INTRODUCTION

New York State Builders Association (NYSBA) has commissioned Easterhill Research Company, a Research and Planning Consultant, to compile a Housing Market Study to review and assess the feasibility and impact of requiring fire sprinkler systems in one and two-unit residential dwellings in NYS (excluding New York City).

PURPOSE OF THIS REPORT

The housing study will review and assess the feasibility and impact of requiring fire sprinkler systems in one and two-unit residential dwellings in NYS (excluding New York City). The material to be reviewed and examined includes but not limited to:

- fire fatalities in New York State
- Fire sprinkler, materials and system requirements,
- x Construction materials and building code changes,
- Interviews with industry experts

In November 2021, Governor Hochul of New York State signed into law a bill requiring builders to provide prospective purchasers an estimate for installing an automatic fire sprinkler system in one and two family units[57].

Governor Hochul proclaimed May 13-19, 2024, Home Fire Sprinkler Awareness Week in New York State. The Resolution states that 1,422 civilians died in home fires. However, only 73 fire fatalities occurred in 1 and 2 family dwellings, and the majority of those fatalities occurred in 1 and 2 family homes built before 2000[60]. Further, the Resolution claims that the composition of construction materials and furniture produces deadly toxic materials in less than 2 minutes. According to FEMA, the majority of fire fatalities are caused by carbon monoxide and smoke.

There is an on-going debate over mandating fire sprinkler systems in one and two family homes. Among the issues being debated include but are not limited to:

Cost
Facts of impact
Affordability of homes
Unique Interest Lobby funding this mandate

METHODOLOGY

The report's organization follows the New York State Department of Housing and Community Renewal (NYSHCR) underwriting guidelines and the United States Department of Housing and Urban Development (HUD). Most of the information is presented in tables, maps, pictures, and statistics. These indicators include but are not limited to:

- Population changes
- Household characteristics
- Housing inventories
- Fire a

EXECUTIVE SUMMARY

New York State Builder Association (NYSBA) has commissioned Asterhill Research Company, a Research and Planning Consultant, to compile a Housing Study to review and assess the feasibility and impact of requiring fire sprinkler systems in one and two-unit residential dwellings in NYS (excluding New York City). This housing study reviewed population, housing, and economic trends, together with current market information, to assess the feasibility and practicality of

that the levels of carbon monoxide do not exceed the lethal levels[59]. In November 2021, Governor Hochul of New York State signed into law a bill requiring builders to provide prospective purchasers an estimate for installing an automatic fire sprinkler system in one and two family units[57].

Governor Hochul proclaimed May 13-19, 2024, Home Fire Sprinkler Awareness Week in New York State. The Resolution states that 142 civilians died in home fires (2017). However, only 73 fire fatalities occurred in 1 and 2-family dwellings, and the majority of those fatalities occurred in 1 and 2-family homes built before 2000[60]. Additionally, when the NYC region was removed from this count, there were only 50 fatalities or 2.5 fatalities per million in NYS. Advocates continue to push for legislation to mandate automatic fire sprinklers in one and two-family structures. A strong lobby, including the National Fire Sprinkler Association (NFSA) and the U.S. Fire Administration (USFA), has promoted fire sprinkler systems in residential homes[61,62]. -00 Tc -.1.003 Tw 10.98 0i2 Tw .

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1. POPULATION AND RESIDENTIAL STRUCTURES IN NYS

As of 2023, New York is the nation's fourth-most populous state, behind California, Texas, and Florida. Two-thirds of the state's population resides in the New York metropolitan area. New York City is the most populous city in the United States[2,10], with an estimated population of 8,622,467 in 2022[2]. See Table 2.1 below.

Table 2.1 Housing Data by Regions in New York State 2022[1]

NYS Regions	1 Western NY	2 Finger lakes	3 Southern Tier	4 Central NY	5 North Country	6 Mohawk Valley	7 Capital	8 Hudson Valley	9 New York City	10 Long Island

In Table 2.5, the fire fatalities are broken down by regions in NYS. The annual fire fatalities are 3.2 per million, excluding the NYC Region.

Table 2.5 NYS Fire Fatalities By Region and Year for 1 and 2 Family Dwellings[1]								
	2024[2]	2023	2022	2021	2020	2019	Total	%

carbon monoxide detection. For best protection, smoke and fire detection technologies (ionization, photoelectric, and carbon monoxide) should be used in all homes, including existing and new residential structures.

Since the 1990s, the NFPA has recommended fire code standards nationwide. NFPA sets the standards for technical aspects of sprinklers installed in the USA. Building codes specifying which buildings require sprinklers are left to local jurisdictions[30].
A fire sprinkler system is an active fire protection method consisting of a water supply system providing adequate pressure and flow rate to a water distribution piping system to which fire sprinklers are connected[30].

A fire sprinkler system is an active fire protection process consisting of a water (or other alternative materials) supply providing sufficient pressure and flow rate tw7 0 Tw 1p3.4 (u)-Dm98 0 0e fir30ariecem thiire w(em)-5.2eem

Table 2.6 Estimated Cost of Building New Home in New York State												
		Albany	Syracuse	Rochester	White Plain	Hicksville	Utica	NYC	Watertown	Binghamton	Buffalo	NYS Average
New Single-Family SF												

Table 2.8 Components of A Wet Fire Sprinkler System		
Component	Description	Cost Range
Sprinkler Heads	Mounted on pipes, these automatically release water when activated by heat firedirectly. The heads come in different types, such as pendant, upright, sidewall, and concealed.	$1.25 to $1,235 each
Pipes	The network of pipes distributes water throughout the building, connecting to the sprinkler heads.	Copper Pipe: ¾" $1.10 to $3.60/lf Ptec: $1.20 to $2.30/lf

In cold climates, fire sprinkler systems become vulnerable to freezing, making them less effective and responsive and increasing the risk of severe water damage from bursting pipes[46,47]. Winterizing these systems is critical, adding to the annual maintenance cost. Cold weather can cause your fire protection system to cease functioning or cause significant water damage. Less

Most architects and engineers are aware that the current state law requires quotes, but many of their clients reject AFSS when proposing new construction. They felt AFSS had merit, but it was a great overreach by the State to mandate it.
Municipalities varied by region. In more densely populated areas, AFSS could have a positive impact, but the cost of such systems would have a negative impact. They were unclear about the impact on them, water providers, and services. In the less populated areas of the State, there were questions of practicality, such as environmental concerns, water availability, and how such a mandate would impact them.

Fire departments understood the potential benefits but recognized the cost burden on homeowners and the water and environmental problems.

Builders and developers were the most outspoken group. They cite that the additional cost burden would drive potential purchasers to choose other avenues to bypass such a mandate. This mandate would harm their businesses.

When informed of the fire fatality facts, all the participants thought that more efforts should be made to ensure that there were working smoke and carbon monoxide alarms in one—and two-family

Fire Fatality Facts in New York State

- Between 2015 and 2019, there were 33 states with a higher rate of fire deaths per million people in the State than New York State, including Maryland, Pennsylvania, North Carolina, and more (See Appendix for list)[65].
- Between 2019 and 2024, there was an average of 64 fire fatalities per year in NYS (excluding NYC) in 1 and 2-family units[15].
    - Averaging 3.2 fire fatalities per million people in NYS
- The majority of fire fatalities victims are the elderly, children, and low-income individuals and families.
    - 40% of the fatalities were seniors and children
- All of the fire fatalities occurred in residential structures built before 2000, with an average dwelling built in 1932.
- 42% of residential fatal fires could not determine the presence of smoke alarms[64].
- 33% of residential fatal fires reported smoke alarms[64].
    - 16% present and operating
    - 7% present but didn't operate
- Fires in 1 and 2-family housing accounted for 87% of fatal residential fires in which no smoke alarm was present[64].
    - Multi-family housing accounted for just 7% of these fires because they are subject to more stringent code enforcement[64].

Cost of Residential Fire Sprinkler Systems

There is an ongoing debate over the cost of residential fire sprinkler systems. According to the NFPA cost assessment report (2023), the average cost of a fire sprinkler system per square foot ranges from $1.35-1.61. However, the report says it could be as high as $2.47 per square foot (for a dwelling with 8,500 square feet)[66]. Other sources such as the American Fire Sprinkler Association, NFSA, Homeguide.com, Angie, and more represent the cost of such a system to range between $1.35 to $3.00 per square for a 1 and 2-unit residences.

The costs represented by NFSA, AFSA, and other sources do not explain what is included in the costs.

According to builders and national cost estimating databases, the average cost to install an automatic fire sprinkler system (in New York State and excluding New York City) will range from $7.73 to $9.54 per square foot for a new single-family home with 2,550 square feet ($19,708 to $23,379). Subject to the location of the water supply and local fees, that cost can rise from $9.68 to $11.76 per square foot ($24,684 to $29,982).

Consumers can expect to incur additional costs beyond the basic fire sprinkler system, including but not limited to:

- Permits for fire sprinkler systems by local municipalities and water supply entities,
- Water storage storage onsite to supply water for at least 10 minutes,
- Water pumps to deliver water to the fire sprinklers,
- Backflow preventers,
- Switching and monitoring devices, iii1/2 (a59 0 Tdl)Tj 5Tdl

Fire sprinkler systems are expensive and add 3-5% to the cost of a new one and 2-family home;

- Fire sprinkler systems cannot detect smoke and carbon monoxide;
- Activated heads create more smoke, making exits harder to find for occupants to exit the structure,
- Fire sprinkler systems have system failures from:
  - Inadequate water supplies in the systems
  - Insufficient pressure in the system:
    - Air
    - Water
  - Cold weather issues:
    - Freezing water in lines
    - Freezing valve openings
- Requires annual maintenance servicing and system testing

Conclusion

Mandating residential fire sprinkler systems for new one—and two-family homes is an unnecessary cost burden for individuals and families in New York State.

Buyers should have the right to choose and not to have New York State mandate residential fire sprinkler systems

Special interest groups, the NFPA, and state leadership have used outdated infosaavehlss2ndah i29 (s(te)]TJ 0.0