

Residential Fire Sprinkler Information Kit

The following information was compiled by the American Fire Sprinkler Association (AFSA) to assist fire sprinkler advocates in their efforts to pass residential fire sprinkler ordinances and educate the general public about residential fire sprinkler systems.

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Sources: The National Fire Protection Association, Residential Fire Safety Institute and the American Fire Sprinkler Association.



About AFSA

American Fire Sprinkler Association
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The American Fire Sprinkler Association (AFSA) is a non-profit, international association representing open shop fire sprinkler contractors, dedicated to the educational advancement of its members and promotion of the use of automatic fire sprinkler systems.

AFSA was organized in 1981 to provide the open shop fire sprinkler contractor with training, consulting, communication, representation and many more services, all of which have expanded over its existence.

AFSA acts as a liaison with other national associations involved in fire safety. Working together with government agencies such as the Federal Emergency Management Agency, the National Fire Protection Association, the Residential Fire Safety Institute and the Home Fire Sprinkler Coalition, AFSA helps to create an awareness of the dangers of fire.

AFSA works within the industry and the media to promote fire safety and an awareness of the value of fire sprinklers in saving lives and property. AFSA is a source of information on legislative activities throughout the nation, and we serve as a clearing house for information and statistics that could help promote fire sprinklers in your local area.

OUR MISSION

The American Fire Sprinkler Association is the voice of the merit shop automatic fire sprinkler contractor. In support of the merit shop objective, the American Fire Sprinkler Association promotes the development of educational and training programs to maintain the quality and effectiveness of automatic fire sprinklers, encourages an expanded role for automatic fire sprinklers in protecting lives and property, disseminates information on labor, technology and business, and provides programs to enhance business practices for the merit shop contractor.

- ▶ Founded in 1981
- ▶ Headquartered in Dallas, Texas
- ▶ Represents more than 1100 companies and individuals in 50 states, Puerto Rico, and 13 foreign countries.
- ▶ Membership comprised of fire sprinkler contractors, manufacturers, designers, suppliers, and Authorities Having Jurisdiction (including federal, state and local regulatory agencies and officials, and research and insurance agencies).
- ▶ Provides education and training through correspondence training courses, "virtual" telephone seminars, traveling seminars and fire sprinkler system planning schools.
- ▶ Active in contributing advice and counsel in developing fire and building codes and regulations.
- ▶ Produces various informative publications: *Sprinkler Age*, a monthly industry magazine; *Contractor Network*, a newsletter for open shop contractors, as well as various pamphlets and booklets; *TechTalk*, a monthly technical newsletter; *TechUpdate*, a technical publication faxed to members; SprinklerForum, an electronic mailing list for two-way discussion of issues relating to automatic sprinklers; and SprinklerNews, a weekly email update on the latest industry news and products.
- ▶ Promotes public education of automatic fire sprinklers and produces residential fire sprinkler information packets.
- ▶ Holds largest annual fire sprinkler industry convention and exhibition in the United States, featuring seminars and a trade show.
- ▶ Chapters nationwide.



Facts & Myths

Automatic sprinkler systems have enjoyed an enviable record of protecting life and property for over 100 years. Yet, there are still common misunderstandings about the operation and effectiveness of automatic fire sprinkler systems:

✗ MYTH:

“Water damage from a sprinkler system will be more extensive than fire damage.”

✓ FACT:

Water damage from a home sprinkler system will be much less severe than the damage caused by water from fire-fighting hose lines or smoke and fire damage if the fire goes unabated.

Property losses are 85% less in residences with fire sprinklers compared to those without sprinklers.

Quick response sprinklers release 13-24 gallons of water per minute compared to 250 gallons per minute released by a fire hose.

✗ MYTH:

“A smoke detector is enough protection.”

✓ FACT:

Smoke detectors can save lives by providing a warning system but can do nothing to extinguish a fire or protect those physically unable to escape on their own, such as the elderly or small children.

Though nearly 90% of U.S. homes have at least one smoke detector, only 60% have working detectors, often because of dead or missing batteries.

As the percentage of homes in America that were “protected” with smoke detectors increased from zero to more than 70%, the number of fire deaths in homes did not significantly decrease.

✗ MYTH:

“When a fire occurs, every sprinkler head goes off.”

✓ FACT:

Sprinkler heads are individually activated by heat.

Residential fires are usually controlled with one operating sprinkler head.

90% of all commercial fires are controlled with six or fewer heads.

Experience over an 82-year period in Australia and New Zealand with sprinklers documents an astonishing 99.8 percent effective rate.

✗ MYTH:

“Sprinklers are designed to protect property, but are not effective for life safety.”

✓ FACT:

Residential sprinklers provide a high level of life safety.

Statistics demonstrate that there has never been any multiple loss of life in a completely sprinklered public assembly, educational, institutional, or residential building where the system was properly operating.

The combination of automatic sprinklers and early warning systems in all buildings and residences could reduce overall injuries, loss of life and property damage by at least 50%.

NFPA Statistics

	2002	2001*	2000
Total civilian fire deaths	3,380	3,745	4,045
Total fire deaths in homes	2,670	3,110	3,420
Total number of reported fires	1.688m	1.735m	1.708m
Total number of structure fires	519,000	521,500	505,500
Total number of residential fires	401,000	396,500	379,500
Total reported civilian fire injuries	18,425	20,300	22,350
Total property damage from fire	\$8.742b	\$ 8.874b	\$ 9.501b
Total residential property damage from fire	\$6.055b	\$ 5.643b	\$ 5.092b

*Statistics from 2001 exclude the events of 9/11.

Reading Between the Lines:

- ▶ About 79% of all people who die in fires, die in their homes.
- ▶ 77% of all structure fires occurred in residential properties.
- ▶ A residential fire occurs every 79 seconds.
- ▶ Nationwide, a civilian fire death occurs every 156 minutes.

Conclusion:

The National Fire Protection Association outlines several major strategies that are key to reductions in fire losses and especially in home fire deaths, which are about 79% of the total fire deaths. They are:

- ▶ First, we need more widespread public fire safety education on how to prevent fires and how to avoid serious injury or death if fire occurs.
- ▶ Second, more people must use and maintain smoke detectors, and they must develop and practice escape plans.
- ▶ Third, we must aggressively pursue the wider use of residential sprinklers.
- ▶ Fourth, we must seek additional ways to make home products more fire safe.
- ▶ And fifth, we must address the special fire protection needs of high-risk groups, such as the young, older adults, and the poor.

Consensus Building Needed

Deciding that a community should make fire sprinkler protection a priority is the first step to bringing about dramatic improvements in life and property safety. The second step is to build a city/community team to help make it a reality. Without proper understanding by everyone affected by this type of ordinance — particularly developers and home-buyers — the effort could die a premature death.

1. Target the Audience

Determine who will need to be a part of the community-wide effort to enact a sprinkler ordinance. This could include developers, real estate agents, business owners, Chamber of Commerce representatives, citizen organizations, representatives like the League of Women Voters, and members of neighborhood associations. Consider including appointments to key city boards or commissions such as the planning commission, and don't forget to consider inviting the editor or publisher of the community newspaper. Be sure to include key city staff such as the fire chief, planning director and building staff. The main task is to be sure all viewpoints are represented.

2. Form a Task Force

Getting key individuals and organizations to be a part of the decision-making process will help them support the proposal when it's time for the city council to vote on the issue. The actual ordinance will need to be a negotiated agreement that takes into account the needs of everyone affected. The mayor and council should consider appointing this task force. The city manager and fire chief can be helpful in recommending participants. This sends a message that the issue is a priority in the community and has the attention of the policy-makers.

3. Agree on the Purpose

It's important to ensure the task force jointly develops the group's purpose. Obviously, the city's goal is to bring about a fire sprinkler ordinance. However, it may be most appropriate to let the group determine the proper road to get there.

4. Communicating the Message

In addition to reaching consensus on the importance of fire sprinklers, the task force will need to communicate this fact, as well.

It may be that, in order to gain citizen and business support for the plan, informational brochures or letters should be mailed to all households and business addresses explaining the proposal. Another way to reach citizens is via the news media. News releases and press conferences should be considered to explain the need for fire safety and the role sprinklers play in saving lives and property. Special community forums or town hall meetings, cable television programs, service club presentations, brochures, flyers, and special events are all ways to send the message that sprinklers are needed in the community.

5. Extensive Review

This community-wide task force should offer the ordinance for review and input by the entire community. This helps generate feedback before the formal vote is taken. Every effort should be taken to incorporate or address the comments received.

6. Adoption

The city council vote on the fire sprinkler ordinance will hopefully be just a formality. The groundwork to gain citizen and business support will have taken place and the concerns and comments dealt with in the final proposal. The task force members should be present, and a representative should publicly comment on the decision-making process. If there is opposition, it might be helpful to have the task force participate in the response. Taking the issue away from the perspective of the city versus the community is the goal. Hopefully, the task force will accomplish this.

Case Study

Automatic Sprinklers Save Resources

By William F. Jenaway

Two 1992 hotel fires that occurred on November 13, 1992, provide a comparison that illustrates quite conclusively that properly designed, installed, and maintained fire suppression equipment is effective in extinguishing fire and can save time, effort, and money.

INCIDENT 1

The King of Prussia (PA) Fire Department was dispatched to the first of these fires at 12:12 a.m. — a structure fire at the Valley Forge Sheraton Hotel in Upper Merion Township, Pennsylvania, the anchor of the sprawling Valley Forge Convention Center complex, which includes the following:

- ▶ the Sheraton Hotel (the fire building), 16 stories high with 326 guest rooms;
- ▶ the Sheraton Plaza Hotel, eight stories high with 160 rooms;
- ▶ the convention center with several meeting rooms and more than 130,000 square feet of exhibit floor space; and
- ▶ the Parkview Office Tower, 10 stories high.

The facility was undergoing a complete sprinkler retrofit, in compliance with an ordinance passed in 1989. Retrofitting for three floors and the subgrade levels had been completed when the fire began.

Initial response included apparatus from two stations in King of Prussia and from the Swedeland and Swedesburg fire companies. En route, Fire Chief Gary Touchton was advised of a confirmed working fire in the first subground-level storage area.

Heavy smoke conditions were present at the lobby level, and evacuation was ongoing when we arrived. Some 175 occupants, most of them senior citizens on an outing, had to be evacuated due to extensive smoke development. Chief Touchton immediately established an internal operations command post and an external incident command post. He assumed lobby/operations command and appointed assistant chiefs to the positions of incident commander; evacuation commander; and search and rescue, which subsequently also included containment efforts.

Firefighters began an aggressive knockdown of the fire after taking adequate precautions to prevent extension of heat, flame, and smoke when water was applied to the fire. The circular configuration of the building presented the potential for heat, smoke, and fire by-products to rapidly be forced in several directions.

A water supply to support two engines had been established at the front of the structure. Two 1³/₄ inch handlines were used for attack and two 1³/₄ inch lines for containment. The fire was under control in approximately 45 minutes. EMS assistance, overhaul, and salvage efforts, however, took an additional five hours and 15 minutes.

INCIDENT 2

While the King of Prussia Fire Department was at the Valley Forge Sheraton fire, the Radnor Fire Company, en route to the King of Prussia Fire Department's main station to perform stand-by duty, was dispatched to a structure fire at the McIntosh Hotel in King of Prussia. The seven-story, individual-unit prefab structure was built in the mid-'80s.

On arrival, the Radnor Fire Company found that a small fire set in a storage area had been extinguished by a single sprinkler head of the structure's automatic sprinkler system before the responders' arrival. After ensuring extinguishment, performing overhaul, and shutting down the sprinkler system, the Radnor Company called the fire marshal and left for quarters in King of Prussia.

Although both of the above incidents were determined to be arson, the resources needed to mitigate each incident varied significantly. The presence of a functional, automatic sprinkler system in the McIntosh Hotel accounted for those differences, presented below.

	<u>Valley Forge</u>	<u>McIntosh</u>
Injuries	40**	0
Time in service	6 hrs.	45 min.
Units committed	31***	1
Damage estimate*	\$500,000	\$1,500
Lost revenue	\$50,000	0

*estimated by fire department

**treated at scene by EMS

***nine fire and 22 EMS

The automatic sprinkler proved to be an “unsuspected foe” for the arsonist responsible for the McIntosh Hotel fire. Hopefully, one day it will be a firefighting tool available in all structures.

Other Resource Organizations:

Home Fire Sprinkler Coalition

(888) 635-7222

<http://www.homefiresprinkler.org>

The HFSC was formed in 1996 response to the tremendous need to inform the public about the life-saving value of residential fire sprinkler protection. The HFSC has developed educational material, available upon request, with details about automatic home fire sprinkler systems, how they work, why they provide affordable protection and answers to common myths and misconceptions about their operation.

Residential Fire Safety Institute

(712) 829-2734

<http://www.firesafehome.org>

RFSI is a public interest group created in 1982 to promote fire-safe homes through built-in fire protection and fire safety education. RFSI operates a resource center that provides extensive legislative and technical information regarding fire sprinklers, including ordinance adoption resources and a listing of jurisdictions with sprinkler ordinances.

National Fire Protection Association

1 Batterymarch Park

Quincy, MA 02169

(617) 770-3000

<http://www.nfpa.org>

The NFPA develops, publishes, and disseminates fire safety standards prepared by its technical committees. It also provides information on fire protection, prevention, and suppression through its publications. NFPA publishes the annual report, *Fire Loss in the United States*.

U.S. Fire Administration, Federal Emergency Management Agency

16825 South Seton Ave.

Emmitsburg, MD 21727

(301) 447-1000

<http://www.fema.gov>

There are three sections of FEMA: the United States Fire Administration (USFA), the National Fire Academy (NFA) and the Learning Resource Center (LRC). Through FEMA you may access many federal programs including: National Fire Incident Reporting System (NFIRS) and the Center for Fire Research. USFA serves the nation independently, in coordination with other Federal agencies, and in partnership with fire protection and emergency service communities. It provides public education, training, technology and data initiatives.

Campus Firewatch

(413) 323-6002

<http://www.campus-firewatch.com>

Campus Firewatch is a monthly electronic newsletter focusing exclusively on campus fire safety. Each issue is filled with valuable information on campus fire safety, both on- and off-campus.