



## **Fire Sprinklers and Homeowner Insurance**

Special Studies, September 14, 2007

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*Report available to the public as a courtesy of HousingEconomics.com*

The issue of installing fire sprinklers in homes raises a number of questions. To what extent are sprinklers able to prevent injuries or property damage due to fire? Is it enough to justify the added cost of sprinklers? If so, what is the impact on housing affordability, and are there any factors that can help offset the added cost?

The issues would be somewhat simplified if we could show that monetary savings existed to offset, or almost offset the added upfront costs of installing fire sprinklers. Builders in that case would be able to install sprinkler systems in most new homes and market the sprinklers effectively to prospective buyers as an added safety feature that pays for itself.

Fire sprinkler proponents sometimes allege that such savings already exist in the form of reduced rates on home owner insurance. This article studies that particular issue. From the insurer's point of view, sprinklers may generate savings, but also additional costs. Savings to insurance companies occur if sprinklers extinguish fires in their early stage or contain fires until the fire fighters get to the scene —resulting in reduced injuries, deaths, and property damage. Additional costs may occur if sprinklers discharge accidentally and cause unnecessary water damage. Insurance companies thus have both the means and incentive to track savings and costs associated with sprinklers. If the expected savings are greater than the expected costs, it should show up as discounts on insurance for owners of homes with fire sprinklers. Information compiled from various sources for this article indicates that most insurers do offer meaningful discounts for residential sprinkler systems. The discounts vary somewhat from state to state, but are not high enough in any state to offset the added upfront cost buyers pay for sprinklers.

### **Sprinkler Discounts by State**

In each state, NAHB obtained data about the practices of the top insurers. In some cases, the data could be obtained from state government departments of insurance. In others, it was necessary to contact insurance companies or individual agencies. Data were compiled on insurers that cumulatively have at least 40% of the market in every state (including DC) except for Hawaii, where the cumulative share covered is 23.6%. [\[1\]](#) Some insurance companies, like State Farm and Allstate, have large market shares in many states, but there are also states where the market is spread more evenly at the top and includes a number of regional companies, particularly in New England. (Table 1)

Although a few of these regional insurance companies such as Indiana Farm Bureau and Kentucky Farm Bureau do not currently offer discounts for fire sprinklers, they are the exceptions. Most insurance companies do offer discounts, most often in the form of a percentage off the basic premium. To qualify for the discount, the sprinkler system has to meet the National Fire Protection Association standard. [2]

Insurance companies generally make a distinction between two types of sprinkler systems: Class A, where automatic sprinklers are installed in all areas including bathrooms, attics, closets, and attached structures; and Class B, where automatic sprinklers are totally or partially omitted in bathrooms, attics, closets, and attached structures. Insurance usually, but not always, offers different discounts for each type of system. Many discounts are in the neighborhood of 10% for Class A sprinkler systems and 5% for Class B systems. In fact, companies like State Farm and Farmers Insurance offer a uniform 10% and 5% in all states except for in North Carolina. [3] Other insurance companies offer different discounts in each state. Among the companies shown in Table 1, the maximum discount is 16% for Class A systems, and 10% for Class B systems. [4]

The same percentage doesn't lead to the same dollar savings for all new home buyers, due to differences in insurance rates, coverage, and values of the homes purchased, which vary by state. Table 2 shows median new home prices (estimated by NAHB for 2007), median insurance costs paid by new home owners (calculated from the Census Bureau's 2005 American Community Survey and based on homes built after 1999), and average fire sprinkler discount rates in each state. The discounts in Table 2 are weighted averages of the discounts in Table 1, with the weights based on the companies' market shares.

Without more information about the type of policies on which the median insurance payment is based, it's impossible to calculate with precision how much buyers can expect to save on the average new home with a sprinkler system. The best we can manage with the data in Table 2 is a rough upper bound. Using the average insurance payment as a crude proxy for the basic premium [5], the most an average new home buyer in a particular state can expect to save on homeowners insurance appears to be about \$95 a year. This is in Florida, where the average annual insurance payment and the average sprinkler discounts are both relatively high. As mentioned, the \$95 in annual savings are an upper bound that almost certainly overstates the savings somewhat, as the average insurance payment is likely to include charges beyond the basic premium, and the discount applies only to the basic premium.

Beyond that, the added savings attributable to fire sprinklers will usually depend on the home's other safety features. Most insurance companies offer discounts for devices such as dead bolt locks, smoke detectors, fire extinguishers, burglar alarms, etc. Although the discount offered for each kind of safety device varies, there is normally a cap on the combined discounts for all safety devices, usually at 20%. This means that, given a large enough number of other safety features, the marginal impact of a sprinkler system on the insurance payment could be very small or zero.

### **Cost of Fire Sprinklers**

How do the potential savings on homeowners insurance compare to the costs? At times, different organizations have cited different cost figures, not always documenting the source. For example, in its brochure for consumers titled “Protect What You Value Most”, the Home Fire Sprinkler Coalition simply states that a good rule of thumb estimate is to add 1 to 1½ percent to the cost of new housing. Applying this general rule to the \$246,500 median price of a new home sold in 2006 [6] is \$246,500 translates into a \$2,465-\$3,698 increase in its price.

In 2007, the NAHB Research Center collected information on sprinkler costs in a nationwide survey completed by 102 builders who built 5,527 homes with fire sprinklers in 2006. The survey results show that the median cost of installing fire sprinklers in the 5,527 homes was about \$5,573 (Table 3). The median size of the surveyed homes was 2,271 square feet, very close to the 2,248 square feet reported by the federal government for homes built in 2006. [7-8]

The extra costs the NAHB Research Center survey was careful to include are the costs of increased permit, tap, and inspection fees, as well as any costs of redesigning the home to accommodate the sprinklers. It’s important to include these items, as costs are not limited strictly to the material and labor used in installing the sprinkler system itself.

In addition, the increase in price to the home buyer will generally be more than the increase in the construction costs. This occurs because, when construction costs rise, other costs such as financing costs and broker commissions also rise. Moreover, normal profit margins must be maintained to keep home building competitive and prevent the capital and entrepreneurship from moving to other industries. Based on these factors, NAHB estimates that a \$5,573 increase in construction costs will raise the final price of the home to the buyer by \$6,677 (Table 4).

One way to put this in the same time frame as the annual savings on homeowners insurance is to assume that the \$6,677 is financed and see by how much that would increase the buyer’s annual mortgage payment. Using Freddie Mac’s 30-year fixed-rate mortgage rate of 6.70% in July 2007, a \$6,677 increase in the amount of the mortgage translates to an increase of \$522 in the annual payment, roughly 5½ times the upper bound of the amount the average new home buyers could save on their insurance premium in any state. Even under the lowest of the above cost estimates (\$2,465), the annual mortgage payment would increase by \$193, roughly double the upper bound on the average insurance savings.

An added factor is that home buyers will take insurance savings into account when making their purchase decisions only if they understand the magnitude of the annual savings and believe these savings to be real and long lasting. Federal or state agencies could help achieve this by monitoring the insurance industry and compiling data to show that accidental sprinkler discharges do not in the long run lead to cancelled policies or increased premiums.

Moreover, the above costs included only the initial installment costs to homeowners. A fire sprinkler system has to be maintained. Although homeowner insurance usually covers damage caused by water discharged from the sprinkler system (even if the discharge is accidental) it does not cover repairs to the sprinkler system itself. In addition, the damage caused by water leaking from the system slowly over a long period of time, such as rot, is not covered. These items can all add to the annual cost of the sprinkler system to a homeowner, although probably not by much in the first few years after a typical new home is purchased.

#### Summary and Further Discussion

This article looks at the dollar costs of fire sprinklers to home builders and home buyers, and compares these costs to the dollar savings buyers can obtain on homeowner insurance policies. Buyers may have other reasons for desiring for fire sprinklers, such as an added sense of security it gives them, but this article looks only at the dollar savings available to them on insurance policies.

The article found that most, but not all, insurance companies offer discounts on homeowner insurance policies for sprinkler systems. The data, although incomplete, are enough to establish a rough upper bound of \$95 on the average annual savings to new home buyers in a particular state. This represents a substantial and significant discount, but only modestly offsets the increase in price for a typical new home buyer (for which estimates presented in this article range from \$2,465 to \$6,677).

Under prevailing interest rates, a \$95 savings in annual insurance cost is able to fully offset the increase in mortgage payments only if the up-front cost of the sprinkler system to the home buyer is approximately \$1,200 or less. Reducing the cost of producing and installing the average Class A residential sprinkler system to somewhere in the neighborhood of \$1,200 would thus be a worthwhile goal. If achieved, it would allow the market to provide sprinkler systems in most new homes without adversely affecting affordability. Local governments could make a contribution toward achieving this by not increasing permit, tap, or other fees on homes with sprinkler systems.

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**Footnotes:**

[1] Based on the National Association of Insurance Commissioner's 2005 Market Share Report by State (04-Homeowners Multiple Peril), major insurance companies that cumulatively have at least 50% of the market share in all 50 states and the District of Columbia are selected for the survey.

[2] [Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes.](#)

[3] In North Carolina, there is a uniform discount rate of 13% for Class A sprinkler systems and 7% for Class B systems. Insurance companies have to file any intended changes from these rates and have them approved by the state. So far only Auto-Owners has filed for a 15% discount on both Class A and Class B systems.

[4] Although Concord Group in Maine reports a 20% discount for Class A, the discount only applies to the situation where fire sprinkler system is combined with central alarm system, fire extinguisher and smoke detector.

[5] The discounts in Table 1 apply to the basic homeowner insurance premium. Based on the information contained in the American Community Survey, there is no way to calculate a relationship between basic premium and final premium. The premium paid by the owner will generally be higher than the basic premium if the homeowner chooses additional coverage for items like jewelry or fur, or additional replacement cost protection.

[6] "Characteristics of New One-Family Houses Sold," U.S. Census Bureau.

[7] "Characteristics of New One-Family Houses Completed" U.S. Census Bureau.

[8] While the response rate of the survey is unknown for several reasons, the median square feet of houses surveyed is close to the Census' number, suggesting that selection bias is probably not an issue.

For more information about this item, please contact Paul Emrath at 800-368-5242 x8449 or via e-mail at [pemrath@nahb.com](mailto:pemrath@nahb.com).

**Table 1. Discounts for Fire Sprinklers on Homeowner Insurance Policies** (© 2007 NAHB/HousingEconomics)

States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Alabama	State Farm IL	29.43%	AL Dept. of Insurance	10%	5%
	Alfa Ins Grp	20.57%	AL Dept. of Insurance	10%	5%
	Allstate Ins Grp	11.95%	AL Dept. of Insurance	10%	0
Alaska	State Farm IL	35.15%	AK Dept. of Insurance	10%	5%
	Allstate Ins Co	29.80%	AK Dept. of Insurance	10%	0
	United Services Auto Assoc	9.23%	AK Dept. of Insurance	8%	8%
Arizona	State Farm IL	19.81%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	17.40%	Farmers	10%	5%
	Allstate Ins Grp	14.66%	Allstate	3%	0
Arkansas	State Farm IL	24.84%	State Farm	10%	5%
	Farm Bureau Mut Ins Co Of AR In	21.05%	Ins. Agent	0	0
	Allstate Ins Grp	8.81%	Allstate	4%	0
California	State Farm IL	22.13%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	16.56%	Farmers	10%	5%
	Allstate Ins. Grp	14.13%	Allstate	10%	0
Colorado	State Farm IL	23.93%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.60%	Farmers	10%	5%
	American Family Ins Grp	13.60%	American Family	10%	10%
	Allstate Ins Grp	10.04%	Allstate	2%	0
Connecticut	Allstate Ins Grp	13.21%	Allstate	10%	0
	Chubb & Son INC	11.38%	Chubb & Son	15%	0
	Liberty Mut Grp	6.15%	Ins. Agent	10%	10%
	Hartford Fire & Cas Grp	5.75%	Ins. Agent	13%	0
	Nationwide Corp	5.40%	Nationwide	0	0
Delaware	State Farm IL	29.63%	State Farm	10%	5%
	Nationwide Corp	14.62%	Nationwide	0	0
	Allstate Ins. Grp	9.71%	Allstate	0	0
District of Columbia	State Farm IL	24.59%	State Farm	10%	5%
	Chubb & Son INC	12.57%	Chubb & Son	15%	0
	Allstate Ins Grp	12.48%	Allstate	10%	0
Florida	State Farm Florida Ins. Co.	21.02%	FL Dept. of Insurance	10%	5%
	Allstate Floridian Ins. Co. policies)	8.86%	FL Dept. of Insurance	10%	0
		7.20%	FL Dept. of Insurance	7%	4%
	Tower Hill Ins Grp	5.11%	FL Dept. of Insurance	7%	4%
	Nationwide Ins. Co. of Florida	4.92%	FL Dept. of Insurance	16%	9%
Georgia	State Farm IL	31.99%	State Farm	10%	5%
	Allstate Ins Grp	14.04%	Allstate	10%	0%
Hawaii <sup>3</sup>	State Farm IL	25.37%	State Farm	10%	5%
Idaho	State Farm IL	17.87%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.68%	Farmers	10%	5%
	Allstate Ins Grp	11.91%	Allstate	4%	0
Illinois	State Farm IL	31.98%	State Farm	10%	5%
	Allstate Ins Grp	16.17%	Allstate	10%	0
Indiana	State Farm IL	26.86%	State Farm	10%	5%
	Indiana Farm Bureau Grp	8.70%	Ins. Agent	0	0
	Allstate Ins Grp	7.73%	Allstate	10%	0
	American Family Ins Grp	6.65%	American Family	10%	10%
Iowa	State Farm IL	24.74%	State Farm	10%	5%
	Nationwide Corp	16.24%	Nationwide	0	0
	American Family Ins Grp	9.59%	American Family	10%	10%

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States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Kansas	State Farm IL	22.98%	KS Dept. of Insurance	10%	5%
	American Family Ins Grp	17.88%	KS Dept. of Insurance	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	10.34%	KS Dept. of Insurance	10%	5%
Kentucky	State Farm IL	21.68%	State Farm	10%	5%
	Kentucky Farm Bureau Grp	21.20%	Ins. Agent	0	0
	Allstate Ins Grp	10.75%	Allstate	3%	0
	Nationwide Corp.	4.16%	Nationwide	13%	8%
Louisiana	State Farm IL	34.52%	State Farm	10%	5%
	Allstate Ins Grp	21.83%	Allstate	10%	0
Maine	State Farm IL	10.82%	State Farm	10%	5%
	Co.)	9.90%	Consultant	10%	6%
	Liberty Mut Grp	9.22%	Ins. Agent	13%	8%
	Allstate Ins Grp	6.87%	Allstate	4%	0
	Concord Grp	5.53%	Ins. Agent	10%	0
Maryland	State Farm IL	21.86%	State Farm	10%	5%
	Allstate Ins Grp	16.47%	Allstate	10%	0
	ST Paul Travelers Grp	11.36%	Ins. Agent	2%	0
	Nationwide Corp	11.16%	Nationwide	10%	5%
Massachusetts	Commerce Grp Inc	9.82%	Ins. Agent	10%	0
	Andover Grp	8.91%	Ins. Agent	10%	5%
	ST Paul Travelers Grp	7.90%	Ins. Agent	5%	0
	Chubb & Son INC	7.53%	Chubb & Son	15%	0
	Liberty Mut Grp	6.03%	Ins. Agent	13%	8%
Michigan	State Farm IL	19.09%	MI Dept. of Insurance	10%	5%
	Auto Owners Grp	14.55%	MI Dept. of Insurance	0	0
	Automobile Club MI (AAA)	10.27%	MI Dept. of Insurance	10%	10%
Minnesota	State Farm IL	23.76%	State Farm	10%	5%
	American Family Ins Grp	15.15%	American Family	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	11.54%	Farmers	10%	5%
Mississippi	State Farm IL	30.29%	State Farm	10%	5%
	Allstate Ins Grp	10.55%	Allstate	10%	0
Missouri	State Farm IL	25.04%	State Farm	10%	5%
	American Family Ins Grp	20.48%	American Family	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	7.48%	Farmers	10%	5%
Montana	State Farm IL	23.92%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.40%	Farmers	10%	5%
	Safeco Ins Grp	11.94%	Ins. Agent	7%	4%
Nebraska	State Farm IL	26.14%	State Farm	10%	5%
	American Family Ins Grp	13.12%	American Family	10%	10%
	Farmers Mut Ins Co of NE	12.83%	Ins. Agent	0	0
Nevada	Zurich Ins Grp (Farmers Ins Grp)	22.42%	Farmers	10%	5%
	State Farm IL	19.33%	State Farm	10%	5%
	Allstate Ins Grp	15.11%	Allstate	2%	0
New Hampshire	Liberty Mut Grp	13.72%	Ins. Agent	13%	8%
	State Farm IL	10.40%	State Farm	10%	5%
	Allstate Ins Grp	8.14%	Allstate	10%	0
	Concord Grp	7.05%	Ins. Agent	20% <sup>4</sup>	0
	Andover Grp	5.28%	Ins. Agent	10%	5%
	State Farm IL	13.46%	NJ Dept. of Insurance	10%	5%
	Allstate Ins Grp	12.87%	NJ Dept. of Insurance	5%	2%

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States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
New Jersey	Chubb & Son INC	9.14%	NJ Dept. of Insurance	15%	0%
	Preferred Ins. Co.	7.34%	NJ Dept. of Insurance	15%	10%
	New Jersey Manufacturers	6.41%	NJ Dept. of Insurance	15%	8%
New Mexico	State Farm IL	25.90%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	20.58%	Farmers	10%	5%
	Allstate Ins Grp	16.64%	Allstate	10%	0
New York	Allstate Ins Grp	20.12%	Allstate	10%	0
	State Farm IL	20.12%	State Farm	10%	5%
	Chubb & Son INC	9.59%	Chubb & Son	15%	0
North Carolina	State Farm IL	18.73%	NC Dept. of Insurance	13%	7%
	Nationwide Corp	16.11%	NC Dept. of Insurance	13%	7%
	NC Farm Bureau Ins Grp	13.43%	NC Dept. of Insurance	13%	7%
	Allstate Ins Grp	10.19%	NC Dept. of Insurance	13%	7%
North Dakota	State Farm IL	18.52%	State Farm	10%	5%
	American Family Ins Grp	17.10%	American Family	10%	10%
	Auto Owners Grp	8.81%	Ins. Agent	10%	5%
Ohio	State Farm IL	21.80%	OH Dept. of Insurance	10%	5%
	Nationwide Corp	10.86%	OH Dept. of Insurance	0	0
	Allstate Ins Grp	10.21%	OH Dept. of Insurance	10%	0
	Grange Mut Cas	5.31%	OH Dept. of Insurance	4%	1%
Oklahoma	State Farm IL	26.28%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	19.58%	Farmers	10%	5%
	Allstate Ins Grp	8.56%	Allstate	2%	0
Oregon	State Farm IL	25.20%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	19.12%	Farmers	10%	5%
	Allstate Ins Grp	10.99%	Allstate	4%	0
Pennsylvania	State Farm IL	18.78%	State Farm	10%	5%
	Allstate Ins Grp	15.32%	Allstate	10%	0
	Erie Ins Grp	13.42%	Ins. Agent	10%	0
	Nationwide Corp	10.06%	Nationwide	10%	5%
Rhode Island	Amica Mut Grp	11.52%	Ins. Agent	13%	8%
	Allstate Ins Grp	11.22%	Allstate	10%	0
	Nationwide Corp	9.26%	Nationwide	0	0
	Liberty Mut Grp	9.02%	Ins. Agent	13%	8%
South Carolina	State Farm IL	25.98%	State Farm	10%	5%
	Allstate Ins Grp	15.49%	Allstate	10%	0
	Nationwide Corp	9.10%	Nationwide	0	0
South Dakota	State Farm IL	19.94%	SD Dept. of Insurance	10%	5%
	American Family Ins Grp	17.20%	SD Dept. of Insurance	10%	10%
	Farmers Mut Ins Co of NE	7.76%	SD Dept. of Insurance	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	7.70%	Sd Dept. of Insurance	10%	5%
Tennessee	State Farm IL	26.06%	State Farm	10%	5%
	Tenn Farmers Mut	17.39%	Ins. Agent	5%	2%
	Allstate Ins Grp	11.40%	Allstate	4%	0
Texas	State Farm Mutual Group	29.26%	State Farm	10%	5%
	Allstate Ins Grp	17.35%	Allstate	2%	0
	Zurich Ins Grp (Farmers Ins Grp)	11.19%	Farmers	10%	5%
Utah	State Farm IL	20.82%	State Farm	10%	5%
	Allstate Ins Grp	19.95%	Allstate	3%	0
	Zurich Ins Grp (Farmers Ins Grp)	16.81%	Farmers	10%	5%

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States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Vermont <sup>5</sup>	Co-Operative Ins Co	10.43%	Ins. Agent	3%	0
	State Farm IL	7.97%	State Farm	10%	5%
	Allstate Ins Grp	7.57%	Allstate	4%	0
	Liberty Mut Grp	6.54%	Ins. Agent	13%	8%
	Chubb & Son INC	5.27%	Chubb & Son	15%	0
	Nationwide Corp	4.67%	Nationwide	0%	0
Virginia	Insurance Co. (NAIC # 25143)	21.67%	VA Dept. of Insurance	10%	5%
	Allstate Ins Grp (NAIC # 19232)	13.00%	VA Dept. of Insurance	10%	0
	United Services Auto Assoc	11.95%	VA Dept. of Insurance	8%	8%
	Nationwide Corp (NAIC# 23779)	11.82%	VA Dept. of Insurance	0	0
	ST Paul Travelers Grp	11.74%	VA Dept. of Insurance	5%	2%
Washington	State Farm IL	18.11%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	17.08%	Farmers	10%	5%
	Allstate Ins Grp	13.55%	Allstate	10%	0
	Safeco Ins Grp	9.29%	Ins. Agent	7%	4%
West Virginia	State Farm IL	25.74%	WV Dept. of Insurance	10%	5%
	Nationwide Corp	19.39%	WV Dept. of Insurance	0	0
	Erie Ins Grp	12.67%	WV Dept. of Insurance	0	0
Wisconsin	American Family Ins Grp	25.94%	American Family	10%	10%
	State Farm IL	15.47%	State Farm	10%	5%
	Allstate Ins Grp	4.43%	Allstate	4%	0
Wyoming	State Farm IL	25.79%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	16.91%	Farmers	10%	5%

1. Class A: Automatic Sprinklers in all areas including bathroom, attics, closets, and attached structures.
2. Class B: Automatic Sprinklers totally or partially omitted in bathroom, attics, closets, and attached structures.
3. Only 25.37% of the market share was obtained in Hawaii due to lack of data.
4. The fire sprinkler system has to be combined with central alarm system, fire extinguisher and smoke detector to receive the 20% discounts
5. Due to difficulties obtaining data from Vermont Mutual and Union Mutual, which are among the top 4 underwriters of homeowner insurance in Maine, the 7th and 8th largest homeowner policy underwriters Chubb & Son and Nationwide are included in the dataset to arrive at a representative minimum 40% market share.

**Data Sources:**

1. Rate Filings: The fire sprinkler discounts, if offered, are detailed in the homeowner insurance manuals of each individual insurance company. All states except for North Carolina require insurance companies to file rate and form filings with the Department of Insurance in their state. The filings are public records and are available for public review based on the Freedom of Information Act. The Department of Insurance in 11 states (Alabama, Alaska, Florida, Kansas, Michigan, New Jersey, North Carolina, Ohio, South Dakota, Virginia and West Virginia) responded to NAHB's request for public information and provided the sprinkler discounts major insurance companies offer in their respective states. The rest of the states offer on site physical examination of the public records, but do not do research or make copies for the public due to a lack of staff.
2. Statistics from individual insurance companies: The top 8 underwriters of homeowner insurance policies nationwide were contacted about their policies in regard to fire sprinkler credits in all states where they underwrite homeowner insurance. State Farm, Allstate, Farmers Insurance, Nationwide, American Family and Chubb & Son responded with their statistics, arranged by state. Liberty Mutual and St. Paul Travelers Group were not responsive.
3. Insurance Agencies: Where data could not be obtained by method 2 or 3, individual insurance agencies were contacted and a telephone survey was conducted. Since agents need to consult the manual of the respective insurance company in the respective state for the specific sprinkler discount amount, data gathered this way should also be accurate and reliable.
4. Consultant: An independent consultant was hired for onsite examination of the filing records on behalf of NAHB in Maine, where other means of data collection did not yield fruitful results.

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**Table 2. Home Prices and Insurance**

State	Estimated Median New Home Price, 2007	Median Annual Homeowner Insurance Premium for Homes Built 2000-2005	Weighted Average Fire	
			Class A	Class B
Alabama	\$154,433	\$700	10%	4%
Alaska	\$315,738	\$860	10%	3%
Arizona	\$317,174	\$550	8%	4%
Arkansas	\$137,516	\$660	5%	2%
California	\$518,836	\$750	10%	4%
Colorado	\$360,467	\$700	9%	5%
Connecticut	\$395,463	\$750	10%	1%
Delaware	\$319,993	\$490	5%	3%
District of Columbia	\$385,112	\$500	11%	2%
Florida	\$328,811	\$950	10%	4%
Georgia	\$219,610	\$550	10%	3%
Hawaii	\$543,512	\$850	10%	5%
Idaho	\$230,112	\$420	8%	4%
Illinois	\$320,698	\$550	10%	3%
Indiana	\$184,883	\$600	8%	4%
Iowa	\$192,838	\$600	7%	4%
Kansas	\$195,238	\$860	10%	7%
Kentucky	\$181,237	\$600	5%	2%
Louisiana	\$147,310	\$800	10%	3%
Maine	\$221,445	\$500	10%	4%
Maryland	\$435,528	\$650	9%	3%
Massachusetts	\$364,276	\$700	10%	2%
Michigan	\$238,211	\$610	7%	5%
Minnesota	\$294,129	\$700	10%	7%
Mississippi	\$135,260	\$740	10%	4%
Missouri	\$219,016	\$680	10%	7%
Montana	\$236,812	\$600	9%	5%
Nebraska	\$226,744	\$750	8%	5%
Nevada	\$325,610	\$600	8%	4%
New Hampshire	\$407,771	\$520	11%	4%
New Jersey	\$469,293	\$600	11%	4%
New Mexico	\$210,069	\$500	10%	4%
New York	\$305,803	\$630	11%	2%
North Carolina	\$189,512	\$510	13%	7%
North Dakota	\$182,159	\$830	10%	7%
Ohio	\$221,232	\$530	7%	2%
Oklahoma	\$168,116	\$900	9%	4%
Oregon	\$302,033	\$450	9%	4%
Pennsylvania	\$246,413	\$500	10%	3%
Rhode Island	\$350,355	\$750	9%	4%
South Carolina	\$199,867	\$620	8%	3%
South Dakota	\$203,606	\$600	10%	7%
Tennessee	\$178,042	\$600	7%	3%
Texas	\$181,027	\$1,000	8%	3%
Utah	\$288,550	\$400	8%	3%
Vermont	\$248,977	\$500	7%	2%

Virginia	\$463,566	\$600	7%	3%
Washington	\$351,578	\$600	10%	4%
West Virginia	\$164,661	\$600	4%	2%
Wisconsin	\$236,161	\$460	9%	7%
Wyoming	\$235,975	\$600	10%	5%

Community Survey, U.S. Census Bureau; Table 1 of this article.

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**Table 3. Median Costs Associated with Sprinkler Systems**

<b>Installation Cost</b>	\$3,744
<b>Additional Cost By Category</b>	
Fire Sprinkler Permit Fee	\$198
Fire Sprinkler Design Fee	\$593
RFS Water Service Pipe Changes	\$866
RFS Water Meter Changes	\$172
<b>Total Additional Cost</b>	\$1,829
<b>Total Cost to Builder</b>	\$5,573

Source: NAHB Research Center 2007 Fire Sprinkler Survey.

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**Table 4. Sprinkler Cost and Increase in House Price**

Median Cost of Fire Sprinkler System to Builder	\$5,573
<b>Financing Costs</b>	
Cost of Capital	
Average Annual Interest Rate	10%
Length of Time From:	
Start to Completion (in Months)	4.34
Completion to Sale (in months)	4.8
Total Time	9.14
Total Increase in Finance Charges	<b>\$424.48</b>
<b>Brokerage Commissions</b>	
Average Fee as a Percentage of House Price	2.90%
Total Increase in Brokerage Fees	<b>\$161.62</b>
<b>Compensation and Normal Profit</b>	
Total Compensation and Profit	9.30%
Total Increase in Compensation and Profit	<b>\$518.29</b>
<b>Increase in House Price</b>	
Sum of all Added Costs	<b>\$1,104.38</b>
Sum of all Added Costs as a Percentage	<b>19.82%</b>
Total increase in House Price	<b>\$6,677</b>

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**Table 1. Discounts for Fire Sprinklers on Homeowner Insurance Policies** (© 2007 NAHB/HousingEconomics)

States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Alabama	State Farm IL	29.43%	AL Dept. of Insurance	10%	5%
	Alfa Ins Grp	20.57%	AL Dept. of Insurance	10%	5%
	Allstate Ins Grp	11.95%	AL Dept. of Insurance	10%	0
Alaska	State Farm IL	35.15%	AK Dept. of Insurance	10%	5%
	Allstate Ins Co	29.80%	AK Dept. of Insurance	10%	0
	United Services Auto Assoc	9.23%	AK Dept. of Insurance	8%	8%
Arizona	State Farm IL	19.81%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	17.40%	Farmers	10%	5%
	Allstate Ins Grp	14.66%	Allstate	3%	0
Arkansas	State Farm IL	24.84%	State Farm	10%	5%
	Farm Bureau Mut Ins Co Of AR In	21.05%	Ins. Agent	0	0
	Allstate Ins Grp	8.81%	Allstate	4%	0
California	State Farm IL	22.13%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	16.56%	Farmers	10%	5%
	Allstate Ins. Grp	14.13%	Allstate	10%	0
Colorado	State Farm IL	23.93%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.60%	Farmers	10%	5%
	American Family Ins Grp	13.60%	American Family	10%	10%
	Allstate Ins Grp	10.04%	Allstate	2%	0
Connecticut	Allstate Ins Grp	13.21%	Allstate	10%	0
	Chubb & Son INC	11.38%	Chubb & Son	15%	0
	Liberty Mut Grp	6.15%	Ins. Agent	10%	10%
	Hartford Fire & Cas Grp	5.75%	Ins. Agent	13%	0
	Nationwide Corp	5.40%	Nationwide	0	0
Delaware	State Farm IL	29.63%	State Farm	10%	5%
	Nationwide Corp	14.62%	Nationwide	0	0
	Allstate Ins. Grp	9.71%	Allstate	0	0
District of Columbia	State Farm IL	24.59%	State Farm	10%	5%
	Chubb & Son INC	12.57%	Chubb & Son	15%	0
	Allstate Ins Grp	12.48%	Allstate	10%	0
Florida	State Farm Florida Ins. Co.	21.02%	FL Dept. of Insurance	10%	5%
	Allstate Floridian Ins. Co. policies)	8.86%	FL Dept. of Insurance	10%	0
		7.20%	FL Dept. of Insurance	7%	4%
	Tower Hill Ins Grp	5.11%	FL Dept. of Insurance	7%	4%
	Nationwide Ins. Co. of Florida	4.92%	FL Dept. of Insurance	16%	9%
Georgia	State Farm IL	31.99%	State Farm	10%	5%
	Allstate Ins Grp	14.04%	Allstate	10%	0%
Hawaii <sup>3</sup>	State Farm IL	25.37%	State Farm	10%	5%
Idaho	State Farm IL	17.87%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.68%	Farmers	10%	5%
	Allstate Ins Grp	11.91%	Allstate	4%	0
Illinois	State Farm IL	31.98%	State Farm	10%	5%
	Allstate Ins Grp	16.17%	Allstate	10%	0
Indiana	State Farm IL	26.86%	State Farm	10%	5%
	Indiana Farm Bureau Grp	8.70%	Ins. Agent	0	0
	Allstate Ins Grp	7.73%	Allstate	10%	0
	American Family Ins Grp	6.65%	American Family	10%	10%
Iowa	State Farm IL	24.74%	State Farm	10%	5%
	Nationwide Corp	16.24%	Nationwide	0	0
	American Family Ins Grp	9.59%	American Family	10%	10%

**Table 1. Discounts for Fire Sprinklers on Homeowner Insurance Policies** (© 2007 NAHB/HousingEconomics)

States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Kansas	State Farm IL	22.98%	KS Dept. of Insurance	10%	5%
	American Family Ins Grp	17.88%	KS Dept. of Insurance	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	10.34%	KS Dept. of Insurance	10%	5%
Kentucky	State Farm IL	21.68%	State Farm	10%	5%
	Kentucky Farm Bureau Grp	21.20%	Ins. Agent	0	0
	Allstate Ins Grp	10.75%	Allstate	3%	0
	Nationwide Corp.	4.16%	Nationwide	13%	8%
Louisiana	State Farm IL	34.52%	State Farm	10%	5%
	Allstate Ins Grp	21.83%	Allstate	10%	0
Maine	State Farm IL	10.82%	State Farm	10%	5%
	Co.)	9.90%	Consultant	10%	6%
	Liberty Mut Grp	9.22%	Ins. Agent	13%	8%
	Allstate Ins Grp	6.87%	Allstate	4%	0
	Concord Grp	5.53%	Ins. Agent	10%	0
Maryland	State Farm IL	21.86%	State Farm	10%	5%
	Allstate Ins Grp	16.47%	Allstate	10%	0
	ST Paul Travelers Grp	11.36%	Ins. Agent	2%	0
	Nationwide Corp	11.16%	Nationwide	10%	5%
Massachusetts	Commerce Grp Inc	9.82%	Ins. Agent	10%	0
	Andover Grp	8.91%	Ins. Agent	10%	5%
	ST Paul Travelers Grp	7.90%	Ins. Agent	5%	0
	Chubb & Son INC	7.53%	Chubb & Son	15%	0
	Liberty Mut Grp	6.03%	Ins. Agent	13%	8%
Michigan	State Farm IL	19.09%	MI Dept. of Insurance	10%	5%
	Auto Owners Grp	14.55%	MI Dept. of Insurance	0	0
	Automobile Club MI (AAA)	10.27%	MI Dept. of Insurance	10%	10%
Minnesota	State Farm IL	23.76%	State Farm	10%	5%
	American Family Ins Grp	15.15%	American Family	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	11.54%	Farmers	10%	5%
Mississippi	State Farm IL	30.29%	State Farm	10%	5%
	Allstate Ins Grp	10.55%	Allstate	10%	0
Missouri	State Farm IL	25.04%	State Farm	10%	5%
	American Family Ins Grp	20.48%	American Family	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	7.48%	Farmers	10%	5%
Montana	State Farm IL	23.92%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	15.40%	Farmers	10%	5%
	Safeco Ins Grp	11.94%	Ins. Agent	7%	4%
Nebraska	State Farm IL	26.14%	State Farm	10%	5%
	American Family Ins Grp	13.12%	American Family	10%	10%
	Farmers Mut Ins Co of NE	12.83%	Ins. Agent	0	0
Nevada	Zurich Ins Grp (Farmers Ins Grp)	22.42%	Farmers	10%	5%
	State Farm IL	19.33%	State Farm	10%	5%
	Allstate Ins Grp	15.11%	Allstate	2%	0
New Hampshire	Liberty Mut Grp	13.72%	Ins. Agent	13%	8%
	State Farm IL	10.40%	State Farm	10%	5%
	Allstate Ins Grp	8.14%	Allstate	10%	0
	Concord Grp	7.05%	Ins. Agent	20% <sup>4</sup>	0
	Andover Grp	5.28%	Ins. Agent	10%	5%
	State Farm IL	13.46%	NJ Dept. of Insurance	10%	5%
	Allstate Ins Grp	12.87%	NJ Dept. of Insurance	5%	2%

**Table 1. Discounts for Fire Sprinklers on Homeowner Insurance Policies** (© 2007 NAHB/HousingEconomics)

States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
New Jersey	Chubb & Son INC	9.14%	NJ Dept. of Insurance	15%	0%
	Preferred Ins. Co.	7.34%	NJ Dept. of Insurance	15%	10%
	New Jersey Manufacturers	6.41%	NJ Dept. of Insurance	15%	8%
New Mexico	State Farm IL	25.90%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	20.58%	Farmers	10%	5%
	Allstate Ins Grp	16.64%	Allstate	10%	0
New York	Allstate Ins Grp	20.12%	Allstate	10%	0
	State Farm IL	20.12%	State Farm	10%	5%
	Chubb & Son INC	9.59%	Chubb & Son	15%	0
North Carolina	State Farm IL	18.73%	NC Dept. of Insurance	13%	7%
	Nationwide Corp	16.11%	NC Dept. of Insurance	13%	7%
	NC Farm Bureau Ins Grp	13.43%	NC Dept. of Insurance	13%	7%
	Allstate Ins Grp	10.19%	NC Dept. of Insurance	13%	7%
North Dakota	State Farm IL	18.52%	State Farm	10%	5%
	American Family Ins Grp	17.10%	American Family	10%	10%
	Auto Owners Grp	8.81%	Ins. Agent	10%	5%
Ohio	State Farm IL	21.80%	OH Dept. of Insurance	10%	5%
	Nationwide Corp	10.86%	OH Dept. of Insurance	0	0
	Allstate Ins Grp	10.21%	OH Dept. of Insurance	10%	0
	Grange Mut Cas	5.31%	OH Dept. of Insurance	4%	1%
Oklahoma	State Farm IL	26.28%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	19.58%	Farmers	10%	5%
	Allstate Ins Grp	8.56%	Allstate	2%	0
Oregon	State Farm IL	25.20%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	19.12%	Farmers	10%	5%
	Allstate Ins Grp	10.99%	Allstate	4%	0
Pennsylvania	State Farm IL	18.78%	State Farm	10%	5%
	Allstate Ins Grp	15.32%	Allstate	10%	0
	Erie Ins Grp	13.42%	Ins. Agent	10%	0
	Nationwide Corp	10.06%	Nationwide	10%	5%
Rhode Island	Amica Mut Grp	11.52%	Ins. Agent	13%	8%
	Allstate Ins Grp	11.22%	Allstate	10%	0
	Nationwide Corp	9.26%	Nationwide	0	0
	Liberty Mut Grp	9.02%	Ins. Agent	13%	8%
South Carolina	State Farm IL	25.98%	State Farm	10%	5%
	Allstate Ins Grp	15.49%	Allstate	10%	0
	Nationwide Corp	9.10%	Nationwide	0	0
South Dakota	State Farm IL	19.94%	SD Dept. of Insurance	10%	5%
	American Family Ins Grp	17.20%	SD Dept. of Insurance	10%	10%
	Farmers Mut Ins Co of NE	7.76%	SD Dept. of Insurance	10%	10%
	Zurich Ins Grp (Farmers Ins Grp)	7.70%	Sd Dept. of Insurance	10%	5%
Tennessee	State Farm IL	26.06%	State Farm	10%	5%
	Tenn Farmers Mut	17.39%	Ins. Agent	5%	2%
	Allstate Ins Grp	11.40%	Allstate	4%	0
Texas	State Farm Mutual Group	29.26%	State Farm	10%	5%
	Allstate Ins Grp	17.35%	Allstate	2%	0
	Zurich Ins Grp (Farmers Ins Grp)	11.19%	Farmers	10%	5%
Utah	State Farm IL	20.82%	State Farm	10%	5%
	Allstate Ins Grp	19.95%	Allstate	3%	0
	Zurich Ins Grp (Farmers Ins Grp)	16.81%	Farmers	10%	5%

**Table 1. Discounts for Fire Sprinklers on Homeowner Insurance Policies** (© 2007 NAHB/HousingEconomics)

States	Company Name	Market Share	Sprinkler Credits		
			Data Source	Class A <sup>1</sup>	Class B <sup>2</sup>
Vermont <sup>5</sup>	Co-Operative Ins Co	10.43%	Ins. Agent	3%	0
	State Farm IL	7.97%	State Farm	10%	5%
	Allstate Ins Grp	7.57%	Allstate	4%	0
	Liberty Mut Grp	6.54%	Ins. Agent	13%	8%
	Chubb & Son INC	5.27%	Chubb & Son	15%	0
	Nationwide Corp	4.67%	Nationwide	0%	0
Virginia	Insurance Co. (NAIC # 25143)	21.67%	VA Dept. of Insurance	10%	5%
	Allstate Ins Grp (NAIC # 19232)	13.00%	VA Dept. of Insurance	10%	0
	United Services Auto Assoc	11.95%	VA Dept. of Insurance	8%	8%
	Nationwide Corp (NAIC# 23779)	11.82%	VA Dept. of Insurance	0	0
	ST Paul Travelers Grp	11.74%	VA Dept. of Insurance	5%	2%
Washington	State Farm IL	18.11%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	17.08%	Farmers	10%	5%
	Allstate Ins Grp	13.55%	Allstate	10%	0
	Safeco Ins Grp	9.29%	Ins. Agent	7%	4%
West Virginia	State Farm IL	25.74%	WV Dept. of Insurance	10%	5%
	Nationwide Corp	19.39%	WV Dept. of Insurance	0	0
	Erie Ins Grp	12.67%	WV Dept. of Insurance	0	0
Wisconsin	American Family Ins Grp	25.94%	American Family	10%	10%
	State Farm IL	15.47%	State Farm	10%	5%
	Allstate Ins Grp	4.43%	Allstate	4%	0
Wyoming	State Farm IL	25.79%	State Farm	10%	5%
	Zurich Ins Grp (Farmers Ins Grp)	16.91%	Farmers	10%	5%

1. Class A: Automatic Sprinklers in all areas including bathroom, attics, closets, and attached structures.
2. Class B: Automatic Sprinklers totally or partially omitted in bathroom, attics, closets, and attached structures.
3. Only 25.37% of the market share was obtained in Hawaii due to lack of data.
4. The fire sprinkler system has to be combined with central alarm system, fire extinguisher and smoke detector to receive the 20% discounts
5. Due to difficulties obtaining data from Vermont Mutual and Union Mutual, which are among the top 4 underwriters of homeowner insurance in Maine, the 7th and 8th largest homeowner policy underwriters Chubb & Son and Nationwide are included in the dataset to arrive at a representative minimum 40% market share.

**Data Sources:**

1. Rate Filings: The fire sprinkler discounts, if offered, are detailed in the homeowner insurance manuals of each individual insurance company. All states except for North Carolina require insurance companies to file rate and form filings with the Department of Insurance in their state. The filings are public records and are available for public review based on the Freedom of Information Act. The Department of Insurance in 11 states (Alabama, Alaska, Florida, Kansas, Michigan, New Jersey, North Carolina, Ohio, South Dakota, Virginia and West Virginia) responded to NAHB's request for public information and provided the sprinkler discounts major insurance companies offer in their respective states. The rest of the states offer on site physical examination of the public records, but do not do research or make copies for the public due to a lack of staff.
2. Statistics from individual insurance companies: The top 8 underwriters of homeowner insurance policies nationwide were contacted about their policies in regard to fire sprinkler credits in all states where they underwrite homeowner insurance. State Farm, Allstate, Farmers Insurance, Nationwide, American Family and Chubb & Son responded with their statistics, arranged by state. Liberty Mutual and St. Paul Travelers Group were not responsive.
3. Insurance Agencies: Where data could not be obtained by method 2 or 3, individual insurance agencies were contacted and a telephone survey was conducted. Since agents need to consult the manual of the respective insurance company in the respective state for the specific sprinkler discount amount, data gathered this way should also be accurate and reliable.
4. Consultant: An independent consultant was hired for onsite examination of the filing records on behalf of NAHB in Maine, where other means of data collection did not yield fruitful results.

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**Table 2. Home Prices and Insurance**

State	Estimated Median New Home Price, 2007	Median Annual Homeowner Insurance Premium for Homes Built 2000-2005	Weighted Average Fire	
			Class A	Class B
Alabama	\$154,433	\$700	10%	4%
Alaska	\$315,738	\$860	10%	3%
Arizona	\$317,174	\$550	8%	4%
Arkansas	\$137,516	\$660	5%	2%
California	\$518,836	\$750	10%	4%
Colorado	\$360,467	\$700	9%	5%
Connecticut	\$395,463	\$750	10%	1%
Delaware	\$319,993	\$490	5%	3%
District of Columbia	\$385,112	\$500	11%	2%
Florida	\$328,811	\$950	10%	4%
Georgia	\$219,610	\$550	10%	3%
Hawaii	\$543,512	\$850	10%	5%
Idaho	\$230,112	\$420	8%	4%
Illinois	\$320,698	\$550	10%	3%
Indiana	\$184,883	\$600	8%	4%
Iowa	\$192,838	\$600	7%	4%
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Community Survey, U.S. Census Bureau; Table 1 of this article.

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<b>Additional Cost By Category</b>	
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Fire Sprinkler Design Fee	\$593
RFS Water Service Pipe Changes	\$866
RFS Water Meter Changes	\$172
<b>Total Additional Cost</b>	\$1,829
<b>Total Cost to Builder</b>	\$5,573

Source: NAHB Research Center 2007 Fire Sprinkler Survey.

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**Table 4. Sprinkler Cost and Increase in House Price**

Median Cost of Fire Sprinkler System to Builder	\$5,573
<b>Financing Costs</b>	
Cost of Capital	
Average Annual Interest Rate	10%
Length of Time From:	
Start to Completion (in Months)	4.34
Completion to Sale (in months)	4.8
Total Time	9.14
Total Increase in Finance Charges	<b>\$424.48</b>
<b>Brokerage Commissions</b>	
Average Fee as a Percentage of House Price	2.90%
Total Increase in Brokerage Fees	<b>\$161.62</b>
<b>Compensation and Normal Profit</b>	
Total Compensation and Profit	9.30%
Total Increase in Compensation and Profit	<b>\$518.29</b>
<b>Increase in House Price</b>	
Sum of all Added Costs	<b>\$1,104.38</b>
Sum of all Added Costs as a Percentage	<b>19.82%</b>
Total increase in House Price	<b>\$6,677</b>

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