



## FIRE PROTECTION SYSTEMS RESIDENTIAL INSTALLATIONS

### CASE STUDY

# Uponor Fire Protection Systems Offer a Dependable and Cost-effective Solution for Mandated Fire Sprinkler Systems

When homeowners do the dishes, wash their car or get a drink of water, they have peace of mind knowing their home's fire protection system is working properly.

A house fire is one of the most devastating tragedies a homeowner can experience. A typical home can be engulfed in flames within minutes after a fire starts, but residential fire sprinklers can contain a fire in less time than it would take the fire department to arrive on the scene. So why aren't more homes equipped with them?

Statistics from the Home Fire Sprinkler Coalition (HFSC) reveal sprinkler systems used in conjunction with smoke detectors reduce the risk of fire-related deaths by 82%. However, because of their typically high cost, stand-alone sprinkler systems are rarely installed in residential structures.

Searching for a solution that was reliable for homeowners and cost-effective for contractors and builders, the city of North Las Vegas, N.V., passed an ordinance mandating multi-purpose fire protection systems (combination plumbing and fire sprinkler systems) in new residential construction.

Las Vegas-based contractor, RCR Companies, noted ease of installation and total cost were factors when they decided to go with Uponor fire protection systems.

RCR Companies had installed Uponor's crosslinked polyethylene (PEX) tubing in various homes and apartments in previous years, and based on their experience, they decided to use Uponor's patented fire protection system for their Real Homes by Centex, Genevieve Court project.

The Uponor fire protection system uses an interconnected grid of tubing to feed both the fire sprinkler system and the cold-water plumbing fixtures. The sprinkler head is attached to a stainless steel multi-port fitting, and a cold-water manifold feeds 1/2" Wirbo AQUAPEX® tubing directly to the multi-port fittings. The multi-port fittings and supply lines are part of the home's plumbing system, so each time a cold-water plumbing fixture draws water, fresh water goes to the sprinkler head as well, eliminating stagnant water from the system.

Surprisingly, 90% of home fires are actually contained by just one sprinkler. The sprinklers in the Uponor fire protection system are heat-activated by surrounding temperatures of 155°F, not smoke, so there is never a worry of accidental activation. Additionally, the sprinklers discharge approximately 10 to 15 gallons water per minute, much

less than the 250 gallons of water per minute from fire department hoses, eliminating excessive water damage.

Rick Meyers, general superintendent of RCR Companies, was very satisfied with the Uponor fire protection system.

"It was an easy transition going from Uponor's Wirbo AQUAPEX to their fire protection system," he says. "The simplicity of the system components and working with just 1/2" tubing made cross training our people very simple."

The Uponor fire protection system takes advantage of Uponor's exclusive ProPEX® fitting system which capitalizes on the shape memory of Wirbo AQUAPEX tubing. An expander tool expands the tubing enough for the fitting to be inserted, and the tubing then shrinks around the fitting as it returns to its original shape. The result is permanent, reliable connections on the multi-port fittings that are consistent every time without the use of torches, glues or gauges.

On average, home fire protection systems add approximately 1 to 2% of the total building cost in new construction. And Uponor's combined plumbing and fire

protection system is about 15% less than a stand-alone system. However, North Las Vegas passed an ordinance requiring stand-alone systems have backflow preventers buried in the yard and installed in a freeze-protected box, adding an additional \$600.00 to the installed cost.

“With a combined potable water and fire sprinkler system, we were able to maximize our available labor and install both systems in a shorter amount of time,” says Meyers. “The sprinkler heads come assembled and ready to mount. Other systems require the heads be assembled in the field, adding to the install time. It took two

contractors one day to install both the cold-water potable plumbing and the fire sprinkler system.”

Tom Walls, field superintendent for RCR Companies, affirmed the appeal of Uponor fire protection systems for homeowners as well as installers. “New homeowners worry about aesthetics when they design their homes,” he says. “Modern residential sprinklers are inconspicuous and the system is user friendly. When homeowners do the dishes, wash their car or get a drink of water, they have peace of mind knowing their home’s fire protection system is working properly. This is a true lifesaver.”



Uponor’s brass manifolds in combination with their ProPEX fittings offer a durable, leak-resistant plumbing and fire protection system.

## Summary of Benefits

### Cost Effective

Because the Uponor fire protection system incorporates fire sprinklers into the plumbing system, homeowners can enjoy peace of mind at a very competitive cost.

### Proven

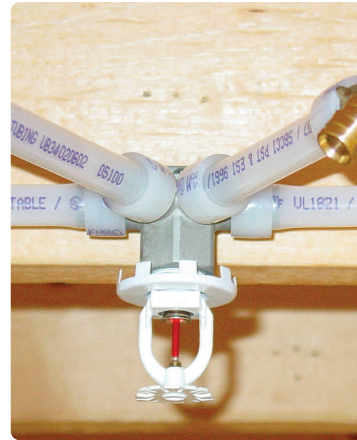
Uponor’s PEX tubing has been tested and proven for more than 30 years in plumbing and radiant floor heating systems throughout the world. More than 2 billion feet of Uponor PEX is in service in North America alone, and over 12 billion feet is installed worldwide.

### Guaranteed

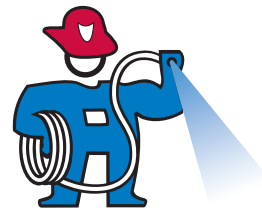
The Wirsbo AQUAPEX tubing in the Uponor fire protection system comes with a 25-year limited warranty when installed by an Uponor-trained plumbing contractor.

### Approved

The Uponor fire protection system meets the National Fire Protection Association (NFPA) requirements for residential fire sprinkler systems. The ½” Wirsbo AQUAPEX plus tubing and ProPEX fittings are UL-listed for use in multi-purpose tubing systems of residential occupancies as defined in NFPA-13D, the Standard for Installation of Sprinkler Systems in One and Two Family Dwellings and Manufactured Homes. (Uponor received its UL listing in June 2000.)



The multi-port sprinklers in the Uponor fire protection system are made of stainless steel for the ultimate strength and reliability.



The design information in this case study is provided for illustrative purposes only. The actual requirements of similar projects will depend on varying factors. All Uponor fire protection systems are designed using Uponor’s custom software application which specifies the proper location for sprinklers as well as necessary flow rates. It is designed to comply with national fire codes and standards and meets the requirements of NFPA 13D. For more information about Uponor’s design capabilities, contact your area representative.

## Project Data

<b>Size of Structure:</b>	1,200-square-foot, single-family home
<b>Type of Construction:</b>	Wood frame
<b>Tubing Type:</b>	½” Wirsbo AQUAPEX
<b>Feet of Tubing:</b>	1,600 feet
<b>Number of Heads:</b>	19

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