

# **Texas Municipal League Presentation on Proposed Legislation To Allow Authorities Having Ordinance Making Power to Decide the Issue of Requiring Residential Fire Sprinklers In Newly Constructed Single Family and Duplex Homes**

## **Problem**

In 2009, the Texas Legislature enacted legislation that, on a statewide basis, prohibited local jurisdictions from enforcing the portion of the International Residential Code (IRC) that requires the installation of fire protection sprinkler systems in newly constructed single family and duplex type homes.

## **History**

Prior to 2009 the International Residential Code (IRC) included residential sprinkler requirements in the appendices. When the IRC was adopted by a municipality the residential sprinkler component was not automatically included as part the code of ordinances until the municipality specifically amended the IRC to include the residential sprinkler component into the body of the code by ordinance. In 2009 the residential sprinkler component of the IRC was added to the body of the code which required a municipality to specifically remove the residential sprinkler component from the code by ordinance if the municipality chose to not require residential sprinklers in newly constructed homes.

The National Home Builders Association (NHBA), nationwide, objected to moving the residential sprinkler component of the IRC to the body of the code but was unsuccessful in stopping this effort. In turn, the HBA began an initiative in each state legislature to prevent the IRC from being adopted in its entirety. In some states they were successful while in others they were not. In Texas they were successful by prohibiting municipalities from adopting residential sprinkler ordinances not already in effect prior to January 1, 2009. A few municipalities, including the City of West University Place, actually lost their ordinance because they adopted residential sprinkler ordinances between January 1st and the day the law went into effect.

During the 2009 Legislative Session, Governor Perry signed into law a bill that would allow plumbers to install multipurpose residential sprinklers without having to be regulated by the State Fire Marshal. However, Representative Otto attached an amendment to this bill that prohibited municipalities from enforcing the residential sprinkler component of the IRC. In the 2015 Legislative Session, House Bill 4051 was filed by Representative Fletcher in an attempt to return the decision to local municipalities such as Tomball. This proposal did not make it out of its conference committee.

This brings us to today. The City of Tomball is requesting that this law that prohibits municipalities from adopting residential sprinklers be reversed. Below you will find several examples of why the reversal is beneficial.

## **Life Safety**

The changes in construction techniques and materials, combined with the increased use of synthetics made from petroleum products, has increased the intensity and fire spread exponentially over the past 20 years. Previously, homes were constructed of dimensional lumber rather than light-weight truss assemblies and lam-beams. Furnishings were made of cotton materials and wood rather than petroleum based synthetic materials. These “improvements” have significantly changed the fire dynamics resulting in heat rates exceeding 1,100 degrees and fire spread to the full room involvement (flashover) occurring within 6 minutes of ignition. The byproducts of combustion (smoke) generated by burning synthetics produce highly toxic fumes capable of quickly incapacitating an individual. Smoke inhalation and thermal injuries were the primary symptoms leading to civilian fatalities in 90 percent of all residential fire fatalities (U.S. Fire Administration, 2015). Additionally, 50% of the fatalities occurred in bedrooms with 52% of the fatalities occurring between the hours of 11:00 p.m. and 7:00 a.m. In Texas in 2014, 8 of the 92 fatalities occurred in residences in which smoke detectors were present and did operate (Texas Department of Insurance, 2015, pg. 21). This includes fire incidents in which the detectors were not in the room of origin, but did operate. 15 of the 92 Texas fatalities in 2014 occurred in residences where a smoke detector was present and either failed to operate or it was undetermined if the detector operated. 29 of the 92 fatalities occurred in homes without smoke detectors and 40 of the 92 fatalities occurred where the damage was so severe that it could not be determined if a smoke detector was present (Texas Department of Insurance, 2015, pg. 21). It is undisputed that smoke detectors save lives. Research, however, has also shown that a regular smoke detector’s audible alerting sound may not awaken sleeping children or disturb older adults. Research has also shown that most persons may not detect a smoke odor while sleeping. but the research has shown that, when detectors are combined with residential sprinklers, a significant reduction in fatalities and injuries will be achieved. NFPA states a person living in a home protected by residential sprinklers and smoke detectors has an 82% chance to survive a fire in their home versus a 63% chance with only smoke detectors in place. The State of Texas statistics suggest this to be true. Many years ago Texas began requiring fire sprinklers in multifamily buildings. The State Fire Marshal reports that NO fire deaths have occurred in sprinkler protected apartment buildings since the requirement was initiated. However, in existing apartment buildings numerous deaths have occurred, some with multiple fire deaths during the same incident. In 2014, 110 of the 115 civilian deaths and 586 of the 641 civilian injuries occurred in residential structure fires (Texas Department of Insurance, 2015, pg. 10). The 2 fire service fatalities and 254 of the 317 fire service

injuries in 2014 occurred in residential structures (Texas Department of Insurance, 2015, pg. 10). Residential fire sprinklers can virtually eliminate firefighter fatalities in protected homes because fires are either controlled or extinguished before the arrival of fire units thus minimizing the potential for a flashover event. As an example, the six villages that make up the Memorial Village area on the West side of Houston have had residential sprinkler ordinances since 1999. In every fire incident since 1999 in homes protected by residential fire sprinklers, the fires were virtually extinguished before the arrival of the Village Fire Department requiring no hose lines to be deployed. The same cannot be said for those homes not protected.

## **Potential Savings of Tax Dollars**

Municipal fire protection is expensive. Engines costs have steadily increased to upwards of \$750,000, ladder trucks cost in excess of \$1,000,000, and fire stations cost well in excess of \$2,000,000. However, the ongoing cost of personnel, personnel benefits, and state mandated training and safety equipment for four full-time firefighters staffing an apparatus on a 24 hour per day basis will approach \$1,000,000 annually. These costs could be reduced by safely increasing response times from 5 to 7 or 8 minutes which can be accomplished by increasing the distances between fire stations, thus requiring fewer stations, apparatus and staff. The addition of residential sprinklers could make this possible. Activation of a single sprinkler head can minimize the growth of a fire and allow occupants the extra time to safely evacuate from a home. With the growth of the fire minimized, responding firefighters will be faced with a significantly less dangerous environment reducing the likelihood of expensive firefighter injuries or fatalities. The Tomball and Texas populations are growing because of the efforts of our State Government in holding the line on taxes and Governors Perry and Abbott's job creation initiatives. The down side is that cities have to carry the burden of providing fire protection. In areas around Houston, Austin, Dallas, and the Rio Grande Valley municipalities are being faced with the prospect of spending millions to provide fire protection for this growing population or providing less than acceptable service. A requirement to sprinkler homes in new subdivisions in outlying areas will safely allow for an increase in response times to these areas and minimize the budgetary impact of providing fire protection. The creation of a public/private partnership in providing fire protection will assist in minimizing any increase in taxes for fire protection.

The population growth of Tomball impacted the ability of an all-volunteer fire department to keep up with the community's growth and required the City to create a combination agency. As a result, Tomball has seen its budget for fire protection grow from \$725,000 in 2004 to \$3,200,000 in 2016. Similar to many areas of the state, the City of Tomball now operates a fire department comprised of full-time, part-time paid and volunteer firefighters. This type of agency provides well-trained certified firefighters with reduced impact on the City's budget but with a somewhat less than desirable reliability level for staffing. The Department continues to recruit volunteers but will eventually, as additional stations are required to

accommodate the area's growth, be forced to employ additional full-time and part-time firefighters to reliably staff its apparatus. Without legislative relief to allow the City Council to consider the requirement of the installation of residential sprinklers in newly constructed single family and duplex type housing, this budget will be forced to grow to in excess of \$5,000,000 to add two additional fire stations. An alternative to expanding the service delivery system is to require residential sprinkler protection for new construction in the growth areas.

## **Home Builder Profits**

Home builders object to this proposed legislation strictly on principal and on urging from the National Association of Home Builders (NAHB) alone (National Association of Home Builders, 2016). A component of their objection is based on the economics or cost of the installation of these systems. This argument appears to be invalid in Texas and even more so in Harris County where costs to install systems during new home construction are being quoted at \$2.00 per square foot and less (usually less than the cost to upgrade to granite counter tops).

To offset these additional costs, there exist additional methods to increase profits for builders and developers beyond more than just markups. For example, the fire code requires two ingress/egress points for subdivisions containing more than 30 lots if homes do not contain fire sprinklers. A developer can reduce the ingress/egress points to one by requiring homes to be built with sprinkler, thus adding a few more lots to be sold and potentially reducing the cost per lot. The developer can request for further concessions such as narrower streets, smaller lot sizes, reduced distances between houses, increased distances between fire hydrants, deeper cul-de-sacs, flag lots, etc., all translating into higher profits for the developer/builder. With the legislative approval of multipurpose residential sprinkler systems that plumbers can install, a builder does not have to deal with an additional trade to keep construction on schedule.

It was told to me by the Vice President of Regulatory Affairs and General Counsel of the Texas Association of Builders (TAB) that a study had been compiled by the Texas A&M Real Estate Research that indicated that a minimal cost increase of \$1,000 in the price of homes in Texas disenfranchised two-hundred thousand potential home buyers. A copy of the study was requested from the TAB but was never received. Additionally, the arguments offered by the TAB during the 2009 Legislative Session contained a claim that the National Fire Protection Association's report numbers do not show that a problem exists. Attached is a letter from Donald P. Bliss, NFPA Vice President of Field Operations, addressed to Randall F. Parr, along with a copy of the document referenced in his letter. The document referenced is a rebuttal of NAHB claims and distortions.

## **System Operation**

A sprinkler head is activated by heat from a fire. The head is activated based on its temperature setting (165 degrees) and water will flow from the system at between 13 and 18 gallons. This flow will control a fire, provide additional time for occupants to escape and result in a significantly less dangerous environment for responding firefighters. A significant number of people believe that all sprinkler heads in the entire system flow water when the system is activated. This makes good action scenes in the movies but is simply not true. The fact is residential sprinkler system heads activate only when the fixture temperature is reached. Experience has shown that most fires are controlled or extinguished with only one sprinkler head. Most systems are calculated for a 16x16 coverage (living room, family room or master bedroom), resulting in only 13 gallons per minute (GPM) flowing from the head. For larger coverage areas, up to 20x20 coverage, the flow will be 20 GPM per head. There is no greater probability of a sprinkler system flowing water, without the presence of a fire, than a leak in the normal domestic plumbing system.

A system activation will flow sufficient water to control or extinguish a fire with one sprinkler head in most cases flowing between 13 and 20 GPM with minimal fire, smoke and water damage. In comparison, a fire in a home with no fire sprinkler system will suffer significantly more fire and smoke damage as the fire grows unabated for an additional 7 minutes while the fire department responds and then attacks the fire with a fire hose flowing as much as 200 GPM. At this point the water damage is mostly forgotten because the fire has caused significant damage to the point that living conditions after the fire are intolerable and damage is well into the thousands. Studies have shown that the average fire damage for an unsprinklered home is about \$45,000 while a home protected by a fire sprinkler system averaged about \$2,200 in fire loss including water damage. It is interesting again to note that NO fire deaths have occurred as a result of a fire in a home protected by fire sprinklers.

## **Conclusion**

This proposed legislation is NOT a statewide mandate, but, only returning the decision process to a municipality to provide an option on how it provides fire protection. We ask that the TML Legislative Committee support this proposal and allow municipalities to choose residential sprinkler ordinances as an option for providing cost effective and efficient fire protection for our citizens

Admittedly some of these cost savings mentioned will not have an immediate effect, while others will most assuredly be immediate, but we must begin the process now. We encourage TML to contact their fire service constituents and have a frank discussion about residential sprinklers. Rely on organizations such as NFPA and the Texas Residential Fire Sprinkler Coalition to give you factual information about residential sprinklers, how they work, and their impact on saving lives and property

## **References**

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