



National Fire Protection Association

Timothy P. Travers, Regional Fire Sprinkler Specialist
751 Washington St., Whitman, MA 02382, USA
Phone: 617-984-7013 Email: ttravers@nfpa.org

October 19, 2011

Chairman Richard Weinert and Committee Members
MANUFACTURED HOUSING CONSENSUS COMMITTEE

RE: Fire Sprinklers in Manufactured Housing

My name is Tim Travers and I am a Regional Fire Sprinkler Specialist for the National Fire Protection Association (NFPA). The mission of NFPA, which was established in 1896, is to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. I am writing you today to express NFPA's support of fire sprinklers in all new manufactured housing and to provide you and your committee with important information about home fire sprinklers.

The latest NFPA statistics for residential fires in the United States are as follows:

- A residential fire occurs every 82 seconds
- There were 2,665 deaths in residential fires last year, up 2.9%
- There were 13,800 civilian injuries last year
- 85% of fire deaths occur in the home
- 38% of fireground fire deaths occurred in residential properties
- Annual residential structure property damage \$7.08 Billion
- On average, about eight people die in U.S. home fires every day

Smoke alarms and sprinklers both save lives from fire

Home fire sprinklers are a proven way to protect lives and property against fires at home. These life-saving systems respond quickly and effectively to the presence of a nearby fire. When sprinklers are present, they save lives. Sprinkler systems provide additional benefits, on top of the benefits already provided by smoke alarms. Most importantly, those at highest risk are children under five years of age and adults over 65. These are groups that may not be able to exit on their own even with working smoke alarms.

- Smoke alarms cut the risk of dying in a home fire by 50 percent
- If you have a reported fire in your home, the risk of dying decreases by about 80 percent when sprinklers are present

Beware of misleading percentages on survival and death

Fire sprinkler opponents have been using a statistic of 99.45 percent to illustrate the effectiveness of smoke alarms in reducing home fire deaths. This NFPA statistic estimates the

likelihood of surviving a home fire when a working smoke alarm is present. Taken completely out of context; a number like 99.45% sounds very high. But consider this:

- The total home fire death toll of roughly 3,000 deaths a year occurs in approximately 400,000 reported home fires a year. Therefore, the likelihood of surviving a home fire is over 99% without regard to the presence of smoke alarms or any other fire safety provisions. Does that mean 3,000 deaths are acceptable? Most people would say no.
- Each year, there are an estimated 12,000 deaths due to falls in homes and an estimated 11 million fall injuries in the home. The likelihood of surviving a fall is 99.9%. Does that mean 12,000 deaths are acceptable? Most people would say no.
- Each year, there are an estimated 42,000 deaths due to motor vehicle crashes and an estimated 6 million reported motor vehicle crashes. The likelihood of surviving a motor vehicle accident is 99.3%. Does that mean 42,000 deaths are acceptable? Most people would say no.

Sprinklers do more than save lives

Sprinklers do more than save lives; they also protect property from destruction by fire. In many situations, that means a family that survived a fire will also have a place to live and enough resources to continue living their lives as they did before. "Saving lives" means more than just preventing deaths. Just as there is no other fire safety technology or program that produces as great a reduction in risk of death as sprinklers, there also is no other fire safety technology or program that produces as great a reduction in property loss per fire as sprinklers.

- People in homes with sprinklers are protected against significant property loss—sprinklers reduce the average property loss by 71% per home fire

The national consensus is in favor of sprinklers

All model safety codes now require the use of home fire sprinklers in new one- and two-family homes. Model codes are the specific expression of the shared values of Americans. In the code- and standard-development process no single interest is allowed to dominate. In terms of sprinklers, the consensus position of fire and life safety experts is clear: sprinklers save lives and should be installed in all new one- and two-family dwellings.

Sprinklers offer the highest level of fire and life safety to protect people in manufactured housing.

- Home sprinkler systems respond quickly to reduce the heat, flames, and smoke from a fire, giving families valuable time to get to safety
- Roughly 90% of the time, fires are contained by the operation of just one sprinkler
- Each individual sprinkler is designed and calibrated to go off when it senses a significant heat change
- Only the sprinkler closest to the fire will activate, spraying water directly on the fire

Beware of misleading percentages on effectiveness and reliability

It is important to recognize that home fire sprinkler systems are designed to activate to the heat of a fire that grows large enough for the temperature to reach 135°-160° F. They are not activated by smoke, nor should they be.

Opponents have cited some low percentages for what they call fire sprinkler efficiency. Such statistics improperly include as failures fires that do not produce enough heat to activate the sprinkler system, possibly because they were extinguished before heat rises to the point of activating the sprinkler system. In home fires large enough to activate an operational sprinkler, wet-pipe sprinklers operated *and* were effective in 98% of reported fires.

Beware of false claims made for newer homes

Opponents of residential fire sprinkler systems like to boast that newer homes are safer homes and that the fire and death problem is limited to older homes. This statistical claim evaporates if you adjust for the higher risk characteristics (e.g., lower income, less education) found on average in the occupants of older homes. But in fact, newer homes are also more likely to include a threat to firefighters in the form of lightweight construction. Lightweight construction has been estimated to be used in a half to two-thirds of all new wood one- and two-family homes. Sprinklers can offset the increased dangers posed by lightweight construction and create a safer fire environment for firefighters to operate.

Home fire sprinklers are cost effective, they do not have a negative impact on development and they are green

On September 11, 2008 a study that was released by the Fire Protection Research Foundation (an affiliate of NFPA) found that the cost of 13D systems to the homebuilder, in dollars per sprinklered square foot, ranged from \$0.38 to \$3.66 with the average cost being \$1.61. This cost includes all costs to the builder associated with the system, including design, installation and other costs such as permits, additional equipment, increased tap and water meter fees, etc.

On July 15, 2009 a study that was conducted for NFPA by Newport Partners compared residential construction in four counties. The study concluded that the presence of sprinkler ordinances has no negative impact on the number of homes being built. (Montgomery County, Maryland, was paired with Fairfax County, Virginia, and Prince George's County was paired with Anne Arundel County, both located in Maryland. Montgomery County and Prince George's County have sprinkler requirements; Fairfax County and Anne Arundel County do not.)

On October 1, 2009 the Home Fire Sprinkler Coalition partnered with FM Global to conduct full-scale fire tests to compare the environmental impact of sprinklered vs. non-sprinklered homes. Quantitative data was collected on each burn, the first time this information has been scientifically evaluated in terms of environmental impact. The study found that sprinklers:

- Reduce greenhouse gases by 98%
- Reduce fire damage by up to 97%
- Reduce water usage to fight a home fire by upwards of 90%
- Reduce the amount of water pollution released into the environment
- Reduce debris to landfills

Prince George's County, MD was the first county to adopt a one- and two-family sprinkler ordinance. In the 15 years since enforcement of the ordinance, a study, produced in cooperation with the University of Maryland, concluded that the ordinance had a significant impact on life-safety and reduction of property damage. During the 15-year period, there were 13,494 house fires with 101 deaths and 328 injuries in homes that were not protected with fire sprinklers. There were no deaths in the homes protected with home fire sprinklers. Sprinklers cut property loss in half and the average property loss after a fire with fatalities in an unsprinklered residence was 10 times more costly than a fire in homes protected with a fire sprinkler system.

NFPA contracted with Newport Partners to examine detailed water supply information for 20 US communities with residential sprinkler ordinances. According to the study, which was released October 22, 2009, home fire sprinklers can be integrated with local water supply systems with ease. The study concluded that water supply integration requirements have been put into place, and there are no examples of insurmountable problems or issues. Neither design problems nor significant added costs were found in the communities surveyed. In more than half of the communities, no cost impact resulted from sprinkler-induced changes to water meter size, the need for additional water meters, or changes to tap size. These communities also did not have higher monthly service fees from the water supplier for homes with sprinklers. In those communities where one or more of these factors did add cost, the average added cost was about \$400. NFPA President Jim Shannon said it best when he said, "This is another critical piece of substantiation against the myths that abound about home fire sprinklers. It is simply not true that sprinklers cannot be integrated with public water supply or significantly adds to cost. What is true is that home fire sprinklers save lives and should be required in new construction of one- and two-family homes."

October 2010: Newport partners looked at incentives in 16 communities throughout the U.S. The incentives were categorized as Homeowner Incentives (e.g. reduced property taxes), Builder-Oriented Incentives (e.g. reduced fire ratings for building assemblies) and Developer-Oriented Incentives (e.g. spacing fire hydrants further apart). The following is the estimated value of incentives (estimated dollar value per building lot), assuming a community offers "typical" incentives identified in the study:

- Homeowner oriented incentives were \$145, which are recurring (e.g. reduced property taxes)
- Builder-oriented incentives were \$1,949
- Developer-oriented incentives were \$1,271, which did not include the value of reduced cul-de-sac widths (\$10,752 per cul-de-sac) or increased dead-end street length

The study found that when comparing the estimated value of builder-oriented incentives to the typical cost of a fire sprinkler system for a new single-family home, the value of the incentives (\$1,949) which a community might reasonably offer offset about one-third of the system cost (\$5,888). Incentives can target development practices, opportunities to alter the construction of the home, or modify fees or taxes in ways that benefit developers, builders, and/or homeowners.

February 2011: A study prepared by Exponent, Inc. for the Fire Protection Research Foundation on the topics of Water Usage and Water Meter Performance found that a typical sprinkler head discharges between 22 – 38 GPM (well above the required 18 GPM with an average of 28 GPM assuming a single sprinkler operating). Also, the study reports average water usage for

firefighting in homes without fire sprinkler systems can be up to 1200% higher than the water discharged by a fire sprinkler system with a 10 minute operation. Another interesting point was that the projected water infrastructure demand is reduced by 47% (or more) when homes in a community are protected by fire sprinkler systems.

Home fire sprinklers – the right answer for Manufactured Housing

Sprinkler systems have been protecting lives for over 100 years throughout the United States. Building homes without residential fire sprinkler systems equates to building substandard housing. I respectfully request that your committee consider this life saving system.

Respectfully,

Timothy P. Travers