractor.**



**FACT:** Most sprinkler contractors are accustomed to working with customers who have very little practical knowledge about sprinkler systems.

**FACT:** The design standards that are used by nearly every contractor are the same. There is no need for a contractor to do any original design work and you will not usually need to hire an architect.

**FACT:** Obviously, any major construction project is going to disrupt the normal routine of the house. For this reason the actual installation is best completed during a regular break or renovation period. It would be unrealistic to think that a project like this could be done over a weekend. However, the disruption will be the same as any other renovation and the results will be well worth the inconvenience.

## Additional Resources

National Fire Sprinkler Association  
National Fire Prevention Association  
United States Fire Administration  
Simplex Grinnell/Tyco Fire & Security  
Center for Campus Fire Safety

[www.nfsa.org](http://www.nfsa.org)  
[www.nfpa.org](http://www.nfpa.org)  
[www.usfa.fema.org](http://www.usfa.fema.org)  
[www.simplexgrinnell.com](http://www.simplexgrinnell.com)  
[www.campusfire.org](http://www.campusfire.org)

Adopted from resources of MJ Insurance  
and Buddy Dewar, National Fire Sprinkler Association