

**Reducing Fatal Fires in New York State's
New One- and Two-Family Homes:**

*Is Mandating the Installation of Fire Sprinkler Systems
the
Best Course of Action?*

A Research and Position White Paper

from the

**New York State Builders Association
Research and Education Foundation, Inc.**

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Reducing Fatal Fires in New York State's New One- and Two-Family Homes: Is Mandating the Installation of Fire Sprinkler Systems the Best Course of Action?

Introduction

The purpose of this study by the New York State Builders Association Research and Education Foundation (NYSBA REF) is to analyze data from fatal fires in one- and two-family residences occurring in New York State from 2000 through 2006. This will help identify factors to conclude if the proposed mandate to install fire sprinkler systems in newly constructed homes is the best course of action to reduce fire deaths.

Most of the data was acquired through the Freedom of Information Law (FOIL) process from the State of New York Department of State's Office of Fire Prevention and Control's (OFPC's) Fire Reporting Unit. Information provided had been submitted to OFPC in varying levels of completeness by a variety of local government and firefighting sources subsequent to fatal fires. Some additional house age data was compiled by NYSBA REF through HomeInfoMax, an online realty site.

An Excel spreadsheet was developed compiling the following information: name of the volunteer fire department on call at the fire, number of deaths, year home was built and home address. A summation of total deaths and the average age of the dwelling were calculated for the seven year data period. The spreadsheet is attached.

Findings

There were 495 fatalities at 389 locations in New York in the subject period. Complete data was available for 123 sites (31.6%) which in all probability represent a statistically significant sample from which to draw sufficient preliminary conclusions. Notably, the sample shows that the homes in which a fatal fire occurred were constructed, on average, in 1940. Since improved building practices can result in safer homes, and evolving building codes take into account and reflect some of these practices, the ages of the subject homes provide a particularly important area of analysis.

One of the most significant fire-related changes in building codes was the mandating of smoke detecting alarm devices in New York's new home construction in 1984, which is referenced below as an important milestone in the data reviewed. This was strengthened in 1995 when hard-wired alarms with battery back-up became mandatory for all new homes.

Out of the sample homes having fatal fires, 106 or 86.2% were constructed prior to 1984, before New York's smoke detecting alarm mandate. There were 139 individuals who lost their lives in these fires, representing 88.5% of the deaths included in the sample. A total of 23 incidents of multiple fatalities occurred in this group. Multiple deaths happened only once in the sample homes built after 1984. The sample includes only eleven fatalities in homes built in the ten year period between 1997 and 2006. Obviously, every death is heartbreaking but this information may indicate that a level of safety has been achieved in newer homes that would minimize the value of fire sprinkler systems when all factors are considered.



Discussion and Conclusions

The data described above shows a dramatic difference between older and newer homes. It is clear that new homes have built-in precautions that are saving lives.

Fatalities, injuries and destruction resulting from residential fires are terribly tragic but preventable. The U.S. Department of Homeland Security highlights the seriousness of home fires by citing that in 2002 there were 401,000 residential fires throughout the United States, resulting in 2,695 civilian fire deaths, 14,050 civilian injuries and over \$6 billion in property damage. According to the U.S. Fire Administration, a fire occurs in a residential structure every 79 seconds. The question addressed here is whether mandating residential sprinkler systems in new homes is the best way to reduce fire deaths.

Following continuously improved electrical wiring codes, it is commonly accepted that the mandate requiring smoke detecting alarm installations in new homes had a dramatic and very positive influence on diminishing fire fatalities. For a relatively small investment and with proper maintenance, primarily installing fresh batteries on a regular basis for portable units, these alarms have been very successful. They have proven their worth thousands of times over. The International Association of Fire Chiefs (IAFC) says "...non-working smoke alarms are often responsible for the increasing number of home fire deaths and injuries" and thanks to their efforts "... home fire deaths continue to be on the decline and millions of families nationwide are hearing the Change Your Clock Change Your Battery™ message." NYSBA REF research shows that the majority of fatal fires in New York between 2000 and 2006 were in homes built prior to smoke detecting alarm requirements. NYSBA REF agrees with the IAFC that additional deaths could have been avoided if residents maintained their existing smoke detecting alarms, a low-cost, low-impact safety practice.

Mandating sprinkler systems, however, would substantially affect housing prices with a median installation cost of about \$6,000. As difficult as it is to confront, it is a fact that not every available safety feature can be made affordable and be absorbed in the cost of a product. Decisions are made every day by individuals weighing the risks of injury or death when buying automobiles, for instance. Pricing items out of the market, including homes, would have a dramatic effect on the economy, workforce and quality of life.

In addition to the installation costs, annual sprinkler maintenance and testing expenses are in the hundreds of dollars. Can most homeowners be counted on to consistently schedule and afford these services? Necessary repairs can vary greatly and technicians and parts are expensive. Costly system malfunctions can result in damages to furniture, floor coverings, appliances, clothing and other components. Also, introducing a new source of potentially damaging moisture into each home could be disastrous, especially with today's tighter, more energy-efficient homes. Two other factors to be considered are the potential for freezing and bursting pipes and the viability and costs associated with ensuring sufficient pump pressure and stand-by water in well systems. Due to these manifold serious concerns, it should be a homebuyer's option to determine if a sprinkler system is viable for their circumstances after receipt of all of the facts and descriptions of all possible consequences.



There have been suggestions that homeowner insurance discounts given for the existence of sprinkler systems will contribute greatly to paying down the cost of the systems. A recent thorough National Association of Home Builders (NAHB) report detailed findings regarding discounts, their amounts, sprinkler system costs and the payback time required to recoup investments in them. According to the NAHB, the median cost of a new home in New York in 2007 is \$305,803 and the median annual cost of insurance for that home is \$630. The average discount for having a Class A sprinkler system, weighted by insurance provider, is 11%. This represents an annual savings of \$69.30 per year in New York. With the median cost for a sprinkler system, associated fees and other installation costs calculated to be \$5,573, the payback from insurance discounts for the system would be over 80 years, not a good investment by any means. If the sprinkler system's cost is included in a typically brokered purchase and financed mortgage, the payback for the system could climb to almost 100 years. And since insurance companies usually have a total cap of about 20% for discounts related to safety devices (e.g., deadbolt locks, burglar alarms and smoke detectors), given the large number of such features in many homes, the actual impact on the insurance payment could be very small or zero, greatly lengthening the payback period or making it incalculable.

NYSBA REF asserts that residential fire sprinkler systems are not economically viable and there is little proof that they reduce the risk of dying in a house fire. The need to mandate sprinklers in new one- or two-family homes has never been justified. Residential fire incidents, injuries and deaths continue to decline as newer housing stock increases its percentage of the whole. Advances in construction practices and materials, the effectiveness of smoke detecting alarms, and fire prevention and education efforts are working well. Mandating and installing smoke detecting alarms continues to be a more practical, cost effective and proven way to reduce fire casualties in the United States.

According to the Michigan Association of Homebuilders, new homes are safer than ever. Fire protection codes seek to reduce the number of casualties and home damage due to a fire. These codes include fire separation, fire blocking and draft stopping, emergency escape and rescue openings, electrical circuit breakers, capacity and outlet spacing and reduced need for space heaters in energy efficient homes. The majority of fatal fires are in older, substandard homes that do not contain the significant improvements in fire safety features of homes built to current code standards. Older homes can have building materials, space heaters, faulty wiring or other characteristics that might lead to a greater risk of a fire starting along with structural inadequacy or lesser ease of exit.

Smoke detecting alarms, along with fire safety education, play a major role in saving lives. They also save money. Per the United States Fire Administration, the average cost for interconnected, hard-wired smoke detecting alarms with battery backup is \$50.00 per station. On the other hand, residential fire sprinkler systems in New York may cost many thousands of dollars and push hundreds of thousands of would-be homeowners out of the housing market due to this additional financial burden. The latest NAHB figures show that for every \$1,000 increase in the nationwide average cost of a new home, over 217,000 potential homebuyers are priced out of the market because they can no longer afford or qualify for a mortgage. Fallout from the sub-prime mortgage crisis will most certainly increase this number. A sprinkler system mandate would seem to contradict goals of increased affordable home ownership by New Yorkers.



In conclusion, NYSBA is recommending the continued use of smoke detecting alarms, and education of the public on their maintenance, along with vigilant existing code compliance, as the best courses of action to reduce fatal fires in New York State's new one- and two-family homes. Data included in this study show that the average home in which a fire fatality occurred was built in 1940. These homes probably did not have operational smoke detecting alarms and were not built to today's standards. Mandating residential fire sprinklers in homes in New York State is not an economically sound idea, there are operational shortcomings, they have not been proven to vastly save more lives and their costs will create barriers to entry level homebuyers.



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FIRE DEPT.	NO. OF DEATHS	YEAR BUILT	ADDRESS
Gouverneur	2	1850	907 US Hwy 11, Gouverneur, NY 13642
Seneca Falls	2	1850	121 Cayuga St, Seneca Falls, NY 13148
Keesville	1	1850	86 Connell Rd, Keesville, NY 12944
Mooers Forks	1	1850	928 Bush Rd, Mooers Forks, NY 12959
Vestal	1	1850	291 Grippen Hill Rd, Vestal, NY 13850
St. Johnsville	3	1860	109 Church Hill Rd, St Johnsville, NY 13452
Fort Plain	1	1860	338 Nellis Rd, Fort Plain, NY 13339
West Carthage	1	1860	31 Champion St, West Carthage, NY 13619
Ogdensburg	1	1865	1025 New york Ave, Ogdensburg, NY 13669
Fort Edward	1	1866	49 Seminary St, Fort Edward, NY 12828
Harkness	1	1870	63 Fred Thew Rd, Harkness, NY 12972
Freeport	1	1878	26 Cottage Ct, Freeport, NY 11520
Chittenango	1	1880	126 W Genesee St, Chittenango, 13037
East Aurora	1	1880	239 Cook Rd, East Aurora, NY 14052
Albany	1	1889	306 Orange St, Albany, NY 12210
Middletown	1	1890	39 Genung St, Middletown, NY 10940
Ogdensburg	1	1890	1000 Mechanic St, Ogdensburg, NY 13669
Batavia	1	1890	6 Pringle Ave, Batavia, NY 14020
Jamestown	1	1900	116 Lincoln St, Jamestown, NY 14701
Kennedy	3	1900	27 E Main St, Falconer, NY 14733
Walden	2	1900	30 Valley Ave, Walden, NY 12586
Binghamton	4	1900	233 Front St, Binghamton, NY 13905
Schenectady	3	1906	10 Alvey St, Schenectady, NY 12304
Hicksville	1	1910	28 W Cherry St, Hicksville, NY 11801
Buffalo	1	1910	75 Schutrum St, Buffalo, NY
Schenectady	2	1910	828 Strong St, Schenectady, NY 12307
Jamestown	1	1910	521 Hallock St, Jamestown, NY 14701
New Windsor	1	1914	9 Blanche Ave, New Windsor, NY 12553
Niagara Falls	1	1915	412 1/2 Memorial Pkwy, Niagara Falls, NY 14302
Buffalo	1	1915	169 Lancaster Ave, Buffalo, NY
Ithica	1	1915	111 Heights Ct, Ithica, NY 14850
Niagara Falls	1	1915	520 6th St, Apt 2, Niagara Falls, NY 14301
Rochester	3	1915	732 Bay St, Rochester, NY 14609
Buffalo	1	1918	91 Fordham Dr, Buffalo, NY 14202
Buffalo	1	1920	1 Alma Ave, Buffalo, NY
Buffalo	1	1920	104 Gibson St, Buffalo, NY
Haverstraw	1	1920	32 Broad St, Haverstraw, NY 10927
Johnstown	1	1920	9S Chase St, Johnstown, NY 12095
Seneca Falls	1	1920	23 Walnut St, Seneca Falls, NY 13148
Boiceville	1	1924	16 DeSilva Rd, Boiceville, NY 12412
Constantia	1	1926	1690 State Rt 49 St, Constantia, NY 13044
Vestal	1	1926	3516 Stratford Dr, Vestal, NY 13850
West Hurley	2	1926	60 Collier Rd, West Hurley, NY 12791
Buffalo	1	1928	77 Littlefield Ave, Buffalo, NY
Merrick	1	1928	236 Lincoln Blvd, Merrick, NY 11566
Valley Stream	2	1929	265 Valley Str Blvd, Valley Stream, NY 11582
Niagara Falls	1	1929	1602 Niagara St, Niagara Falls, NY 14303
Buffalo	1	1929	195 Texas, Buffalo, NY
Clarence	1	1929	9345 Main St, Clarence, NY 14031
Clinton	1	1930	8007 Brimfield St, Clinton, NY 13323
Troy	1	1934	1692 NY Rt 7, Troy, NY 12180
Valley Stream	1	1935	30 Carrol Ave, Valley Stream, NY 11582
Niskayuna	2	1940	894 Morgan Ave, Niskayuna, NY 12309
Whitesboro	1	1940	314 Main St, Whitesboro, NY 13492

FIRE DEPT.	NO. OF DEATHS	YEAR BUILT	ADDRESS
Hillsdale	1	1943	770 Breezy Hill Rd, Hillsdale, NY 12529
Town Fishkill	1	1946	304 Rt 9D, Town Fishkill, NY 12508
Lackawanna	2	1947	153 Point St, Lackawanna, NY 14218
Hicksville	1	1949	15 North Dr, Hicksville, NY 11801
West Hempstead	1	1949	928 Glenwood Rd, West Hempstead, NY 11552
Hicksville	1	1950	213 Ninth St, Hicksville, NY 11801
Amherst	1	1950	51 Meadow Lea Dr, Amherst, NY 14226
Binghamton	1	1950	426 Conklin Ave, Binghamton, NY 13903
Fishkill	1	1950	18 Patricia Ave, Fishkill, NY 12524
Port Henry	1	1950	4 Jackson St, Port Henry, NY 12974
Rochester	2	1950	84 Jerold St, Rochester, NY 14609
Floral	2	1951	130 Ash St, Floral, NY 11001
Brooktondale	1	1952	3415 Slaterville Rd, Brooktondale, NY 14817
Pearl River	1	1952	83 Arlene Ct, Pearl River, NY 10965
East Meadow	1	1953	1637 Midland Dr, East Meadow, NY 11554
Westbury	1	1954	899 Broadway, Westbury, NY 11590
Amherst	1	1954	570 S Ellicott Creek Rd, Amherst, NY 14228
Elmira	3	1955	419 Milton St, Elmira, NY 14904
Elmira	3	1955	419 Milton St, Elmira, NY 14904
Utica	1	1955	704 Deerfield Dr E, Utica, NY 13502
Beacon	3	1955	6 Old Town Rd, Beacon, NY 12508
Utica	1	1955	402 Brody Dr, Utica, NY 13502
Canisteo	2	1956	5015 Bush Hill Rd, Canisteo, NY 14823
Pelham Manor	1	1956	953 Split Rock Rd, Pelham Manor, NY 10803
Williamsville	1	1957	226 Harvest St N, Williamsville, NY 14221
Binghamton	1	1958	60 Powers Rd, Binghamton, NY 13903
Scarsdale	1	1959	34 Black Birch Lane, Scarsdale, NY 10583
Canastota	1	1959	3248 Jaquin Dr, Canastota, NY 13032
Watertown	2	1960	213 Factory St, Watertown, NY 13601
Liverpool	1	1960	116 Dexter Ave, Liverpool, NY 13088
Montgomery	1	1960	468 Old Maybrook Rd, Montgomery, NY 12549
Utica	1	1960	165 Victoria Dr, Utica, NY 13501
Lakeville	1	1961	6002 Stone Hill Rd, Lakeville, NY 14480
East Pembroke	1	1963	8801 Boyce Rd, East Pembroke, NY 14056
Niagara Falls	1	1964	8024 Third Ave S, Niagara Falls, NY 14304
Cheektowaga	1	1964	83 Lloyd, Cheektowaga, NY 14225
Depew	1	1964	47 Pamela Dr, Depew, NY 14043
Feura Bush	1	1965	32 Lower Flat Rock Rd, Feura Bush, NY 12067
Homer	1	1969	8 Cherry St, Homer, NY 13077
Sauquoit	1	1969	3275 Mohawk St, Sauquoit, NY 13456
St. Regis Falls	2	1970	30 Parkview Rd, St Regis Falls, NY 12980
Poughkeepsie	2	1970	404 Manchester Rd, Poughkeepsie, NY 12603
Sinclairville	1	1971	3259 Bernard Rd, Sinclairville, NY 14782
North Bangor	1	1973	44 Country Rt 10, North Bangor, NY 12966
Geneva	1	1973	551 White Springs Rd, Geneva, NY 14456
Canastota	1	1974	8467 N Main Rd, Canastota, NY 13032
Waterloo	1	1975	2620 Edwards Rd, Waterloo, NY 13165
Cape Vincent	3	1977	32878 Rte 12E N, Cape Vincent, NY 13618
Chittenango	1	1977	605 Lake St, Chittenango, NY 13037
Brewster	1	1981	115 E Main St, Brewster, NY 10509
Rochester	1	1981	169 Kaywood Rd, Rochester, NY 14626
Hampton Bays	1	1983	10 Staller Blvd, Hampton Bays, NY 11946
Greenwich	1	1985	14 Fiddlers Elbow Rd, Greenwich, NY 12834
Carthage	1	1985	36771 NYS Rt 3, Carthage, NY 13619

FIRE DEPT.	NO. OF DEATHS	YEAR BUILT	ADDRESS
Floral Park	2	1985	107 Calla Ave, Floral Park, NY 11001
Scotia	1	1987	9 Deerfield Pl, Scotia, NY 12302
Moira	1	1994	223 Russell Rd, Moira, NY 12957
Hudson Falls	1	1996	140 Tripoli Rd, Hudson Falls, NY 12839
Mt. Morris	1	2002	6838 River Rd, Mt. Morris, NY 14510
Rochester	1	2003	209 Brayton Rd, Rochester, NY 14616
Groton	1	2003	958 Cortland Rd, Groton, NY 13073
Great Valley	1	2003	4639 Hungrey Hollow Rd, Great Valley, NY 14741
Niskayuna	1	2004	2250 Algonquin Rd, Niskayuna NY
Middletown	1	2004	13 Grandview Ave, Middletown, NY 10940
Carmel	1	2004	421 Horsepound Rd, Carmel, NY 10512
Geneva	1	2004	3412 Woodworth Rd, Geneva, NY 14456
Sinclairville	1	2004	24 Sinclair Dr, Sinclairville, NY 14782
South Farmingdale	1	2004	86 Michel Ave, South Farmingdale, NY 11735
High Falls	1	2005	405 Mohonk Rd, High Falls, NY 12440
Totals	157	1940	
		Average	

Addendum 1 of 1

to the

New York State Builders Association
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Research and Position White Paper

Reducing Fatal Fires in New York State's New One- and Two-Family Homes: *Is Mandating the Installation of Fire Sprinkler Systems the Best Course of Action?*

The New York State Research and Education Foundation (NYSBA REF) recognizes that some readers of this white paper may consider the average age of one- and two-family homes involved in fatal fires as irrelevant or misleading. Historical home building data refutes these opinions and NYSBA REF feels strongly that a home's age is a factor of significant consequence. Fatal fires are much more likely to occur in older homes as discussed in the report and below. Recognition of this fact and taking targeted preventive action in these homes will save more lives and have less of an impact on housing than mandating fire sprinklers in new construction.

To review, NYSBA REF's sample study found that about one-half of New York's homes having fatal fires were built before 1940. The U.S. Census Bureau's American Housing Survey's report entitled "These Old Houses 2001" shows that approximately 36% of existing homes were built prior to 1940 in the northeast region, including New York. Taking into account the homes built since 2001 and the older homes that have been razed during this period, this 36% has probably now been reduced to 33% or one-third. Therefore, fully one-half of fatal fires occur in only one-third of existing homes, those built before 1940.

This high frequency rate in older homes is not a coincidence. As maintained in NYSBA REF's white paper, improved building codes and the smoke alarm mandate have had dramatic impacts on reducing fatal fires. As older dwellings naturally fade out of existence due to structural weaknesses, age and new development, a reduced incidence of fatal fires should occur. In the interim, an exerted effort could be made to install and maintain smoke alarms in older homes. This would be a focused intervention into the problem of fatal fires. It would probably save more lives, be much more practical in application and have none of the negative economic and social effects described in NYSBA REF's white paper that mandating sprinklers in new homes would create.

