

**RESIDENTIAL FIRE SPRINKLERS**

# A STEP-BY-STEP APPROACH FOR COMMUNITIES

SECOND EDITION

**Partners in Progress**



The Voice of the Fire Sprinkler Industry

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## TABLE OF CONTENTS

Introduction ..... 6-7

Historical Overview..... 8-9

**Section 1**  
Policy Decision: Are You Ready? ..... 11-15

**Section 2**  
Building Partnerships:  
Mobilizing the Stakeholders ..... 17-23

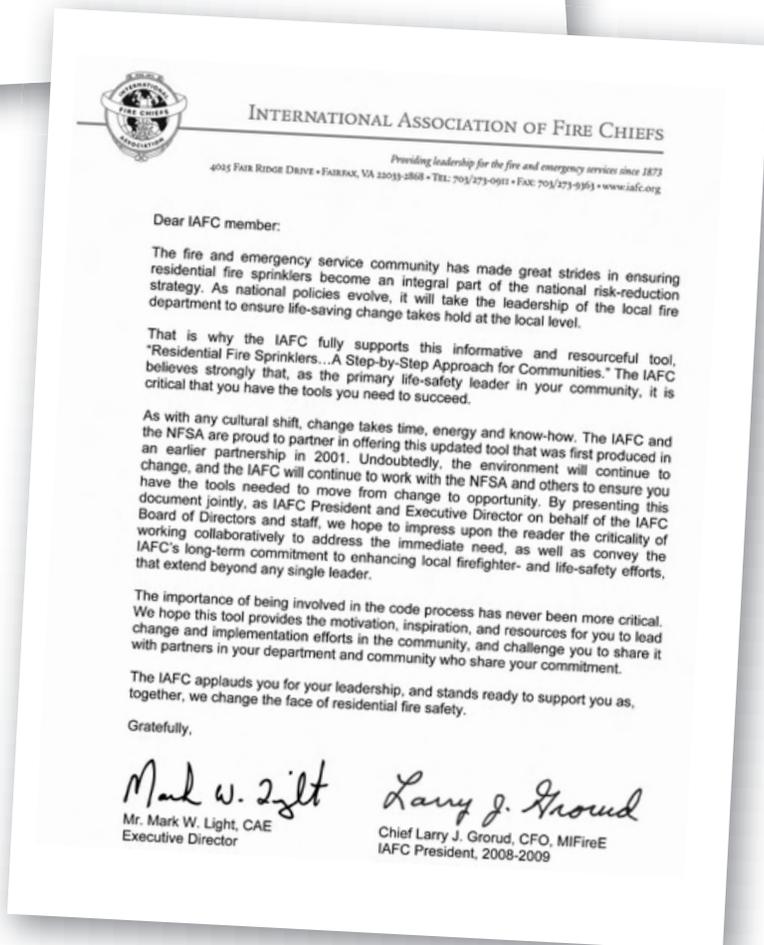
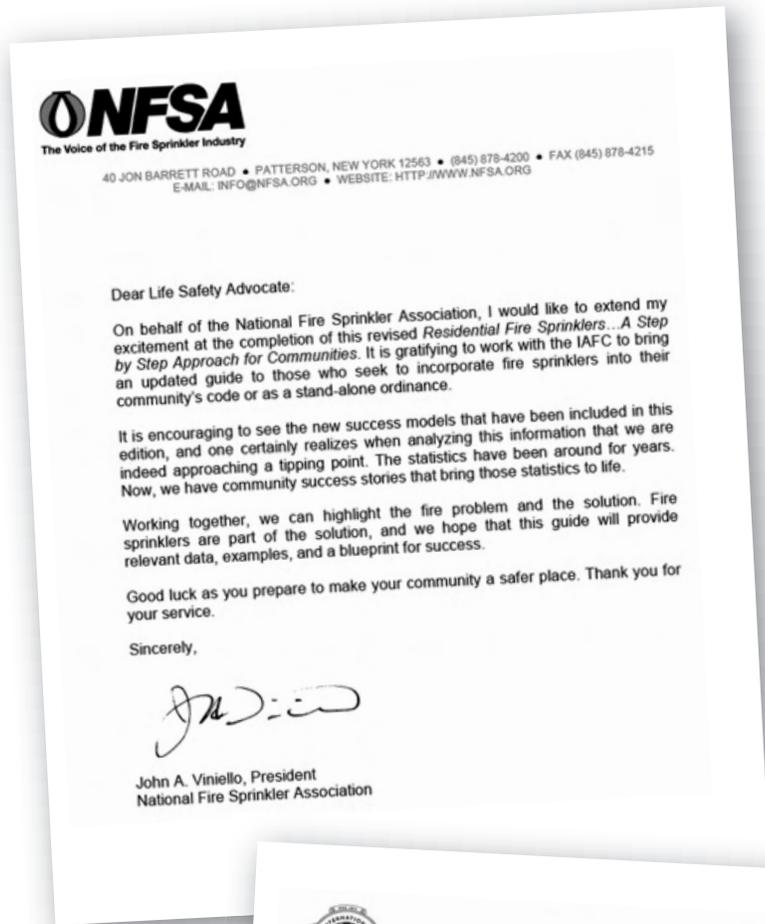
**Section 3**  
Planning and Research:  
Choosing the Path ..... 25-31

**Section 4**  
Preparation, Presentation and Adoption:  
Making it Happen..... 33-41

**Section 5**  
Customer Service and Support..... 43-53

**Section 6**  
Never Let Your Guard Down ..... 55-63

Appendices ..... 65-



**Partners in Progress:  
National Fire Sprinkler  
Association (NFSA) and the  
International Association  
of Fire Chiefs (IAFC)**

## ACKNOWLEDGEMENTS

As I indicated in my acknowledgements section of the first edition of this guide, it would not have ever come to fruition without the dedication of my good friend Steve Hart, Consultant to NFSA and the National Automatic Sprinkler Industry Promotion effort in Northern California and long time warrior in the residential fire sprinkler movement. We will always be indebted to Steve for his commitment of time, experience and expertise in helping me bring that first edition from idea to reality.

Since the publication of the original guide many communities have used it to prepare themselves to take on and win the battle of the politics of life safety as they have attempted to add requirements for the sprinklering of residences to their local fire defense capability. Having learned much since the publication of that original guide, we realized that it was time to produce a second edition.

This time I turned the job over to a younger generation of residential fire sprinkler advocates. Two young people who I am privileged to work with every day within the NFSA Division of Public Fire Protection as we work to assist progressive fire, building and public policy officials in their efforts to factor this important intervention into their total community fire protection approach. As you turn to the About the Authors page in this guide you will come to know a bit more about these two dedicated spark plugs who have become the new warriors in the battle to require fire sprinkler protection in dwellings. Having driven them unmercifully to get this edition completed for dissemination in 2009, I am acutely aware of the time and energy that Shane Ray and Vickie Pritchett have invested in bringing this second edition to reality and wish to acknowledge their efforts on behalf of myself and all who will use this guide.

In addition, we would be remiss if we did not recognize and thank our good friend Tony Apfelbeck, Fire Marshal and Building Official, Altamonte Springs, Florida, for his assistance in reviewing the document on behalf of local AHJ's across America. Other contributions were made by Tom Lia, Bob Kleinheinz, Ed Kaplan, Larry Damrell, and Dave Holmerud. Lastly, we also want to recognize Julie Reynolds of JR Communications who did the final proof and editing of the draft document and Randy Baum, Graphic Designer, who assisted with the formatting necessary to prepare the document for printing.

*– Jim Dalton, Director of Public Fire Protection  
National Fire Sprinkler Association*



## ABOUT THE AUTHORS

**Shane Ray** began his fire service career in 1984 and worked through the ranks of career and volunteer organizations serving from firefighter to chief. Shane currently serves as Chief of the Pleasant View, Tennessee Volunteer Fire Department and Associate Director of Public Fire Protection for the National Fire Sprinkler Association.

Chief Ray is a graduate of Eastern Kentucky University, Harvard's John F. Kennedy School of Government, the University of Maryland's Leadership Development Program, and the National Fire Academy's Executive Fire Officer Program. Chief Ray is currently an adjunct instructor at the Tennessee Fire Service and Codes Academy as well as the National Fire Academy.

Shane was selected as Fire Chief Magazine's Volunteer Fire Chief of the Year for 2005 and Eastern Kentucky University's Distinguished Alumnus of the Year award for 2006.

Chief Ray currently serves as President of the Cheatham County Firefighters Association, Chairman of the Tennessee Fire Chief's Legislative Committee, Chairman of the Tennessee Fire Service Coalition, and is a Board member of the Fire & Life Safety Section and Human Relations Committee of the International Association of Fire Chiefs.

**Vickie Pritchett** became involved in the fire service in 1997. Vickie currently serves on the Board of Directors for the Pleasant View Volunteer Fire Department. Vickie served as the Community Development Liaison for the Town of Pleasant View and Executive Director of the Joint Economic & Community Development Board of Cheatham County at the time she began her service to the local volunteer fire department. During this time she was instrumental in bringing fire service officials, builders and developers, and elected officials together. This coordination resulted in a zero square foot fire sprinkler ordinance for the town in 2001, and county-wide in 2006.

Vickie's dedication to the improvement of quality of life, passion for the community, and her ability to bring people together makes her the "spark plug" and advocate of fire sprinkler requirements at the local, state, and federal level. She has presented across the state of Tennessee and the nation. She has worked in Washington D.C. to promote fire

protection issues and to highlight the differences that can be made by fire sprinklers and the legislation that requires them.

Vickie is a graduate of Middle Tennessee State University. She is a Board member of Cumberland Region Tomorrow, former class member, President and Trustee of Leadership Cheatham County, Advisory Committee member for The Phoenix Society, Steering Committee member of the Home Fire Sprinkler Coalition and is a member of the NFPA and ICC.

Vickie currently serves as Project Manager for Fire Team USA, Facilitator of Common Voices, and Associate Director of Public Fire Protection with the National Fire Sprinkler Association.

## AUTHOR'S NOTE FROM SHANE RAY

This guide was written and developed by many people who care.

This is the second edition of the guide, the first developed in 2001 by Jim Dalton and Steve Hart with assistance from Jim Ford and Bob DeLeon. The original came about as the result of a comment made by retired Fire Chief David Danley.

This revision has come to fruition thanks to the inspiration and support of Jim Dalton and the NFSA. It was aided and improved by feedback from Fire Team USA and the contributions of Vickie Pritchett and ECU intern Branden Sobaski. Vickie is the Fire Team USA Project Manager and informally our fire sprinkler advocacy "spark plug." Her phrase, "*It's time*," is such an appropriate message for many efforts. True enough, *It's time* to update this guide.

## AUTHOR'S NOTE FROM VICKIE PRITCHETT

*"The size of your dream determines the size of your team."* – author unknown

To all of those who have gone before – those who dreamed big and allowed us to join the team – thank you.

There are lives that will be saved by the hard work and dedication of many. We will make a difference!

## INTRODUCTION

Are you interested in taking a different approach to fire and life safety? Are you interested in saving lives, property, money, and water? Do you feel a sense of obligation to the citizens, community and environment? Of course the answer to these questions is YES! This guide is a great place to begin or enhance your efforts to reduce community fire risk.

The resources referenced in this guide are as comprehensive as exists when it comes to fire sprinklers in all new construction, especially residential fire sprinklers. With a majority of the fire deaths in the United States occurring in residential buildings, and billions of dollars in fire loss attributed to the direct and indirect costs associated with residential fires, it is time for state and local fire and building officials to seek the solutions to this national tragedy.

The people who use this guide will play different roles in the process to improve quality of life in the community through fire protection improvements. The amount of time spent to ensure a safer future for the community will vary depending on the role in the community. The authors strongly recommend that regardless of the role, everyone involved should make the commitment to read this guide as a minimum.

Each section of this guide contains information important to each stakeholder in the process. As you read through it, pay particular attention to the parts directly related to your role, also look for the other perspectives in relation to yours. Taking this action will help to ensure the outcome focuses on the citizen and the quality of life of the community.

The following key roles are critical to fire-safe communities. They are addressed within this Guide.

- **Fire Chief** – Invest the time to familiarize yourself with this guide and fire sprinkler requirements. As the head spokesperson for fire protection in the community, you must be able to speak fluently about the importance of fire sprinklers to the future life safety of your community. Sure, your fire marshal may be the lead technical person on this matter, but never forget you are the leader and the big picture person in this battle for life safety. Exercise leadership by knowing the reason for the requirement, fully understanding the process, and providing guidance and support for those involved.
- **Elected Official** – You will be pulled in many different directions throughout this process. As the policy maker for the community and the ultimate code decision-maker, being familiar with this guide is essential as part of your information gathering process. Emotions almost always enter these debates. Your role will be best served by encouraging all the other stakeholders in the process to work through their differences prior to the introduction of legislation. Remember who the professionals are in their respective fields when they present arguments and ensure each sticks to his or her area of expertise. (For example, it doesn't make sense for a builder to present on what represents a fire safe community because that is not his or her expertise. Similarly, the fire chief shouldn't present on what it takes to build a house.) This process takes the cooperation of everyone on what is best for the community and the citizen.

- **Building Official** – As the protector of safe and quality buildings in the community, your familiarity with this guide is important. Utilize it and its recommendations to incorporate the life safety features of fire sprinklers into the building inspection process and the issuance of a certificate of occupancy. Remember, you represent the citizen, not the home-builder or the response capability of the fire department. The ultimate customers in the inspection process are the homeowner  
*continues...*



## HOW HOME FIRE SPRINKLERS WORK

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



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



*Only the sprinkler closest to the fire will activate, spraying water directly on the fire.*

and building occupants not the builder, others inspectors, or departments. As the chief inspector controlling certificates of occupancies in the community, you are approving buildings and developments that will impact the community for many years. In performing this critical role, life safety continues beyond your signature, therefore, your understanding of the role fire sprinklers play as a minimum code requirement is very important. The safety of the citizens and firefighters depend on your involvement and enforcement.

- **Fire Marshal/Inspector** – In most cases, you are the person required to be most familiar with this guide. Most tasks outlined within will require your full attention and understanding. As the key person on technical fire protection features of a building, you must be well versed in the entire process. The inclusion of fire sprinklers in one- and two-family dwellings is often approached differently from those required in commercial structures. As the lead person on the implementation, you must also work to remove barriers, change perceptions through education, mediate differences, and provide constant and consistent information to the stakeholders. The use of this guide and calling upon those who have gone before you will be important to your success.
- **City Manager/Town Administrator** – This guide provides many perspectives on improving life safety in the community. As the management professional in this process, your understanding of both this guide and the many stakeholders involved will assist you in general decision making and in facilitating the process. As you are well aware, life safety and quality of life in the community is often determined based on funding priorities. Your encouragement of all stakeholders to see the big picture of balance in the community will be important to the future.
- **Fire Sprinkler Contractor** – You have a uniquely relevant and necessary role. Quality installation is imperative to life safety and therefore integral to a positive outcome. This Guide will help you to understand the significance of the work that you do. Think about it—lives will be saved by your labor.
- **Homebuilder** – Providing fire sprinklers requires you to step outside the box and focus on the safety of the family who will eventually occupy the home you are building. Homebuilders who embrace this concept wind up using the fact that their homes have fire sprinklers as a marketing advantage and a value-added amenity.

## INTENT

This Guide has been developed by the National Fire Sprinkler Association in cooperation with the International Association of Fire Chiefs to assist you as a local Authority Having Jurisdiction and/or as a community advocate. You can meet the challenge and minimize the loss of life and property to fire in your community through the planning and implementation of a comprehensive residential fire sprinkler program. This Guide essentially consists of six sections intended to systematically support the process of developing, adopting, and defending a residential fire sprinkler requirements.

- **Section 1 – Policy Decision: Are You Ready?**
- **Section 2 – Building Partnerships: Mobilizing the Stakeholders**
- **Section 3 – Planning and Research: Choosing the Path**
- **Section 4 – Presentation and Adoption: Making it Happen**
- **Section 5 – Customer Service and Support**
- **Section 6 – Never Let Your Guard Down**

While these sections focus on the residential dwelling segment of the current fire sprinkler market and technology, the concepts described in each of these sections may be found to be helpful in addressing similar issues with other types of occupancies for which fire sprinkler ordinances are appropriate. The most effective means of reducing community risk is achieved when current fire and building codes are adopted and enforced as well as all buildings, residential included, are protected with fire sprinklers.

The Guide will also discuss the collection and use of statistical data and show how it can be used effectively to reflect issues specific to your community. The outline, which helps to focus on the use of a Blue-Ribbon Task Force (working group), may be useful in opening lines of communication between the agency and its “stakeholders” and “unexpected messengers” who will be impacted by the adoption of the residential fire sprinkler requirements. These types of working groups can often resolve problems before they become a political issue.

And finally, this Guide defines some materials that should be obtained, so that the information collected can be “user friendly” and effective throughout the process. Also incorporated in this Guide is a list of other resources, which may be helpful in the planning, research, analysis, or other phases of the process.

The National Fire Sprinkler Association and the International Association of Fire Chiefs, and their staff and membership stand united and committed to assisting you in this undertaking. Together we can be successful.

## HISTORICAL OVERVIEW

While heat-actuated fire sprinklers as we know them today were first conceived in 1860, it was not until 1896 when the first edition of what is now NFPA 13, *Standard for the Installation of Sprinkler Systems*, was published. Publication of an installation standard led not only to uniformity in system installation criteria, but more importantly to reliable system performance in the control and extinguishment of fires. For the past 110 years plus, automatic fire sprinklers have been increasingly utilized in manufacturing, warehouse, mercantile, and commercial buildings.

The concept of putting fire sprinklers in dwellings was first publicly promoted in the 1930s by the Grinnell Company and was referred to as the “Junior” automatic sprinkler system, but the systems were not widely installed. It was advertised as “A Revolutionary New Development for Residential Protection.”



In March of 1968 the United States Congress passed Public Law 90-259, The Fire Research and Safety Act of 1968, that among other elements, authorized “research into the causes and nature of fires, and the development of improved methods and techniques for fire prevention, fire control, and reduction of death, personal injury, and property damage” (Title-I of Public Law 90-259). In addition, the National Commission on Fire Prevention and Control was created and directed “to undertake a comprehensive study and investigation to determine practicable and effective measures for reducing the destructive effects of fire throughout the country.” (Title-II of Public Law 90-259)

On May 4, 1973, the National Commission on Fire Prevention and Control issued its comprehensive report “AMERICA BURNING,” which outlined the nation’s fire problem, fire prevention efforts, and programs for the future. This report pointed out that almost seven of every 10 fires occurred in residential occupancies (based on 1971 NFPA data). Additionally, it was noted that eighty-four percent (84%) of the fire deaths in building fires occurred in residential occupancies.

In its report, the Commission wrote, “the proposed U.S. Fire Administration supports the development of the necessary technology for improved automatic extinguishing systems that would find ready acceptance by Americans in all kinds of dwelling units” (page 120).

Also in 1973, a subcommittee of the NFPA Committee on Automatic Sprinklers was formed to prepare a standard for the installation of sprinkler systems in dwellings. Such a standard, utilizing commercial sprinklers with a reduced water supply, was adopted and published in 1975 as NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes*.

In 1976 the U.S. Fire Administration (USFA), then known as the National Fire Prevention and Control Administration (NFPCA), began to fund research programs focusing on the residential fire problem in general, and residential fire sprinkler protection in particular, in the hope of optimizing

*continues...*

## HISTORICAL OVERVIEW *(continued)*

fire sprinkler devices for residential dwelling use with the dual goals of improved performance and low cost.

As a result of multiple research studies and full-scale fire tests, NFPA 13D was rewritten and published in 1980, incorporating the residential test results and requiring, for the first time, the use of fast response residential sprinklers.

Subsequent editions of NFPA 13D in 1984, 1989, 1991, 1994, 1996, 1999, 2002 and 2007 have resulted in changes to the rules relating to design and installation of these dwelling systems while maintaining the same basic purpose: “To prevent flashover in the room of fire origin, when sprinklered, and to improve the chance for occupants to escape or be evacuated.”

The combination of the America Burning report and the new fire sprinkler technology led specific local communities throughout the country to begin to mandate the installation of automatic fire sprinklers in residential occupancies. These local initiatives tended to take place on both coasts in areas like San Clemente, California; Greenburgh, New York; Altamonte Springs, Florida; Anaheim, California; Scottsdale, Arizona; Prince George’s County, Maryland; Napa, California; Montgomery County, Maryland; and Pleasant View, Tennessee.

Over the years, the building and fire codes have increased the requirements for fire sprinklers. Codes, like public opinion, often change as a result of tragedy. This typical trend was changed in 2006 when three major NFPA codes included the requirement for fire sprinklers in new construction of one- and two-family dwellings (NFPA 1, NFPA 101 and NFPA 5000). This sweeping and proactive move positioned NFPA’s voluntary codes as having the highest level of fire protection (as a minimum requirement). The problem is that most jurisdictions don’t adopt the latest fire and building codes.

Also in 2007, a vote that would have required fire sprinklers in all new one- and two-family dwellings failed to pass in Rochester, New York, at the ICC hearings. A majority voted in favor of requiring fire sprinklers, however, a 2/3 majority was required to include this provision. In 2008, the 2/3-majority vote was achieved. Fire sprinklers will be required by ICC’s International Residential Code in all townhouses upon the adoption of the 2009 IRC, and all new one- and two-family

dwellings, effective Jan. 1, 2011. The IRC Fire Sprinkler Coalition brought together industry representatives, fire officials, other safety advocates, building officials, affected citizens, health care experts, and others to ensure the life safety benefits of fire sprinklers were presented in testimony at the ICC hearing. Fire Service officials from across the nation assembled in Minneapolis to work with building officials to ensure a safer built environment. Lives of citizens and firefighters will be saved because of this historic code requirement.

Even with the inclusion of fire sprinkler requirements in the major national codes, state and local adoption is required to make the difference. The life safety decision will rest in the hands of state and local elected officials. Many of us who are passionate about this field see the adoption of the most current building and fire code as the best way to ensure life safety in the community. While the decision to adopt codes may rest with elected officials, the fire and building official are the professionals and they should lead the efforts and provide information required to make informed decisions.

*“The most effective fire loss prevention and reduction measure with respect to both life and property is the installation and maintenance of fire sprinklers. If the focus is limited to prevention and reduction of the loss of life, smoke alarms are also extremely effective. However, the use of sprinklers and smoke detectors has not been sufficiently comprehensive.”*

*– America Burning*

This position has been recently updated by a position paper from the United States Fire Administration.

See Appendix A for the 2008 USFA Position Statement on fire sprinklers.

The need for fire sprinklers and national momentum to ensure fire sprinklers are installed in new homes is obvious when assessing the impact of national initiatives. It is our hope that this guide will provide a good status and overview of this momentum that will aid communities across America. ■



# SECTION 1

# POLICY DECISION:

# ARE YOU READY?

## **PREFACE**

Local public policy decisions happen every day in our communities. Whether or not fire protection is included in these policy decisions depends upon whether or not the fire professionals – the experts – are at the table. It is hard to find, if not impossible, a community that has passed proactive fire protection legislation or code adoption without an involved and committed fire chief or other fire service professional. As a matter of fact, one could make the prediction that fire protection initiatives will not succeed without the support and advocacy of the Fire Chief and the fire department.

The first question that should be posed within a community is whether or not the fire department supports fire sprinklers and the role that they can play in their community's fire protection planning. Is growth headed your way? Are you built out and in-fill development is occurring? Are times hard with a slow economy? Regardless of what's happening in your community, fire service professionals must educate the stakeholders as to why fire protection needs to be considered in public policy decisions.

Once you have confirmed that the Fire Chief and the fire department are on board, bring other key stakeholders to the table. Always remember, it is up to the Fire Chief to educate these other stakeholders. The statistics, teaching tools and facts are readily available and they make this educational process relatively easy. It simply takes a dedicated fire service leader to begin the journey.

## ARE YOU READY?

Since you decided to read this resource you must be an advocate, if not “the” advocate, for reducing risk in your community.

Something caused you to recognize the need. Whatever that “something” was you may need to use it again as you continue this process. Whether this was a seminar, class at the National Fire Academy (NFA), growth in your community, or a tragedy that occurred, you see the need for community outreach. And your planning, preparation, and perseverance will be key.

There are plenty of great people and organizations to help.

For the beginning, utilize the following to educate:

- Home Fire Sprinkler Coalition (HSFC)  
www.homefiresprinkler.org
- Fire Team USA (FTUSA)  
www.fireteamusa.com
- United States Fire Administration (USFA)  
www.usfa.dhs.gov

For the organizational side, utilize the following:

- International Association of Fire Chiefs (IAFC)  
www.iafc.org
- Fire & Life Safety Section (FLSS)  
www.iafc.org/flss
- International Association of Fire Fighters (IAFF)  
www.iaff.org
- Volunteer and Combination Officers Section (VCOS)  
www.vcos.org
- Safety Health Survival Section (SHS)  
www.iafc-safety.org

Onto the technical side, utilize the following:

- National Fire Sprinkler Association (NFSA)  
www.nfsa.org
- International Code Council (ICC)  
www.iccsafe.org
- National Fire Protection Association (NFPA)  
www.nfpa.org

Access to assistance in your quest to reduce community risk has never been easier. The list of communities adopting fire sprinkler requirements grows considerably each month. This indicates that there is a growing number of people with experience. The great thing about the fire and emergency services is that they are always willing to share and offer assistance. For a list of communities with fire sprinkler requirements, visit [www.homefiresprinkler.org](http://www.homefiresprinkler.org).

## ESTABLISHING THE NEED

An analysis of the fire protection in your community and the community itself is a good place to start in determining your policy discussion. The current capabilities of the fire department are compared with the fire protection needs of the community. In the analysis we must consider:

- Current codes adopted
- Community growth rate
- Fire department budget (suppression vs. prevention allocation)
- Taxes dedicated to fire protection
- Fire department staffing levels and response time

Regardless of our findings, we must still consider the changes in the built environment as well as within society. While the argument is often made that our houses and buildings are constructed safer due to code changes and construction upgrades, we must still view the contents of these buildings and the fire event known as *flashover*. Flashover occurs when the temperature in a room reaches a point where the combustible contents of the room ignite all at once. (*Fundamentals of Fire Fighter Skills Second Edition: Jones and Bartlett Publishers 2009 Sudbury, Massachusetts*)

Flashover signals several major changes in a fire and when it occurs it virtually ends any effective search and rescue by the fire department in a room. Flashover means the death of any person trapped in the blazing room – either civilians or firefighters.

A review of NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, identifies its purpose to prevent flashover. If we are the true fire protection advocates in our community, we must endeavor to prevent flashover. We must work to ensure a safer environment for our citizens and also our firefighters. As a Fire Chief, the most effective way to fulfill your responsibility of saving lives and property is to place firefighters in every building, and the most economical way to do this is to require fire sprinklers. As an elected official, fire sprinklers are the most economical infrastructure improvement you’ll invest in.

Utilizing the following videos, we can better understand the effects of flashover:

- Scotch pine Christmas tree video from the National Institute of Standards and Technology (NIST) – [www.nist.gov](http://www.nist.gov)
- Home Safety Council’s All-Ways Safe at Home DVD – [www.homesafetycouncil.org](http://www.homesafetycouncil.org)
- Marble Mountain video – Orange County, California Fire Authority – [www.ocfa.org](http://www.ocfa.org)

*continues...*

The need for fire prevention education, early warning, escape planning/response, early suppression, and emergency response is made obvious when utilizing the videos and observing a typical home fire timeline by using the Time vs. Products of Combustion Curve. The need to make policy decisions that include the installation of fire sprinklers should be evident if we wish to control flashover. Without proactive policy discussions, we don't affect the front portion of that timeline and the portion of timeline directly manageable by the fire department is often times too late to save lives. In addition, we not only depend on citizens to rescue themselves, we also put firefighters' lives at risk in rescue and suppression activities.

## CODES ADOPTED

It is important to determine what building and fire codes the community has currently adopted. There are many communities and regions of our country that have no codes adopted. If this is the case in your area, adoption may be a required first step. If so, make sure fire sprinkler requirements are part of the original code adopted.

Understanding the code adoption process for your jurisdiction is important, as is being a participant in that process. As the fire official in your community, establish a relationship with the chief building official and the state fire marshal's office. These relationships are important in the process to adopt fire sprinkler legislation.

The adoption of the latest NFPA and IRC codes includes the requirement for fire sprinklers in one- and two-family dwellings. Remember, the adoption of the most current fire and building codes will reflect stronger requirements for fire sprinklers but none include the provision that ensures all new construction is protected. In order to ensure all new construction is protected with the fire sprinklers special legislation at the local level will be required.

Again, knowing the code processes for your community and your state is important. Some states are referred to as "mini-max" states. This means local communities are not able to adopt code requirements that are more stringent than the state's requirements. However, there are some localities that are bucking the "mini-max" trend and legally challenging this provision, specifically to address fire sprinkler requirements. Successful fire sprinkler legislation has been adopted in Pennsylvania, Kentucky, Washington State, and Oregon, due to the fire protection needs of cer-

tain local communities that were willing to challenge the law.

Regardless, it's vital to build relationships with local and state building officials and to understand and actively participate in the code adoption processes.

## POLICY DECISION

Ensuring fire protection in the community is a policy decision. By this we mean the level and delivery of the fire protection is determined by the community's policy makers (elected officials). As the Fire Chief, fire official, or community fire service advocate, our role is to provide the policy maker with comprehensive and valid information to inform his or her decisions. Providing policy makers with only one option for fire service delivery does not ensure fire-safe homes nor does it adequately improve the quality of life in our communities.

Fire protection in our communities must involve proactive measures in conjunction with our traditional reactive fire service deployment, and as described by In his presentation on "The Politics of Life Safety" (visit [www.fireteamusa.com/resources](http://www.fireteamusa.com/resources)), Jim Dalton notes that in order to be proactive we must have education, early warning, and early suppression to minimize the effects of a hostile fire.

As with most policy decisions, the fire protection policy decision comes with various levels of cost. The following decisions reflect different costs.

- Prevention, Early Suppression, and Response
- Prevention, Response
- Response

If a fire department is not involved in fire code enforcement and fire sprinklers are only required in certain buildings (not homes), minimum staffing levels of four personnel on apparatus should be demanded. Each community must create a plan and estimate the cost for the basic levels of fire service protection acceptable to citizens.

This resource is intended to guide you through a process that will help make policy decisions that result in improved quality of life in your community. Ultimately, that gets us all closer to the goal of fire-safe homes. As such, we've focused on making the policy decision that ensures the installation of fire sprinklers in all new construction within the community, especially residential occupancies. As you prepare to adopt fire sprinkler requirements in the community, be aware of the following considerations that are worthy of recognizing and addressing early on in the process.

## CONSIDERATIONS TO BE RECOGNIZED EARLY IN THE DEVELOPMENT PROCESS

**GENERAL** – The current economic and political conditions in the community frequently affect the adoption of fire sprinkler requirements. Protecting life and property in the community should always be a priority. However, it is often easiest to adopt fire sprinkler requirements in those communities that are struggling with growth issues. Prior to overburdening the community infrastructure, (i.e. water supply, fire department, etc.) setting requirements that lessen the impact on existing residents is often widely seen as being more acceptable. Communities that have already experienced substantial growth may be more apathetic to life safety issues and less involved in setting the future direction of the community on such issues.

**PERSONAL** – Is your home and family protected with fire sprinklers? Are you willing or in a position to live in a home equipped with a fire sprinkler system? Don't panic if the answer is no. But be prepared to face the question, and be ready to answer without being defensive. Naturally, the best thing to do is experience the process first-hand, as has Chief David Bullins of the Statesville (NC) Fire Department and Chief Rocky Garzarek of the Franklin (TN) Fire Department. But if this isn't possible, maybe you can tap into the personal experiences of a firefighter, a family member, or a situation in the community where fire sprinklers are the alternatives to other codes not being met.

Even if you employ this strategy, if your home isn't protected by sprinklers and you are advocating for sprinkler code requirements, you will face the challenge of being asked why not. Of course, as a safety advocate you most likely regret that you do not have the opportunity to live in a sprinklered home. But it's important to remember that you are not supporting a retrofit residential code requirement, you're advocating for legislation that will protect newly built homes. Many pro-sprinkler

safety advocates live in homes built under requirements years or even decades old. Wouldn't it be nice if policy makers had recognized the benefit to require sprinklers those many years ago? Imagine how much safer our community would be today. Every day, we sprinkler advocates talk to homeowners who are sorry their builder offered window, carpet, and countertop upgrades but not a fire sprinkler system. For most of us, our home is our most valuable asset and it isn't easy to move to a sprinklered home. You are not alone in why your house isn't protected.

**ORGANIZATIONAL** – Are your fire stations protected with fire sprinklers?

Do any of the fire department members have fire sprinklers in their houses?

Are the fire department members in support of requiring fire sprinklers? If the answer to this is no, don't be afraid to bring in someone from the outside to initiate dialogue on the issue.

Does the fire department have a good relationship with the

- Water Purveyor
- Building and Codes Department
- Builders and Developers
- Fire Sprinkler Contractors

Is the department prepared to handle inspections? This is frequently required without the addition of new personnel. In some areas, the building department agrees to the inspections, however, in many cases the fire department reprioritizes and ensures existing personnel can handle the additional work.

**COMMUNITY** – Are the citizens active in community, planning and land use decisions?

Is there rapid growth?

How do the citizens react to growth? *continues...*

## ADDRESSING THE MYTHS ABOUT AUTOMATIC FIRE SPRINKLERS

How well respected is the fire department in the community?

In most public opinion polls, the fire department usually ranks among the most respected branches of government, if not the most respected. This is a good reason for the fire department to advocate for community fire protection. It can be done without a huge cost burden on existing citizens and without losing their respect. Requiring fire sprinklers in new construction doesn't cost the existing homeowners anything. In fact, it saves them or will save everyone money in the future. Why should the citizens already living in the community and the fire department accept the cost of providing total service to another 1,000 buildings when they do well to protect what they already have? It is important for citizens to understand that new growth can and should pay its own way. Fire sprinklers required in new construction should be viewed as a "you build it, you protect it" issue.

The increase in residential occupancies results in an obvious increase in population. This naturally means more emergencies for the fire department to respond to. How many calls does your fire department respond to now? Is the number of calls increasing? In most communities, the answer is yes. Therefore, the need for firefighters continues to increase. The number of volunteer fire departments transitioning to career personnel has never been higher. Protecting this new growth with fire sprinklers allows the fire department to deal with an increased call volume, and it's safer for the citizens and firefighters when inadequate staffing exists.

Visit the IAFC's VCOS website ([www.vcos.org](http://www.vcos.org)) and go under Online Resources/Tools and look for the Model Call Volume Impact calculator to see how new growth could affect your fire department.

Misinformation continues to spread mistrust and generate false perceptions about fire sprinkler protection. Frequently repeated fictitious scenarios reflect a lack of understanding and knowledge about the operation of fire sprinklers. Worse, these myths may well have caused lives to be lost as a result of political decisions made based on these non-truths.

While we have heard them before and regardless of how silly they may be, it is best to assume that people – perhaps even policy makers – believe some or all of them. It's essential that any proposals address these fictitious statements and refute them in order to educate the general public, stakeholders, and elected officials before embarking on the effort to consider the adoption of a fire sprinkler ordinance for residential occupancies.

The most commonly repeated false statements are:

- Fire sprinklers may go off accidentally.
- If one fire sprinkler goes off, they all go off.
- Fire sprinklers cause excessive water damage (worse than fire damage).
- Fire sprinklers are just too expensive to install.
- New homes don't burn.
- Smoke alarms provide adequate fire safety.

There are many resources to help overcome these myths and to counter false statements and spurious statistics that typically crop up during fire sprinkler code adoption efforts. Resources include: The Home Fire Sprinkler Coalition report, Separating Fact from Fiction (Appendix B) and Fire Team USA's response to NAHB points (Appendix E).

In an effort to take a look at actual numbers of a local builder, Fire Team USA asked for this information on a standard construction home built in 2007 in Pleasant View, Tennessee. The builder provided the information and it is outlined in the table below. Please note that fire sprinklers represent a mere 1.3% of the total cost of constructing the single-family home. (See Appendix C).

In most instances the cost of fire sprinkler systems is less than the cost of the floor coverings in the home. Consider the cost of carpeting:

"StainMaster Carpeting" in a recent weekly newspaper insert advertised for \$19.99 per square yard. That computes to \$2.22 per square foot.

In that same advertisement, "Karastan Carpeting" was being sold for \$29.99 per square yard. That calculates to \$3.33 per square foot. ■



# SECTION 2

# BUILDING

# PARTNERSHIPS AND

# MOBILIZING

# STAKEHOLDERS

## PREFACE

Quality of life in the community is a very broad topic, but each stakeholder subjectively views it. Because of this, it's important to involve as many stakeholders in the process as possible and to ensure they engage in dialogue. The requirement for fire sprinklers in new construction, especially one- and two-family dwellings, improves life safety, economic development, and the environment in our communities. We all serve the citizen in some form or another but we do it differently.

Traditional fire prevention has been viewed as education, engineering, and enforcement and these components remain the cornerstone of fire prevention today. However, as responsible advocates for public safety, we must expand our focus if we are to fully impact quality of life. We have to involve all stakeholders in the process of improving community fire protection.

Fire sprinklers are part of community fire protection, as is fire prevention. The fire suppression component is essential when the unfortunate event of fire occurs. At this point, early warning (working smoke alarms), escape planning (occupants' familiarity with the building and what to do in the event of fire), early suppression (fire sprinklers), and emergency response (the guys and gals in the street on the BRTs [big red trucks]) are as important as fire prevention.

Everyone has a role when it comes to improving our communities. Requiring fire sprinklers in new construction must bring all the stakeholders to the table. These stakeholders will have to work together from beginning to end to be successful. The fire department can't be the only advocate for community fire protection. Create allies for the overall quality of life in the community, and the result will not only be fire sprinklers in new buildings, but reduced service burdens and air pollutants, decreased water consumption, and safer buildings.

## WHERE TO BEGIN? HOW ABOUT THE BEGINNING? PICK YOUR TEAM!

First and foremost, make sure that you have identified ALL of your community stakeholders. Your list is likely to include:

- Fire Department (Fire Chief, Fire Marshal, Firefighters)
- Public Policy Leaders (Mayor, City Manager, Council members)
- Building Officials (Building Commissioner, Inspectors)
- Water Purveyor
- Economic Community Development (ECD) Director
- Homebuilders
- Developers
- Fire Sprinkler Contractors
- Real Estate Agents
- Insurance Agents
- Citizens

## UTILIZING A WORKING GROUP TO STUDY THE NEED FOR A SPRINKLER ORDINANCE

When considering the adoption of a residential sprinkler ordinance it is often effective to form a “working group” of stakeholders – those who would have a vested interest in the outcome of such a construction mandate. While there are many ways to formulate the group, some key elements include, but are not limited to:

- Selection of a Chairperson to head the Working Group
- Defining the role of the Working Group
- Identifying the stakeholders and reaching out to them
- Obtaining historical sprinkler studies (Example: 15-year study – Scottsdale, AZ; 10-year study – Prince George’s County, MD; 7-year study – Vancouver, B.C./Canada)
- Setting the agenda for the Working Group
- Keeping on target and on a timeline
- Establishing an end point to bring closure to the Working Group
- Devising a plan to use the findings of the Working Group
- Creating and using a “check list” as an “action plan”
- Reaching Consensus
- Creating a plan to address any unresolved issues, which otherwise will surely resurface

## CREATING THE OPPORTUNITY TO LEARN

Your community needs to learn about sprinklers together. Your team can both learn and educate; and there are many ways to achieve this. Some include:

- Community Night
- Sprinkler Familiarity Road Trips
- Lunch & Learn
- Tap into Existing Programs
- Quarterly Builder/Developer Meetings

A great way to educate your stakeholders is to expose them to a nearby community with an active sprinkler installation record. If you choose a road trip, select a location that is within a few hours driving distance and then assemble your team. Select a destination where fire sprinkler requirements exist, and ask the local team to show your group homes in varying stages of installation.

Make sure your road trip group is representative of the key stakeholders. How about the fire chief, fire marshal, building official, water purveyor and a homebuilder or two? It makes sense to utilize the travel time for training. Here’s a thought: Rent a van so the whole team can be in the same vehicle. Choose one equipped to show fire sprinkler educational material on DVD/VHS. Watch “Built for Life,” from the Home Fire Sprinkler Coalition, or the “Marble Mountain” sprinkler burn production from Orange County (CA) Fire Authority.

*continues...*



*Wayne Waggoner, NFSA Southeastern Regional Manager, talks with a sprinkler contractor and homebuilders about how the installation of fire sprinklers works.*



*A team of insurance underwriters travelled to a local community that installed fire sprinklers to learn more.*

## CREATING THE OPPORTUNITY TO LEARN *(continued)*

For Community Night success, the following tips should be considered:

**Location** – How about your local Elementary School? People may feel different when they walk into a school versus walking into city hall or a governmental building. And, when you reserve the school for your community night, ask the Principal if there is a grade level that might be able to share a musical performance or play. (Think about filling the seats, performing students attracts parents, grandparents, aunts & uncles!)

**Program Agenda** – Make it about MORE than fire sprinklers. Invite local builders to share their latest proposed projects, invite the water purveyor so that water questions can be answered. Let the students perform first, then follow with the Fire Chief giving a brief introduction to your selected multi-media presentation (Marble Mountain is a good choice. It covers all stakeholders and provides a good basic introduction to home fire sprinklers and how they work). Following the Fire Chief's segment, invite the building official, someone from the planning commission, or the ECD Director to speak about growth. Make the growth projections come to life. Give specifics as to how many people and new homes are projected. Make sure that you provide time for citizens to ask questions but don't keep them too long. A good rule of thumb is one hour. Promote your Community Night through press releases to hold down costs.

In most communities evening programs are scheduled to allow public policy makers to conduct workshops and explore issues with no votes being cast. This is an excellent opportunity for your team to share and learn together. Another idea is to create "Lunch & Learn" opportunities where the Fire Chief shares information with selected stakeholders. Sometimes it also helps for the roles to be reversed. Ask the homebuilder to make a presentation to you so you can understand any concerns he or she might have about fire sprinklers and how they would impact business.

How about quarterly builder/developer meetings where building and fire officials meet to discuss a range of topics, including sprinklers? Communication is key to understanding and education. And, making the commitment to a recurring meeting sends the message that they are important stakeholders in your community and you value what they do.

## FINDING YOUR SPARK PLUG

Once you begin the journey and conduct a few educational opportunities, someone will most likely emerge as your "spark plug." Many times this person is an unexpected messenger and he or she can prove key in the passage of fire sprinkler legislation. It is very important to recognize that even though this person may or may not be the Fire Chief, ongoing fire department support and leadership are vital to the successful initiative. Allowing your "spark plug" to champion the fire department is awesome, but if the Fire Chief and the fire department are not on board and involved, the outcome will suffer.

## FINDING PROOF – USE FACTS TO VALIDATE YOUR MESSAGE

Take a look at other communities that have passed fire sprinkler legislation or adopted codes that require them. Based on their experience, answer the questions that you know will be asked of your team.

- Is growth impacted? If so, in what way?
- Is the fire department involved in planning & zoning? If not, develop a plan to include it.
- Document fire loss in your community. Paint the picture of buildings protected by sprinklers and not protected. (This is especially important if you are a sales tax dependent community.)
- Research your local insurance numbers. Know who writes the most policies, and who provides discounts on sprinklered homeowner policy premiums. Make sure you include them in the process and have them on board.
- Focus on savings, using real numbers.

## QUALITY OF LIFE... HOW GROWTH CAN ENHANCE IT FOR YOUR COMMUNITY

With proactive planning, growth can actually provide the opportunity for community leaders to enhance quality of life and build fire safe communities. Find the positive and accentuate it with all of your partners. Collaboration with multiple agencies, organizations and groups is the key to successful passage of fire sprinkler requirements. Make sure the stakeholders understand what happens if no action is taken.

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14 affiliated organizations supported Common Voices Day on the Hill – A day that focused on educating legislators about the importance of fire sprinklers and the role they play in a community’s fire protection plan.

## COMMON VOICES FOR CHANGE

Many times, some of the most effective advocates are those who have been directly affected by fire. There is an advocates’ coalition called Common Voices that is available if you would like to tap into this powerful resource. This Coalition includes parents who have lost children to fire, a widow who lost her firefighter husband, and burn survivors. For more information, go to [www.fireadvocates.org](http://www.fireadvocates.org). This group will testify on behalf of your legislation or code proposal, and also provides a speakers bureau.

Common Voices is constantly working to bring resources to the fire service that will help communicate the tragic results and also highlight the fact that fire sprinklers are part of the solution. Resources include PSA announcements that capture the stories, and also provide information about fire sprinklers with the hope that future tragedies may be prevented.

## EXPANDING THE STAKEHOLDERS

It is important to examine each stakeholder and evaluate the role that each plays in the process. Looking back at the list of those identified, let’s take time to explore each one.

**Fire Department** (Fire Chief, Fire Marshal, Firefighters) – As the highest-ranking fire official in the community, the Fire Chief is responsible for saving lives (citizens and firefighters) and protecting property. It takes a leader to provide *proactive* fire protection services to the community. A manager can provide *reactive* services, response-oriented activities after the fact. It is easy for a Fire Chief to become consumed with managing fire stations, apparatus, and personnel. However, as the Fire Chief we must “take a look from the balcony” (Linsky, 2002, *Leadership on the Line*). The big picture of community fire protection involves more than just response. This big picture means that fire chiefs committed to saving lives and property must also deploy resources focused on reducing community risk in the first place.

Does your fire department meet national deployment standards? Do you control the fire timeline or do you just measure your response time? If you answered no to both these questions you are like most fire departments in the country. None of us

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**EXPANDING THE STAKEHOLDERS** *(continued)*

can control the origin, growth, detection, and reporting of every fire. As a result, we must look at fire sprinklers as a deployment option. Fire sprinklers are designed to protect lives and property and they provide early fire control. In most cases, citizens aren't willing to provide adequate funding for the fire department to accomplish this same task.

**Public Policy Leaders** (Mayor, City Manager, Council members) – The responsibility to provide service to all the citizens is enormous. You must balance competing interests and priorities with revenue received. Where do fire and life safety fall into your funding priorities? In many cases, fire departments aren't high on the priority list because citizens infrequently complain about the fire department. Most citizens believe fires won't happen to them, but statistics show this isn't the case, and when it does strike, it is devastating. As community growth occurs, fire protection must be accepted as one of the essential services of government. Fire stations and firefighters must be added to provide this service as the need increases. While this may continue to keep the citizens happy, the true outcome isn't discovered until there is a review of fire fatalities as well as dollar loss, to the citizens, insurance companies, and tax rolls.

The failure to provide adequate fire protection has the potential to affect the insurance premiums of all citizens. For example, significant growth, annexation, and lack of water supply, fire stations, fire hydrants, and personnel, could affect the ISO (Insurance Services Offices) for the entire community. The failure to adopt and enforce current building and fire codes could affect the insurance premium for the new commercial properties being built for the life of the building as well as all buildings in the community. As the policy maker, you have the responsibility to ensure the greatest level of protection and most savings affordable to the community.

Providing adequate and affordable services doesn't always have to be done through taxes and/or donations. Ensuring that all new construction is built in accordance with current building and fire codes as well as protected by fire sprinklers may cost the builders and owner initially, but will not cost them in the long run and ultimately save them and all citizens money. Now, that's the economical benefit, the real benefit is saving lives, property and the environment.

If your community never experienced growth, the cost of fire protection, assuming it's currently adequate, would remain fairly constant. Therefore,

as a current resident of the community why should I pay more to provide services to the growth areas or as a result of growth? The entire cost of fire protection doesn't have to be borne by the fire department's budget. The table below shows the number of building permits and the total square footage of space protected with fire sprinklers. An average cost to install these fire sprinklers is included in the table. This is an addition to community fire protection that didn't cost the citizens who already live in the community any money. The other fact that isn't often tabulated is that if we figure one residential fire sprinkler can deliver 13 gallons of water per minute and one firefighter can deliver 100 gallons per minute, then it takes 8 fire sprinklers to equal one firefighter. (Nothing will ever equal the service provided to the citizens by a firefighter, this analogy is only used as the application of water to an interior fire.) If the average house has 25 fire sprinklers this means we have added 15,000 firefighters to our community for a little over 1.5 million dollars.

TYPE	Count of PERMIT NO.	Sum of SQ. FT.
13	30	146,503.00
13D	372	1,047,419.50
13R	5	24,835.00
N/A	229	294,224.00
(blank)	3	
<b>Grand Total</b>	<b>639</b>	<b>1,512,981.50</b>

As you well know, it would cost millions of dollars annually to hire this many firefighters. In contrast, the benefit to a building built in accordance with the current code and protected by fire sprinklers, outside the obvious live safety benefit, is that these features will last for years and have very little maintenance cost if any.

**Building Officials** (Building Commissioner, inspectors) – Building Officials are key stakeholders and should be involved, along with the fire marshal, from the very beginning. Because fire sprinklers are a life safety "code issue," many building officials embrace the concept from the beginning. Typically, the building official provides access to the planning commission, which is an important group, especially in relationship to properties requesting zone changes and new subdivisions and/or multi-use developments.

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## EXPANDING THE STAKEHOLDERS *(continued)*

Many times, life safety issues can be addressed in the planning stages, and builders/developers are more receptive to the new ideas at this stage as well. Working knowledge of life safety codes come with access to the information, and resources now exist that were created for building officials and those who enforce code.

**Water Purveyor** – The water purveyor, for both potable and fire supply, is a critical link in improving community fire protection. A key to success in any quality of life improvements in the community is the relationship between the fire department and the water provider. Jim Dalton so eloquently states in his presentation on the “Politics of Life Safety” that water is still the most affordable and effective extinguishing agent. As a result, the relationship and involvement of the water purveyor and fire department is critical.

A community cannot exist without water and fire departments rely heavily on water for extinguishment. These obvious facts underscore the need for the fire department and water purveyors to work together for the good of the community. The NFSA has created a “Water Purveyor’s Guide to Fire Sprinklers in Single Family Dwellings” to assist the water purveyor and the fire official. This guide is available on the companion *Look Up For Safety* CD/DVD set. Providing water for the citizens means drinking water and water to extinguish a fire. In communities where well water is the only source, fire protection must be provided through fire sprinklers or hauled on fire apparatus. The disadvantage to hauling water in fire apparatus is the timeliness of its arrival and the additional personnel required to haul it. It is much more economical and effective to provide water for fire protection via a fire sprinkler system than to depend upon the personnel and the timelines of their response.

You don’t want a headline that reads, “Mayor calls to eliminate tap fees,” after citizens’ and firefighters’ lives are lost. Establish the relationship early in the effort to improve community fire protection. Understand each other’s role in providing services to the community. Determine the true cost versus benefit of providing safe drinking water and effective fire protection prior to a fire event. Fire sprinklers save not only lives and property, but water as well. In recent years, the HFSC and the NFSA have displayed at the AWWA conference in an attempt to share information and build relationships.

**ECD Director** – This stakeholder can be a great facilitator of the process, with non-traditional but valuable connections that diversify your Working Group. The ECD or Chamber of Commerce Direc-

tor understands the importance of planning, growth, and quality of life. Furthermore, these stakeholders by nature are strong community advocates. It is essential to reach out to and educate these stakeholders early on, as they are a vital to overall success.

Make sure that this stakeholder understands that there are multiple levels to community fire protection, and help them understand how it relates to their business. A national Chamber of Commerce report showed that 43% of businesses that are destroyed by fire will never re-open. This is an eye-opener to many, but when you stop and think about it within your own community, you can probably begin naming businesses that suffered the loss and never re-opened. Therefore, it may be important to consider fire sprinkler requirements in all new construction and not just residential. Fire sprinklers provide a good balance between economic issues and community quality of life.

Many times the ECD Director can play a key and persuasive role with policy makers, helping to substantiate the value of service, protection, and peace of mind.

**Homebuilders/Developers** – Homebuilders and Developers depend upon fire service leaders and community planners for educational information regarding building requirements and standards. Time and time again, it has been proven that homebuilders and developers will embrace fire sprinklers, especially when they are able to realize “trade-ups” as a result of including them in their homes.

**Fire Sprinkler Contractors** – Fire Sprinkler Contractors are a key stakeholder. Yet, many fire sprinkler contractors do not install residential systems. The community team needs to assess available local/regional contractors and include them when planning for the requirement. Typically, fire sprinkler contractors will form residential divisions when the work is available. Do not let the lack of contractors curtail your efforts –



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## EXPANDING THE STAKEHOLDERS *(continued)*

many communities have reported that once the legislation passed, that's when the fire sprinkler contractors got on board.

**Real Estate Agents** – Real estate agents have shown considerable interest in the educational material available from the Home Fire Sprinkler Coalition. They also value the fire department's expertise and its standing in the community. Conducting a live fire sprinkler demonstration is a great way to begin an educational segment for real estate agents. They are especially inclined to respond to the "value added" angle, and will promote fire sprinklers when armed with resources and education.

**Insurance Agents** – As you start down the path to improving community fire protection, whether by reducing ISO ratings through stations, apparatus, equipment and/or personnel, or through community risk reduction efforts such as fire sprinkler requirements or fire inspections and public education, the insurance providers in your community should play a major role. You must work with your local insurance agents early in the process to educate them on the risks of fire in the community and the potential solutions.

The early origins of fire departments in the United States came as a result of insurance companies. Ben Franklin established the first organized fire company in America not because of his feeling of service to the community, but because he owned the local insurance company. Has fire loss, to the tune of more than \$10 billion property loss annually reported by the U.S. Fire Administration, become acceptable to us as a society? Do insurance providers simply write off this loss and expect it, then pass it off to the citizen? If so, it's incumbent upon the fire service to change our culture, and therefore our tactics. A no-risk approach to fighting fires will certainly increase our dollar loss from fires and save firefighters' lives. A balanced approach to risk management can be achieved through partnerships between the fire service and insurance companies. This partnership will reduce fire loss and lives lost, both citizens and firefighters.



The adoption and enforcement of current building and fire codes, coupled with the installation of fire sprinklers in all new construction, will reduce community risks, thus save money and lives, and protect the environment. Set up a meeting with your local insurance agents and initiate dialogue on the need to reduce community risks. Compare numbers on losses and discuss options on how to reduce them. Make sure property and life insurance are involved. Be sure to evaluate the initial financial impact to reducing this loss.

Explore how much is saved financially by the citizen and/or property owner by reducing the ISO rating and how much is saved as a result of building to current code and installing a fire sprinkler system?

The key here is to make sure that insurance providers are among the stakeholders involved.

**Citizens** – Today, our societal attitudes make us more receptive to safety-focused concepts and ideas. Think about it, the person who reacts in a positive manner to the radio commercial that asks, "Would you buy a car that could save your life?" (On Star commercial) will also respond favorably to "Would you buy or build a house that could save you and your family's lives?" We must tie the concept of fire sprinklers to other societal issues within our community. Is Green an issue that holds high priority? Point out the fact that fire sprinklers help reduce the environmental impact of a fire. The reduction in water usage is a big deal in many communities, and the reduction in toxic smoke and gases is a statement with impact in all communities. Plus, less property destruction means less dumping into our landfills.

Leaders know that with all ideas and concepts there is a "tipping point" that when reached represents change. Many believe that we are reaching that point with the concept of fire sprinklers. Citizens will ask for this level of fire protection if they are educated with the facts and statistics. The fire department is critical to reaching the citizen as stakeholder. Repeatedly, surveys show that firefighters are at the top of the most-trusted professionals list. Citizens trust the fire service as a result of the service-oriented nature of the business. It is only appropriate the fire department would want the community to be on the cutting edge of fire protection technology. ■



# SECTION 3

# PLANNING

# AND RESEARCH:

# CHOOSING THE PATH

## **PREFACE**

Every community is different, yet each needs a plan. This plan should include a strategy for dealing with growth and its requisite infrastructure needs. There is no “one size fits all” concept when it comes to community planning. Having said that, there are some basics that will apply to all.

With the policy decisions considered, the stakeholders identified, and a working group formed, it is time to develop your case. Utilizing sound statistical information is important during this process and a great deal of information exists at a national, state, and local level. A key to effective use of statistical information is to make it relevant and understandable, which means using a lot of local data.

There is plenty of help available that you can tap into during the planning and research phase. You are not the first one to tackle the requirements of fire sprinklers and it makes sense to look to the fire departments that have gone before you. Visit the [www.homefiresprinkler.org](http://www.homefiresprinkler.org) website for a list of communities with ordinances and reach out to them. HFSC’s website has a wealth of data and educational material – all available at no cost to you. The NFSA has a Regional Manager assigned to every state in the country and a Public Fire Protection division ready to assist you. Visit [www.NFSA.org](http://www.NFSA.org) to find information, representatives, and fire sprinkler contractors in your area.

First and foremost, know your stats. Count on your adversary to know and use them to advantage. You won’t be able to effectively counter their spin on your numbers if you don’t know those numbers.

For fire protection decisions to be supportable, they must be based upon sound engineering practices and accurate and current statistical data. Start with a survey of available data and determine what information is missing. It is essential that during the preliminary stage of research a systematic approach be undertaken to collect necessary data that will be pertinent to the debate. The old axiom “garbage in – garbage out” is especially true when it comes to statistics – quality data will speak for itself.

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**PREFACE** *(continued)*

What Fire Data Reporting System does your agency utilize, and does it have statistics that will be relevant and useful in your efforts?

- National Data (from organizations and agencies, such as USFA, NFPA, HFSC, HSC)
- National Fire Incident Reporting System (NFIRS)
- Fire Data Management System (FDMS)
- State/Regional Data  
*[Example: California Fire Incident Reporting System (CFIRS)]*
- Local/Area Data:  
Individual Agency Data Collection Systems

Local fire agencies often collect comprehensive and very thorough statistics, typically utilized in fire department annual reports. These statistics are easily obtained and if collected over several years can reflect important trends as well as response numbers.

Consider the number of responses (calls) your department/agency made just 10 years ago compared to today. Combined with department staffing and population growth figures, this can be used very effectively to help your elected officials understand past and current workloads and what that portends for your community.

**EXEMPLARY 10-YEAR RESPONSE HISTORY:**

When using a long-range fire department response graph in your presentations, it’s important to clearly define and incorporate any additional fire stations added, additional staffing (or reductions), and above all, if the department/agency’s area of fire protection responsibility has increased during that same timeframe. If additional emergency medical (EMS), hazardous materials (HazMat), or medical transport services have been initiated, any analysis of the data needs to reflect this activity for accuracy.

In addition to this recap of the department/agency response chart, it is important to specifically define the fire responses that have occurred within the past year to 18 months. Consider the following format:

**XYZ Fire Department/Agency**  
*(Structure Fire Listing: January to Date)*

Date	Report No.	Address	Type of Building	Nature of Fire Origin
01/04	01-01/16	55 Soledad	SFD	Electrical
01/06	01-01/29	469 Main St.	Mercantile	Suspicious/Arson
01/12	01-01/65	200 Via Gayuba	SFD	Chimney
01/21	01-01/115	2000 David Av #12	Apartment	Stove – Cooking
01/29	01-01/164	551 Watson St #8	Apartment	Fireplace – Gas Fired
02/01	01-02/01	60 Cuesta Vista Dr	SFD	Water Heater
02/05	01-02/19	100 Mark Thomas Dr	Dormitory	Electrical
02/15	01-02/81	699 Larkin St	SFD	Smoking Material
02/18	01-02/93	1250 Ninth St	Apartment	Oven – Cooking
02/20	01-02/100	651 Belden St	SFD	Clothes Dryer
02/23	01-02/111	147 Mar Vista Dr	SFD	Chimney

You may wish to include a column that indicates the dollar value lost as well; or, create a separate chart showing property loss over the past several years. You can also make a valid point about increasing calls from one year to the next with simple incident run (response) totals.

All totals are from XYZ FD 1997-2007	Incidents	Property Loss in \$\$\$
Total Incidents	11,208	\$6,977,255.00
Total One- and Two-Family Dwelling Incidents	4,587	\$4,904,675.00
<b>Total Structure Fires</b>	<b>238</b>	<b>\$4,487,850.00</b>

Year	Total Responses
2006	2,097
2007	2,708

## WHAT ABOUT FIRE DEPARTMENT STAFFING LEVELS (MINIMUM STAFFING LEVELS) AND RESPONSE TIMES?

During the planning and research phase for a residential sprinkler ordinance be prepared to present and discuss the role and operations associated with the fire suppression side of your agency. You will need to define past, existing and projected staffing levels for the department, and relate that to the latest firefighter safety philosophy of “two in / two out” (OSHA 1910.134) and how that affects your ability to effectively and safely perform as a fire agency.

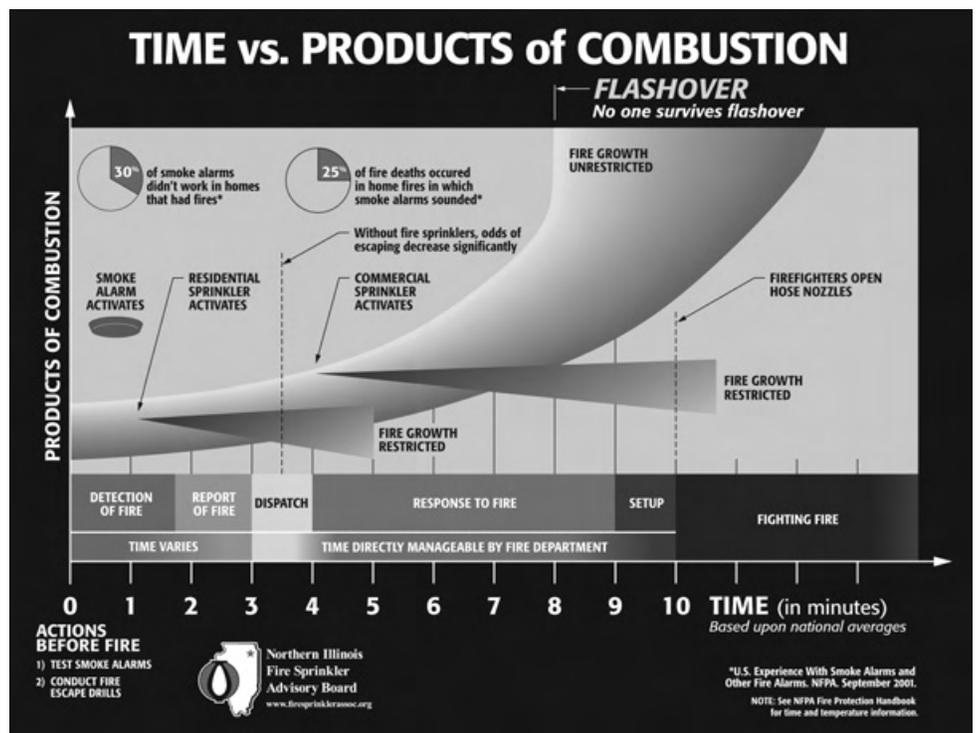
Utilizing NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, and NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*, is vital in the policy making process. The ability of the fire department to deliver services in accordance with these national consensus documents is key to effective fire protection in the community. The requirement of installed fire sprinkler systems improves life safety in the community regardless of the fire department’s compliance with NFPA 1710 or 1720. However, fire sprinklers should be a must if the policy decision is made not to comply with the standards, or the fire department is simply not able to comply for some other reason.

The key is that a community fire protection plan be created that includes fire sprinklers as a deployment option as well as building fire department resources as a strategy to comply with NFPA 1710 and NFPA 1720.

The adoption of the sprinkler ordinance will not change the role or function of the agency, but it will enhance the department’s ability to effectively and safely perform. Firefighters will not lose their jobs as the result of the adoption of a fire sprinkler ordinance. The roles of contemporary fire departments have diversified and increased over the past 20 years and there is no evidence this will cease.

The changes in building construction practices over the past 20 years should also inspire firefighter support. The increased use of engineered wood products (i.e., lightweight truss) and the increased combustible loading are powerful justification for fire sprinkler protection for citizen and firefighter safety.

To underscore this point, it is helpful to present and explain the elements of a typical fire incident, particularly 1) fire detection, 2) report of alarm, 3) dispatch, 4) response, 5) setup, 6) firefighting, and 7) sprinkler activation. The following fire timeline chart demonstrates the fire growth and spread compared to fire suppression activities and clearly illustrates the critical point at which fire sprinkler intervention takes place.



## WHAT ABOUT FIRE INSURANCE SAVINGS FOR THE HOMEOWNER?

It is important to do local research on property insurance costs and savings provided for sprinklered properties, as this issue may be raised during public meetings. Doing an analysis of insurance costs and sprinkler savings may be both interesting and frustrating, depending on the resources and individuals you study.

Unlike commercial property insurance, which is written strictly as a “Fire Insurance Policy,” residential “Homeowners Policy Declarations” typically are written as a blanket policy, covering not only the dwelling structure(s), personal property, and loss of use, but also personal liability (personal injury and property damage) and medical payments.

When insurers calculate the cost of a commercial/industrial fire sprinkler system, the amortization rate, based on insurance savings, is much quicker, typically within three to five years depending on the use and occupancy of the building.

With a residential fire sprinkler system the insurance policy savings is less, because the savings is based solely on the fire portion of the homeowner’s policy, which may be as little as 20 to 25 percent of the policy. Some insurers may not offer a discount for residential fire sprinklers. The nonprofit Home Fire Sprinkler Coalition recommends that homeowners shop around to obtain the best discount for their sprinklered home.

Regardless, the benefits of having a residence and its occupants protected against the perils of fire far outweigh a discount. You should know the insurance market in your community, and establish some basic cost figures for a typical home, both with and without fire sprinklers installed.

## WHAT IS THE INSURANCE COST ANALYSIS?

The following sample table was compiled with cooperation from local insurance agents and the property assessor’s office, which determined the average home value in the fire district. An informal survey of local insurance agents was undertaken to determine the components of, and cost for a basic homeowners policy.

### POLICY

Coverage	Amount of Coverage
Dwelling	\$100,000
Other Structures	\$10,000
Personal Property	\$50,000
Special Limits & Protection for:*	
Jewelry	\$1,000
Money	\$200
Securities	\$1,000
Silverware	\$2,500
Firearms	\$2,000
Loss of Use	\$20,000
Personal Liability	\$300,000
Medical Payments	\$5,000

\*Deductible = \$250

Fire Protection Class	Frame Construction	Masonry Construction
	Premium	Premium
10	\$813	\$736
9	\$759	\$670
8	\$504	\$482
7	\$469	\$425
5	\$428	\$389

*NOTE: The protection of the residence with a fire sprinkler system in compliance with NFPA 13D will result in an additional savings ranging from 0% to 30%.*

## WHAT IS THE INSURANCE COST ANALYSIS? *(continued)*

The costs for and discounts on insurance premiums for commercial and residential structures vary from state to state and company to company, and in many cases even among a single company's agents. As previously mentioned, the best strategy is to begin with a local agent, understanding it is an opportunity to educate the agent about fire sprinklers. As with any group, insurance agents are subject to myths and inaccurate information. Take some time to research company policy as well, because in some cases the agent may not realize he or she can offer the discount to insureds. The HFSC website, [www.homefiresprinkler.org](http://www.homefiresprinkler.org) has a free educational brochure that you can download or order and share with local insurance agents.

## WHAT ARE THE INSTALLATION COSTS FOR A RESIDENTIAL FIRE SPRINKLER SYSTEM?

The Fire Protection Research Foundation published the Home Fire Sprinkler Cost Assessment in September 2008. The study, which looked at 10 communities across the country that require fire sprinklers in new homes, found an installation cost ranging from \$0.38 to \$3.66 per sprinklered square foot. This equates to a national average of \$1.61 to install residential fire sprinklers. The study also found “an average” premium insurance discount of 7%. Download the Foundation's study at <http://www.nfpa.org/assets/files/PDF/Research/FireSprinklerCostAssessment.pdf>.

A study by the National Association of Home Builders (NAHB) Housing Economics shows the savings by state: “...the most an average new home buyer in a particular state can expect to save on homeowners insurance appears to be about \$95.00 per year.”

A study completed in 1990 by the NAHB Research Center for the U.S. Fire Administration found that fire sprinklers could be installed in single-family homes undergoing rehabilitation for an average cost of \$1.98 per square foot.

The City of Scottsdale, Arizona, which has had a comprehensive sprinkler ordinance in place since 1985 for single family dwellings, reported in 1997 that the average cost of system installation had been reduced from \$1.14 per square foot in 1987 to \$0.59 per square foot in 1997. New technology, combined with the development of an efficient local industry and labor force to address the demand, is credited with the reduction.

The HFSC uses 1.5% of the total new construction cost of the home as an average cost to install fire sprinklers. Fire Team USA found the costs to install sprinklers in homes in a local community is 1.3% based on data obtained from the homebuilder (see Appendix C). Fire Team USA also conducted a comparison of a sprinklered and non-sprinklered house (see Appendix D).

As noted in the Fire Protection Research Foundation study, the cost varies from community to community and from state to state, as do insurance premiums, construction costs, and tax rates. Utilize the material and information available and work with your working group and all stakeholders to answer the question for your community and state.

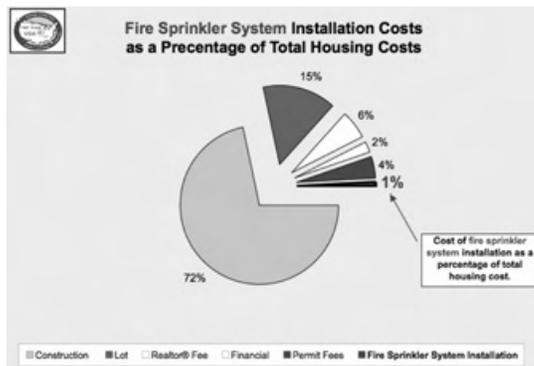
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## INSTALLATION COSTS

(continued)

Fire Team USA has created a new tool that helps determine installation costs, available for download at [www.fireteamusa.com/resources.htm](http://www.fireteamusa.com/resources.htm). This resource will help you calculate the costs with the Excel-based calculator (see below). It allows you to complete an Excel pivot table and bring to life the actual costs of building a home in your area. This is especially valuable when educating real estate agents, insurance agents, and citizens, but everyone learns a great deal with a nice graphic that shows the breakdown.

Fire Sprinkler System Cost Calculator		Cost	Percentage of Sales Price
Single Family Residence	Square Footage	\$ 132.50	
Fire Sprinkler System Installation	Cost Per Square Foot	\$ 1.50	
<b>Non Construction</b>			
Lot	Cost	\$ 238,500	71.58%
Realtor® Fee	Cost	\$ 50,000	15.01%
Financial	Cost	\$ 20,000	6.00%
Permit Fees	Cost	\$ 7,000	2.10%
Smoke Detectors	Cost	\$ 14,912	4.48%
<b>Fire Sprinkler System Installation</b>			
Municipal	Cost	\$ 7,430	2.22%
School	Cost	\$ 1,580	0.47%
Utilities	Cost	\$ 1,490	0.44%
Fire Sprinkler System Installation	Cost	\$ 2,700	0.81%
Smoke Detectors	Cost	\$ 100	0.03%
<b>Sales Price</b>		<b>\$ 333,212</b>	<b>100.00%</b>



This is an example of the graphics you can create when you plug in your local numbers.

## WHAT ABOUT TAX INCENTIVES FOR THE HOME OWNER?

A precedent has been set in Montgomery County, Maryland to provide a tax incentive for the installation of residential fire sprinkler systems at the community level. Current law mandates that a homebuilder must offer residential fire sprinklers as an option and must sprinkler the model homes. This legislation provides a significant property tax benefit to families who choose this option.

A logical case can be made for property tax incentives for homeowners that install sprinklers. If the homeowner is going to bear some of the burden of fire protection, and thereby reduce demands on community fire protection services, he or she should be given a corresponding reduction in the financial support they are being asked to contribute to the community effort.

## BUILT-IN RESIDENTIAL FIRE PROTECTION AS A “CORNERSTONE” OF THE MASTER PLAN

In recent years there has been a growing movement toward public/private partnerships to provide a higher level of service to the community. For decades, automatic fire sprinklers have been recognized as a strategy to enhance the reduction of fire loss, fire related deaths and injuries and property losses. Many communities and fire agencies work under a general plan and/or master plan which typically outlines various aspects of fire protection. Climatic, geographic, and topographic considerations may also support the need for built-in fire protection. Consider these additional elements as you proceed with the development and presentation of your residential ordinance package:

- The residential fire sprinkler ordinance may positively impact fire departments in the community:
  - Acceptable increases in fire response times
  - Better and safer utilization of staffing and equipment
  - Reduced out-of-service time while on-scene at fire calls
  - Reduced worker’s compensation and injury expenses
  - More flexible station locations, based on medical emergency needs
- Requiring sprinklers positively impacts community long range planning and will be beneficial for decades to come.

continues...

**“CORNERSTONE” OF THE MASTER PLAN** *(continued)*

- Fire sprinkler requirements can be used to enhance water conservation programs and/or policies.
  - Credit for smaller water mains, based on historic fire-flow demand tables.
  - Water storage capacities can often be reduced, based on critical demand calculations.
  - Water usage can often be reduced based on fire-flow comparisons, such as:

**Firefighter with 1-3/4” hose:**

175 gpm x 5 minutes = 875 gallons of water  
 400 gpm x 5 minutes = 2,000 gallons of water

**Residential fire sprinkler system:**

18 gpm x 5 minutes = 90 gallons of water  
 40 gpm x 5 minutes = 200 gallons of water

**DISCUSSION OF THE “PROACTIVE VS. REACTIVE” ELEMENTS OF FIRE PROTECTION**

As great as a fire department may be in responding to a fire emergency, or any emergency for that matter, it must be said that it can only respond to the alarm once it has been called in and/or dispatched. Until arrival at the scene of an emergency, there is little that can be accomplished to control and extinguish a fire in an unsprinklered property.

Both the firefighter and the automatic fire sprinkler work a “24-7-365” schedule (24 hours a day, 7 days a week, and 365 days a year). The difference is that a fire sprinkler is already in the area of fire origin and can operate as soon as the temperature in that area reaches the activation temperature (which in the case of a residential fire sprinkler is 135-170°F).

Similarly, an automatic fire alarm system works a “24-7-365” schedule, but it can only detect and alert the fire department and/or occupants in the event of a fire. While the need for detection and notification is essential for a balanced fire protection design, it must also be recognized that fire detection cannot proactively control the growth of a fire, while the residential fire sprinkler system “designed and installed in accordance with (NFPA 13D) shall be expected to prevent flashover (total involvement) in the room of fire origin, where sprinklered, and to improve the chance for occupants to escape or be evacuated.” (Section 1-2 of NFPA 13D, 2002 Edition)

**“PROACTIVE VS. REACTIVE” ELEMENTS** *(continued)*

A residential fire sprinkler is a fast response sprinkler, making the time of activation much less than that of a conventional (commercial) fire sprinkler. Additionally, the special discharge characteristics of a residential sprinkler allow it to throw water within 28 inches of the ceiling. This high wall-wetting pattern, along with the fast response, helps the residential sprinkler control or suppresses typical residential fires using water flows much lower than those associated with traditional commercial sprinkler systems.

In comparing a residential fire sprinkler system designed in accordance with NFPA 13D to a conventional fire sprinkler system typically found in a commercial building (in accordance with NFPA 13), be aware of these differences:

**NFPA 13, 2007 Edition** *(Standard for the Installation of Sprinkler Systems)*

- 315 pages of installation criteria
- Five-sprinkler minimum operating area (4 for residential sprinklers within dwelling units) using 0.1 gpm/ft<sup>2</sup> minimum density (Section 11.2.3.5.2)
- Water Supply – capable of providing the required flow and pressure for the required duration of 7 to 10 minutes depending on the size of the dwelling (Section 15.1.2)

**NFPA 13D, 2007 Edition** *(Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes)*

- 24 pages of installation criteria
- Two-sprinkler operating area using 0.05 gpm/ft<sup>2</sup> minimum density (Section 8.1)
- Water Supply – common domestic/sprinkler supply preferred (Figure A.6.2 (a))

**Performance of current technology (fast response)**

- Automatic fire sprinkler technology as an element of a “systems approach to fire and life safety”
- Fire research as it relates to “built-in” protection



# SECTION 4

# PRESENTATION

# AND ADOPTION:

# MAKING IT HAPPEN

## **PREFACE**

The majority of your hard work should be almost complete at this point. Using the analogy of building a house, the design is complete, the material is acquired, site prepared, house built, etc. We are ready for the final inspection, closing, and move-in.

It is time to shine and bring all the work prior to this point together. Don't be nervous about the presentation, there is plenty of help available to assist you throughout the process. In many jurisdictions the adoption process is very controversial with emotions on all sides running high. However, there are also many places where the adoption process seems like a formality.

The materials available from the Home Fire Sprinkler Coalition at [www.homefiresprinkler.org](http://www.homefiresprinkler.org) will help make the presentation more appealing and nationally validated. Fire Team USA has many presentations already prepared that may be downloaded at [www.fireteamusa.com/resources.htm](http://www.fireteamusa.com/resources.htm). The USFA and NFPA have statistics readily available to utilize, most of which are available online as well.

The key to success of any presentation is preparedness. Make sure your team is ready and that the plan is established to lead you through the adoption process. Make sure you've coordinated with the Mayor, Council, Commission, or whoever sets the agenda. Collaboration is critical to success.

The NFSA has a team with a great deal of experience ready to assist you in this process. At this point, you should be familiar with Public Fire Protection (PFP) and Regional Operations teams at NFSA.

Utilizing the resources at the NFSA and the material from HFSC, the Home Safety Council, and Fire Team USA will make the process easier.

## INTRODUCTION

The public process is a critical turning point and the entire team should be ready. Any opposition to improving community fire protection should have already been identified and addressed (if not overcome). At this point your team should have anticipated the questions, comments, and concerns likely to be expressed in the public hearing process, and which could cast doubt in an uneasy legislator's mind. Thoroughly understand these concerns and research the best answers for them.

## STRATEGIES TO WINNING ADOPTION/APPROVAL

Winning the political battle of life safety requires hard work and readiness prior to the process. Addressing controversy and key issues prior to any public hearing will show the policy makers your passion and desire to improve the quality of life in your community. Fighting a battle in the public process, usually a result of poor planning or trying to sneak something in, almost always results in setbacks.

Addressing your adversary's concerns before the process of adoption is your best opportunity to convert him/her to the side of the community. Here's an example: When Cheatham County, Tennessee, adopted fire sprinkler requirements all of the controversy was resolved up front. In fact, not a single local fire official testified, and the builders and citizens spoke in favor of the requirement. It was the building official that presented the resolution for adoption.

While Cheatham County's lack of opposition at the public process phase is an exception to the rule, plenty of other communities have achieved the same one way or another. These include San Clemente, CA; Scottsdale, AZ; Prince Georges and Montgomery County, MD; Carroll Valley, PA; Redmond, WA; and the 57 communities in northern IL.

However, there are many communities that aren't as fortunate, such as Fresno, CA; Oxford, PA; and Maury County, TN; which weren't able to adopt the requirement. Then there are those such as Huntley, IL; Schuylkill, PA; and Fayette County, TN; which were successful in adoption, but had it repealed or the adoption overturned. Section 6 has more historical information on this topic.

Should you create your own local ordinance/resolution? Adopt a national or international code that requires fire sprinklers? Add fire sprinkler requirements to zoning ordinances? Focus on the adoption of state codes that require fire sprinklers? The answer is yes, depending on your situation.

If you are in Tennessee, California, Maryland, Illinois, Alabama, Mississippi, or Missouri where local governments are allowed to adopt requirements that are more stringent than the state, local ordinances are more effective because a broader range of requirements are available. In these cases, all new construction should be protected with fire sprinklers. If you are in North Carolina, South Carolina, Oregon, Virginia, Pennsylvania, Kentucky, Montana, or other "mini-max" states, a state requirement may be the best option because local governments are not permitted to adopt requirements for construction that are more stringent than the state. However, communities such as Carroll Valley, PA, and Redmond, WA, have been successful at requiring fire sprinkler requirements despite state laws. Yet, places like Schuylkill, PA, and Indian Hills, KY, have not.

Adding fire sprinkler requirements to zoning ordinances has been successful in Pleasant View, TN, and North Andover, MA, yet failed in Lake County, Montana. The reasons often come back to trade-ups, water requirements, fire department ability to provide service, etc. There is often a challenge by homebuilders and a decision by the courts. Local homebuilders (most likely with help from the national organization) have been successful at overturning laws in Lake County, Montana, Fresno, CA, Schuylkill, PA.

North and South Carolina, as well as Oregon, Kentucky, and New York have been making strong pushes to adopt statewide requirements for fire sprinklers or to allow local governments to be able to adopt them. Florida has adopted statewide laws that allow local governments to adopt laws, with special requirements given to the economic impact.

Knowing your state laws as well as your local situation will serve you well in the process. The key is the willingness to make change and the ability to persevere through the process. It should help you to know you are not alone. Someone has faced a similar situation. Reach out to the Public Fire Protection division of the National Fire Sprinkler Association, the Fire & Life Safety Section of the International Association of Fire Chiefs, the Home Fire Sprinkler Coalition, and/or the community advocates who have been through the process.

## PREPARE A SOLID PLAN

Working with your team develop a well-conceived plan and stick to it. Executing this plan under the direction of your lead policy maker is important. Having support prior to the introduction is important. It is also important to know the opposition and being ready to address their concerns. Make sure your supporters, especially the legislators, anticipate the arguments that may be brought forth by the opposition.

The following checklist is provided to assist in the presentation preparation. You may want to review the first three sections of this Guide as well.

### WHO WANTS THE ORDINANCE?

- |   |  |
|---|--|
| <input type="checkbox"/> Fire Marshal             | <input type="checkbox"/> Community       |
| <input type="checkbox"/> Fire Chief               | <input type="checkbox"/> Developers      |
| <input type="checkbox"/> City or<br>County Agency | <input type="checkbox"/> Realtors        |
| <input type="checkbox"/> General Public           | <input type="checkbox"/> Water Purveyors |
|   | <input type="checkbox"/> Policy Makers   |

### WHY IS THE ORDINANCE BEING CONSIDERED AT THIS TIME?

- |   |   |
|---|---|
| <input type="checkbox"/> Cost Savings   | <input type="checkbox"/> Staffing Limitations                               |
| <input type="checkbox"/> Public Safety Issue  | <input type="checkbox"/> Curb an Identified<br>Fire Problem                 |
| <input type="checkbox"/> Normal Adoption<br>Sequence                                | <input type="checkbox"/> Intense Growth<br>Pattern                          |
| <input type="checkbox"/> Follow-up to a<br>Recent Significant<br>Fire/Event/Tragedy | <input type="checkbox"/> To Keep Up With<br>Social/Technological<br>Changes |

### WHEN WOULD THE ORDINANCE TAKE AFFECT?

- Immediately
- Upon a Physical Change  
(area, height, growth, annexation)
- Phased in Over a Period of Time

### WHAT OCCUPANCIES WOULD BE IMPACTED BY THE ORDINANCE?

- Residential (single-family dwellings)
- What about two-family dwellings, attached (duplex/two-plex)?
- What about “Manufactured Housing” and “Mobile homes”?
- What about attached “Townhouses” and “Condominiums”?
- Multi-Family Residential (Motels/Hotels, Apartments, Condominiums, Townhouses, etc.)
- Commercial (businesses)
- Industrial Complexes/Structures

### WOULD RETROFIT/RETROACTIVE PROVISIONS BE IDENTIFIED WHICH TRIGGER THE REQUIREMENTS OF THIS ORDINANCE?

- Based on area of existing buildings
- Based on area added to existing building
- Based on height of building
- Based on height added to existing building
- Based on occupancy change or use change
- Based on fire-flow demands
- Based on a geographic location of the building with respect to community
- Based on type of construction (example: Non-Rated Combustible)

### IF BUILT-IN FIRE PROTECTION IS THE “CORNERSTONE” OF THE MASTER PLAN:

- How does this ordinance fit with the mission statement, value statement, goals and objectives of the Agency/Department?

*continues...*

## PREPARE A SOLID PLAN *(continued)*

### WHAT TYPE OF SUPPORT/OPPOSITION CAN BE ANTICIPATED WHEN THE ORDINANCE IS PRESENTED?

*(Note: A listing of those in support/opposition might reflect the following:)*

Supporters	Opposition
Councilman/Supervisor	Councilman/Supervisor
City Manager/ Administrator	City Manager/ Administrator
Fire Chief	Fire Chief
Firefighters	Firefighters
Firefighters Assn/ Organization	Firefighters Assn/ Organization
Fire Prevention Bureau	Fire Prevention Bureau
Other Local Fire Departments	Other Local Fire Departments
General Public	General Public
Building Industry Assn.	Building Industry Assn.
General Building Contractors	General Building Contractors
Fire Sprinkler Contractors	Fire Sprinkler Contractors
Architects	Architects
Developers	Developers
Water Purveyors	Water Purveyors
Insurance Companies	Insurance Companies
Finance/Revenue Division/Department	Finance/Revenue Division/Department
Planning Department	Planning Department
Control/Slow Growth Groups	Real Estate Sales Groups
Fire Protection Engineers	Professional Engineers
Interior Designers	Interior Designers

***What Incentives would be/could be given?***

### CONCESSIONS TO CONSIDER

During the process of building partnerships (Section 2) and planning and research (Section 3) adversaries should be identified and compromises reached. This is a time to deal with challenges, prior to Section 6. However, if you make concessions be sure they don't come back to haunt you later.

There are many cases where a square footage limit is set as a requirement. You became an advocate for fire sprinklers for a reason, most likely to fulfill your mission of saving lives and protecting property. So ask yourself: If fire is a socio-economic problem why would we require only large homes (typically over 5,000 square feet) to be protected? Does this send a message that we protect our rich and our firefighters but not those people living in smaller houses?

#### • Options for Adoption

While this step has to be considered early in the process and may change throughout the process, it is important to know what legislation you desire, what is allowed, and what is realistic.

- A good place to start this research is the building and fire codes.
- What building and fire codes have been adopted by the local government?
- What building and fire code does the state follow?
- Can local governments adopt restrictions more stringent than the state?
- Are there other communities within your state that have adopted special legislation?

The adoption of national codes may be the preferred option and possibly the most comprehensive and simplest. However, the adoption of national codes and standards will not ensure that all new construction in the community is protected with fire sprinklers. It will however ensure that life safety features in addition to fire sprinklers are adopted.

- Are there local or state requirements specific to adopting fire sprinkler legislation?

*One example of a state that has specific legislation constricting the ability of local governments to adopt local one-and two-family dwelling fire sprinkler provisions is the State of Florida. The Florida legislature has enacted statutory language that mandates the preparation of a cost benefit analysis before a City, County or Special Fire Control District can enact a local ordinance that requires fire sprinklers in one-and two-family dwellings.*

*continues...*

## PREPARE A SOLID PLAN *(continued)*

*In addition, the State of Florida Fire Prevention and Building Codes are mandated on a statewide level. Because of this, any local technical amendment to the fire and building codes will be under significant scrutiny and subject to numerous legal tests that must be satisfied prior to adoption. If these legal tests are not satisfied, the ordinance can be determined to be invalid by the Florida Building Commission, State Fire Marshals Office or court system.*

*In States such as Florida, it is highly recommended that a local county, municipality or special fire control district consult with their state Fire Marshals or Fire Chiefs association for guidance prior to implementing a local effort to adopt one-and two-family dwelling fire sprinkler ordinance.*

### • Preparedness

As previously noted, preparedness is vital to success, and when proceeding with the development and adoption of a fire sprinkler ordinance, it is essential to have your proposal both user-friendly (for the presenter) and clearly defined (for the political decision makers). With the planning and research accomplished (Section 3) it is now time to focus on the adoption. Deal with the following considerations early and with certainty:

- Who will be making the presentation before the Council, Fire Board, or Board of Supervisors/Commission?
  - City Manager/County Administrator
  - Fire Chief
  - Fire Marshal
  - Building Official
  - Community Development Director
- Does this person accept the responsibility and agree to prepare? What will be the format for the presentation?
  - Memorandum
  - Report
  - Verbal Presentation
  - Slide Program
  - PowerPoint Presentation
  - Video Tape(s)

*Note: CD/DVD videos such as Built for Life, Marble Mountain, etc., could prove effective in educating all parties about automatic fire sprinklers, however, they might best be used as educational tools if given to the Councilmen and/or Board Members to view individually in the comfort of their homes/office.*

- In what type of forum will the presentation be made?
  - Regular Scheduled Meeting (Agenda Item)
  - Special Session
  - Study Session
  - Joint Meeting of the Council and Planning Commission
  - In conjunction with the adoption of other “Codes/Regulations”
- How much time will be allocated to the presentation?
  - Will the time be limited?
  - Will the audience be allowed to speak?
  - Is there a Q & A session?

Following are some aspects of the political process (timeframe) of “public hearings”:

- Draft Ordinance/Legislation visit [www.fireteamusa.com/resources.htm](http://www.fireteamusa.com/resources.htm)
- Identify Sponsor to Introduce Ordinance/Legislation
- Place on Agenda
- First Reading of the Ordinance at Public Hearing
- Waiting Period between 1st and 2nd Reading (2-weeks/30 days?)
- Second Reading of the Ordinance at Public Hearing
- Waiting Period before Ordinance goes into effect
- Emergency Ordinance (immediate)
- Appeals Process
- If someone appeals between 1st and 2nd Reading, or after 2nd Reading, what is the process to be undertaken?

Never miss an opportunity to make your case. Using material from your own community makes the issue local and relevant to the audience. Using relevant material from neighboring communities can sometimes validate the process. However, be careful if you have a political climate in which policy makers will intentionally avoid doing what a neighboring community does.

In a perfect world, neighboring communities partner for what’s best for all. In this case, don’t be afraid to call on your friends to help out with your presentation. The towns of Pleasant View and Ashland City, Tennessee, adopted the requirements at the same time and the fire departments worked together for success. Call upon the Home Fire Sprinkler Coalition (HFSC) to find out those communities that have been before you. (link to Communities list)

## PREPARE A SOLID PLAN *(continued)*

### PRESENTATION

In most cases, there will have been many presentations throughout the process before this point. Each presentation should be consistent with your overall plan and message, and address the target audience. Know each audience and focus on a positive outcome for their particular issues and concerns.

As stated in the Preface, there is a lot of help available. Never hesitate to call on others for support. Maryland is a great example of collaboration: the State Fire Marshals Office works hard to help local communities improve life safety, including local governments such as Mt. Airy, Emmitsburg, Carroll County, and Frederick. There is a collective understanding that local initiatives help Maryland's overall fire safety record. Any state with a supportive SFMO has a greater chance of adoption.

The following is a map of Maryland and communities with an increased focus on improving quality of life in their community.



Map provided by Maryland State Fire Marshals' Office

Prior to the overall adoption of fire sprinkler requirements, there may be opportunities where special situations exist to require fire sprinklers. For example, Pleasant View, TN, required fire sprinklers in all Village Zoning Districts because of the special hazards created due to high density and mixed use that would easily exceed the capabilities of the fire department.

However, there are also areas of the country where this was tried because of inadequate water supply and the courts ruled local government didn't have such authority. Research local and state laws as described in Section 3, prior to offering alternatives.

### SITE DEVELOPMENT

#### ALTERNATIVES/INCENTIVES:

- Density (Sub-Division)
- Fire-Flow Requirements (Single Site)
- Fire-Flow Requirements (Multiple Sites)
- Fire Hydrant Spacing (Public)
- Fire Hydrant Spacing (Private)
- Fire Department Access (Travel Distance)
- Fire Station Location (Response Time)
- Street Design (Dead-Ends)
- Street Design (Cul-de-Sac)
- Street Design (Turn-Around)
- Street Design (Parking)

#### GENERAL INCENTIVES:

- Homeowner Premiums (Reduction)
- Overall Fire Insurance Rating (ISO)
- Water Purveyor Incentives:
  - Service Connection Charge
  - Monthly Base-Rate Charge
  - Fire Service Standby Charge
  - Water Meter Sizing
  - Backflow/Cross-Connection Protection
  - Water System Improvement Funds (WSIF)
  - Dual-Meter Service Connection

#### DESIGN ALTERNATIVES (INCENTIVES)

- Process and Permit Processes:
  - Efficient Permit Process
  - Fee Schedules
  - Installation Standards (clarification)
  - Plan Review Procedure
- Field Inspections
- Construction Methods
- Site Development
- Density (sub-division)
- Fire-flow Requirements (single site)
- Fire-flow Requirements (multiple site)
- Fire hydrant spacing (public)
- Fire Hydrant Spacing (private)
- Fire Department Access (travel distance)
- Fire Station Location (response time)
- Street Design (width)
- Street Design (dead ends)
- Street Design (cul-de-sac)
- Street Design (turn-around)
- Street Design (parking)

*continues...*

## PREPARE A SOLID PLAN *(continued)*

- Water Purveyors
  - Connection Charges
  - Monthly Based-Rate Charges
  - Fire Service Standby Charge
  - Water Meter Sizing
  - Backflow Cross-Connection Protection
  - Water System Improvement Funds/Fees (WSIF)
  - Dual-Meter Service Connection
  - Main Sizing

### DEVELOPING EFFECTIVE PRESENTATION MATERIALS

Make sure that your presentation is unique to your community. Does it include local information, especially current growth projections? Have you made the connection between quality of life issues and drawn conclusions for your area?

### PROPERTY PROTECTION VS. LIFE SAFETY PROTECTION

Typically, when discussing fire sprinkler protection the issue is raised as to whether a residential fire sprinkler system is a “Life Safety System” or is also designed for property protection. When addressing this issue it must be pointed out that the design criteria is established “to prevent flashover (total involvement) in the room of fire origin, where sprinklered, and to improve the chance for occupants to escape or be evacuated” and therefore must be considered a “life safety system.” However, a benefit of the system is that in being designed “to prevent flashover (total involvement) in the room of fire origin” the system will reduce the property damage resulting from a fire. Visit the Home Fire Sprinkler Coalition website at [www.homefiresprinkler.org](http://www.homefiresprinkler.org) and see the Scottsdale Report for specific numbers as well as other materials that explain and illustrate these important capabilities.

While you may choose to focus on certain benefits, these are widely recognized as being the primary benefits of residential fire sprinkler systems:

- Fire sprinklers protect building occupants
- Fire sprinklers protect buildings and property
- Fire sprinklers protect fire fighters who are asked to perform entry for search and rescue and then to extinguish fires in buildings.

HFSC’s website contains comprehensive discussions of additional benefits.

Fire sprinklers produce an environment that is much less stressful for responding firefighters. Since stress-related incidents are the leading causes of firefighter deaths and injuries, fire sprinklers can be expected to save even more firefighters by reducing the stress and risk to which they are exposed.

### THE RECORD ON AUTOMATIC FIRE SPRINKLERS

There are many success stories that can and should be used to demonstrate the effectiveness of automatic fire sprinklers. Visit [www.fireteamusa.com](http://www.fireteamusa.com) for success stories from local and national media that are updated weekly. Having these examples available to show how sprinklers saved lives, compared to the many stories of fatalities in residential fires, is a powerful tool. There are at least two sources (one current and one out-dated), which may prove effective in providing data:

- **NFPA Fire Journal – Fire Watch**

*Focus on the “Residential” Success articles*

The record for automatic fire sprinklers is based on the simple fact that there has never been a multiple death (more than 3) of building occupants from a fire developing in a building protected by an automatic fire sprinkler system properly installed and maintained in accordance with nationally recognized standards (NFPA 13, 13D, 13R, and NFPA 25).

### POLITICAL AGENDAS VS. PUBLIC SAFETY

During the adoption process you may be confronted with direct and/or indirect opposition to the proposal. The Fire Chief and his/her staff were hired as the fire professionals with expertise on how to best manage the fire emergencies that may be present in the community. It is essential that you address the problems raised as a professional and keep clear of the political games that may surface during the various forums. Stay focused on the goal to adopt a residential fire sprinkler ordinance, and use facts, not fiction, to respond to these issues being raised.

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## **PREPARE A SOLID PLAN** *(continued)*

Installing a residential fire sprinkler system in the homes of your community is like providing residents with individual firefighters (sprinklers) in their homes.

- Accountability (Personnel, Fire Department, Government, and Community)
- Transfer of Responsibility from the Public Sector (Fire Department) to the Private Sector (Homeowner)

### **TEAM APPROACH WITH OTHER DEPARTMENTS**

The development and adoption of a residential fire sprinkler ordinance must be recognized as a team effort with the support of Planning, Building, Finance, Public Works Departments and the Water Purveyors. Each has a role in making certain that the applications, fees, designs, reviews, inspections, and approvals will be accomplished in a supportive and coordinated manner. Conflicts in requirements must be clarified and resolved prior to the adoption and effective date of the regulations.

The focus of the overall improvement to the quality of life in the community must remain the centerpiece throughout the adoption process. Cooperating with other departments within local, state, and federal governments is key.

An environment that focuses only on each department's individual role in the community will leave the policy maker to decide which is most important. Understand and communicate that the fire department's role of saving lives and property is dependant upon the water department's ability to provide safe drinking-water and adequate fire flows, and the building department's ability to ensure safe and affordable housing, and the finance department's ability to provide adequate funding to all projects, and that they in turn are dependant upon the fire department. Partnering and compromise are necessary for success. Just remember, it isn't about the fire department, building department, finance department, etc. Its about the citizen and the future quality of life in the community. ■





# SECTION 5

# CUSTOMER SERVICE AND SUPPORT

## PREFACE

Dr. Denis Waitley works with Olympic Athletes and speaks with leaders across the world about winning, leadership, and how to focus on desired results. Following his advice is very valuable when you reach this stage in the process. This is the phase where you close the deal, assuring the community that you are ready to provide top-rate customer service and follow through.

One thing that fire sprinkler advocates need to understand is that it does not end with the adoption. The local AHJ and/or fire chief will continue to be the “expert” who is contacted when issues arise regarding implementation, enforcement and installation.

Adopting the attitude exhibited in the book *The Fred Factor*, by Mark Sanborn, can prove to be quite effective as you continue to work with stakeholders and transition from the adoption phase to the implementation phase. It matters that you have identified a good team of stakeholders, especially those who will be involved in the installation of the fire sprinkler systems (sprinkler contractors) and those who enforce the codes (AHJs).

As the local point of contact, you must be ready to answer the questions that may arise during the implementation phase. Undertaking this will require a customer service focus, always remembering that the ultimate customer is “Mr. & Mrs. Smith” (the citizen buying the home).

Embracing a customer service focus supports the transition and helps to achieve quality of life goals set for the community. It is at this phase that your team can finally realize the rewards to your hard work because the community will be “growing” with homes that offer built-in fire protection.

## INTRODUCTION

As the local expert, the fire department must be the lead agency in ensuring that obstacles are overcome. Being familiar with issues that may arise prior to adoption is helpful, and this is best accomplished through some voluntary installations. As the fire chief, you may not be responsible for water distribution in the community, the permitting or inspection process, or the quality and cost of installation, but you are the “chief hurdle clearer” when it comes to community fire protection.

Keep in mind that your customer is the homeowner and the fire department is the primary provider of service. As such, the fire department must be prepared to help ensure that the entire process of protecting a home with sprinklers is in place and does not put a burden on the customer. Exorbitant fees for water connections, delays in the inspection process, complications in the installation process, and extra requirements beyond the code (NFPA 13D) are all hurdles that are hard to overcome.

The fire department must view fire sprinklers as part of overall community fire protection and be willing to work to overcome any obstacles that may arise because of the decision to protect the community with sprinklers.

Advocates understand that fire sprinklers protect the community, especially existing citizens; they shouldn't burden them. Tap into the experiences of fire departments that protect communities with fire sprinkler requirements to understand how they have overcome obstacles.

## EARLY CONSIDERATIONS

Before defining what elements need to be developed, modified and/or added to your current application, review, permit issuance, inspection and final inspection procedures and processes, it is essential to first define and keep clearly in mind who your intended “customers” are.

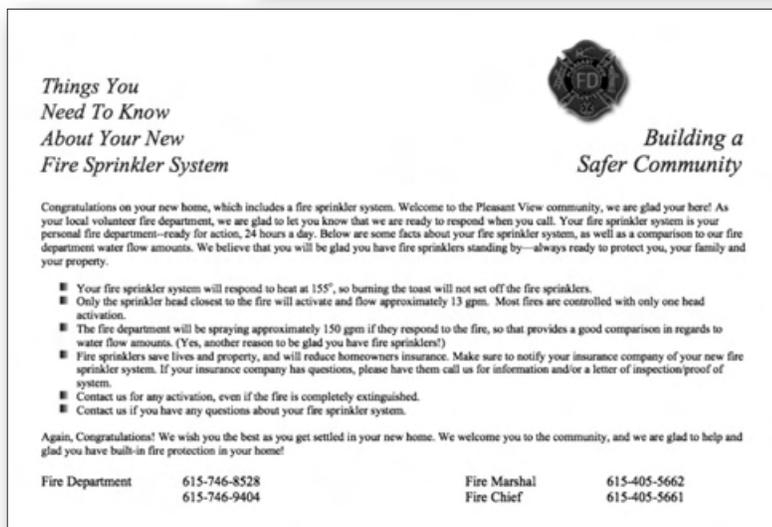
When considering the adoption of a fire sprinkler ordinance (whether it is exclusively residential or not), it is critical that you treat these stakeholders as customers, as they are the ones who will be impacted by the requirements. The list of customers could include:

1. Citizens
2. Fire Department (Fire Chief, Fire Marshal, Firefighters)
3. Public Policy Leaders (Mayor, City Manager, Council members)
4. Building Officials (Building Commissioner, Inspectors)
5. Builders/Developers/Architects
6. Fire Sprinkler Contractors
7. Fire Protection Engineers
8. Water Purveyors
9. Real Estate Agents
10. Insurance Agents
11. ECD Director

As you can tell from looking at the list of potential customers, each will have a different level of knowledge and understanding of construction law, building regulations, permit processing and plans and specifications. To address each group of individuals could prove to be complex and a single document could be lengthy; however, addressing the issues and process in a systematic approach may help to reduce the number of questions each individual customer might have, while creating a system that promotes uniformity and helps to speed up the application/inspection process.

## DEVELOPING A STRATEGY TO ASSIST THE CUSTOMER(S)

The Home Fire Sprinkler Coalition offers the fire service a free educational package called Living with Fire Sprinklers. They have created a DVD and printed material that can be provided to all new homeowners with fire sprinklers so they can understand the system that is protecting their home, and how to take good care of it. Some local fire departments and fire sprinkler contractors have built upon the HFSC program and added their own local information. (see below for examples)



The following information may be helpful to ensure a positive experience with fire sprinklers and generally create an increased awareness of the technology.

### PREPARATION PHASE

- Identify the necessary information that must be conveyed from your agency to the customer. (Fire Department, Budget & Finance, Water Department, Planning Department)
- Create a listing of the criteria for an NFPA 13D (NFPA 13R or NFPA 13) which needs to be explained in detail to reduce confusion.

Define the criteria needed to accomplish the tasks:

- Determine if plans and calculations need to be reviewed
- Detail what needs to be shown on the plans
- Define the “Process/Procedures”:
- Turn-Around time Example: (5-working days, 2-weeks, etc.)
- Pre-Submittal Reviews (optional)
- Initial Plan Review
- Back-Check
- Change Order Plan Reviews
- As-Built Drawings
- Monitor Fees and Charges:
- Plan-check Fees
- Permit Fees
- Inspection Fees – Ensure that as charges and fees change there are justifications
- Penalty Inspection Charges/Fees (not ready, 2nd or 3rd re-inspection)
- Additional Charges/Fees (Back-Check, Change or As- Built Reviews)
- Plan Archive Fees (per set or per page)

- Anticipating the common questions raised by customers:
- Do you have a sprinklered home? Protect Yourself – Because you care and it’s the right thing to do, but also because you don’t want to appear to be disingenuous in your advocacy.
- Protect yourself – Are you ready to sprinkler your own? As a fire sprinkler advocate, you should have already learned the importance of protecting yourself and your family from the vulnerabilities of fire. This means you should

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## DEVELOPING A STRATEGY TO ASSIST THE CUSTOMER(S)

*(continued)*

understand the experience the citizen, new homebuyer will face because you have been through the process of installing fire sprinklers in your home. This also applies to your fire stations if you are a member of the fire department.

- Recognize the Owner/Builder Needs:
  - o Don't overwhelm the customer with "bureaucratic" procedures and/or language (write in plain English).
  - o Try to avoid jargon and technical words which are often used by the Fire Service and/or Fire Protection Industry, but which may mean nothing to the general public.
- Patience can gain proponents and convert opponents
- Informing the Architects/Engineers/Contractors:
- The answer to a question raised by even one applicant might be helpful to future applicants if published.
- Educate all stakeholders about the process to alleviate fears that coordination of sprinkler system installation will delay projects.
- No surprises, no problems:
  - Have the criteria outlined in a handout before the adoption process so that you can show the governing board/council that the adoption was well thought out and well planned.

*Special Note: Don't change the process/procedures after the adoption. The surest route to a challenge is to change the process/procedures for inspections, request for inspections, scheduling, re-inspections, corrections, etc., after the fact.*

## CREATING AND UTILIZING CHARTS AND MATRICES TO SHOW THE PROCESS/PROCEDURES

One of the best ways to help your customers learn how to prepare, submit, and fully understand your agency's processing/procedures for obtaining a permit and/or inspection is to document the system under which you are working. To accomplish this consider utilizing a flow-chart and/or matrix form to describe your organizational requirements. To accomplish this task you yourself will need to clearly understand not only your organization/agency, but also the other departments/divisions you coordinate your efforts with (planning/community development, building inspection services, public works and the water purveyor). In many communities there is a combination of the above services in one or more departments /divisions.

### ORGANIZATIONAL CHART/MATRIX:

Specify where and how the fire prevention bureau relates to the other departments/divisions within and outside of your governmental entity. When developing the organizational chart/matrix, make certain that the position is clearly defined with respect to depth (level) within the organization (agency, council, manager, department, and division). This will help if a customer wishes to appeal a decision to the higher level.

- This organizational chart/matrix quickly becomes the "chart of appeals" by which a customer knows who has authority above the fire prevention bureau (Fire Marshal)
- Recognize that everyone has a boss and the right to appeal a decision is a normal right of a customer, given the true facts of the challenge.
- While city and county fire departments are fairly simple to define, special districts and other multi-agency fire departments can become more complex.
- The key departments and divisions that need to be clearly defined include the fire department/fire prevention bureau, community development/building inspection division, and public works/water division.

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## PLAN REVIEW PROCESS CHART/MATRIX:

The community development (planning) department plan review process is extremely helpful to educate the architect, developer, engineer and to a lesser degree the contractor, so that they understand the layered approach to reviewing large and/or complex projects. These preliminary reviews help to outline the agencies' general requirements and to help steer the proposed project in a positive direction. While specific code requirements and formal plan reviews are not accomplished at this level, these preliminary reviews and study sessions help to define what will be expected when the plans are finally submitted for review to the building department/division and fire department/prevention bureau.

- Utilize the planning review process to inform the applicants of fire department conditions and requirements:
- Accessibility Issues
- Water Supply Issues
- Fire Sprinkler Requirements
- Plan Review Requirements
- Permit Issues
- Formalization of the Fire Department requirements within the city/county “general plan” and ensuring that it is current and being administered by both the city/county as well as the fire agency are an ongoing issue.
- Review the current general plan with emphasis on the fire department criteria.
- Revise as deemed necessary any out-dated and/or unnecessary additional requirements.

*Special Note: The “general plan” of a community is the cornerstone of the planning and development future and is reviewed and revised periodically by the planning department. This is often an overlooked document for the fire service, but it can hold the key to many progressive and innovative construction features that can enhance the fire protection of the community, so take note.*

## BUILDING PERMIT PROCESS/MATRIX:

Most (if not all) applicants who are required (or voluntarily choose) to install a fire sprinkler system simply want to know what the process is for submitting an application, plans and supportive data, and to have a clear understanding of what the turnaround time will be. The “building permit” process chart/matrix, whether designed by the building inspection department/division and/or the fire department, is an effective tool to show (outline) the process that they will be required to follow.

- When developing the chart/matrix, place yourself in the applicant’s shoes and diagram, step by step, the process.
- Be as specific as possible.
- Check with other departments/divisions to ensure that you have the correct terms and have correctly placed their location on the diagram.
- Remember that with any business; the “fees/charges” paid become a significant element, which must be identified and defined.

## INSPECTION SEQUENCE CHART/MATRIX:

The inspection sequence chart/matrix is critical internally as well as externally to ensure that the agency’s staff as well as the customer know when to have certain inspections. All too often it is assumed, by the local authority having jurisdiction (AHJ), that everyone knows when to call for, and when to perform certain inspections.

*Note: Working closely with your building official, this chart/matrix can be developed in a relatively short period of time, but can have lasting impact on workload and efficiency.*

- The sequence of inspections can be developed starting with the building code (2003 Edition - International Building Code, Section 109 or 2003 Edition of the NFPA-5000, Section 1.8.6.6).
- It is essential that the building inspection and fire department inspections be somewhat consistent so that the construction industry is not confused.
- Defining as many detailed inspections as possible will help to support the effort, thus creating a consistency between multiple- inspectors from the same agency.

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## FIRE PREVENTION BUREAU PLAN REVIEW PROCESS (CODES/ELEMENTS)

The “plan review process chart/matrix” helps to clarify the codes and standards that will be utilized, and will highlight many of the elements that will be evaluated during the plan review process. These elements become “red flags” for architects, contractors and owners to recognize as they prepare their plans.

- When listing codes and standards, attempt to prioritize based on the highest level of authority; nationally recognized standards that are specifically adopted by state law, followed by locally adopted amendments, and those nationally recognized standards or other documents that are not specifically adopted but serve as evidence of accepted practice.
- This listing does not need to get into a repetition of the detail of the various codes and standards, but merely provide a reference to the detail contained in those standards.
- When listing the “elements” keep in mind that as you list each, you should have a guideline (handout) to detail each of these issues (fire apparatus access, water supply, etc.).
- These “guidelines” (handouts) become effective tools to give to the customers who are required to address these elements during the development of their project.

## STRATEGIES TO BE USED TO ENSURE “TRUE” CUSTOMER SERVICE

- Put yourself in the applicant’s position. Consider the customer whenever you are developing a procedure, guideline, adoption of a requirement, or changing an existing requirement.
- Discuss conceptual ideas with various customers (owner-builders, architects, developers, contractors, water purveyors).
- Take an objective look at the plan review process and see if adequate information has been provided to clarify what you are requiring.
- Is your staff technically ready to implement a new program?
- Will the level of training and education of staff members be required prior to implementation?
- Does the reference library your staff utilizes have adequate and current publications (books, etc.) necessary for them to perform their function?

## DEVELOPING DEPARTMENT GUIDELINES FOR YOUR FIRE SPRINKLER CUSTOMER

The purpose of this handout is to create a document which can be given to an architect, fire protection contractor, developer, owner-builder, or homeowner that will assist the individual/firm in preparing, submitting, installing and obtaining the necessary inspections. The document will be a guide to what is required and how to obtain the necessary approvals.

*Note: While the handout being described covers all types of residential systems, including multi-family occupancies protected using NFPA 13 or 13R systems, you should consider developing separate handouts that target the different audiences. This will reduce confusion and will assist the owner-builders and/or homeowners.*

## CRITERIA TO BE INCLUDED IN GUIDELINES

### PART 1-CODES AND STANDARDS

- Building code (and edition) currently adopted.  
Ordinance No. \_\_\_\_\_
- Fire code (and edition) currently adopted.  
Ordinance No. \_\_\_\_\_
- Standards (be specific as to which ones) currently adopted.  
Ordinance No. \_\_\_\_\_  
By reference?

### PART 2-PLAN REVIEW PROCEDURE

- Drawings and supportive calculations shall be submitted to:
  - Name of Agency
  - Address
  - City, State, Zip
  - Phone Number
  - Fax Number
  - E-Mail Address
  - Office Hours (MTWTF)
    - 8:00 a.m. to 12:00 (noon)
    - 1:00 p.m. to 5:00 p.m.
- Minimum number of drawings and supporting calculations

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## CRITERIA TO BE INCLUDED IN GUIDELINES *(continued)*

- Details on drawings must include:
  - NFPA 13, 2002 Edition (Section 14.1.3)
  - Review and outline the 44 items listed to ensure that your agency checks this information.
    - Add to the listing any change or additional requirement enacted by local ordinance.
    - Be specific and make certain that it stands out from the original 44 items required by NFPA 13.
  - NFPA 13R, 2002 Edition (Section 6.1.7)
    - Review and outline the 25 items listed to ensure that your agency checks this information.
      - Add to the listing any change or additional requirement enacted by local ordinance.
      - Be specific and make certain that it stands out from the original 25 items required by NFPA 13R.
  - NFPA 13D, 2002 Edition (Plans not required by document.)
- Type and location of hangers (or a general notation regarding hangers). This should be accompanied by a copy of the manufacturer's technical data sheet of hangers to be used.
- The sprinkler identification number for all fire sprinklers that are to be used. This should be accompanied by a copy of the manufacturer's technical data sheet for each model of fire sprinkler to be used.
- Alarm equipment type and location (if installed). This should be accompanied by a copy of the manufacturer's technical data sheet for alarm devices.
- Sectional drawings that show the sprinkler location in relationship to the "heat traps" or other obstruction features for any building that has other than flat smooth ceilings throughout.
- Hydraulic reference points on the piping plan that can be easily related to accompanying hydraulic calculations. The isometric drawing (common to plumbing plans) is one of the best styles to relate calculations to piping.
- All plan submittals shall be prints made from an original drawing; no cut-and-paste, or marked-up blue prints should be accepted.
- All plans must include in the title block the name of the property, the point of compass, the scale of the drawing, and the name, address, and phone number of the designer and/or installer.

Some authorities having jurisdiction (AHJ) will require plans and calculations to be submitted for NFPA 13D systems. Plans are prepared basically for two purposes:

1. Installation Instructions
2. Submittals for approval by the AHJ

Since NFPA 13D does not contain any such requirements, the following is a list of what might be considered a minimum set of criteria for these systems:

- A site plan showing the footprint of the structure, any access roads, nearest fire hydrant(s) and size and location of the water supply.
  - A reflected ceiling plan showing sprinkler location in relation to walls, beams, and other obstructions that may affect the fire sprinkler spray.
  - A piping plan back to the water supply that includes pipe size, type and center-to-center dimensions. The piping plan may be shown as part of the reflected ceiling plan, provided it does not make the drawing too confusing. This should be accompanied by a copy of the manufacturer's technical data sheet for any special listed piping materials.
  - A riser detail including all valves, fittings, and other equipment. This should be accompanied by a copy of the manufacturer's technical data sheet for all valves, flow-switches and other equipment to be installed in the riser and underground piping.
- Note: Guidelines should define any deviations from the Standard(s) - NFPA 13, 13R, 13D*
- It is essential that the authority having jurisdiction is clear on what it will and will not accept. It is not uncommon to find a jurisdiction that, based on local conditions (topographical, climatic, and/or geological), will require an increased level of protection for the fire sprinkler system being designed and/or installed. The following are examples that would fall into this category:
- *(example)* A jurisdiction might require a water flow alarm for the system
  - *(example)* A jurisdiction might limit the use of an NFPA 13D system in a single-family dwelling to under 5,000 square feet in aggregate floor area.
  - *(example)* A jurisdiction might require that a single-family dwelling, constructed in a "high fire danger" or "Wldland interface" area, have its residential fire sprinkler system designed to a higher level to protect not just the occupants (as defined in the "Purpose" sections of NFPA 13R and NFPA 13D) but also to protect the property and contain/extinguish the fire in accordance with NFPA 13 criteria.

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## CRITERIA TO BE INCLUDED IN GUIDELINES *(continued)*

- *(example)* A jurisdiction might require the single-family dwelling to have fire sprinklers installed in the garage.
- *(example)* A jurisdiction might require the attic area of a single-family dwelling to have fire sprinklers installed throughout.

*Special Note: It is essential that prior to amendments being made to a nationally recognized code/standard (such as NFPA-13D or 13R) the “scope (section 1-1) and purpose (Section 1-2)” be carefully reviewed and considered. Fire Sprinkler Systems, designed and installed in accordance with NFPA-13D and 13R are “expected to prevent flashover (total involvement) in the room of fire origin, where sprinklered, and to improve the chance for occupants to escape or be evacuated.”*

### PART 3-APPLICATIONS SHOULD RECOGNIZE THE TIMEFRAMES

The timeframe for providing certain services varies widely from agency to agency, given staffing levels, seasonal demands, and any number of factors that change from time to time; however, the fundamental criteria established by the agency should be somewhat consistent. The customer, whether an architect or a homeowner, a fire sprinkler contractor or an owner-builder, deserves to know the approximate schedule of submitting and receiving a permit to proceed. A guideline should inform the customer what to expect, for example:

- The plan check fee is to be paid at the time plans are submitted for review/approval.
- If the fee is to be paid in another office (such as the revenue/finance/building inspection division, etc.) you should note this in the guidelines.
- The customer deserves to know how long the plan review process will take; such as two to three weeks or 10 to 15 working days (MTWTF).
- Be clear so that you reduce the anxiety and frustration of having the daily telephone inquiries by the customer checking on the status of his/her plans.

*Note: Indicate in the guideline if the agency sends the plans out to a private consultant/plan check service to perform the plan review service, (but do not indicate who or where they are sent as the customer may then call that individual trying to expedite his/her own plans).*

- Any and all items identified in the initial and/or subsequent plan reviews must be completely and clearly addressed and corrected on the drawings prior to re-submittal for the back check.
- “Redline” drawings (corrections made in red and/or pen/pencil) on the original drawings should be discouraged as the field inspector may not be able to determine which changes were made during the formal plan review and which were made after the fact.
- Upon re-submittal, the items noted in the original plan review will be checked and if found to be corrected the drawings and calculations (every sheet) will be stamped with the official agency approval stamp.
- This will greatly aid the field inspector who will be checking the actual installation against the “approved” drawings.
- If a fee (penalty charge) is levied against a re-submitted set of drawings/calculations, which do not reflect the corrections, the agency should define the policy and authority under which this action is taken.
- A warning in writing (such as in these guidelines) is valuable when you are being challenged.
- A policy by which inspections must be made utilizing the approved (stamped) drawings is essential to complete the circle of the systematic approach to design, review, installation, and inspection of a system.
- Without matching the installation to the approved drawings, the field inspector is simply guessing.
- A copy of the approved/stamped set of the drawings and calculations (including any and all cut sheets) must be maintained in the fire prevention bureau for the life of the structure. These construction documents are valuable references for the future of the fire safety system.

### PART 4-WATER SUPPLY INFORMATION (FIRE FLOW DATA)

The water supply data used to design the fire sprinkler system is the single most important factor to consider when reviewing and approving a fire sprinkler system. The old saying “garbage in - garbage out” was never more relevant than when it comes to hydraulically calculated fire sprinkler systems. If the water supply data is wrong on the front end of the system design, then the error will be multiplied at the other end where the water will be needed. Too many agencies rely on outdated and/or unreliable water supply data.

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## CRITERIA TO BE INCLUDED IN GUIDELINES *(continued)*

- Where should the customer be directed in order to obtain current and accurate water supply information?
- Give the same criteria you would need if you were trying to obtain this data:
  - Water Agency Name
  - Water Agency Address
  - Water Agency City, State, Zip
  - Water Agency Telephone Number
  - Water Agency Fax Number
  - Water Agency E-Mail Address
  - Water Agency Contact Person (if known)
  - Water Agency Office Hours:
    - 8:00 a.m. to 12:00 (noon)
    - 1:00 p.m. to 5:00 p.m. (MTWTF)
- Does your agency (or should your agency) require the water data to be confirmed by either a form, letter or telephone verification?
- Consider being a little more formal than a simple verbal confirmation.
  - Do not simply accept a notation on the drawings indicating static and residual pressures. Insist that the source of the information and/or date of test be included with pitot readings and observed flows.
- How current is the data that your agency will accept?
  - 6-months
  - 1-year
  - 18-months
  - No limited timeframe?
- Unless otherwise authorized (in writing) by permit, the fire sprinkler system is expected to be returned to service as soon as possible, and/or by 5:00 p.m. of the same day.
- Will fire-watch be required, based on occupancy classification?
- Identify the policy for testing the modified piping and/or the entire system.
- Is there an exemption from the rule for hydrostatic testign?
- In accordance with NFPA 13, 2002 Edition *(See Section 16.2.1 for requirements and exceptions)*

### PART 6-FIRE SPRINKLER INSPECTION CRITERIA

It is essential that the inspection policy for fire sprinkler systems being installed be clearly consistent with the nationally recognized standards (NFPA 13, 13R, and 13D).

It is also necessary to make the customer aware of how a request for inspection is to be made. While most agencies require a telephone request at least 24 hours prior to the time/date of the inspection being requested, some agencies allow for a fax and/or e-mail message to initiate the request.

It is important to indicate that the customer must confirm with the agency and/or inspector that the requested time/date is acceptable and that unless otherwise cancelled the inspection will be performed and the system will be ready for the inspection requested.

Specific inspections should be outlined:

*Note: It is highly desirable to sit down with your water purveyor(s) to define some working criteria to ensure your agency gets what it needs (accurate and current water supply data) and to formalize the working relationship between your agency and the water purveyor.*

### PART 5-MODIFICATIONS TO EXISTING FIRE SPRINKLER SYSTEMS

- Permit required for fire sprinkler modifications
  - Refer contractor to plan review procedure.
- Placing fire sprinkler system “out-of-service”:
  - Notification required:
  - Telephone number
  - Questions to be addressed:
  - Address of system/name of business?
  - Name of contractor?
  - Telephone number of contractor?
  - Nature of work and if permit issued?
  - Inspection required?
  - Monitoring company notified?
- Underground piping flush
  - In accordance with NFPA 13, 2002 Edition (Section 10.10.2.1)
  - In accordance with NFPA 13R, 2002 Edition (Section 6.3.1)
- Underground piping hydrostatic test
  - In accordance with NFPA 13, 2002 Edition (Section 10.10.2.2)
  - Backfilled between joints to prevent movement during test.
- Overhead piping walk-thru inspection prior to any portion being covered over by insulation and/or sheetrock.
- Overhead piping hydrostatic test
  - In accordance with NFPA 13, 2002 Edition (Section 16.2.1)
  - In accordance with NFPA 13R, 2002 Edition (Section 6.3.2)
  - In accordance with NFPA 13D, 2002 Edition (Section 4.3)

*continues...*

**CRITERIA TO BE INCLUDED IN GUIDELINES** *(continued)*

- Final inspection walk-thru prior to occupancy of the building or space
  - Fire sprinkler system alarm test
  - Flow alarm test
  - In accordance with NFPA 13, 2002 Edition (Section 16.2.3.1)
  - In accordance with NFPA 13R, 2002 Edition (Section 6.2.2)
- Tamper switch(es) test
- Central station monitoring alarm test

*Special Note: As you read through the text of NFPA 13D you will find that with the exception of the hydrostatic test, as outlined in Section 1-5.4 there are no real final inspection criteria outlined. Therefore, any criteria you intend to enforce in your jurisdiction will need to be spelled out in detail.*

**EFFECTIVE CUSTOMER SERVICE**

Developing the guidelines (handouts) before you adopt a fire sprinkler ordinance can save you time, effort and headaches over the long haul. Getting it in the hands of the local active architects, developers, engineers, fire protection contractors and homebuilding contractors ahead of time can make the difference between success and failure. Being prepared as well as service-oriented can prove an effective and prudent expenditure of time and effort.

Being aware of your customers is essential.

- Develop a mailing list of actively working architects, developers, engineers, fire protection contractors and homebuilding contractors.
- Use the list to distribute useful information and facilitate collaboration.





# SECTION 6

# NEVER LET YOUR GUARD DOWN

## **PREFACE**

Successful adoption of ordinances to require residential fire sprinklers is certainly a great achievement, however, it is only a milestone. The education process and level of commitment required to reach this point must be continued and perhaps enhanced. The effort required to maintain an improved level of community fire protection will depend on the work accomplished prior to the adoption and the level of consensus building that took place.

Experience shows that communities that have followed this Guide and taken pains to ensure stakeholder involvement in the process have been more successful at maintaining improved community fire protection than those that didn't. Jurisdictions that have attempted adoption quickly and without good planning and organization (i.e. in response to a tragedy) have struggled or failed.

An important part of the challenge is to build a team with stakeholders who are willing and able to stay involved long after in the adoption process. It's up to the fire department to facilitate this because the department is the keeper of improved community fire protection.

## THE CONCERN AS TO THE LEGALITY OF THE FIRE SPRINKLER REQUIREMENTS

If your department or agency is like most agencies, once you have successfully adopted a fire sprinkler ordinance or other regulation, you may be lulled into a false sense of confidence that the worst is behind you and that these regulations fall into an operational/enforcement mode. The processing of applications for review, the issuance of permits to install, and the verification of installations through your inspection program become the day-to-day routine. Life is good and every day is filled with the business of processing permits, telephone calls, staff meetings, intra- and inter-departmental meetings.

This confidence is shattered when you receive notice that your fire sprinkler ordinance or requirements are being challenged. Some of the many possible opponents include:

- A homeowner who does not wish to have fire sprinklers in his/her home;
- A local building contractor who feels that he/she should not be required to provide a residential fire sprinkler system in the homes he/she is building;
- A local homebuilders association that believes your fire sprinkler regulations are unfairly burdensome;
- A local developer who indicates that he/she was not made aware of the fire sprinkler requirement when he/she received approvals to proceed with his/her development;
- A city/county council (board) member who has been informed that the fire sprinkler regulations are not legally enforceable, or are unnecessary because the jurisdiction has the “best fire department in the state”;
- A prospective home buyer who was informed by the real estate agent that the cost would be extremely high for a residential fire sprinkler system and would put the purchase price of the home out of reach.

Not planning for such an event is an understandable oversight for members of the fire or building department, who typically focus on the delegated responsibility to safeguard to a “reasonable degree” the lives and property of their respective communities from the hazards of fire. Fortunately, if the fire and/or building department has followed this Guide and built consensus among stakeholders, many of the concerns that could derail an adoption can be resolved fairly quickly.

In accordance with the provisions of your individual jurisdictional authority you have adopted nationally recognized codes and standards, and where appropriate have amended these codes and standards to ensure the life safety and property protection for your community, or have created your own ordinance/resolution -- as such, it is likely that you expect them to stand the test of time.

It should be noted that because each state, county, district and/or city will likely have unique adoption procedures, it is essential that you have a clear understanding and working knowledge of the legal requirements by which your local regulations can be adopted, amended, and enforced.

Be aware that when an issue is raised concerning the legality and/or appropriateness of fire sprinkler requirements, it will quickly become political and you will likely be required to respond with a formal staff report to your governing body to respond to the issues raised. Time will not be your friend and thus having supportive documentation at your fingertips is essential.

More of the legal aspects of the adoption or the fire sprinkler requirements must be addressed:

- Maintain a copy of the minutes of the meetings, public notices, staff reports, and adopted ordinance/resolutions so that you can develop a “timeline of events” that took place and have ready access to other relevant information.
- Use these to create a timeline showing all meetings, hearings, public notices, first reading, second reading, 30-day appeals period (typically prescribed to allow any public input after an ordinance/resolution has been duly passed), and note any problems encountered along the way.
- Be aware of the actual governing body vote (3 to 2, 5 to 2, etc.).
- Identify who was in favor and opposed.
- Identify any changes within the governing body membership.
- If appropriate and legal, determine any changes in members’ voting records (poll the governing body).
- Note any changes to the agency management staff, including city manager, county administrator, and/or fire chief  
(*May require one-on-one meeting to present historical overview.*)

*continues...*

## THE CONCERN AS TO THE LEGALITY OF THE FIRE SPRINKLER REQUIREMENTS *(continued)*

### COMMON THEMES (ISSUES) RAISED IN CHALLENGES

Over the years, and throughout the country, certain common themes have emerged as part of challenges made to residential fire sprinkler requirements. These are intended to raise doubt as to whether or not the fire sprinkler regulations were adopted legally, were based on fact, were economical, etc.

See Appendix F for a point/counter-point developed by Vickie Pritchett and Buddy Dewar to address specific challenges that have been issued by NAHB.

### HISTORICAL REVIEW OF CHALLENGES BY VARIOUS FACTIONS

As noted previously, challenges to locally adopted fire sprinkler requirements can and should be identified ahead of time. Typically, they fall into two categories: legal authority and need. Following this Guide can help plan for and circumvent these, especially the legal authority challenge.

Knowing your authority to adopt and following the process through are key to avoiding the legal challenge. Building stakeholder support and continuous education are key to avoiding political challenges.

In Carroll Valley, and Skuykill, PA, and Indian Hills, KY, the legal challenge was expected and the political leaders prepared for it. In Mesa, AZ, Huntley, IL, and Fayette County, TN, the political environment changed and the requirement was challenged. It is difficult for the fire service to win the political challenge. It is incumbent upon the fire chief to stand up in the public hearing and tell the truth and yet in most cases there is a prohibition against engaging in an adoption campaign. To effectively confront the political challenge, the legislative body must be up for it, the fire service totally committed, all members on board, and the citizenry cognizant of the importance of the requirement to the community's future. There should be no capacity for the builders, who profit from the community, to enjoy a stronger position than the fire department, which protects the community.

Prepare for the challenge ahead of time and make sure the following issues are considered:

- When using statistical data to prove a point, make certain the numbers are accurate, current (less than 5 years old) and reflect the fire scenario you intend to address by requiring fire sprinklers.
- Sound statistics can be subjectively interpreted. Be prepared to address position papers that have been put together by very aggressive and very technically able individuals to make the numbers “prove” their points.
- Check the opposition’s data to ensure that any comparisons are “apples to apples.”
- When considering “new” versus “old” keep in mind that if the opponent is saying that fires occur in buildings 20 years and older, then those houses being built today will be a fire problem 20 years from today.
- This argument was raised recently in a Northern California Community where one of the councilmen pointed out to the opponent, who had just explained this 20-year fire problem scenario, that it was specifically for this reason that the fire sprinkler requirements were needed today and not in 20 years when they anticipate the fire problems. The response from the opponent was silence.
- When addressing the issue of older homes having a fire problem (statistically) keep in mind that the opponent of the fire sprinkler requirements is attempting to raise the issue of “reactivity,” which is considered a threat by every homeowner, apartment owner, and building owner. This argument widens the opponents’ support base.
- Statistics can be helpful, yet they can also raise confusion and make public officials question what otherwise would have been a 5-0 vote to pass a fire sprinkler requirement.
- Keep any presentation short, factual, and community-based.
- Look at your presentation materials carefully. Find any loopholes, weaknesses, inaccuracies, etc. Otherwise, the opponent may be able to turn your presentation against you.

*continues...*

## OTHER CHALLENGES AS A TIMELINE OF EVENTS/ACTIVITIES

Over the past decade there have been several challenges that have resulted in local fire sprinkler ordinances being overturned or rescinded, and some upheld by the local public agency. These challenges have resulted in council action, court action and in one case a referendum by the public electorate. Among these local challenges were:

### City of Encinitas Fire Protection District, CA

- Filed: 03/06/90  
(Wayne Holden and Taxpayers Against Sprinklers (Case No. 46326))
- Decision: 07/02/91  
(City of Encinitas FPD was authorized to adopt and impose requirements for the installation of fire sprinkler suppression systems.)

### City of Vallejo, CA

- Filed: 12/20/90  
Solano County Superior Court (No. 111679)  
(Mission Development/Castle Construction)
- Decision: 09/03/93  
(Residential fire sprinkler ordinance revoked)
- Appeals: None filed by City of Vallejo

### Carpinteria-Summerland Fire Protection District, CA

- Filed: 06/11/91  
Appeal by Winfred and Dinah Van Wingerden (homeowners)
- Decision: 06/11/91  
(Requested appeal denied by Carpinteria-Summerland FPD)
- Filed: 07/01/91  
(2nd request for appeal by attorney for Winfred and Dinah Van Wingerden)
- Decision: 07/17/91  
(2nd request for appeal denied by the Carpinteria-Summerland FPD)
- Filed: 07/17/91  
(Formal appeal (appellant's brief) by attorney for Winfred and Dinah Van Wingerden)
- Decision: 08/14/91  
Carpinteria-Summerland FPD governing board met, deliberated and unanimously voted to require fire sprinklers, thus denying the appeal.
- Filed: 12/13/91  
(Attorney for Winfred and Dinah Van Wingerden files appeal with Superior Court of the State of California in an appeal for the County of Santa Barbara (Case No. 190036))
- Decision: 04/28/92  
(Superior Court Judge James M. Slater denied petitioners' appeal)

### City of Livermore, CA

- Filed: 01/03/95  
Alameda County Superior Court (No. V-009255-7)  
(Building Industry Association/Building Industry Association of Northern California)
- Decision: 04/05/95  
(Residential fire sprinkler ordinance upheld)
- Appeal Filed: 05/09/95  
(Building Industry Association/Building Industry Association of Northern California filed with Court of Appeals (CA) 1st Appellate District, Division 3 (No. A-070517))
- Decision: 05/21/96  
(Appeal denied, residential fire sprinkler ordinance upheld)
- Appeal Filed: 06/18/96  
(Building Industry Association/Building Industry Association of Northern California with California Supreme Court (No. S054568))
- Decision: 08/15/96  
(Residential fire sprinkler ordinance upheld)

### City of Hemet, CA

- Filed: 02/28/95  
(City Council for the City of Hemet was being asked to repeal the residential fire sprinkler requirements by a representative of the Building Industry Association during a regular city council meeting.)
- Decision: 02/28/95  
(The motion to rescind the requirements for fire sprinklers in single-family dwellings carried on a 4-1 vote of the City Council.)

### City of Rancho Cucamonga, CA

- Filed: 06/14/95  
(Building Industry Association, Baldy View Regional Chapter, challenged the Rancho Cucamonga residential fire sprinkler ordinance and utilized the 15-minute videotape "Make The Right Choice" to make their point before the City Council.)
- Decision: 08/16/95  
(City Council rescinded the residential fire sprinkler ordinance.)

*Special Note: The National Fire Sprinkler Association (NFSA), in conjunction with Operation Life Safety (OLS), produced a rebuttal videotape "Making a Case for Life Safety Sprinklers."*

*continues...*

**OTHER CHALLENGES AS A TIMELINE OF EVENTS/ACTIVITIES** *(continued)***City of Anaheim, CA**

- City Council Action: 12/05/95  
(Like many California cities, Anaheim had amended the Uniform Building Code (UBC) and Uniform Fire Code (UFC) over a period of time [02/20/73 thru 09/12/92], which ultimately required all new construction (greater than 500 square feet in area) to be sprinklered. During the normal sequence of adopting the 1994 Uniform Fire Code and Uniform Building Code, the City Council raised the question of why they should be more restrictive than the “model codes” and/or state building/fire codes.)
- Decision: 2/19/95  
(City Council rescinded the residential fire sprinkler requirements and all amendments for fire sprinklers, which were more restrictive than the “model codes” (UFC/UBC) and/or state codes (California Fire Code (CFC)/California Building Code (CBC)).

**City of Mesa, AZ**

- Filed: 10/12/99  
(Citizens Against Government Mandates - Realtors® filed a Political Committee Statement of Organization to begin referendum (Proposition 300) action against the newly adopted residential fire sprinkler ordinance, which passed on a 5-2 Mesa City Council vote on 05/01/00.)

*Note: The summary states: “This is a referendum of the Mesa City Council’s decision to mandate automatic fire sprinkler systems in all new houses built after May 1 of 2000. Such a major policy shift, with significant impact on residential housing and some people’s ability to buy homes in Mesa, should be referred to the voters. Citizens Against Government Mandates - Realtors believes that individual homeowners or homebuyers should have the option to install fire sprinklers and not be forced to buy expensive features for their homes. Ordinance No. 3695 is an example of government interference in our personal lives. (96 words)”*

- Decision: 03/14/00  
(City of Mesa, AZ special election - Proposition 300 was approved by the electorate and the residential portion of the ordinance was rescinded.)

*Note: In a compromise move, new homebuyers are required to be presented with a City of Mesa Residential Fire Sprinkler Packet and must sign a postcard, which indicates whether or not they have “chosen to install automatic fire sprinklers in their home.”*

**Village of Clarendon Hills, IL**

- Filed: 06/19/00  
(Home Builders Association of Greater Chicago (HBAGC) opposes making residential fire sprinklers mandatory.)

*Note: The HBAGC prepared a 12-page document listing 33 different concerns they raised for clarification. (See Appendices Item “I”)*

- Decision: 03/05/01  
(Clarendon Hills Village Board (Trustees) voted 4-2 to keep its residential fire sprinkler ordinance.)

*Note: Additional information may be obtained by contacting the Northern Illinois Fire Sprinkler Advisory Board (NIFSAB)  
<http://www.firesprinklerassoc.org/>.*

**Huntley, IL**

- 11/25/93 – The Village of Huntley (VOH) Building Commissioner attended the Huntley Fire Protection District (HFPD) Board meeting and asked the Trustees if they would be interested in developing a residential sprinkler code ordinance. He indicated that the VOH would simultaneously pass a building code ordinance that mirrored the fire code requirement. The Board agreed to work on this as a joint project.
- 05/26/04 – After 6 months of working with the VOH Building Commissioner – The HFPD passed Ordinance 2004-03 adopting the 2003 International Fire Codes with amendments including the requirement for residential sprinklers with an effective date of May 1, 2005.
- 03/08/05 – The HFPD holds a Special Board Meeting with the area builders and developers to discuss and clarify the ordinance requirements. Opposition to the ordinance is presented by the Attainable Housing Alliance (NHBA associate) and some area developers. The VOH Building Commissioner was in attendance at this meeting and it was held at the VOH Board Room.
- 03/14/05 – A Special HFPD Board meeting is held and the requested variances are granted.
- April 2005 – VOH adopts Building Code with residential sprinkler requirement.

*continues...*

**OTHER CHALLENGES AS A TIMELINE OF EVENTS/ACTIVITIES** *(continued)*

- April 2005 – May 2007
  - 1300 homes are sprinklered.
  - The VOH Building Commissioner involved in developing the sprinkler ordinance leaves employment with the VOH.
  - 3 new members join the VOH Board of Trustees (April 2004).
  - Complaints are received regarding sprinkler costs and cost for annual backflow testing from the VOH village manager. The HFPD responds to all complaints with facts and figures. Costs are exaggerated and misrepresented by the builders and developers. Not a single resident registers a complaint with the HFPD.
- June 2007 – VOH village manager informs Fire Chief that VOH Board is going to reverse the sprinkler ordinance. The HFPD request a meeting with the Board for discussion and presentation of accurate facts and information. The VOH responds by setting a meeting with the Mayor and Village Manager with the Fire Chief and HFPD Board President. The HFPD insists on a meeting with the whole VOH Board (we had never discussed the sprinkler ordinance with them!). After quite a bit of wrangling the request is granted. The meeting is held with the VOH Board and the HFPD Board. A presentation is given but no questions are asked and no discussion takes place.
- 09/06/07 – At the VOH Board meeting the residential sprinkler requirement is reversed. The meeting is well attended by code officials and Fire Personnel from the Northern Illinois area. Almost all of the public comments are in favor of keeping the requirement. This includes comments by Fire Dept. Personnel, Code Officials, other elected official and residents. The only opposition to speak out is the Realtors Association. The meeting is highly charged, accusations are made and there is open hostility on the part of VOH Board members.
- 03/09/08 – Chief meets with VOH staff, village manager and Mayor. They request a variance to the sprinkler ordinance for houses already in the permit process.

*Personal Comments:* My recommendation for anyone considering a residential sprinkler ordinance is to make sure that the elected officials are well informed by the Fire Department. In our case, this was left to the VOH Building Commissioner and it is questionable as to whether he had the full backing of his Board and the Mayor. He was able to get the VOH to pass the ordinance, however he left employment with the VOH shortly after that the HFPD lost its primary supporter with the VOH..

Secondly, don't underestimate the lobbying techniques and behind the scenes efforts by the building industry. They do not play fair and can greatly influence elected officials. In this case they had the ear of the VOH Board and the HFPD did not.

**Pennsylvania**

- Filed: 10/13/04
 

“The Petitioners, Pennsylvania Builders Association, Builders Association of Adams County (“the Builders”), ask this Court to overturn the decision of the Secretary of Labor upholding the validity of Ordinance No. 2-2004 (relating to fire flow requirements and residential sprinklers) enacted by Carroll Valley Borough, Adams County, Pennsylvania, on September 14, 2004. Carroll Valley Ordinance No. 02-2004 essentially requires that new residential construction in the Borough include the installation of automatic sprinkler systems and water flow alarms.”
- Decision: “Based upon this factual record, the Secretary concluded that clear and convincing evidence established that local topographic and public health and safety circumstances justify the enactment of Ordinance No. 02-2004. The Secretary further found that the Ordinance provided standards for the protection of life, health and property through the use of state-of-the-art devices without unreasonably or unnecessarily increasing construction costs. Finally, the Secretary concluded that the Ordinance was consistent with legislative findings and purpose as set forth in the Act. My review of the record reveals substantial evidence which amply supports the Secretary’s findings. Additionally, I find no error with the Secretary’s conclusion concerning the ramifications and risks which local topographic conditions present to public safety.”

*continues...*

## CONSIDER THE SIDE OF THE DEVELOPER AND/OR HOMEBUILDER

It is essential that, during the course of researching, planning and adopting a residential fire sprinkler ordinance, the local agency consider and understand the issues that can and do impact the construction industry. Construction projects, whether a single home or a large sub-division of many hundreds of homes, take time to create the plans, find funding sources, establish purchase/selling prices, and to develop market demand. Timing is a critical element. Interest rates, weather conditions, time of year, and many other variables can impact the success of the project.

When developing a residential fire sprinkler requirement, keep the following builder/developer issues in mind:

- Above all else, “time is money” and a project has been carefully planned out to start and finish on a particular timeline.
- Any change in processing time, or additional criteria/conditions by your jurisdiction may cause this timeline to be altered, negatively impacting the project’s financial standing.

Under some state laws, there are critical points upon which certain factors are established and cannot be easily changed. One is the legal aspect of a preliminary plat and a final plat, which simply establishes what a proposed subdivision’s development criteria will be. Once a project receives its final plat approval, the project is typically locked in to number of units, size of lots, size of utilities serving the subdivision, and, probably the most important factor, the costs associated with each model plan.

- Be aware of any development projects which have recently received or are in the process of receiving approval for their sub-divisions and/or project.
- Identifying certain projects that would be grandfathered out of the new regulations may not be the perfect world, but it could prove to be a prudent decision down the road, based on facts related to work already accomplished or “approved.”
- Determine if existing developments have been approved by a “phasing plan” of incremental development. If phase one has been completed, and phase two is being started, then you might need to consider allowing phase two to be exempt from such requirements if they agree to develop future phases using residential fire sprinklers.
- Consider all the residential structures existing in your community which do not have fire sprinkler systems. Be reasonable in your approach.

Every construction project operates on a timeline of scheduled contracting activities to ensure orderly and coordinated progression. These scheduling activities are to the building contractor what a sheet of music is to an orchestra. In order to meet the schedule and finished product in the least amount of time and effort, the developer, general contractor, or construction manager must have his/her sub-contractors, materials, and sequential inspections made on time. Adding another construction element, such as residential fire sprinklers, means that the schedules must be modified.

- Residential fire sprinkler systems are typically a “design-build” construction concept and while the single-family dwelling is typically constructed off a single “approved” set of plans; the residential fire sprinkler system is designed, submitted, permitted, and inspected as a separate construction element.
- Many developers/general contractors do not understand the concept and therefore can often be fearful of delays, and/or problems.
- Typically, details of working plans for a fire sprinkler system are not submitted for initial building design review, and the fire sprinkler contractor is not required to obtain necessary approvals until just before the system is to be installed.

## CONSIDER THE REQUIREMENTS OF ANCILLARY AGENCIES

As a result of adopting a residential fire sprinkler requirement you may have indirectly allowed other departments and/or agencies to establish criteria which is counter to the philosophy and/or goals and objectives of your agency. Over the years there have been several incidents in which a fire agency adopted a fire sprinkler ordinance, only to have the water purveyor impose redundant and often extreme fees and/or charges, which created a financial hardship for the applicant, developer, and contractor, negatively impacting the entire community.

*continues...*

## **BE PREPARED FOR A CHALLENGE OR APPEAL OF YOUR SPRINKLER REQUIREMENTS**

When your agency is faced with a challenge or appeal to your fire sprinkler requirements, it can be a daunting experience. However, it sort of comes with the territory and should be expected and planned for. It is not reserved for the newly adopted regulation, since a challenge can be waged at any time against even a well established, nationally recognized, progressive fire sprinkler program. Every fire sprinkler requirement is potentially vulnerable, so it pays to be up to the challenge.

This Guide can help you and your agency be better prepared to employ a systematic, professional and ultimately successful response to any issues raised by residential fire sprinkler opponents, whether such opponent is an individual or an organization. ■





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# APPENDICES

<b>Appendix A</b>	
USFA Position Statement on Fire Sprinklers.....	66
<b>Appendix B</b>	
Separating Fact from Fiction (HFSC).....	67
<b>Appendix C</b>	
Fire Team USA: Using NAHB Table to Analyze Fire Sprinklers .....	68-73
<b>Appendix D</b>	
Fire Team USA Sprinklered vs. Non-sprinklered comparison .....	74
<b>Appendix E</b>	
Point/Counterpoint Document.....	75-79
<b>Appendix F</b>	
IAFC Position Statement .....	80

## APPENDIX A USFA POSITION STATEMENT ON FIRE SPRINKLERS

United States Fire Administration  
U.S. Department of Homeland Security  
16825 South Street Avenue  
Ft. Belvoir, MD 21122



# FEMA

March 28, 2008

### A Message from the U.S. Fire Administrator about Residential Sprinklers

In the year 2006, 19% of all reported fires in the United States occurred in one- and two-family structures; however, these fires caused 66% (2,155) of the fire deaths in the US. More than 25% of firefighter on-duty deaths are associated with residential fires — about 25 firefighters die each year during responses to residential fires. Despite the fact that these figures represent improvement over the last 30 years, they continue to be appalling. Such losses are unacceptable.

Since the 1970's, the U.S. Fire Administration has promoted research, development, testing, and demonstrations of residential fire sprinkler systems and smoke alarms. These studies, in concert with heroic efforts by many organizations and individuals, have resulted in the adoption of requirements to install smoke alarms in new residential construction. In many jurisdictions, the retrofit of smoke alarms into existing residential occupancies has been mandated. Together, these efforts have saved many lives.

The results have been different, however, with respect to residential fire sprinkler systems; only about 400 of the thousands of jurisdictions across our great country have mandated the installation of residential fire sprinklers in new construction, and none have mandated the retrofit of existing one and two family housing stock.

Much has been written about the reduction of residential fire deaths due to improvements in building codes and the installation of smoke alarms. Without a doubt, these have had a substantial impact on the home fire problem. The trend in fire death data, however, shows that the number of civilian residential fire deaths is declining at a slower rate over the past 10 years than it did in the period 1977 through 1995.

Full-scale fire tests have shown that the available time to escape a flaming fire in a home has decreased significantly — from 17 minutes in 1975 to 3 minutes in 2003. Researchers have concluded that a fire involving modern home furnishings grows faster than a fire involving older furnishings. The practical impact of this finding is clear — smoke alarms alone may not provide a warning in time for occupants to escape a home fire. Fire sprinklers are the only proven technology to control the spread of flames and toxic smoke.

The U.S. Fire Administration's mission is to reduce life and economic losses due to fire and related emergencies, through leadership, advocacy, coordination, and support. In fulfilling this mission, we have carefully reviewed the data and the relevant research to formulate this statement:

*It is the position of the U.S. Fire Administration that all citizens should be protected against death, injury, and property loss resulting from fire in their residence. All homes should be equipped with both smoke alarms and automatic fire sprinklers, and all families should have and practice an emergency escape plan. The USFA fully supports all efforts to reduce the tragic toll of fire losses in this nation, including the proposed changes to the International Residential Code that would require automatic sprinklers in all new residential construction.*

Gregory B. Cade  
Administrator, USFA



www.usfa.dhs.gov

## APPENDIX B SEPARATING FACT FROM FICTION (HFSC)



### FIRE SPRINKLER FACTS

- Eight of out 10 fire deaths occur in the home.
- Fire sprinklers save lives, reduce property loss and can even help cut homeowner insurance premiums.
- Home fire sprinklers can contain and may even extinguish a fire in less time than it would take the fire department to arrive on the scene.
- Installing both smoke alarms and a fire sprinkler system reduces the risk of home fire death by 82%, relative to having neither.
- Only the sprinkler closest to the fire will activate, spraying water directly on the fire. Ninety percent of fires are contained by the operation of just one sprinkler.\*
- Nationally, on average, home fire sprinkler systems add 1% to 1.5% of the total building cost in new construction.
- Home fire sprinklers use only a small fraction of the water used by fire department hoses.
- Modern residential sprinklers are inconspicuous and can be mounted flush with walls or ceilings.
- For more information go to the Home Fire Sprinkler web site at: [www.homefiresprinkler.org](http://www.homefiresprinkler.org).

\*Automatic Sprinklers: A 10-Year Study, Scottsdale, AZ

Visit HFSC online at [HomeFireSprinkler.org](http://HomeFireSprinkler.org)

## APPENDIX C FIRE TEAM USA: USING NAHB TABLE TO ANALYZE FIRE SPRINKLERS

### MAKING THE DECISION REGARDING FIRE SPRINKLERS: HOMEBUILDERS WHO SAY YES!

As a former Economic & Community Development Director for one of the fastest growing counties in Tennessee, I believe that an analysis of tables used by the organized Association known as the National Association of Homebuilders (NAHB) can be valuable in understanding construction costs and how fire sprinklers fit into this table.

For background purposes, let me share with you some information about our county, which many refer to as “the last frontier.” Cheatham County, Tennessee adjoins Nashville/Davidson County, and is experiencing growth that the University of Tennessee projects at 64%. Those numbers hold meaning to us, and in Cheatham County we worked to identify how we would PLAN to ensure that those numbers did not affect our quality of life. Fire protection is part of the Quality of Life equation, and as a result of proactive fire chiefs, our Joint Economic & Community Development Board realized this.

In August of 2006, Cheatham County became the first county in the state of Tennessee to pass Sprinkler Legislation that requires all new buildings (including single family homes in subdivisions of more than 3 lots) to install fire sprinklers. The Towns of Pleasant View and Ashland City had led the way with sprinkler legislation passed in 2001. As a result of education and actual demonstration, homebuilders joined with fire officials, building officials, water purveyors and policy makers to support this legislation. Growth has continued in Cheatham County – and in Pleasant View and Ashland City. Builders are not only still in business, they are taking pride in the neighborhoods they are

building. Homebuyers have embraced the concept and have peace of mind in knowing that their families are safer as a result. Policy makers realize that the benefits are multi-dimensional and will impact the county forever. This impact goes beyond lives saved, to issues such as tax rates and fire protection budget line items. Fire sprinklers are an important PART of our fire protection plan and this part is funded by those who are moving to our area.

Cheatham County has been glad to share information with others who are considering sprinkler legislation, and would also like to share it with homebuilders, as they are an important stakeholder in the process. The NAHB is many times quoted as saying that the installation of fire sprinklers will put them out of business and also that homebuyers will not be able to afford a home.

As a direct result of this statement, I decided it was time for me to remove myself from my current role as Project Manager for Fire Team USA, and go back to my ECD days... to “walk a mile in their shoes” so to speak... after all, my background is one that continually stresses the importance of ALL stakeholders. One can not build quality communities without good homebuilders, and I wanted to listen to their passionate pleas. Perhaps the builders in our area were different and Cheatham County was an exception to the rule. Or perhaps, their perceptions and assumptions about fire sprinklers were not accurate, and actual information might help to articulate that. So, to begin my quest for facts, I started at the NAHB website. After scanning the site, it was quickly obvious that as a whole, sprinkler legislation is one of the key items that the NAHB works AGAINST. While this was not a surprise, I wondered why. The main reason to oppose such legislation is identified as money. They say it costs too much to install fire sprinklers.

I found a table that opened my eyes to the cost of building a house and I must say helped me to further rest assured that the installations of fire sprinklers WILL NOT keep anyone from owning a home. I have scanned the table, saved directly off of the NAHB website and sourced as such and it is shown in Figure 1 (on page 67).



*continues...*



## APPENDIX C FIRE TEAM USA: USING NAHB TABLE TO ANALYZE FIRE SPRINKLERS (continued)

The NAHB table prompted my mind to go a step further. I called one of our local builders and asked him to meet with me to discuss the NAHB assumption. He agreed to the meeting, and I shared the table found on the NAHB website. My question was two-fold, one: would he allow me to see those numbers for a real house built in Pleasant View; and two: could I share that information. His response was yes to both questions and the tables below (following the NAHB template) show real numbers for a home constructed in Pleasant View, TN that include fire sprinklers. As you will note... the fire sprinklers amount to 1.3% of the construction costs of the home. I have included two (2) examples, one attached single family dwelling and one detached (see Figure 2, page 69; Figure 3 page 71).



### PHOTO – Sample 2

Lot 25 Pleasant View Village  
159 Augusta Avenue  
September 15, 2007  
2,139 square feet; 3 bedroom, 3.5 bath



### PHOTO – Sample 1

Lot 107 Pleasant View Village  
284 Augusta Avenue  
September 15, 2007  
2,186 square feet; 2 bedroom, 3 bath

In addition to the Fire Sprinkler line item, another line item to note on both of our local tables as well as the one shown on the NAHB website is PROFIT for the homebuilder because that is where the question can be answered regarding the homebuilder being able to afford it. What conclusions should we draw? Again, I believe I am reminded by actual facts of why this argument is not an argument. Using the NAHB template, one can see profits average around 10%, while Fire Sprinklers are a consistent 1.3%. I believe that a 1.3% item is not only affordable, but one of the best deals in these homes! In conclusion, I offer the following:

- Fire sprinklers can be installed for the projected percentage offered in Home Fire Sprinkler Coalition material.
- When analyzed, it is easy to answer the question posed by NAHB regarding costs. We used their table, the facts speak for themselves.
- When asked, homeowners in these respective areas DO NOT have any idea what the fire sprinkler system cost that is functional in their homes. They also can not tell you what the HVAC, plumbing, etc. cost either.

*continues...*



## APPENDIX C FIRE TEAM USA: USING NAHB TABLE TO ANALYZE FIRE SPRINKLERS (continued)

You will note that I left the “Fire Sprinklers Save Lives” message out of my conclusion bullets. It’s not that it’s not always at the top of my list; it’s just that I felt like for the sake of this factual quest, it did not have a place at the table. Many times I have listened as NAHB reps have stated that we (as fire sprinkler advocates) play upon the emotions and avoid the facts. I welcomed this quest that would focus on nothing but numbers, and now I look forward to sharing the facts that were found with others. This helps us complete the picture.

Some say that homebuilders can’t afford fire sprinklers. I ask you this; Can your community afford NOT to have them? What about the families who will be your new neighbors and live in the new homes built? What about your firefighters who stand prepared to protect these homes?

I close this report by allowing homebuilders from my area describe their experience with the addition of fire sprinklers.

“Once I watched the video and looked at the HFSC information, I realized this was a no brainer,” says Dannie Holt, Developer of Pleasant View Village. “Fire sprinklers make common sense, especially when you are focused on building a quality community. Safety is important and this feature has been a value added marketing aspect that we have added to our neighborhood.”

Holt added that it was another way to focus on quality of life, which is very important to the families who will occupy the homes he builds.

Need I say more?

Respectfully submitted,

Vickie Pritchett  
Fire Team USA  
Project Manager  
12-08-07

[www.fireteamusa.com](http://www.fireteamusa.com)



## APPENDIX C

### FIRE TEAM USA: USING NAHB TABLE TO ANALYZE FIRE SPRINKLERS (continued)

FIGURE 3

#### BUILDING A BALANCE: CONSTRUCTION COSTS FOR SINGLE-FAMILY HOME

Construction Costs for Single-Family Unit  
Lot 25 Pleasant View Village  
159 Augusta Avenue  
September 15, 2007  
2,139 square feet; 3 bedroom, 3.5 bath



I. Sale Price Breakdown			Average			% of Total		
Finished Lot Cost								
(including financing cost)	\$20,000							8.3%
Total Construction Cost	\$176,022							73.4%
Financing Cost	\$10,941							4.6%
Overhead and								
General Expenses	\$0							0.0%
Marketing Cost	\$1,250							0.5%
Sales Commission	\$7,197							3.0%
Profit	\$24,490							10.2%
<b>Total Sales Price</b>	<b>\$239,900</b>							<b>100.0%</b>

II. Lot Cost			Average			% of Lot Cost		
<b>A. Raw Lot Cost</b>	\$20,000							100.0%
<b>B. Development Costs:</b>	\$0							0.0%
a. cost of processing approvals	\$0							0.0%
b. site preparation	\$0							0.0%
c. site improvement	\$0							0.0%
- paving	\$0							0.0%
- water and sewer	\$0							0.0%
- erosion and sediment	\$0							0.0%
d. impact analysis	\$0							0.0%
e. water/electric hook-up	\$0							0.0%
f. land dedication or fee in lieu	\$0							0.0%
g. bonding/escrow fee	\$0							0.0%
h. financing cost	\$0							0.0%
i. tree preservation and planting	\$0							0.0%
j. wetland preservation and planting	\$0							0.0%
- value of unbuilt land	\$0							0.0%
- cost of mitigation	\$0							0.0%
k. value of land left unbuilt as green space or park	\$0							0.0%
l. other costs	\$0							0.0%
<b>Total B (a...l above)</b>	<b>\$0</b>							<b>0.0%</b>
<b>Total Finished Lot A + B</b>	<b>\$20,000</b>							<b>100.0%</b>

III. Construction Cost Breakdown			Average			% of Construction Cost		
Building Permit Fees	\$3,311							1.9%
Impact Fee	\$3,750							2.1%
Water and Utility Fees*	\$8,593							4.9%
Excavation, Foundation, and Backfill	\$5,585							3.2%
Termite Shield	\$127							0.1%
Framing and Trusses	\$23,253							13.2%
Firewall	\$4,104							2.3%
Windows	\$11,802							6.7%
Exterior Trim	\$1,156							0.7%
Roof	\$3,011							1.7%
Brick, Siding & Mortar	\$19,159							10.9%
Plumbing	\$8,920							5.1%
Electrical Wiring & Lighting Fixtures	\$10,659							6.1%
Fire Sprinklers*	\$2,242							1.3%
HVAC	\$9,063							5.1%
Insulation	\$1,945							1.1%
Drywall	\$7,839							4.5%
Painting (interior & exterior)	\$11,104							6.3%
Cabinets and Countertops	\$7,640							4.3%
Appliances	\$1,459							0.8%
Carpet, Tile & Hardwood	\$10,959							6.2%
Interior Trim	\$11,836							6.7%
Hardware	\$1,207							0.7%
Landscaping and Sod	\$394							0.2%
Garage floor, Driveway & Porches	\$3,318							1.9%
Garage Door	\$740							0.4%
Alarm System	\$507							0.3%
Other	\$2,341							1.3%
<b>Total</b>	<b>\$176,022</b>							<b>100.0%</b>

\*The upsized of the residential meter from 3/4" to 1" because of the fire sprinkler is an additional cost of \$200 on the water utility fees.

## APPENDIX D FIRE TEAM USA: REAL ESTATE COMPARISON

### FROM A REAL ESTATE VIEWPOINT... AN ACTUAL COMPARISON OF SPRINKLERED VS. NON-SPRINKLERED HOMES



- built during the same time period
- located within a mile and half of each other
- one home within county (non-sprinklered)
- one home with PV city limits (sprinklered)
- similar square footage of each home

MLS and tax record information reveals the following:



**SPRINKLERED HOME**

<b>Subdivision</b>	<b>Harris Farms</b>
<b>Sq Ft.</b>	<b>1,350</b>
<b>Sales Price</b>	<b>\$137,300</b>
<b>Sprinkler Cost</b>	<b>\$1147.50</b>
<b>Closing Date</b>	<b>06/25/04</b>



**NON-SPRINKLERED HOME**

<b>Subdivision</b>	<b>Heatherwood</b>
<b>Sq Ft.</b>	<b>1,262</b>
<b>Sales Price</b>	<b>\$138,000</b>
<b>Closing Date</b>	<b>03/03/03</b>

Your eyes are not playing tricks on you. In this actual comparison, the home without fire sprinklers COST MORE than the sprinklered home. I believe what we are seeing in this example is how the economy works in the real estate market. Obviously, the homebuyer of the Heatherwood subdivision home had no idea that their dollar could buy more in neighboring Harris Farms subdivision. Harris Farms, located within the city limits, offers curbed and guttered streets, street lights, and sidewalks in addition to fire sprinklers!

To further substantiate this investigation, it should be noted that most homeowners in the sprinklered subdivision had NO IDEA how much the fire sprinklers cost. They could however, tell you how much the upgrades of granite countertops added to the price of their home. Fire sprinklers are put in the same category as plumbing and heating/air systems in the homeowners mind. They did note that they valued the added “peace of mind” and local realtors note that education is the key to understanding the fire sprinkler systems. For safety conscious homebuyers, fire sprinklers can and do “sell” the home when compared to one without.

## APPENDIX E POINT / COUNTERPOINT

### FIRE SAFETY AND RESIDENTIAL SPRINKLERS Talking Points Submitted to Redmond Fire Dept. Sept. 2006 Prepared by Vickie Pritchett and Buddy Dewar

- The National Association of Home Builders opposes mandatory requirements for fire sprinkler systems in one- and two-family construction because mandating sprinklers for all homes nationwide or in any jurisdiction has not been demonstrated to be a cost effective improvement to fire safety in homes meeting today's residential building code requirements - and because such mandates distract from or ignore other proven efforts such as fire safety education initiatives that focus on preventing fires in the first place.

**CounterPoint:** There exist many reports prepared by non-stakeholders that provide clear and concise data that fire sprinklers installed in one- and two-family homes are exceptionally cost-effective. Most notable is the Scottsdale, Arizona report Automatic Sprinklers – A 10 Year Study, which reports the average loss per sprinklered incident at \$1,945 compared to the non-sprinklered average loss per incident at \$17,067. But this report was published in 1989 and today's data from Scottsdale shows an average loss with fire sprinklers present at \$2,166 and non-sprinkler losses at \$45,019. Or stated another way, the difference between the average loss showed an 88.6% reduction when sprinklers were present in 1989 and today that difference shows a 95.2% reduction. Factually, adding fire sprinklers in one- and two-family homes benefits all except maybe the homebuilder wishing to retain the fire damaged home rebuild market.

- There have been significant improvements to the fire safety of homes over the past few decades leading to a dramatic and continued decrease in fire incidents, injury, and death and property loss. There is no data to suggest that sprinklers will significantly improve this decline.

**CounterPoint:** The NAHB is attempting to take credit for the life saving results of smoke detection. It is significant to note that the NAHB also opposed installing smoke detection devices when they surfaced in the one- and two-family home market. And while the success of smoke detection devices

have been remarkable, one cannot overlook the fact that smoke detectors are effective only to the point where the occupants are cognitively and physically capable to respond in the very limited timeframe of rapid fire growth. National statistics have shown disproportionate fire deaths for the young and the elderly for decades. A detailed study in Wisconsin showed the inability of some young to respond to the audible smoke alarm during tests. While smoke detectors gives one the "chance" to escape provided there are no mental or physical impairments, fire sprinklers will control the fire and does save lives. A detailed study by the non-stakeholders National Institute for Science and Technology (NIST) reported over 20 years ago that by placing a fire sprinkler next to the smoke detector, fire deaths in our nation would reduce by 83%. And since this report, the quick-response residential fire sprinkler has been developed. The benefits of the new quick-response fire sprinkler technology is underscored by the marked improvements in fire sprinkler losses verses non-sprinkler losses as reported by Scottsdale Arizona and others. The statement that there is no data to support fire sprinkler effectiveness is clearly false.

- The value and effectiveness of these improvements is clearly demonstrated by the consistent decrease in overall residential fires and resulting injury, death, death rate and property loss. For example:

Since 1960, the total number of fire deaths has decreased by almost 60% and the fire death rate based on population size has decreased by over 72%. This trend continues because of fire prevention education and the retirement of housing stock without these improved fire safety features.

**CounterPoint:** The reduction in fire deaths can be attributed to the installation of smoke detectors which has occurred in both new and existing homes. There is no national plan to retire older housing stock.

*continues...*

## APPENDIX E POINT / COUNTERPOINT *(continued)*

- Several examples of the fire safety improvements to residential construction that have led to these reductions in fire incident, injury and death include:
  - Interconnected, Hardwired Smoke Alarm Systems
  - Improved Electrical Systems
  - Improved Heating Systems
  - Improved Framing and Fire Blocking Techniques
  - Improved Fire Ratings on Interior Furnishings and Building Materials

**CounterPoint:** Yes, smoke alarms are a factor in reduced fire deaths. And yes, one does not find aluminum wire used instead of copper in electrical systems. And yes there are improved ratings on building material but often these higher rated building materials do not find their way into the one- and two-family home. The fact is the three main causes of fire are men, women, and children – people cause fires – and notwithstanding when the home was built or fire safety awareness programs, the carelessness of occupants is the problem. The person careless enough to leave a grease filled pan on the heated stove is not restricted to only older homes; this happens in newer homes on a just as frequent per capita basis.

- The value of these improvements is further substantiated by the fact the majority of residential fires that occur today are in older homes that generally do not have many of the improved fire safety features required in today's construction. These incidents therefore should not form the basis for requiring sprinklers since they were in homes not constructed to today's codes and many of them would likely have been prevented had they been.

**CounterPoint:** Yes, there are more fires in older homes than newer homes simply because there are older homes than new ones. The substantive issue is when is a new home considered old? With respect to the aluminum wiring issues, revisions to the electrical code resolved this problem over 30 years ago. Yes, there is new technology and as a result of new technology fire safety has improved to the extent that poor installation practices are more common issues. But the substantive issue is buildings just do not catch on fire – people cause fires.

- Sprinkler advocates will cite aggregate statistics on fire incidents, injury, death and property loss that could have been prevented by sprinklers, but ignore the fact that these occurred in homes lacking many or most of the currently required fire protection features, or how these fires could have prevented otherwise.

**CounterPoint:** Code provisions did not change overnight. Many of the fire safety features purported by the homebuilders as the cure-all have been in place for over 30 years. The provisions of the new edition of the Life Safety Code require fire sprinklers in one- and two-family homes. And these new fire sprinkler requirements for new one- and two-family homes are in the code because fire sprinkler data proves the minor added cost is insignificant when one looks at life safety and property protection.

- Sprinkler advocates will also argue that “new homes become old.” However, that argument lacks substance because it does not acknowledge that the fire safety features required in today's construction are permanent as is the protection they provide.

**CounterPoint:** Of course new homes become old; fire protective barriers become breached by the owner, telephone or cable workers. Electrical power loads per circuit deemed appropriate 20 years may not be reflective of today's electrical demand. But the substantive issue again is that people cause fires.

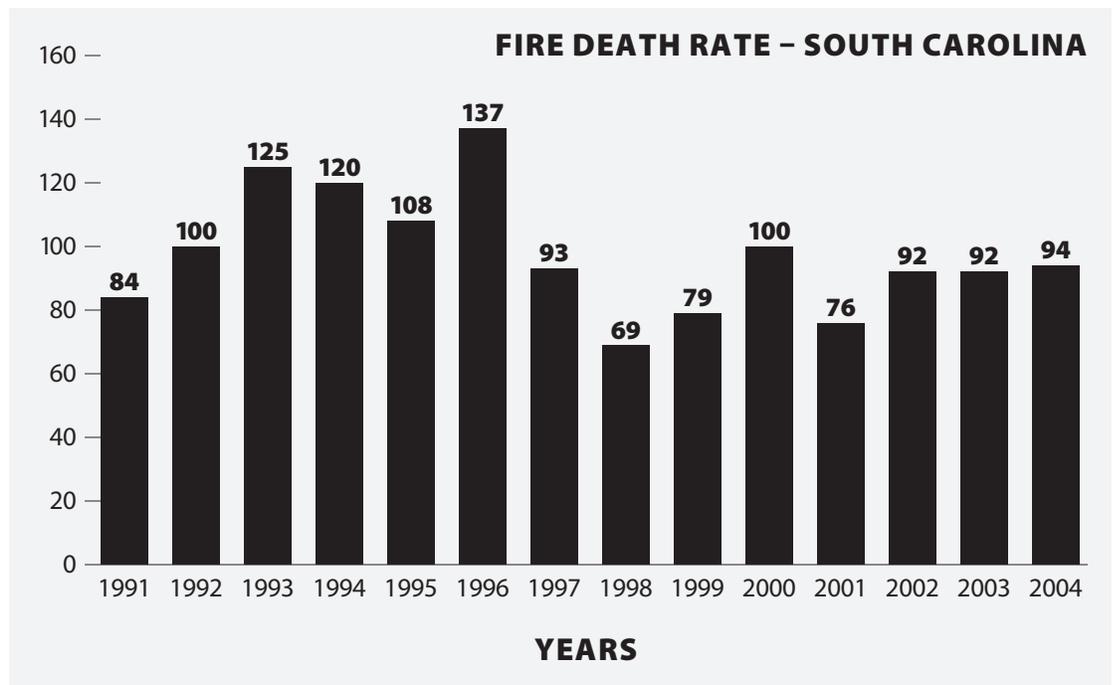
- While residential fire deaths have decreased consistently over recent decades due in large part to these improved safety features, other fire prevention efforts have also been successful such as targeted fire safety/prevention education programs. Programs of this nature should be considered first since they will ultimately prevent more fires and property loss and more importantly injury and death. For example:

The State of South Carolina successfully implemented a fire safety program entitled “Get Alarmed South Carolina.” As a result their fire  
*continues...*

## APPENDIX E POINT / COUNTERPOINT *(continued)*

death rate dropped 41% from 1996 to 1998. The program included a smoke alarm distribution component.

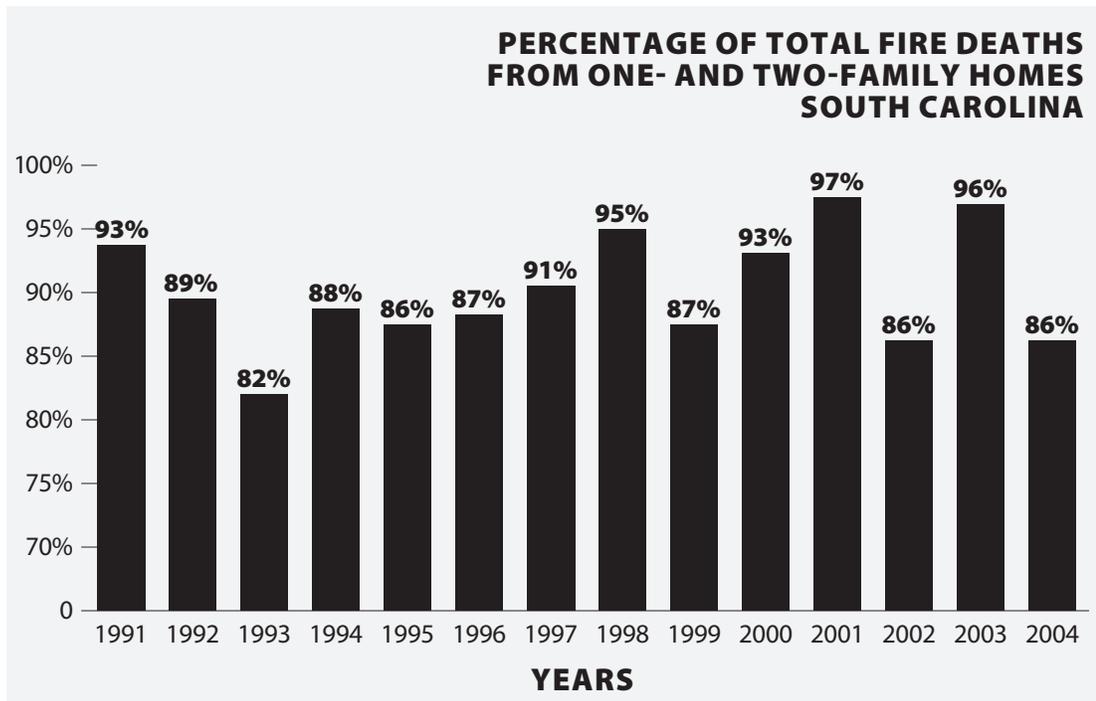
**CounterPoint:** Fire death data fluctuates from year to year and with any data set one can choose to pick only that which makes a point. Truthfully, there is little change in fire death rates in South Carolina, some good years and some bad years. The following table shows the fire death rates from 1991 to 2004 giving one a good picture of the true fire death rate in South Carolina:



*continues...*

**APPENDIX E**  
**POINT / COUNTERPOINT** *(continued)*

Most interesting is the percentage of fire deaths that occur in one- and two-family homes in South Carolina compared to other occupancy classifications. Excluding occupied vehicle, apartment and business occupancy fire deaths – focusing on single-family homes and duplexes – the percentage of deaths in homes when compared to other occupancies is shown in the following:



The percentage of fire deaths when smoke detectors were present is also increasing:

<b>1991: 12%</b>	<b>1999: 22%</b>
<b>1992: 12%</b>	<b>2000: 22%</b>
<b>1993: 17%</b>	<b>2001: 37%</b>
<b>1994: 28%</b>	<b>2002: 26%</b>
<b>1995: 28%</b>	<b>2003: 37%</b>
<b>1996: 24%</b>	<b>2004: 34%</b>
<b>1997: 22%</b>	<b>2005: 33%</b>
<b>1998: 33%</b>	

Thus, there are ebbs and tides in actual fire deaths each year. While the homebuilders isolated two consecutive downtrend years, if one looks at multiple years a true picture of fire death rates in South Carolina evolves. And if one looks at the percentage of fire deaths in one- and two-family homes compared to other occupancies such as apartments, all years from 1991 to 2004 except one year exceeds the national average of 82%. And there is clear evidence of an increase presence of smoke detectors but coupled with this increase presence is an obvious picture that smoke detectors are not the cure-all as the number of fire deaths when smoke detectors are present is also increasing.

*continues...*

## APPENDIX E POINT / COUNTERPOINT *(continued)*

- Fire prevention education programs work, especially for those homes and home environments at greatest risk. Sprinkler mandates apply only to those homes at least risk. Furthermore, based on National Fire Protection Data, the risk of death in a home with sprinklers is still close to 30% and property loss is still substantial and would still be far less overall than the overall cost of sprinklers under mandatory requirements.

**CounterPoint:** There is absolutely no data that supports this 30% figure and should it be used the simple response is showing me the data. People are dying in non-sprinkler occupancies, not fire sprinkler occupancies. And yes, fire prevention programs do work but they are far from the cure-all. The young, the elderly, and those whose abilities to respond to a smoke alarm through alcohol impairment are the homes with the greatest according to the National Fire Protection Association. An elderly person who cannot quickly exit a burning building because of a physical impairment is a perfect example.

- The NAHB supports fire safety education programs for Consumers as one the most effective and reasonable means to Preventing residential fires and reducing death, injury and property loss well as cost-effective residential fire protection technologies that are required by current codes.

**CounterPoint:** Fire sprinklers are low cost systems. Scottsdale, Arizona reports costs as low as \$0.59 per square foot. Being a large residential sprinkler market, the prices in the Phoenix Basin are low but prices around a dollar per square foot are common. As the market grows, the prices will go down as they have in the Phoenix Basin.

- The average cost of installing residential sprinklers varies on average at around \$1.50 or more per square foot. Maintenance adds additional costs though this is difficult to determine because the sprinkler industry has not been clear on exactly what maintenance is required, the frequency of it and how it needs to be performed.

**CounterPoint:** There is no substantive maintenance for a residential fire sprinkler system. The owner is responsible to maintain the system readiness as they are responsible to maintain other appliances in their homes. The simple task of periodically observing the water pressure gauge - if it reads zero then call a contractor - is not onerous or expensive.

- While sprinkler advocates argue those costs would come down, there has been no substantiation that they will. Furthermore, the sprinkler industry has resisted attempts by NAHB and others to reduce sprinkler costs by developing low cost one- and two-family sprinkler standards.

**CounterPoint:** Putting one fire sprinkler head in a kitchen is not effective fire sprinkler protection. The national low-cost standard, NFPA 13D, has been developed and has over 25-years field experience - it is working. This standard contains combination systems as well as standalone systems and was developed with the intent to lower fire sprinkler costs.

- Other questions that should be asked of jurisdictions considering mandates include whether or not their constituents desire such a mandate and what impact such a mandate would have on the municipal water utility, i.e. does it have the capacity to maintain the pressure required to operate sprinklers properly.

**CounterPoint:** The lowest fire sprinkler working pressure allowed by UL listings is mere 7 psi. The consumption of water is significantly reduced when fire sprinklers are present. For many occupancies including homes, the amount of water used to fight a fire with fire department hoses is ten-fold more than the small amounts needed for fire sprinkler protection. And the design standards allow for water storage tanks that can be less costly than some lengthy underground water line. Water utilities, once they grasp the effectiveness of fire sprinklers should warmly embrace these systems.

## APPENDIX F IAFC POSITION STATEMENT



### Position Statement

#### Fire Sprinklers in New Construction

**The International Association of Fire Chiefs adopts the position that all new construction, including one- and two-family dwellings, should be built with fire sprinklers installed to protect the public, fire service personnel, the structure, its contents, the economy and the environment.**

In an effort to reduce the number of deaths from an average of 3,000 citizens and 100 firefighters annually and to avert billions of dollars annually in property loss to the effects of fire, we must include fire sprinklers as an integral part of a community's fire protection. The increased demands made today on local fire departments, usually without increased staffing or funding, and the changes in building materials and home contents, all increase the risk to firefighters and the public. It's time to add active fire protection as a baseline in all new construction.

The time is now for the fire service to adapt to the changes in construction techniques; as new technologies becomes the norm in construction (light-weight construction, etc.), and as building contents become more flammable and more toxic as they burn. We must protect our communities in non-traditional ways with proactive, rather than reactive, approaches. The current built environment and furnishings necessitate the additional protection of built-in fire protection. Fire sprinklers will provide the active protection needed to reduce the fire risk of these new building components to citizens and firefighters.

We further state that we do not support and will oppose regulations that prevent or discourage the installation of fire sprinklers. We also stand against fees and charges that create economic barriers to the installation of fire sprinklers. We support incentives for business owners and citizens to protect their buildings, thus protecting our citizens, their property and fire service personnel.

This position statement supports the priorities of the International Association of Fire Chiefs and we pledge to work with IAFC sections, IAFC divisions, and other organizations which are interested in being proactive in providing community fire protection. We welcome partners and collaborative efforts that support similar goals. It's time for us all to take action.

**Adopted by: IAFC Board of Directors  
Date: March 13, 2008**



