



## **Home Fire Sprinkler Systems: Separating Fact from Fiction**

This fact sheet was prepared by the nonprofit Home Fire Sprinkler Coalition (HFSC). HFSC is the only national, non-commercial organization working exclusively to educate the public about the life-saving value of installed residential fire sprinkler systems. HFSC develops a wide range of fire safety educational materials for consumers, members of the homebuilding industry, insurance and real estate professionals, and for the fire service to use in local educational outreach. All materials are provided at no charge and are available via HFSC's Web site: [www.homefiresprinkler.org](http://www.homefiresprinkler.org).

### **Home Fires: More than 3,000 Lives Lost Every Year**

The fire problem in the U.S. is overwhelmingly a home fire problem. According to the nonprofit National Fire Protection Association (NFPA), homes account for about 80% of all fire deaths in a typical year and more than 95% of all deaths in structure fires in a typical year. 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 fire sprinklers.

### **Homes Burn, Whether New or Old**

Few fatal home fires involve installed features of homes. Instead, they usually involve the actions and errors of the occupants in combination with the flaws and vulnerabilities of products brought into the home.

### **Modern Home Fires Burn Faster**

New homes benefit from fire sprinkler protection as much as older homes. 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 Research Richard Bukowski. 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.

### **Most Fires Occur in Properties without Fire Sprinklers**

NFPA data show that while sprinkler usage is growing in most properties, most fires occur in structures without fire sprinklers. The percentage of reported fires in sprinklered properties continues to fall in the range of 1-2% for one- and two-family dwellings.

### **Smoke Alarms Are Essential, But Only Part of the Solution**

Every home needs working smoke alarms on each level, and each household should hold regular fire drills to practice how to properly respond to a fire alarm. Smoke alarms cut the risk of dying if a home fire occurs by one-half. However, many high-risk populations – infants, children, people with disabilities, older adults – can have difficulty hearing smoke alarms, difficulty being wakened by smoke alarms, or difficulty reacting quickly and effectively enough for safe escape. Some of these limitations can be removed with changes in smoke alarm design and requirements and with education. But there will always be people who need more time to escape than any detection/alarm system can provide. Their lives depend on stopping the fire early in its development. Their lives depend on fire sprinklers.

### **Fire Sprinklers Do What No Other Technology Can**

Fire sprinklers provide a level of protection that no other fire protection technology can offer. Smoke alarms are essential: they provide valuable early warning. Fire sprinklers immediately respond to a fire while it is still small, controlling the spread of deadly heat, flames and toxic smoke – whether or not the occupants have appropriately responded to the signaling 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 the sprinkler closest to the fire will operate, spraying water directly on the flames. This quick action immediately controls (often extinguishes) the flames, slowing the spread of deadly heat and toxic smoke and providing occupants with more time to safely escape.

### **Smoke Cannot and Will Not Cause a Fire Sprinkler to Operate**

Fire sprinklers respond only to the high temperature of flames. Unlike interconnected smoke alarms (if one signals, they all signal), fire sprinklers activate independently. 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, or an activating smoke alarm.

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

Home fire sprinkler systems require very little maintenance. In fact, the sprinklers themselves require nothing more than an occasional look to ensure that nothing is hanging from them, or blocking them. Valves should be similarly checked to ensure they are turned on. The sprinkler system flow switch and water flow alarms should be tested about once a year – a simple test that can be done by the homeowner.

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

Installing fire sprinklers in a new home – at an average cost of \$1.50 - \$2.50 per square foot nationally – is equivalent to installing solid-surface counter tops or other similar

upgrades. The sprinkler system is paid for over the life of a mortgage, just as is the electrical or plumbing system. A national poll conducted in Dec. 2005 by Harris Interactive® showed that two-thirds (69%) of U.S. homeowners say having a fire sprinkler system increases a home's value.

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

Reduced labor costs and trade-up incentives have made fire sprinklers a valuable way for homebuilders to protect their bottom line. Options vary, but typical trade ups for a sprinklered residential development or sub-division include street width reduction, additional units, and increased hydrant spacing.

### **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 30% off the fire portion of homeowner premiums. HFSC urges consumers to shop around for the best insurance discount.

### **The Fire Service Supports Home Sprinkler Installations**

No one knows better than first responders how quickly a home fire grows and spreads, becoming lethal to occupants as well as to firefighters. Since publication of the 1973 watershed national report *America Burning*, the fire safety field generally and the fire service in particular have been vocal advocates for increasing home fire sprinkler installations as a means to reduce residential fire injuries and deaths.

### **Home Builders Rely on HFSC for the Facts**

Since 2003, the Home Fire Sprinkler Coalition (HFSC) has actively reached out to the homebuilding industry in an effort to educate builders, developers and architects about the value of offering sprinklers as an option to new home buyers. By bringing factual and simplified sprinkler information directly to builders – primarily through the National Association of Home Builders International Builders Show and its 50+ Housing Council, we have made great strides in our builder education campaign. In fact, more than 3,500 members of the home building community have personally requested HFSC's "Built for Life" educational kit.

## **Home Fire Safety Resources**

Home Fire Sprinkler Coalition: [www.homefiresprinkler.org](http://www.homefiresprinkler.org)

Home Safety Council: [www.homesafetycouncil.org](http://www.homesafetycouncil.org)

National Fire Protection Association: [www.nfpa.org](http://www.nfpa.org)

Residential Fire Safety Institute: [www.firesafehome.org](http://www.firesafehome.org)

Underwriters Laboratories Inc.: [www.ul.com/consumers/](http://www.ul.com/consumers/)

U.S. Fire Administration: [www.usfa.dhs.gov](http://www.usfa.dhs.gov)