

Model townhouse cost comparisons

Connecticut 066xx zip code (1.1 modifier over national average cost)

Stories	3	3	3
Total Area per Townhouse (sqft)	1,800	1,800	1,800
Units per building	5	5	5
Construction Savings			
Separation wall reduction from 2-hour to 1-hour	\$15,637.05	\$15,637.05	\$15,637.05
Basement ceiling	\$1,193.94	\$1,193.94	\$1,193.94
Total	\$16,830.99	\$16,830.99	\$16,830.99
Sprinkler Cost	\$13,365.00	\$16,830.00	\$24,750.00
Based on \$/sqft	\$1.35	\$1.70	\$2.50
Net cost per building	\$3,465.99	(\$0.99)	(\$7919.01)
Savings (cost) per townhouse	\$693.20	(\$0.20)	(\$1,583.80)
Savings (cost) per sqft	\$0.39	(\$0.00)	(\$0.88)

The \$1.35/sqft sprinkler cost is based on an NFPA report on the national average sprinkler cost for new single family home construction <http://www.nfpa.org/news-and-research/news-and-media/press-room/news-releases/2013/cost-of-installing-residential-fire-sprinklers-averages-135-per-square-foot>.

Note that townhouse installations tend to be less expensive than single family based on repeat floor plans and economy of scale of multiple dwellings per building and per project in multi-building developments.

The \$1.70/sqft sprinkler cost was derived by iterative analysis to identify the break-even sprinkler cost, yielding a net zero when wall and ceiling construction savings are applied. *\$.30 / ft Basement Ceiling
\$ 0 for shaft wall*

The \$2.50/sqft sprinkler cost was selected as a "high" cost vs. mature markets with a competitive supply of licensed installers. As more installations occur, it is expected that an increasing number of contractors will become available, which will reduce costs. Declining installation costs have been documented in California and were reflected in the NFPA 2013 report, cited above, vs. NFPA's initial cost study in 2008, which documented a national average cost of \$1.61.

Fast Facts: Home Fire Sprinkler Effectiveness and Installation Cost

All agree sprinklers are effective and save lives. However, recent estimates placing home sprinkler installation costs at **\$8,000 per home is overstated.** Based on average home prices and cost per square footage in Connecticut, **we see the cost as closer to \$3,000 per home.** Our experience in other jurisdictions reinforces this lower estimate.

Why Connecticut needs sprinklers in one- and two-family homes

Nationally, the fire death rate per 1000 fires in all home fires, including one- or two-family home and apartments was 81% lower in homes with no automatic extinguishing system. If sprinklers had been in all Connecticut one- or two-family home fires in 2010-2014, an average of 10 (81% of state death toll) lives could potentially have been saved per year.

During 2010-2014, Connecticut fire departments responded to an estimated average of 3,240 fires in one- or two-family homes, excluding manufactured housing, per year. These fires caused an average of 12 civilian deaths, 82 reported civilian injuries, \$33 million in direct property damage.

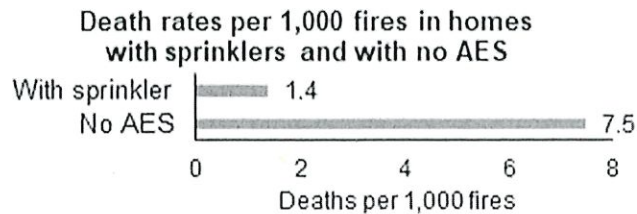
Estimated fires and civilian deaths in CT one- and two-family homes, by year



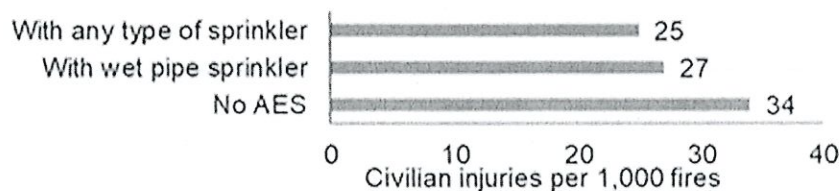
Fact: Research proves home fire sprinklers save lives & reduce injuries

Extensive research has underscored a home fire sprinkler's ability to save lives and reduce fire injuries. According to the soon-to-be released 2017 "U.S. Experience with Sprinklers" report by the National Fire Protection Association (NFPA):

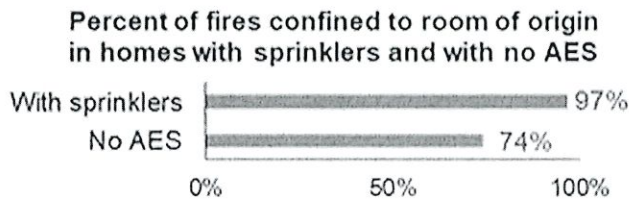
The fire death rate was **81 percent lower** in homes with sprinklers than in homes with no automatic extinguishing system (AES).



Furthermore, the civilian injury rate per 1,000 reported fires was **31 percent lower** in homes with sprinklers than in homes with no AES. The following chart shows that when any type of sprinklers were present, reported civilian injuries averaged 25 per year, compared to 34 per year in which no AES was present. The injury rate for wet pipe sprinklers of 27 per 1,000 fires was 27 percent lower than in fires with no AES.



When sprinklers were present, flame damage was **confined to the room of origin in 97 percent of fires** compared to 74 percent of fires without AES.



This effectiveness in saving lives and preventing injuries is why all model building codes used in the U.S. have required fire sprinklers in all new, one- and two-family dwellings since 2009.

Fact: Fire sprinklers, when required statewide, can be a cost-effective addition to new homes

NFPA's study, "Home Fire Sprinkler Cost Assessment—2013," compared current home fire sprinkler costs against a previous cost study completed in 2008 to gain a better understanding of how increasingly widespread adoption of sprinkler ordinances impacts system cost. Using a larger sample size, the more recent study attempted to gain a better understanding of the impact of sprinkler ordinances on home fire sprinkler costs. In the 2013 report, the average cost for installation was **\$1.35 per sprinklered square foot**.

The 2013 study includes four communities from Maryland and California as a result of these states having passed statewide sprinkler regulations. This data provides a better understanding of how the cost

of home fire sprinklers has been affected by a statewide requirement. Total cost data reported in this study refers to all of the cost incurred by the builder for the system and includes permit fees, increased tap fee charges, inspection fees, and any additional costs that vary by project and jurisdiction.

Comparing states with statewide sprinkler requirements to those without provides insight into the impact of statewide ordinances on system cost. Combining the 2013 data from Maryland and California, the cost for fire sprinklers is **\$1.16 per sprinklered square foot**, or a \$4,091 average total cost. By comparison, in all other communities the cost is **\$1.53 per sprinklered square foot** with a total cost of \$7,877. Lower costs for fire sprinklers in states with statewide requirements may be a result of more widespread acceptance of sprinklers and increased experience in installation and design practices. Market demand could also lead to lower costs as increased demand leads to competitive contractor pricing.

Download NFPA's "Home Fire Sprinkler Cost Assessment—2013" report at FireSprinklerInitiative.org/Research.

5,148 sq ft
→
\$2,500⁰⁰ Cost to
Sub-Contractor.
for Stand alone Tank.