



# FIRE SPRINKLERS IN SINGLE-FAMILY HOMES

AN ISSUE BRIEF BY THE MASTER BUILDERS ASSOCIATION OF  
KING AND SNOHOMISH COUNTIES

## BACKGROUND

Since 2010, a local option to the International Residential Code (IRC) has been in effect in Washington state, whereby local governments can decide whether to mandate fire sprinklers in single-family homes. Local governments no longer need to seek approval from the State Building Code Council before implementing a sprinkler mandate, as was the case previously. Today, nine Washington cities have a sprinkler ordinance in effect requiring sprinklers in all new single-family homes, including Bonney Lake, Camus, DuPont, Kenmore, Mercer Island, Olympia, Redmond, Tukwila, and Washougal. Several other cities require sprinklers in single-family homes over a certain size. For example, the city of Kirkland requires sprinklers in all homes with a gross floor area over 5,000 square feet.

For townhouses, the 2018 IRC states in R313.1 that an automatic residential fire sprinkler system shall be installed in a townhouse unit, while granting the following two exceptions. A fire sprinkler system is not required:

1. “Where additions or alterations are made to an existing townhouse unit that does not have an automatic residential fire sprinkler system installed,” and
2. In “townhouse buildings containing no more than four townhouse units.”<sup>1</sup>

## POSITION

The Master Builders Association of King and Snohomish Counties (MBAKS) has long opposed mandatory fire sprinklers in single-family homes. Our association strongly supports the safety of the entire community. We do not, however, support mandating fire sprinklers in single-family homes because we believe fire safety can be effectively provided without mandating costly fire sprinkler systems.

Newer homes are built to a series of building codes explicitly designed to make homes safer, with specificity on fire safety. Considering modern building techniques, materials, and other advances in technology, we believe that requiring smoke alarms (including efforts to retrofit older structures) and educating the public on the importance of keeping these alarms working offers the most cost-effective protection from fire-related deaths. In fact, of all the fire safety tools available today, installing and maintaining smoke alarms is the most practical and proven way to reduce home fatalities in the U.S. **Smoke alarms save lives.**

Given the many challenges our region faces in providing an adequate supply of affordable housing, we are concerned that adding the cost of sprinklers to new homes will have immediate, negative impacts on the cost of housing (affordability) and homeownership (attainability). Owning a home is the most valuable asset many people will have. We believe consumers should have the choice as to whether or not to install sprinklers and assume the cost, as well as the responsibility for maintaining

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<sup>1</sup> See Washington State Building Code, Chapter 51-51 WAC, 2018 International Residential Code, First Edition, Washington State Building Code Council [https://sbcc.wa.gov/sites/default/files/2020-07/2018\\_IRC\\_Insert%20Pages\\_2ndprb.pdf](https://sbcc.wa.gov/sites/default/files/2020-07/2018_IRC_Insert%20Pages_2ndprb.pdf)



these systems. Price escalation due to regulatory mandates negatively impacts the ability of many to afford to own a home now and in the future. We are very concerned about the significant impact on housing affordability.

Ensuring that every home in the United States had at least one working smoke alarm would save hundreds of lives every year. This measure would benefit everyone—not just those who can afford a new home with fire sprinklers.

## COST OF SPRINKLERS UNPREDICTABLE

Fire sprinkler supporters argue that the cost to install sprinklers is not substantial, averaging \$1.35 per sprinklered square foot.<sup>2</sup> We believe residential fire sprinklers are a significant expense, and that they can be much higher when you factor in all related costs.

Installation costs will vary depending on the architecture of the house, local requirements, permit fees, and other factors. Based on our own research conducted in 2016, and a more recent example from 2020, the **total cost** for sprinklers could be more than \$10,000 per home in some cases. While legislation adopted by the 2016 Legislature would address one specific barrier to sprinkler implementation related to water meters, MBAKS' underlying concerns about cost remain. Homebuilders cannot financially bear the increased cost to build a house if it cannot be passed on to homebuyers in the form of increased home prices.

Four examples of actual sprinkler installation costs in the Puget Sound region serve to illustrate just how expensive they are:

- **City of Kirkland:** In 2020, one homeowner opted to install fire sprinklers in their new house (2,700 sf with a 550 sf sprinklered garage). \$7,500 was initially budgeted for installation, but the homeowner was later informed the water line wasn't large enough, so they had to either upsize the line and potentially repave their street the full length of the block (dependent on the extent of excavation required) or put in an on-site water tank and pump system the size of two water heaters. They opted for the tank, which cost \$14,424 (including redesign fees and project management). Additional electrical, permitting, and water meter costs brought the total cost for the system to over **\$23,200**, before tax.
- **City of Redmond:** One builder was quoted \$5,200 for an automatic fire sprinkler system in a 3,106-square-foot home in the city of Redmond. (The home also has a 908-square-foot garage that has sprinklers installed). The quote, prepared in February 2014, was for a flow-through sprinkler system, meaning it uses the same meter as the domestic water supply. Factoring in the sales tax of approximately \$500, plus a \$550 permit fee and \$125 cost for tenting insulation over sprinkler pipes in the attic, the total cost was closer to **\$6,375** per home.<sup>3</sup>
- **City of Kenmore:** Another example illustrating the cost of fire sprinklers is for a 3,600-square-foot single-family home in the city of Kenmore. The builder of this project received a bid in October 2015 for \$6,562. Factoring in the additional fees associated with the sprinkler system, the total cost is on the order of **\$7,577**. This particular project is located within the Northshore Utility District, which allows flow-through sprinkler systems. The bid does not include design fees for the system.<sup>4</sup>
- **City of Kirkland:** In September 2015, a builder was invoiced **\$10,700** to install fire sprinklers in a new 4,100-square foot single-family home located in the city of Kirkland (Northshore Utility District). This was a flow-through system. The builder was charged **\$8,650** for a second, 3,000-

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<sup>2</sup> Home Fire Sprinkler Cost Assessment—2013. Final Report, Prepared by Newport Partners on behalf of the Fire Protection Research Foundation, Sept. 2013.

<sup>3</sup> See Appendix A.

<sup>4</sup> See Appendix B.



square-foot home in the same project. In addition to this expense, the builder incurred added hard costs associated with upsizing the water meter (typically from ¾ meter to 1” meter) and the water line (from 1” to 1 ½”). Though harder to quantify, it is important to note the soft costs associated with the fire sprinkler permit,<sup>5</sup> including the increased timeline needed to obtain the permit and undergo the necessary inspections and testing that are performed at “rough in” and final inspection. Homes with sprinklers can take longer to build due to the additional permit and testing, which adds to the overall cost of building the home. In this example, the builder estimates this process added a month to the timeline, resulting in several thousand dollars in added carrying costs.<sup>6</sup>

This additional cost prices out many would-be home buyers—and doesn’t even include the additional cost of regular maintenance to keep the sprinklers operating effectively.

## MAINTENANCE ISSUES PRESENT CHALLENGE

In order to function properly, residential sprinkler systems require ongoing monthly and yearly consumer maintenance. Maintaining a residential fire sprinkler system is not the same as maintaining a smoke alarm system. The fire sprinkler valves must be checked periodically to verify the system is activated. Sprinkler heads must be checked to make sure they are clear of obstacles. Homeowners must be careful not to block them or paint over them.

Mandating sprinklers on homeowners adds ongoing maintenance costs, creating a financial burden that goes beyond the initial installation costs of these systems. We do not believe it is realistic to impose this maintenance regime on homebuyers. Rather, consumers should have the choice as to whether or not to install sprinklers and assume the necessary maintenance.

## RESIDENTIAL FIRE SPRINKLERS AREN’T DESIGNED TO SAVE PROPERTY

In some cases, fire sprinklers increase property loss because of the significant water damage they can cause. If the occupants are away or in a different part of the house—or if they accidentally discharge—the amount of water released can be considerable.

## FIRE SAFETY HAS IMPROVED DRAMATICALLY WITHOUT SPRINKLER REQUIREMENT

New homes are safer today than ever before because of safety-focused building codes, new building techniques, and advances in technology.

These include technological advances in heating and electrical systems, fire-resistant building materials, new building techniques (fire stopping, fire blocking, and draft-stopping), and, most importantly, hardwired smoke alarm systems, which are required in code.

## MBAKS CONTACTS

For more information, please visit [mbaks.com/advocacy](http://mbaks.com/advocacy) or contact our government affairs representative for your jurisdiction at 425.451.7920.

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<sup>5</sup> In this example, the permit fee was about \$400 per home.

<sup>6</sup> See Appendix C.

## **Appendix A**

### **Redmond Example**

February 3, 2014

**Re: Automatic Fire Sprinkler System Quote 3017 for the**

**projects located in Redmond, WA.**

We are pleased to submit our quotation in the following amounts for automatic fire sprinkler systems in the above noted projects

**WP 505 Basic: Five Thousand Dollars (\$5,000.00)**

**W 501: Five Thousand Dollars (\$5,000.00)**

**WP 35-1: Five Thousand One Hundred Dollars (\$5,100.00)**

**WP 35-2: Five Thousand Two Hundred Dollars (\$5,200.00)**

**WP 30-1: Five Thousand Two Hundred Dollars (\$5,200.00)**

**WP 30-2: Five Thousand Two Hundred Dollars (\$5,200.00)**

Prices are F.O.B. job site installed all taxes extra.

**Note: We will install the model home for free if**

**is awarded all 53 units.**

• add \$550 for permits  
• add \$125 for tenting insulation over sprinkler pipes in attic.

**The quotation includes the following:**

- One NFPA 13D wet pipe flow through sprinkler system per the city of Redmond with CPVC pipe
- Main drain valve with water pressure gauge
- White concealed Sprinkler heads where possible.
- Spare heads and installation wrench in cabinet.
- Flush test of underground pipe with City of Redmond Fire Inspector
- Install drop with plugged outlet for one toilet on each floor 2 to 4 feet off finished floor for plumbers connection
- One year warranty

*We will start our installation from an adequate domestic water supply by others*

## **Appendix B**

### **Kenmore Example**

**PLUMBING PROPOSAL PREPARED FOR:**

**JURISDICTION**

PROJECT	
LOCATION	KENMORE
PLAN #	
BID/REF#	
BID DATE	10/26/2015

<b>BID FIXTURE COUNT:</b>		RI FIXTURES	8.70	
<b>JOB #:</b>				
<b>ITEM</b>	<b>QTY</b>	<b>DESCRIPTION</b>		
HEADS	33	CONCEALED SPRINKLER		
COVERS	33	CONCEALED SPRINKLER COVERS		
CABINET	1	CABINET WITH W/THREE SPRINKLER COVERS		
DRY PENDANT	1	UPRIGHT HEAD		
RISER ASSEMBLY		NA		
<b>BID OPTIONS</b>		<b>DESCRIPTION</b>	<b>AMOUNT</b>	
1		RISER & ALARM	\$ 500.00	
3		SPRINKLER GARAGE	\$ 500.00	
4		DESIGN	\$ 750.00	
5		TRIP CHARGE NO METER AT ROUGH IN FOR BUCKET TEST	\$ 500.00	
6		INSTALL FIRE TRIM COVERS SEPARATE TRIP AFTER PLUMBING TRIM	\$ 200.00	
		<b>BID</b>	<b>\$ 6,562 *</b>	
AUTHORIZED SIGNATURE		DATE	BID GOOD FOR 90 DAYS	

BILLING SCHEDULE	%	ORIGINAL PROPOSAL	APPROVED OPTIONS	REVISED PROPOSAL
ROUGH IN	85%	\$ 5,578	\$ -	\$5,578
	15%	\$ 984	\$ -	\$984
<b>TOTAL</b>	<b>100%</b>	<b>\$ 6,562</b>	<b>\$ -</b>	<b>\$6,682</b>

**EXCLUSIONS**

- Sales Tax
- Water meter
- Water service line
- Design
- Gas meter, Gas Piping, and/or Gas Connections
- Permits
- Insulation
- Freeze damage
- Backflow Device
- Any damage to material on-site
- Monitoring

**PAYMENT TERMS**

Net 10th

Past due accounts will be charged a finance charge at the periodic rate of 1-1/2% per month, which is an annual percentage rate of 18%, or a periodic rate not to exceed the maximum rate allowed by state law.



## Northshore Utility District Fees Associated with Sprinklers in the City of Kenmore

Fire Protection Fee:	\$900.00
GFC Increase for 1" Meter:	No Charge – NUD only charges the cost of meter upsizing
Backflow Assembly Inspection:	\$80
Water Meter Set Increase for 1" Meter: \$35 (3/4" x 5/8" Set Charge is \$290/1" Set Charge is \$325)	
<b>Total:</b>	<b>\$1,015</b>



### Northshore Utility District SINGLE-FAMILY SEWER / WATER CONNECTION COST INFORMATION

Sewer Connection Charges					
Meter Size	MFC	LFC	Total Connection Fees	Minimum Standard Permit <sup>1</sup>	Minimum ROW Permit <sup>2</sup>
¾" & 1"	\$1,925	\$5,075	\$7,000	\$300	\$645

MFC - Major Facilities Charge    LFC - Local Facilities Charge

<sup>1</sup>Permit: \$300 fee covers gravity side sewer requiring only a single inspection. Pumped side sewer or other obvious situations requiring two inspections is \$400. Additional inspections due to failure to comply with the District's rules and regulations are \$80/hr with a one hour minimum. There is a \$150 fee for a revised permit to disconnect and cap a side-sewer. There is no fee for revised permits to make minor modifications or repairs to an existing side-sewer.

<sup>2</sup>ROW: Right-of-Way Permits required for side sewer connections and inspections are a minimum of \$645; however, additional charges may apply depending on the jurisdiction.

Water Connection Charges						
Meter Size	MFC	LFC	Total Connection Fees	Fire Protection <sup>4</sup>	Minimum Service Installation <sup>3</sup>	Meter Set Permit
¾" & 1"	\$1,800	\$700	\$2,500	\$900	\$3,450 – ¾" \$3,500 – 1"	\$290 – ¾" \$325 – 1"

<sup>3</sup>Service Installation: To install a service, the District shall charge its actual labor and material cost plus an additional charge for administration and overhead as set forth in Section 12.03 of the Rate Resolution. Water service installations on roads that require overlay restoration, affecting 3 or more lanes of traffic or on major arterials shall require an additional \$6000 deposit.

<sup>4</sup>Fire Protection: If the jurisdiction is unincorporated King County, the fee is reduced to \$600.

Per the Northshore Utility District 2015 Rate Resolution 2015-03-06

#### SECTION 10.00 BACKFLOW ASSEMBLY TESTING

The District shall enforce a backflow assembly testing policy in accordance with WAC 246-290-490. See Appendix "N" of the District Comprehensive Water System Plan and District Resolution 1994-4-1 for details. The District offers backflow assembly testing service to property owners upon request at a rate of \$80 per assembly.

Where a service line, meter connection and a meter box have been constructed by a developer as part of a water main extension, the meter "set" charges shall be:

Meter Size	"Set" Charge
¾-inch	\$290
1-inch	\$325
1-1/2 inch	\$660
2-inch	\$865

For short plats that include an existing water service which is to be reused, the existing service shall be assigned a new account number and the existing meter shall be replaced with a new meter at no charge.



## **Appendix C**

### **Kirkland Example**

West Coast Plumbing, Inc

7419 204th St Ne  
 Arlington, WA 98223  
 (360)403-1000

# Invoice

Date	Invoice #
9/25/2015	3202

Bill To
Sapphire Homes

Ship To
6814 NE 129TH ST KIRKLAND

Project	Terms
1 HOLMES	Net 15

Item	Description	Contract	Amount
Rough In	FIRE	18,375.00	11,025.00T
Rough In		9,780.00	6,846.00T

<b>Subtotal</b>		\$17,871.00
<b>Sales Tax (9.5%)</b>		\$1,697.75
<b>Total</b>		\$19,568.75
<b>Payments/Credits</b>		\$0.00
<b>Balance Due</b>		\$19,568.75

Past due invoices will be charged at the periodic rate of 1-1/2% per month