

RESIDENTIAL SPRINKLERS SAVES LIVES

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“Home fires account for 85 percent of fire deaths in the United States, the majority in 1 or 2 family homes lacking fire sprinklers. Since 1978, however, a grassroots movement has successfully promoted more than 360 local ordinances mandating sprinklers in all new residential construction, including 1 and 2 family homes. The homebuilding industry has responded by seeking state preemption of local authority, a strategy previously used by other industries concerned about protecting their profits. From 2009 through 2011, 13 states adopted laws eliminating or limiting local authority over residential fire sprinklers.”

- American Journal of Public Health
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Few issues stir the passions of fire marshals, fire prevention officers, building officials, engineers, architects, contractors, property owners, insurance agents and fire chiefs more than residential sprinklers. If you want to start a fight, this is a hot topic to pick.

The question is why are residential sprinklers such an issue? After all, the science is clear, properly engineered fire suppression sprinkler systems save lives and protect property. Who would not be for that? The short answer: Those who have to pay for it. This has been the primary resistance to sprinkler systems since their inception.

British inventor Sir William Congreve patented the first sprinkler head over 200 years ago in 1812. While Hiram Maxim is credited with designing the first US fire suppression sprinkler system, his concept was not well accepted so his patent ultimately expired.

Henry Parmallee designed and installed the first automatic fire suppression sprinkler system. It was patented in 1874. Since then, many improvements have been developed and as a result today's sprinklers may look the same but are significantly more efficient and less expensive.

The push for commercial sprinkler systems in the United States started on March 25, 1911 following the Triangle Shirtwaist factory fire in New York City that killed 146 employees. As a result, the Factory Investigating Commission was established to study solutions to large warehouse fires.

The Commission recommended that “in the future, sprinklers be installed in all factory buildings over seven stories of 90 feet in height in which wooden floors or wooden trim are used.” Today's commercial sprinkler applications include the entire structure.

The publication “Alpha to Omega: The Evolution in Residential Fire Protection” by former California State Fire Marshal Ronny J. Coleman noted that although many jurisdictions

mandated commercial sprinkler systems, they were not required in residential applications despite their well-established effectiveness until the mid-1970's.

To this day, trade associations, home builders and others aggressively lobby local, state and federal regulators for preemptions to sprinkler requirements. However, over time, sprinkler advocates, including the nation's fire marshals, have successfully campaigned for residential mandates.

Current California State Fire Marshal Tonya Hoover points out in the August 2012 issue of "Sprinkler Age" that, "Residential sprinklers are not new to California. It all started with Ronny J. Coleman in San Clemente. Chief Coleman brought forth the first residential sprinkler ordinance in the state. By the time we got to adopting statewide, we had over 160 large jurisdictions implementing local government ordinances. Residential sprinklers were being used up and down the state." Chief Coleman later became the California State Fire Marshal and a leading national advocate for residential sprinklers.

The August 2013 issue of "American Journal of Public Health" article "Grassroots Movement Building and Preemption in the Campaign for Residential Fire Sprinklers" stresses the importance of building a grassroots movement for success. "At the inception of the residential sprinkler movement, there were several national fire prevention initiatives that provided opportunities for the sprinkler advocates to come together and share technical and strategic assistance with one another. These include the US Fire Administration and the Los Angeles City Fire Department."

Gary Keith of the National Fire Prevention Association said in the same article, "In all cases you can point to several individual champions who took this on as a personal cause, usually someone...in the fire service, and they were able to rally others to support them...It really came down to some champion within eh fire department...leading the cause [and] being able to convince the local promulgating body that this was the right thing to do...It comes from being very convincing in their argument and coming from a position of high credibility within the local community."

The primary purpose of sprinklers is to cool hot air as it reaches the ceiling to prevent, or at least prolong flashover – when an entire room ignites from hot gasses. This delay allows for occupants to evacuate safely. Secondarily, sprinklers assist in controlling a fire and frequently extinguish it prior to the arrival of the fire department.

Keep in mind that the vast majority of fatalities in residential fires are from inhalation of hot gasses and smoke not from being burned.

Despite what we see on television and movies, not all sprinklers activate in the event of a fire. Each sprinkler head must reach between 130 to 135 degrees prior to opening up well in advance of flashover conditions. Some commercial sprinkler heads may activate around 165 degrees depending on system design and placement within a structure.

Residential sprinklers are designed to flow at .05 gallons per minute per square foot. This equates to 13 gallons per minute for 256 square feet. Despite common perception, there is no river of water running down the halls from sprinklers. In fact, much of the spray evaporates because of the heat in the room further cooling the air.

Chief Coleman comments in his article “Top Ten Reasons” in the August 2012 issue of “Sprinkler Age” about the Village of Tinley Park, Illinois and why they support commercial and residential sprinklers:

- Improve firefighter and occupant safety
- Less business interruptions
- Improve village image
- Maintains sales tax/property taxes
- Minimizes job loss
- Supports green initiatives
- Reduces insurance costs
- Reduces water usage
- Reduces village resources
- Deterrent to vandalism and arson

Closer to home, Santa Barbara resident and owner of the famed Magic Castle Milt Larsen commented extensively on the show Community Alert on March 13th 2012 about how a newly installed sprinkler system saved the historic Castle on Halloween of 2011. Sprinklers, coupled with an aggressive response by the Los Angeles City Fire Department, saved irreplaceable artifacts, if not the entire Castle.

None the less, the American Journal of Health article points out that “The national and state level homebuilders associations often oppose the addition of new health or safety requirements into building codes and this includes residential fire sprinkler rules. Their primary rationale for opposing residential sprinklers mandates is that the expense of installing sprinklers in new single-family homes will negatively affect home sales.”

However, the Newport Partners report “Home Fire Sprinkler Cost Assessment” estimated that “sprinkler installation in new homes averages \$1.6 per square foot. J. Fords report “Fifteen Years of Built-In Automatic Fire Sprinklers: The Scottsdale Experience” found that installation costs dropped to between \$0.55 and \$0.75 per square foot for typical homes following widespread implementation.

Regardless of construction costs, sprinklers will pay off dividends with insurance premium savings and a reduction in claim loss in the event of a fire.

On January 23, 2010, the California Building Standards Commission approved the State Fire Marshal's Building, Fire and Residential Code adoption packages for the 2010 California Building Standards Codes. The new standards became effective on January 1, 2011. A fire

suppression sprinkler system in new residential as well as commercial construction within California is now the law.

In 2012 the American Fire Sprinkler Association awarded Chief Hoover Fire Sprinkler Advocate of the Year for her continuation of the efforts of over 40 years by past fire marshals to enactment to state law. The lives and property saved in the decades to come will be credited to the dedicated individuals that remained focused on the goal.

As a community we are searching for ways to reduce risk, reduce costs and improve our emergency services. Sprinklers meet all three of these objectives. Coupled with smoke detectors and fire alarm systems, sprinklers save lives and property - perhaps even yours.