



## **Home Fire Sprinklers: Separating Fact from Fiction**

This fact sheet was prepared by the nonprofit Home Fire Sprinkler Coalition, Inc. (HFSC), a 501(c)(3) charitable organization.

HFSC is the only national, noncommercial organization working exclusively to educate the public about the life-saving value of home fire sprinklers. HFSC develops a wide range of fire safety educational materials for consumers; members of the homebuilding industry, insurance and real estate professionals; for water purveyors and local officials; for the media; and for the fire service to use in local educational outreach. All materials are provided at no charge and most are available for free download at HFSC's website: [HomeFireSprinkler.org](http://HomeFireSprinkler.org).

### **Home Fires: No Prevention Strategy Has as Much Documented Life Safety Effectiveness as Fire Sprinklers**

The fire problem in the U.S. is overwhelmingly a home fire problem. According to the National Fire Protection Association's (NFPA) U.S. data, 92% of all civilian structure fire deaths and 86% of all civilian structure fire injuries resulted from home fires. Quite clearly, any improvements in overall fire safety must be improvements in *home fire safety*, and no strategy has as much documented life safety effectiveness as installed fire sprinklers.

### **Fires Today "Burn Faster and Kill Quicker"**

Research conducted by the National Institute of Standards and Technology (NIST) has shown that home fires become deadly in as few as three minutes. "Fires today seem to burn faster and kill quicker, because the contents of modern homes (such as furnishings) can burn faster and more intensely," says NIST senior engineer Richard Bukowski, P.E..

New and old homes alike are filled with these newer contents and furnishings, which provide less margin for success for smoke alarms and add to the need for fire sprinklers. Modern lightweight home construction products, especially wood truss roof systems and wood joists, can rapidly fail under fire conditions, an extreme risk to firefighters responding to a fire.

To watch home fire sprinklers in action, visit the United States Fire Administration (USFA) website and view NIST/USFA video clips showing a typical home Christmas tree fire with and without fire sprinkler protection: [http://www.usfa.dhs.gov/fireservice/research/dsn/dry\\_tree.shtm](http://www.usfa.dhs.gov/fireservice/research/dsn/dry_tree.shtm)

### **Important Information about Smoke Alarms**

Working smoke alarms provide valuable early warning in dwellings. HFSC recommends that every home have smoke alarms installed on each level. For smoke alarms to be effective, occupants must react quickly and escape immediately when the alarm warns of a fire. Every household should hold regular fire drills to practice how to properly respond to a fire alarm.

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Smoke alarms are designed only to signal a warning, which gives residents time to put their escape plan into action. Many high-risk populations – infants, children, people with disabilities, older adults – can have difficulty hearing and waking to smoke alarms, and difficulty reacting quickly and effectively enough for a safe escape. Their lives depend on stopping the fire early in its development. Their lives depend on fire sprinklers.

### **Fire Sprinklers Make Up for Human Error**

Fire sprinklers provide a level of protection that no other fire protection technology can offer. Like smoke alarms, sprinklers detect a fire; but they do even more. Fire sprinklers automatically respond to a fire while it is still small, controlling the spread of deadly heat, flames and toxic smoke. Fire sprinklers are effective whether or not the residents have responded to the smoke alarm. Fire sprinklers make up for human error, and they provide a life-saving cushion for a time-consuming escape.

### **How Fire Sprinklers Work**

In most settings where there is a municipal water supply, sprinklers operate off the household water main. When the water supply is a well, or there is not enough water pressure, a holding tank is used. Sprinklers are linked by a network of piping, typically hidden behind walls and ceilings. The high temperature of an early-stage fire (135°-165°F) will cause the sprinkler to activate. Only this high heat initiates the sprinkler to flow water (neither smoke nor a smoke alarm can activate a fire sprinkler). Only the sprinkler closest to the fire will operate, flowing water directly on the flames in the area of the fire's origin. This quick action controls or extinguishes the flames (often before the fire department arrives). Fire sprinklers slow the spread of deadly heat and toxic smoke, preventing flashover. This also provides residents with more time to safely escape.

### **Each Sprinkler Works Individually**

Unlike interconnected smoke alarms (if one signals, they all signal), fire sprinklers activate independently. In a survey of home fires\*, 90% of the time a single sprinkler was sufficient to control the fire. Despite the fictional special effects commonly seen in action movies, fire sprinklers do not spray water all at once. They do not operate in response to smoke, burned toast, cooking vapors, steam, an activating smoke alarm, or anything other than high heat.

### **Home Fire Sprinklers Are Simple to Maintain**

Home fire sprinklers require very little maintenance. In fact, the sprinklers themselves require nothing more than an occasional look to ensure they are not painted and that nothing is hanging from them, or blocking them. Valves should be similarly checked to ensure they are turned on. According to the National Fire Protection Association, every six months, homeowners or sprinkler contractors should conduct a water flow test of the fire sprinklers. If a tank is present, it should be checked to confirm water level and pumps should be operated to verify functionality. That's it.

### **Fire Sprinklers in Cold Climate Homes**

Wet-pipe fire sprinklers can be installed in homes where freezing may occur. Several design options exist in NFPA 13D, including the use of proper insulation, heating of sprinkler piping areas, installing sprinkler piping in interior walls, and dry-pipe and preaction sprinklers.

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### **Home Fire Sprinklers Are Good for the Environment**

According to a groundbreaking joint research project from FM Global and HFSC on the environmental impact of fires, automatic fire sprinklers can reduce greenhouse gas emissions by 98%, reduce fire damage by up to 97%, reduce water usage to fight a home fire by as much as 91% and reduce water pollution.\*\*

### **Fire Sprinklers Are a Smart Investment for Developers**

A national 2013 report from the Fire Protection Research Foundation found that the average cost to builders to install sprinklers in new homes was \$1.35 per sprinklered square foot. Reduced labor costs and municipal trade-up incentives have made fire sprinklers a valuable way for homebuilders to protect their bottom line. Options vary by jurisdiction, but typical trade ups for a sprinklered residential development or sub-division include street width reduction, additional units, and increased hydrant spacing.

### **Fire Sprinklers Are a Smart Investment for Homeowners**

Fire sprinklers are paid for over the life of a mortgage, just as is the home's electrical or plumbing system. In a national Harris Poll survey conducted for HFSC, seven in 10 U.S. homeowners said a sprinklered house has more value. In fact, 74% of them said they would be more likely to buy a home with fire sprinklers than one without fire sprinklers. Paralleling the results of the Harris Poll survey, a Johns Hopkins study of homeowners reported that 75% of homeowners were more likely to buy a sprinklered home than an unsprinklered one in the future.

### **The Home Insurance Industry Encourages Sprinkler Installations**

The insurance industry banks on the fact that having installed fire sprinklers not only protects against fire injuries and deaths; they also protect against fire damage. As an incentive for customers, insurance companies offer discounts ranging from 5% to 25% off the fire portion of homeowner premiums. HFSC urges consumers to shop around for the best insurance discount.

\*Scottsdale, AZ 15-year Report

\*\* Environmental Impact of Automatic Fire Sprinklers," FM Global, March 2010

Learn more by visiting the Home Fire Sprinkler Coalition online: [HomeFireSprinkler.org](http://HomeFireSprinkler.org)

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