A HOME FIRE SPRINKLER SYSTEM GUIDE

Controlling the Home Fire Threat

Protect what you value most

Home Fire Sprinkler®
COALITION
Improved Fire Protection Through Public Education

Home Fire Sprinklers: A Smart Choice

Home fire sprinklers save lives and protect property... the lives and property that you value most.

Consider these facts:

- *Every 80 seconds fire occurs in a U.S. residence.*
- *Every 34 minutes a civilian is injured by fire in the home.*
- *Eight out of ten fire deaths occur in the home.*
- *Young children, older adults, and physically and mentally challenged people are especially vulnerable to the risk of injury or death in residential fires.*
- *Too often, people fail to respond appropriately to the sound of a smoke alarm, because they assume it is a false alarm. Rather than exiting the building, they search to confirm the existence of a fire, wasting the few precious minutes they may have to safely escape.*

It's clear that home fire sprinklers are a smart choice. That's why they are growing in popularity across the country.

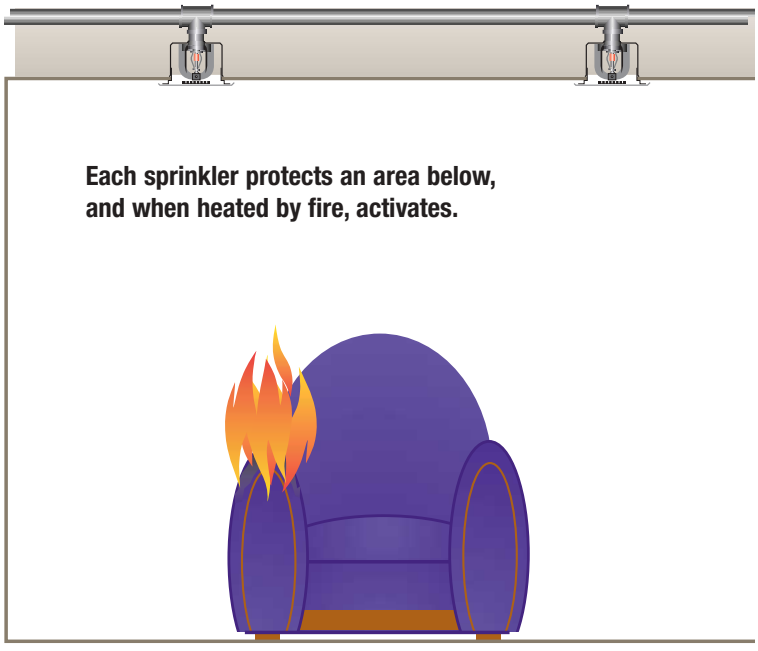
This automatic fire protection system works best in combination with properly installed and maintained smoke alarms. Sprinklers and smoke alarms together cut your risk of dying in a home fire 82% relative to having neither. That's a savings of thousands of lives a year.

The most convenient and least costly time to install home fire sprinklers is during new home construction. The expense is often only 1 to 1½ percent of the total building cost... about what you'd pay for an upgrade in carpeting. Sprinklers can also be retrofitted into existing homes.

You make choices to invest in attractive furnishings, security systems and other features for your home. A home fire sprinkler system is also an investment: in the safety of your family and most cherished belongings.

MYTH

The water damage from sprinklers is worse than a fire. **The truth is, a sprinkler will control a fire with a tiny fraction of the water used by fire department hoses, because a sprinkler activates during the early stages of a fire before the fire department can arrive. Automatic systems spray water only in the immediate area of the fire, usually with just one sprinkler operating. As a result, the fire is kept from spreading, and widespread water damage is avoided.**



Each sprinkler protects an area below, and when heated by fire, activates.

How Home Fire Sprinklers Work

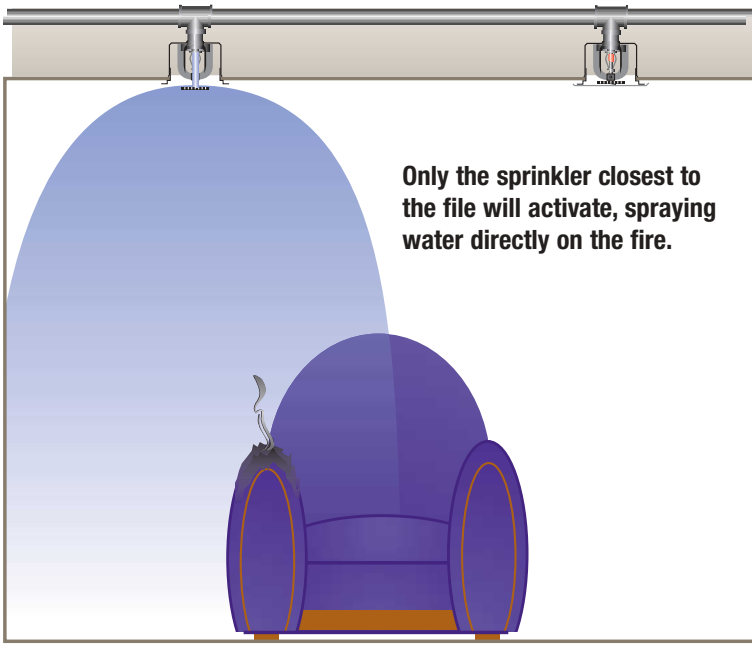
The key to effective fire protection is to control the fire early, before it can create deadly heat and large volumes of carbon monoxide and smoke.

Each sprinkler has a temperature-sensitive element. When heated by fire, the sprinkler closest to the fire will open automatically, spraying water directly on the burning materials. Sprinklers are linked by a network of pipes, which, just like regular plumbing, are usually hidden behind ceilings or walls. A sprinkler system ensures an early and direct response to a fire. Depending on the intensity of the fire, a home fire sprinkler will activate in as little as one minute, or less. And in sprinklered residences, 90% of fires are contained by the operation of just one sprinkler. Sprinklers also help minimize the production of deadly carbon monoxide gas, the primary cause of fire deaths.

Because the fast acting sprinkler operates when the fire is small, it uses much less water than fire department hoses. Home fire sprinklers are designed to control the fire until the fire department can respond. In a home without sprinklers a fire department often arrives after the fire has reached dangerous levels. The fire department would have to apply a number of hose streams at 125 gallons per minute for each hose.

Contrast that with a home fire sprinkler system flow rate of 10 to 25 gallons per minute. The difference in water damage, not to mention fire damage, is obvious.

Sprinklers are linked by a network of piping, usually drawing upon household water sources.



Q: How can I be assured the fire sprinkler system in my house will work?

A: Fire sprinkler systems are installed in accordance with engineering designs that have been established through many years of research and experience by testing laboratories and codes and standards organizations. Like electrical wiring and household plumbing, your fire sprinkler system must meet specified standards and pass required tests and inspections before your home will be approved for a certificate of occupancy.

MYTH

Sprinklers are ugly.

Modern sprinkler fixtures are inconspicuous and can be mounted flush with walls or ceilings. Some sprinklers can even be concealed. And, just like regular plumbing, pipes can be hidden behind ceilings or walls.

Q: How can I be sure I'm getting a qualified contractor?

A: In most states, fire sprinkler contractors must be licensed to do work in their particular profession – just like plumbers or electricians. If your state requires licensing, contact the state licensing board for a current list of licensed contractors.

Also, ask for references and check them out, just as you would a doctor, a babysitter, an auto mechanic or another type of contractor who might work on your home.

In Scottsdale, Arizona, where new homes are required by ordinance to be protected by automatic fire sprinklers, more than 50 percent of homes are now protected by the life-saving technology. Demand has driven down the cost to install home fire sprinklers and the installation cost is $0.80 per square foot in Scottsdale – lower than the national average. Since the ordinance was passed, no one has died from fire in a sprinklered home. Sadly, 13 fire deaths have occurred in unsprinklered Scottsdale homes since 1986. Property loss from fire damage has also been reduced in this fast-growing Arizona city. A 15-year study of Scottsdale's sprinkler ordinance documents the average dollar loss per fire incident in sprinklered homes to be $2,166 compared to $45,019 for unsprinklered homes.

How to Select a Home Fire Sprinkler System

Kitchen fire without fire sprinklers

Kitchen fire with fire sprinklers

Because residential fire sprinklers are a relatively new fire protection feature for the home, not all home builders and developers are familiar with this technology or its important life safety value. For best results, seek an experienced and knowledgeable fire sprinkler contractor who can work with you on this important installation.

Most states, counties and municipalities have enacted specific laws and ordinances which establish the required credentials of contractors who prepare plans for and install residential fire sprinkler systems and provide a license or other form of recognition of those who qualify. Industry associations and some colleges and vocational schools offer training for contractors and their employees so they can obtain the necessary credentials required in their states.

All fire sprinkler systems, whether installed in offices, warehouses or homes, are installed according to standards published by the National Fire Protection Association. Adhering to these standards ensures the quality and reliability of installations. Residential fire sprinkler installations are governed by NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*. A fire sprinkler system designed to NFPA 13D criteria is intended to control a fire with two or fewer sprinklers, giving residents additional time to escape.

Use a professional fire sprinkler contractor who has the specialized knowledge that is required to install efficient, cost-effective systems, including: an understanding of the codes and standards that regulate fire sprinkler systems; knowledge of up-to-date technology and equipment; trained crews; and tested and approved materials and products.

An important element of the sprinkler system is the design, especially ensuring adequate water pressure and supply. Sprinkler systems may operate off the standard ¾-inch household water supply without any special lines or pumps. However, in some areas lower water pressure will require installation of a 1-inch line from the home to the water main. Even in rural areas not served by a public water main, residential fire sprinkler water tanks can be installed to provide the required life saving water supply in case of a fire in your home. Therefore, planning for the fire sprinkler system early in the building stages will eliminate potential cost increases later.

Sprinklers: Unobtrusive Protection

Most people are familiar with automatic fire sprinklers they have seen in warehouses or office buildings and are unaware of the special designs available for use in the home. Unlike commercial devices, residential fire sprinklers are not large chrome frames that protrude four or five inches from the ceiling or stand on large black pipes. In fact, they can be mostly recessed into the ceiling or wall or in some models completely concealed by plates that actually match your paint. New low-profile residential sprinkler models are considerably smaller than smoke alarms. Even sprinklers that are not recessed or concealed have only about 1 inch of the frame exposed and are almost unnoticeable.

Piping for residential sprinklers is generally out of sight, behind walls and ceilings. Even in retrofit installations in older homes, the piping can be hidden behind attractive soffit materials if installation behind wall or ceiling materials is not practical.

Sprinklers: Affordable Protection

Fire kills more people in the United States annually than all natural disasters combined. In fact, more than 4,000 individuals perish in fires each year, and 81 percent of those will die in homes. Although smoke alarms are essential in every household, they're designed to detect, not control a fire. Home fire sprinklers complement the smoke alarm's work, providing a way to fight flames immediately. Not only do home fire sprinklers dramatically reduce the risk of home fire deaths, they also decrease fire damage by as much as two-thirds in residences with fire sprinklers when compared to those without sprinklers. In the 15-year study on Scottsdale, AZ, the reduction was 95%.

Many regional and local building codes offer design and construction alternatives for sprinklered buildings that are not available to non-sprinklered structures. The effectiveness of automatic fire sprinklers in reducing fire losses has also been recognized by the insurance industry, with many carriers providing discounts from 2% to 20% for automatic fire sprinklers. Check with your insurance agent for information on insurance credit for residential sprinklers.

No other option provides you with the peace of mind that fire sprinklers can. Having sprinklers is like having your own firefighter standing by at home. Home fire sprinkler systems often cost less than new carpeting or other major purchases in new home construction. When you consider the degree of built-in reliability and responsiveness that home fire sprinklers offer, the investment is a wise one.

Q: How much time will I spend selecting my fire sprinkler system?

A: Most individuals in the process of building a new home spend countless hours selecting just the right light fixtures, flooring and wallpaper, as well as determining exactly where telephone, TV and internet cable and electrical outlets will be placed. Although you do have choices about the appearance of the sprinklers themselves, selecting your fire sprinkler system will not take the same time or concentration as other features in your new home.

A fire sprinkler system is a package system that is installed in accordance with a specified standard, the National Fire Protection Association Standard 13D. The manufacturers of materials used in these installations meet criteria specified by the standards, so the only choice a homeowner must make is the style and manufacturer of the sprinkler device.

If your builder says…

Q: How do I deal with the local water purveyor?

A: How a local water purveyor handles residential fire sprinkler systems varies from state to state. In Arizona and California, where residential systems are commonplace, and often required, specific laws determine what can and can't be done when connecting fire sprinklers to the public water supply.

In other areas where residential fire sprinklers are a relatively new concept, you may run into questions or concerns from your water purveyor. In these areas, standard water department meters are often set up for a ¾-inch line, smaller than the 1-inch line needed to supply some fire sprinkler systems. Although system check valves are designed to prevent backflow, some water officials may express concern about possible backflow of sprinkler system water into the public water supply. Others may be misinformed about sprinkler system "standby" requirements of the water supply.

If you run into any of these situations, ask for assistance from your local fire chief or fire marshal, or your sprinkler contractor.

Residential fire sprinklers are a relatively new fire protection feature for the home, so not all home builders and developers are familiar with this technology or its important life safety value. Many people are reluctant to embrace a new technology if they are unfamiliar with the details. As a result, you may run into resistance from your builder at first. Following are some comments you may hear from your builder and responses you may use to answer.

"You don't need fire sprinklers in your home. You will have smoke alarms and the fire department's response time in this area is within four minutes."

Remember that YOU are the consumer and you deserve to have what you want in your home. You intend to install a greater level of safety for your family, pets and possessions... in the place where you are at greatest risk from fire: 80% of fire fatalities occur in the home.

A survey by the National Fire Protection Association shows that most people do not respond appropriately to the sound of a smoke alarm. They tend to believe it is a false alarm or search for the fire rather than exiting the building.

Four minutes for a fire department response sounds great, until you consider that the time is measured from the moment the fire department receives the call… NOT the moment the fire ignites. In a typical living room fire, room contents may be totally involved within only two or three minutes after ignition, and the room can be engulfed in flame long before the fire department arrives. In fact, if you are not at home, chances are good that the fire department will not be notified until after the intensity of the fire has blown out glass in the windows, which may be the first sign that a fire is in progress. Automatic fire sprinklers, on the other hand, will activate long before a fire reaches that size, often within only one minute of ignition, and will extinguish or control the fire until the fire department arrives.

"I am a specialty contractor and I can't coordinate fire sprinkler installations in the homes I build."

Ask if your builder coordinates voluntary installation of other new and innovative features such as central vacuum systems or home theater systems. How does a fire sprinkler contractor differ from those, or even the electrical, plumbing, HVAC, and other types of contractors that must come to the job site to install their systems?

"A fire sprinkler system might freeze in the winter."

Point out that, much like your plumbing system, your fire sprinkler system piping will be installed on inside walls or adjacent to the ceiling framing and then insulated to entrap the available heat lost from the living area below.

"I will not be responsible for water damage from a fire sprinkler system."

Ask if your builder is responsible for water damage from other household plumbing. If so, why the difference?

The McCabes

Fire Destroys McCabe Family Home

On the night of August 18, 1991, fire ravaged the West Bridgewater, Massachusetts, home of the McCabe family.

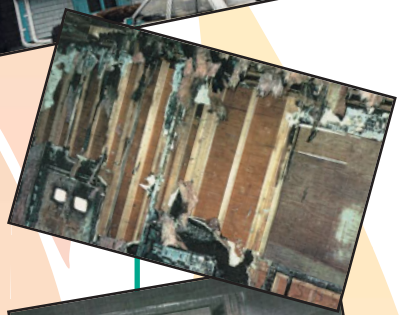
Dan, then 30, his wife Christine, 25, and 7-month old son Drake were all sleeping in the master bedroom of their split-level ranch. It was shortly after midnight when Dan was awakened by a loud popping sound. He got up and saw the fire roaring through his living room. Dan remembers grabbing his wife and baby and somehow managing to escape through the kitchen, the only clear path left in the house. Christine recalls the terrifying scene as "flames from floor to ceiling."

The McCabes ran to a neighbor's house and called for help. Firefighters arrived in about four minutes, but flames already consumed the living room and were spreading rapidly. When the fire, smoke and heat had run its course, the McCabe home had been completely destroyed along with their beloved pets and most of their cherished possessions.

McCabe and his family were left homeless, saddened, but happy to be alive. The family moved in with Dan's parents for about four months while they rebuilt the house. Unfortunately, the McCabes did not know that home fire sprinklers were available when they rebuilt.

The exterior of the McCabe home reveals little evidence of the destruction within.

Although the fire itself was contained to the room of origin...



...heat and smoke spread rapidly throughout the house.

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Improved Fire Protection Through Public Education

The Miziochs

Mizioch Family Escapes Fire Injury

It was shortly after 6:30 a.m. on July 3, 1996, when 13-year-old Rachel Mizioch of Scottsdale, Arizona, lit a candle and placed it on the rattan bookshelf in her bedroom.

Moments later, Rachel felt a drop of water on her face. When she turned to see where the water came from, Rachel saw flames engulfing her bookcase. The fire was spreading up the wall and across the ceiling and the fire sprinkler in her room was operating. Rachel ran from the room and alerted her 9-year-old sister Laurie, who got their mother. As Rebecca Mizioch ran to her daughter's bedroom, thick, black smoke began filling the room. Rebecca shut the door and hurried the two girls out of the house.

The automatic fire sprinkler system, installed one year earlier during construction of the Mizioch home, had activated in the immediate area of the fire. When the fire department arrived, the sprinkler had extinguished the fire. The family escaped injury, and other than damage to the paint in Rachel's bedroom, there was no property damage.

The story of the Mizioch family clearly illustrates the life- and property-saving value of automatic fire sprinkler systems in homes, particularly in new construction of one- and two-family dwellings.

The Mizioch family home.

Room where the fire occurred.

Fire started in a wicker bookcase.

Damage was confined to the room where the fire occurred.

The remainder of the house was undamaged.

YES, I WANT AUTOMATIC FIRE PROTECTION IN MY HOME, BUT...

Q: Where do I start? Will I find fire sprinklers in the yellow pages?

A: If your home builder is not familiar with contractors that install residential fire sprinklers, you still have several options:

- Look in your local Yellow Pages under "Sprinklers, Fire"
- Ask your local or state fire marshal if contractors in your state are required to be licensed. If they are, contact the state licensing board for a current list of licensed contractors.
- Contact fire sprinkler contractor associations for names of residential sprinkler contractors in your area.
- If you have a computer and like to "surf the net," an increasing number of contractors have Web pages describing their capabilities.

Any professional fire sprinkler contractor can install these systems, but for best results look for a contractor that specializes in residential fire sprinkler systems or one that has a residential sprinkler installation unit within the company.

Q: What should I do if my home builder or architect has questions or says I don't need fire sprinklers?

A: Most fire chiefs around the country will recommend fire sprinklers, as they have witnessed first-hand their benefit to life and property safety. Some, but not all architects and builders are educated, at least partially, about residential fire sprinklers. If your builder and architect are not familiar with these systems, have them contact the organizations below for information.

And, if your builder or architect tries to discourage you from finding out more about your possibilities, you can obtain information by contacting any of these resources:

- Any of the organizations listed at the end of this brochure
- Residential Fire Safety Institute, www.firesafehome.org, (763) 416-0527, Dana Bies
- U.S. Fire Administration (301) 447-1018

Q: How much should I expect to pay for my fire sprinkler system?

A: If installed during new home construction, home fire sprinklers often cost no more than 1 to 1 1/2 percent of the total building cost, which is about what you'd pay for an upgrade in carpeting. The investment in your family's fire protection may be slightly lower or higher, depending on the location and complexity of the home.

Q: What if my home will not be connected to a public water supply?

A: Homes can be protected by automatic fire sprinklers in even the most remote areas. Several manufacturers offer self-contained water tanks to supply residential fire sprinkler systems. These tanks are designed to fit in your garage or another storage area of the home, and they hold enough water to comply with the National Fire Protection Association Standard 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes.*

Q: How long should installation take? Can other construction work continue while the sprinklers are going in?

A: Fire sprinkler installations are like electricity, plumbing or any other operational system in your home. The total time involved will depend on the size and complexity of your home.

Certain portions of the system (i.e. water piping) are more easily and cost-effectively installed in the earliest stages of construction, while the actual finish (i.e. installing the fire sprinkler devices, testing the system, etc.) will take place after the house is framed. Fire sprinkler systems are often completed prior to the other systems in your home, but other mechanical trades may work along side the sprinkler contractor, if necessary.

Q: How do I take care of my fire sprinkler system?

A: A residential fire sprinkler system is basically maintenance free. The only testing required on a regular basis is opening the drain/test valve to check the alarm operation. The rest of the system is designed to operate properly for 20 years or more without any maintenance.

Some basic precautions to safeguard your fire sprinkler system are:

- Avoid painting or otherwise covering the fire sprinkler devices, as that will affect their sensitivity to heat.
- Do not hang decorations, plants or other objects from the sprinkler or piping.

Q: Will my insurance premiums go up?

A: No. Generally insurance rates will go down because fire sprinklers will keep damage low. Shop around; the savings vary by insurance company.

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