

**BUILD FOR QUALITY  
BUILD FOR VALUE  
BUILD FOR LIFE**



**INFORMATION FOR HOMEBUILDERS**



[HomeFireSprinkler.org](http://HomeFireSprinkler.org)

## HOMES PROTECTED WITH FIRE SPRINKLERS ARE BUILT FOR LIFE

Lower costs, advanced technology and simpler installation have made building homes with fire sprinklers easier than ever. And when you offer your buyers homes with fire sprinkler systems, it puts your company on the cutting edge and gives your homes a distinct security advantage that homebuyers want and need.

According to the National Institute of Standards and Technology (NIST), a home fire can reach deadly proportions in only three minutes or less. Fire sprinklers save lives and protect property by controlling a fire while it is still small.

“...fires today seem to burn faster and kill quicker, because the contents of modern homes (such as furnishings) can burn faster and more intensely.”

– RICHARD BUKOWSKI, NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY RESEARCHER

Every home fire starts small. Unless it is controlled, a home fire grows and spreads quickly, generating extreme heat and spreading highly toxic smoke from room to room. In as little as three minutes, a fire can reach flashover – the point at which everything in the room is consumed in flames. No one can survive flashover.

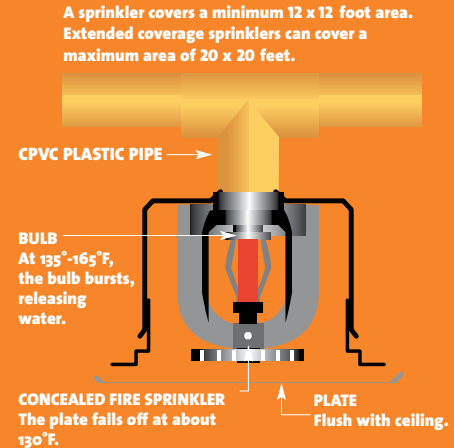
### FIRE SPRINKLERS = SECURITY

Every home needs working smoke alarms; but they can only detect smoke and signal a warning. A home fire sprinkler system controls the fire while it is still small, preventing the deadly heat and the toxic smoke from spreading. A fire sprinkler’s automatic action gives families the time they need to safely escape – even very young children, older adults, and others who may not be able to get out on their own.

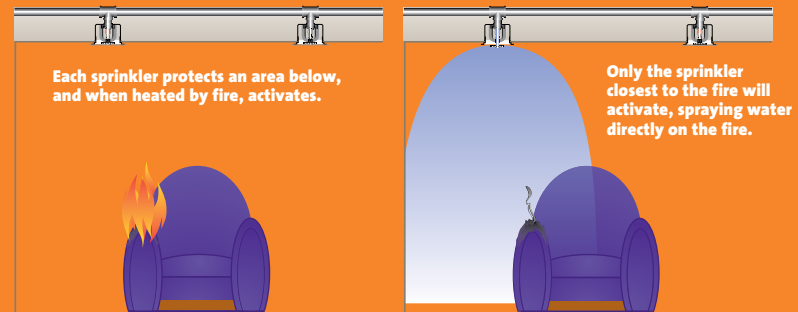
Fire sprinklers also confine the extent of damage to a single area of the home, protecting property and belongings.

## HOW HOME FIRE SPRINKLERS WORK

Sprinklers cover a minimum 12 x 12 foot area. Extended coverage sprinklers can cover a maximum area of 20 x 20 feet.



Sprinklers are linked by a network of piping, typically hidden behind walls and ceilings and usually drawing upon household water sources.



## SHELTER AND THEN SOME

YOU SELL QUALITY HOMES. YOU MAKE CUSTOMER CONFIDENCE A TOP PRIORITY. THAT'S GOOD BUSINESS AND IT PAYS OFF.

TODAY, CUSTOMERS WANT MORE THAN JUST COMFORT, CONVENIENCE AND QUALITY; THEY ALSO WANT TO KNOW THAT THEIR LOVED ONES, PETS AND BELONGINGS ARE SAFE WITHIN THEIR NEW HOMES. MORE AND MORE, WISE BUILDERS ARE OFFERING BUYERS WHAT IT TAKES TO GAIN THEIR TRUST AND EARN THEIR BUSINESS, INCLUDING FIRE SPRINKLER SYSTEMS.



# Protect the Earth One Home at a Time

## FIRE SPRINKLERS ARE GREEN!

Research from FM Global and HFSC on the environmental impact of fires finds 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%
- Reduce water pollution

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

## LOOKING AT A HOME FIRE SPRINKLER SYSTEM

A typical residential fire sprinkler system is supplied by the household water main and uses piping that is installed behind walls and ceilings in finished areas.

Attached to the piping at predetermined intervals are the individual fire sprinklers. Concealed fire sprinklers are often used in finished areas. An unfinished basement may have exposed piping and pendent fire sprinklers.

Typically, each fire sprinkler can protect an area up to 12 x 12 feet. Special extended coverage fire sprinklers protect larger areas.

Fire sprinklers operate only in response to high heat and activate independently – unlike interconnected smoke alarms, which are triggered by smoke and all signal at the same time. If there is a fire, only the fire sprinkler closest to the flames will operate. In 90% of home fires, just one fire sprinkler controls the fire.\*

Custom builder? No problem! A wide variety of fire sprinkler designs makes it possible to install fire sprinklers in any type of new home – even homes with specialty layouts, high or sloped ceilings and other distinctive configurations. Now, even sidewall fire sprinklers can be concealed.

Fire sprinkler systems are designed specifically for the homes where they'll be installed.

Home fire sprinklers can be seamlessly incorporated into any interior design, without sacrificing comfort or style. That adds to your credibility as a builder, and that's important to your bottom line.



*\*Scottsdale Report: A 15-Year Study*, a detailed history of the effects of the automatic sprinkler code in Scottsdale, AZ.

## NFPA 13D – THE NATIONAL STANDARD

The national installation standard for home fire sprinkler systems is *NFPA 13D: Standard for Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*. Compliance with NFPA 13D is intended to prevent injury, loss of life and property damage. The standard requires at least 10 minutes of fire sprinkler water on the fire in its initial stage of development. The intent is to control the fire early, giving residents the time to escape safely and the fire department time to respond. A typical home fire will be controlled or even extinguished by the time the fire department arrives.

NFPA 13D requires fire sprinklers to be installed only in living areas. The standard does not require fire sprinklers in smaller bathrooms or closets, pantries, garages or carports, attached open structures, attics, and other concealed non-living spaces.

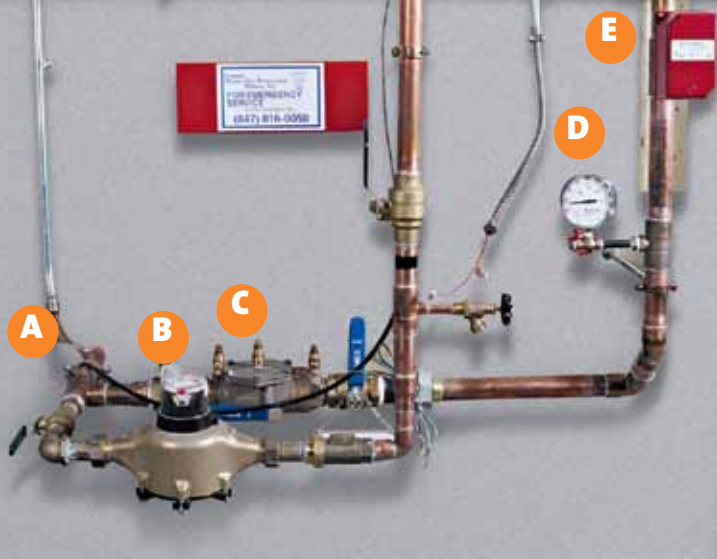
The local building authority where you build may have requirements that exceed NFPA 13D, so you'll want to determine local requirements ahead of time.

Two common types of fire sprinkler systems are acceptable under NFPA 13D – stand-alone (or independent) systems, and multi-purpose combined (or network) systems.

## FIRE DOESN'T DISCRIMINATE

THE HOMES YOU BUILD ARE SAFE FROM A VARIETY OF DANGERS. BUT ARE THEY SAFE FROM FIRE? ACCORDING TO THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), FIRE IS MORE COMMON AND OFTEN MORE DEADLY THAN HURRICANES, TORNADOS AND OTHER DISASTERS.





- A** "T" CONNECTION TO WATER MAIN
- B** WATER METER
- C** BACKFLOW VALVE
- D** PRESSURE GAUGE
- E** FLOW SWITCH

## TYPICAL FIRE SPRINKLER WATER SUPPLY

Here's what you'll have with a typical stand-alone system. The water supply for the fire sprinklers comes from the household water main. There will be a "T" connection between the main and the water meter, supplying the fire sprinklers. This is called the "riser."

The riser is really the "brains" of the system. It includes the pressure gauge, a flow switch and a backflow valve (where required), and the test and drain assembly. NFPA 13D doesn't require a flow alarm, but your local codes might.

The flow switch monitors any water flow through the system and is wired to an inside bell. The flow switch can also be wired to an outside horn or strobe to alert neighbors to fire sprinkler activation in case fire strikes when no one is at home or to a monitored security system.



Backflow prevention devices are required in some areas. They are installed to isolate the water used for fire sprinklers from the water used for domestic purposes, to prevent any cross-contamination of potable water. Backflow prevention devices and water meters reduce

the available pressure for the fire sprinkler system, however, so when they are used it is necessary to use larger water taps and meters of at least one inch or more. Your sprinkler contractor will ensure you have the information you need to know about taps and meters before the system is installed.

**Building in a cold climate? NFPA 13D provides guidelines for proper insulation around piping.**

IN HOMES THAT AREN'T ON A MUNICIPAL WATER SUPPLY – FOR EXAMPLE, A HOME WITH A WELL – OR WHERE THE WATER PRESSURE IS VERY LOW, A TANK AND PUMP ARE USED TO ENSURE WATER PRESSURE. A PUMP AND A 300-GALLON TANK PROVIDE THE 10 MINUTES OF WATER SUPPLY REQUIRED BY NFPA 13D.

## STRAIGHTFORWARD INSTALLATION

One of the reasons that fire sprinkler systems have become so cost-effective for homes is that plastic pipe can be used. CPVC (chloro-polyvinyl chloride) is the lightweight material most often used for plastic piping. Special glue secures the CPVC pipe connections, reducing the problems of sweating copper joints or threading steel pipe.

The pipes are fed off a riser passing through the interior wall space to the upper floors.

NFPA 13D does not require fire sprinklers in unfinished attics. In regions where freezing is a concern, pipes are installed in the interior walls instead. In finished attics and in warm regions, pipe can be run up into the attic and ceiling fire sprinklers can be used.

Another type of plastic pipe, PEX (crosslinked polyethylene), is bendable and is approved for use in multi-purpose systems. In a combined (or network) system, the fire sprinkler system is connected to the same domestic water lines as other plumbing fixtures and fittings in a home, such as faucets, showers and toilets. No flow switch or backflow prevention device is required. Whenever the water is running in a home, it also flows through the fire sprinkler system, held back by the bulb in each fire sprinkler.



*Sidewall Sprinkler*



*Concealed Sprinkler*



*Pendent Sprinkler*

## FIRE SPRINKLER SYSTEM DESIGN

Based on the unique floor plan of the home you're building, the fire sprinkler designer will determine the appropriate number, type and layout of fire sprinklers along the piping. In many rooms you'll have a single fire sprinkler protecting the room. That is because fire sprinklers typically cover an area up to 12 x 12 feet, with extended fire sprinklers covering up to a 20 x 20-foot area.

**“Fire sprinklers give me peace of mind, especially at night when my children are sleeping.”**

– SANDRA KUHNS, HOMEOWNER

The NFPA 13D standard permits positioning fire sprinklers in basements to anticipate future ceiling finishing – a flexibility selling point for your buyers who are thinking ahead. If you finish the basement, concealed fire sprinklers can be used immediately. Wall-mounted fire sprinklers are used when you want to avoid placing pipes in an unfinished attic. In the finished areas of the home, concealed fire sprinklers can be used in ceilings and walls.



“We work very closely to coordinate with the other contractors – the plumbing and HVAC contractors and the electrician. It’s important to maintain good communication with the builder, because we have to rough our system in the walls before the dry wall. “

– COLLEEN McNALLY, U.S. FIRE PROTECTION



## WORKING AS A TEAM

The most important decision you’ll make is choosing your fire sprinkler contractor. You want someone who is qualified as a specialist in residential fire sprinkler installation. The NFPA 13D standard says only people “knowledgeable and trained” should install fire sprinkler systems.

Choose a contractor who strictly adheres to NFPA 13D and complies with any additional requirements of local codes.

Once you have your fire sprinkler contractor, you’ll meet with the fire officials and go from there. A good fire sprinkler contractor will help navigate any code concerns, water usage questions, permits, etc.

The fire sprinkler contractor’s first step will be to prepare shop drawings and hydraulic calculations, to make sure the system performance will comply with minimum code requirements. This is usually submitted for design approval during the permit process.

Fire sprinkler systems can be roughed in anytime after the plumbing and HVAC installation, and trimmed at the same time other contractors are working.

“Fire sprinklers and smoke alarms together cut the risk of dying in a home fire by 82%, relative to having neither.”

– NFPA



## PROTECTING YOUR BOTTOM LINE

On top of increased safety for your customers and value added to the homes you build, you may be able to benefit from cost-saving incentives as well. Many municipalities offer what's known as "trade ups" for builders and designers who build sprinklered homes.

The options vary widely, which is one of the reasons you will want to meet with fire and code officials early on. Examples of typical trade ups for a sprinklered development or subdivision include street width reduction, additional units, and increased hydrant spacing. Bundled together, trade ups can net a builder significant savings.

Another option to explore is building code alternatives, which might include a reduction in fire-rated partitioning requirements between the living spaces of the home and other spaces, such as an attached garage. Fire sprinkler trade ups and code alternatives can substantially offset the cost of fire sprinkler installation.

## EASY HOME MAINTENANCE

Fire sprinkler systems require very little maintenance. In fact, the fire sprinklers themselves require none at all.

Once a month, homeowners or fire sprinkler contractors should test the pump (if any) and visually verify that all valves are open and the storage tank (if any) is full. Twice a year, the water flow device and monitoring service (if any) should be tested. Year-round, the homeowner should look at fire sprinklers and visible pipes to make sure nothing is blocking or hanging from them. That's it.



“Fire sprinklers take the homeowner out of it. They protect people all the time. If there’s a fire, the sprinkler is going to automatically control it. That saves lives and property. My customers like the idea of being protected. So do I.”

— DON SPARKS, D. G. SPARKS, INC., HOMEBUILDER, SAN JOSE, CA.

## LIKE HAVING A FIREFIGHTER ON DUTY 24 HOURS A DAY.

Fire sprinkler technology has been around for well over a century, with a strong and successful track record of both life safety and property protection. Widely used in hotels, hospitals, high-rise buildings and commercial construction for decades, automatic fire sprinklers are rapidly gaining popularity in homes as well.

Because they provide such a high level of property protection, national codes now require fire sprinkler systems to be installed in new construction of one- and two-family homes. Depending on your community’s code process, this may be a local requirement.





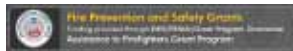
# HOME FIRE SPRINKLERS – GOOD BUSINESS

Every year, thousands of lives are lost to home fires because the residents couldn't or didn't respond quickly enough when fire broke out. When you build with fire sprinklers, your customers will be protected from that kind of needless tragedy because they'll be living in a home with automatic fire protection.

Home fire sprinklers are the future of fire safety. Fire sprinklers save lives and protect property. That's value added for your customers.

Knowing what your customers want and delivering it is good business. That's why smart builders are putting fire sprinklers in the homes they build more often than ever before.

Your customers value safety and security. Offering peace of mind is priceless. So whether you cater to families or retiring couples or communities of all ages, install fire sprinklers in the homes you build and save lives, one family at a time.



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