

Home Fire Sprinkler Facts

The Office of the Illinois State Fire Marshal is working to update the state fire code, NFPA 101: Life Safety Code (LSC), from the 2000 edition to the 2012 edition. The updated code includes fire sprinkler protection in all new construction homes. Currently, 91 communities in Illinois already have such requirements in place. Here are facts about home fire sprinklers.

Home Fire Sprinklers are an Extension of the Domestic Water Supply

- Typically, one sprinkler protects an average size room, two sprinklers may be needed in larger open spaces.
- Each sprinkler is activated by heat from a fire; the entire system does not go off at one time. Ninety percent of residential fires are controlled by one sprinkler.¹
- Smoke cannot activate a sprinkler, only heat from a fire.
- Fire sprinklers are connected to the water main when the home is on a municipal water supply. Homes with a well system will need an adequate pump or a tank and pump.

Today's Homes Burn Faster Due to Construction Materials and Furnishings:

- A home fire becomes deadly in three minutes or less, according to the National Institute of Standards and Technology (NIST).
- Today's homes are designed with more open spaces and built with engineered wood trusses and I-joists that are made of compressed glue and wood chips/fibers that lose support from extreme heat. A scientific study by Underwriters Laboratories (UL) indicated that these lightweight engineered wood systems burn faster and fail sooner in a fire compared to older homes built with dimensional lumber.²
- Today's homes are filled with synthetic and/or petroleum-based furnishings that burn faster. A study by UL compared fires in two identical rooms, except one contained modern furnishings and the other contained legacy furnishings.³ The modern room transitioned to flashover in 3 minutes and 30 seconds and the legacy room at 29 minutes and 30 seconds.
 - To make modern fire-resistant furnishings, many pounds of toxic chemicals must be used. These toxic chemicals can escape the furniture in the form of dust, creating health risks for homeowners. The chemicals have been linked to cancer and neurological, developmental, and fertility problems.

Fire Sprinkler Costs:

- According to a report from the Fire Protection Research Foundation, the national average cost of installing fire sprinkler systems to the homebuilder is \$1.61 per sprinklered square foot. In northern Illinois, the average cost is \$2.38 sq. ft.
- According to an article from HousingWire,⁴ "the National Association of Home Builders (NAHB) is convincing buyers that they can afford a higher-priced new home by utilizing data from the U.S. Census Bureau and the Department of Housing and Urban Development." NAHB also studied the first year after tax costs of owning a home, which revealed that a buyer can afford to pay 23% more for a new home than a property built before 1960 and still maintain the same amount of first-year annual costs. This counters NAHB's stance that fire sprinklers will price homebuyers out of new homes.

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Home Fire Sprinkler—Add One

- Requiring home fire sprinklers as part of a code or ordinance does not affect the growth and development of new home construction.
 - Since January 1, 2011, the state of California has required fire sprinklers in all new one- and two-family homes. (Maryland also has a statewide requirement.) The NAHB website contains permit data⁵ (through May 2013) showing an overall average increase of 26% in single-family home permits in the U.S. (versus same time period in 2012), while California has experienced a 51% increase in permits issued.

Incentives & Construction Trade-Ups:

- Homeowners can receive discounts typically between 5 – 20%, on their homeowner’s insurance policies for installing fire sprinklers in their homes.
- Homebuilders and developers can benefit from construction trade-ups when installing fire sprinklers in homes they build. Municipalities have been known to allow greater fire hydrant spacing, narrower access roads, and higher density among other things, all of which create greater profits for builders and developers.

Home Fires

- According to the nonprofit National Fire Protection Association (NFPA), 84 percent of residential fire deaths occur in one- and two-family homes.⁶ As of (date), there have been 55 fire fatalities in IL, all but one were in residential fires.
- A recent nationwide survey conducted by the Society of Fire Protection Engineers (SFPE) revealed that 65 percent of Americans feel safer from the dangers of fire at home,⁷ which is an alarming misconception based on NFPA’s residential fire death statistics.

Fire Sprinklers & Smoke Alarms Work Together:

- Smoke alarms are important because they alert when there is smoke. Fire sprinklers work to control or even extinguish a fire, allowing occupants to escape.
 - Those at high-risk of dying in a fire are those who may not hear the smoke alarm or be able to escape on their own before the fire becomes deadly. They include young children, older adults and people with disabilities.

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¹ Automatic Sprinklers: A 10-Year Study. City of Scottsdale, AZ, Rural/Metro Fire Department and the Home Fire Sprinkler Coalition, 1997.

² “Structural Stability of Engineered Lumber in Fire Conditions,” UL.
<http://www.ul.com/global/eng/pages/offering/industries/buildingmaterials/fire/fireservice/lightweight/>

³ “Impact of Ventilation on Fire Behavior in Legacy and Contemporary Residential Construction,” UL.
<http://www.ul.com/global/eng/pages/offering/industries/buildingmaterials/fire/fireservice/ventilation/>

⁴ “NAHB: Homebuyers Can Afford Higher-Priced Homes,” *HousingWire*, April 1, 2013.
<http://www.housingwire.com/news/2013/04/01/nahb-homebuyers-can-afford-higher-priced-homes-0>

⁵ “Building Permits: States and Metro Areas,” National Association of Home Builders, May 2013.
www.nahb.org/fileUpload_details.aspx?contentID=55104

⁶ “Home Structure Fires,” NFPA, April 2013. <http://www.nfpa.org/research/statistical-reports/occupancies/home-structure-fires>

⁷ “Americans Have Alarming Misconceptions About Fire Safety,” Society of Fire Protection Engineers.
http://www.sfpe.org/LinkClick.aspx?fileticket=lpHwgnk_rRE%3d&tabid=115&mid=766