

Reducing America's Fire Losses with Residential Fire Sprinkler Systems

Partners for Fire Safe Homes

Background

The Fire Problem in the United States

The United States has a serious and substantial fire problem. Roughly once every one and one-half seconds an unreported fire occurs. Nearly once every minute, somewhere in America, there is a home fire serious enough to warrant calling the fire department.¹

All told, fire in the United States kill more people - more than 4,500 in 1993-than all natural disasters, such as floods, hurricanes, tornadoes, earthquakes and blizzards, combined. The rate of death from fire in the U.S. is significantly higher than in other industrialized nations. The economic implications of fire loss are staggering - such as the cost of built-in fire protection, the cost of providing fire insurance, the cost of fire fighting services, the disruption of business operations after fire, medical costs for those injured, etc. When these costs, and the human and property losses directly due to fire are combined, the true cost of fire pushes up past \$100 billion a year.² Additionally, there are very substantial psychological impacts of fire on those who survive: grief, guilt, trauma from injury.

Residential Fire

The most serious aspect of the U.S. fire problem lies with residential properties. For purposes of this paper, the term residential includes one-and two-family, multi-family high and low rise, manufactured homes, and hotel/motel buildings. NFIRS data shows that about 80 percent of all fire

deaths occur in residential properties, accounting for 3,765 deaths in 1992³, and taking their heaviest toll on the elderly, the disabled, the low income and the very young. On the average day in the United States, four children will die from fire.⁴

While the public may hear more about the spectacular fires, in office buildings or public places of assembly, the truth is that the most dangerous place to be, with respect to fire, is in your own home.

Grim though this picture is, improvements have been made over the last two decades. Since the mid-70s, when the landmark Federal Fire Prevention and Control Act was passed, fire officials at local, state and Federal levels, as well as private sector leaders, have mounted a significant attack on America's fire problem.

Improvements in fire death rates have come from several different approaches. Fire departments today are better equipped and better trained than they were 20 years ago. Public education and awareness programs have made people more aware of fire danger. Lifestyle changes, like fewer people smoking, have made a significant impact. Improvements in home heating and building materials have reduced some threats. Further, building code changes have reduced the risk of fire in houses.

But far and away the most potent weapon in fighting fire death has been the smoke detector.

The Impact of Smoke Detectors

In the 1960s, the average U.S. citizen had never heard of a smoke detector. By 1993, an estimated 92 percent of all American homes - single-and multi-family, apartments, nursing homes, dormitories, etc. - were equipped with detectors.⁵ By the mid 1980s, smoke detector laws, requiring that detectors be placed in all new and

existing residences - existed in 38 states

and thousands of municipalities nationwide.⁶ And smoke detector provisions have been adopted by all of the model building code organizations.

Fire services across the country have played a major and influential public education role in alerting the public to the benefits of smoke detectors. Another key factor in this huge and rapid penetration of both the marketplace and the builder community has been the development and marketing of low cost detectors by commercial companies. In the early 1970s, the cost of protecting a three bedroom home with professionally installed detectors was approximately \$1000⁷; today the cost of owner-installed detectors in the same house has come home down to as little as \$10 per detector, or less than \$50 for the entire home. This cost structure, combined with effective public education (including key private-public partnerships), has caused a huge percentage of America's consumers, whether they are renting or buying, to demand smoke detector protection. The impact of smoke detectors on fire safety and protection is dramatic and can be simply stated. When fire breaks out, the smoke detector, functioning as an early warning system, reduces the risk of dying by nearly 50 percent. Detectors are most people's first line of defense against fire.

Looking Beyond Smoke Detectors

Smoke detectors have proven their importance in homes, but fire experts across the country are beginning to see their limitations as the only intervention strategy. First, there is mounting concern about maintenance: it is reported that in one-fifth of all houses with detectors, those detectors are not

operational.⁸ This is principally because owners don't replace batteries in battery operated detectors. Second, many homes are inadequately protected-often with only one detector when two or more are needed.

This is especially true for larger homes.⁹ Third, it is increasingly clear that smoke detectors "won't last forever" and that detectors should be replaced every 10 years.

One door-to-door survey in Connecticut found that 39 percent of all dwellings needed additional detectors.¹⁰ As important, the 8 percent of occupancies that don't have detectors are the ones most likely to have fires.¹¹ In fact, they have nearly half the home fires and a much larger share of fire deaths. Most fire deaths take place in residences without working detectors.¹²

Additionally, smoke detectors - which clearly do save lives when properly installed and maintained-have had less dramatic impact on either property loss or the cost of fire service.¹³ With a properly installed and working smoke detector, occupants are provided early warning. However, unless residents are able to extinguish a small fire, the blaze continues. The fire department must expend the resources to fight the fire.

Therefore, many fire officials, faced with increasing pressure on municipal budgets as well as high fire loss statistics, are coming to the conclusion that smoke detectors alone are not the answer to the country's residential fire problem.

Everyone agrees that smoke detector usage must be maintained and extended. But to achieve further meaningful progress in fire protection and safety, we also need an additional intervention. That intervention - already available to us - is wide scale installation of the fast response residential fire sprinkler system.

Sprinklers have been used in industrial buildings for many years, and in the last 25 years have become increasingly required for both new commercial construction and renovation. Originally introduced as a property protection device, sprinklers are now seen clearly as a way to save lives, protect property and help control against increases in the future cost of fire service and protection as well.¹⁴

These benefits, transferred to the residential sector, could clearly achieve dramatic advance in fire protection and life safety.

Smoke detectors do what their name implies. They provide early detection, and thus warning, of the fire. But they take no action on the fire itself.

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