

Z U R N P E X ®

# Residential Fire Protection Systems



**ZURN® PEX**





## ZURN PEX® RESIDENTIAL FIRE PROTECTION SYSTEMS

### Multipurpose (MP):

Piping system intended to serve cold domestic water (plumbing) and fire protection needs

### NFPA 13D:

Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes

### MP Piping Configurations:

Gridded, looped, straight, or combination of those three

### Process:

1. System design by certified and licensed professional,
2. Design and calculations submitted to AHJ for approval,
3. Certified and licensed professional installer follows design

### Zurn PEX Multipurpose Fire Protection Systems

A Zurn PEX Fire Protection System is a multipurpose system and is designed to provide safe passage out of a home in the event of a fire. It is designed to supply both the fire sprinkler water and the cold domestic water and is typically installed by a licensed plumbing contractor. Since the fire sprinkler system is connected to the plumbing system it is difficult to be accidentally turned off, which according to the Fire Analysis Research Division of the National Fire Protection Association (NFPA) is the most common cause of improper sprinkler system activation. As such, every time a cold water fixture is used you can be assured the Zurn PEX Fire Protection System is turned on.

### Types of Zurn PEX Multipurpose Fire Protection Systems

According to the installation standard for sprinkler systems, NFPA 13D the Zurn PEX Fire Protection System piping configuration may be gridded, looped, straight or a combination of those three. The gridded configuration is typically the simplest design with the best hydraulic characteristics because a sprinkler is supplied with water from both sides while other branch lines help transfer water. Cold water fixtures are supplied with branch and tee connections off the grid. The looped configuration also provides a simplistic design with good hydraulic characteristics, because the sprinklers on the perimeter are supplied with water from both sides while sprinklers within the perimeter are fed off the loop. A straight system is similar to a tee and branch system found in a traditionally plumbed residence. Each sprinkler is provided with a single path of water from a trunk line. Ultimately it is the designer's decision to decide which configuration will work best in a particular floor plan.

### How It Works

Zurn PEX Fire Protection Systems are designed and hydraulically calculated by a certified and licensed professional in accordance with industry standards such as NFPA 13D. Inputs such as room size, sprinkler coverage area, PEX tube size and water supply pressure are used in the design and hydraulic calculation. The design and hydraulic calculations are provided to the local authority having jurisdiction (AHJ) for approval. A certified and licensed installation professional will follow the design. A properly designed and installed Zurn PEX Fire Protection System will provide adequate flow to the sprinklers in the system, and the homes cold domestic water needs.



Gridded Multipurpose  
Fire Sprinkler System



Looped Multipurpose  
Fire Sprinkler System

## Why a Zurn PEX System

### Zurn PEX Tubing

- Flexible Zurn PEX tubing is UL 1821 approved with 6 month UV rating and the industries highest available chlorine rating
- Listed for use in potable water and residential fire protection applications up to 2"
- Freeze damage resistant Zurn PEX tubing
- Resistant to many chemicals and substances found in water and on the job-site

### Zurn PEX Fittings and Crimp Systems

- Zurn PEX XL low lead and dezincification resistant sprinkler tees are UL 1821 approved, offer excellent flow characteristics and are durable enough to stand up to tough jobsite conditions
- Zurn PEX XL low lead and dezincification resistant brass fittings 1" to 2" are UL 1821 approved
- Zurn PEX CR low lead and corrosion resistant fittings 1" in size are UL 1821 approved
- Zurn PEX QuickClamp and copper crimp ring systems are UL 1821 approved
- Both fittings and crimp systems are listed for use in potable water and residential fire protection applications



## How Sprinklers Work

There are three styles of residential fire sprinklers available in the market today with different trim and cover plate options:

1. Recessed or semi recessed pendent
2. Concealed or dome and flat plate pendent
3. Flush pendent

Most residential sprinklers operate at 155°F. At that temperature, the glass bulb bursts or the soldered link assembly separates. The plug supported by the bulb or solder link assembly is forced out and water is allowed to flow.

Zurn PEX Fire Sprinkler Tee



Viking® Flat Plate Concealed Sprinkler



# Q and A

**Q: *Why are sprinklers being required by code?***

**A:** Research conducted by Underwriters Laboratories (UL) and titled "Today's Residential Fire Environment: What's Different Today and Why it Matters" identified five factors that lead to faster fire propagation, shorter time to flashover (entirely engulfed in flames), shorter collapse time and shorter escape time in today's newly constructed homes: (1) Larger homes lead to longer escape time and larger fireman search area; (2) Open spaces such as great rooms, large foyers, 9-14 foot ceilings are all desirable home features, but add a tremendous amount of air volume, fueling a fire and easily spreading smoke; (3) Increased fuel loads such as the quantity of contents typically synthetic materials that carry sufficient energy to bring a room to flashover (entirely engulfed in flames); (4) Void places such as floor voids and unique attic geometries allows fire to spread quickly; (5) Building materials such as engineered lumber and steel truss plates change the fire environment. In all, fire protection systems allow additional time for occupants to exit a structure in the event of a fire.

**Q: *When will fire protection systems be required in one and two family dwellings?***

**A:** The model residential building code typically adopted by states and local jurisdictions is the International Residential Code (IRC). The 2009 version of the code has mandated that effective January 1, 2011 residential fire sprinkler systems must be installed in one and two family dwellings. They are not required for additions or alterations made to existing buildings that do not already have sprinklers. If your state of local code jurisdiction adopts the 2009 IRC without amendments, fire sprinkler systems will be required.

**Q: *What is the typical rate in which states and local jurisdictions adopting a code like this?***

**A:** Like other building codes the rate of code adoptions vary greatly. As of September 2010 only California and Pennsylvania have adopted the 2009 IRC without amendments.

**Q: *What codes must the fire sprinkler system meet?***

**A:** Residential fire sprinkler systems must be designed and installed in accordance with local requirements, typically NFPA 13D or Section P2904 of the 2009 IRC

**Q: *Does every sprinkler activate when a fire occurs?***

**A:** No. Residential sprinklers are heat sensitive. Only the sprinkler closest to the fire will activate in a residential system.

**Q: *What are the chances the sprinkler activates accidentally?***

**A:** According to the U.S. Fire Administration (USFA), the chances of unintentional sprinkler activation are about 1 in 16 million devices. Like a plumbing system, when designed and installed correctly there is very small chance of a leak.

**Q: *Will the water damage from the sprinkler be more extensive than the fire?***

**A:** One sprinkler puts out 90% of fires. A typical residential sprinkler will discharge 15 gpm while fire hoses normally operate at 250 gpm. In addition, studies have shown that the average loss in a sprinklered home is \$2,166 compared to the average loss in a non-sprinklered home is \$45,019.

**Q: *Are my smoke detectors and alarms enough protection?***

**A:** Smoke alarms alert occupants to the presence of danger, but do nothing to extinguish a possible fire. Home fire sprinklers respond quickly and suppress heat and smoke, providing occupant's time to reach safety. The most vulnerable occupants are children under 5, seniors, persons impaired and household pets. Lastly, smoke alarms fail too often because the batteries are either dead or have been removed.

**Additional Useful Links:**

HYPERLINK "<http://www.homefiresprinkler.org>" [www.homefiresprinkler.org](http://www.homefiresprinkler.org)  
HYPERLINK "<http://www.firesprinklerinitiative.org>" [www.firesprinklerinitiative.org](http://www.firesprinklerinitiative.org)  
HYPERLINK "<http://www.ircfiresprinkler.org>" [www.ircfiresprinkler.org](http://www.ircfiresprinkler.org)



**ZURN PEX, INC.**

HIGHWAY 11 EAST · COMMERCE, TX, U.S.A. 75428

PHONE: 855-ONE-ZURN (855-663-9876) · FAX: 903/886-2583 · [www.zurnpex.com](http://www.zurnpex.com)

**IN CANADA:**

**ZURN INDUSTRIES LIMITED**

3544 NASHUA DRIVE · MISSISSAUGA, ONTARIO, CANADA L4V 1L2

PHONE: 905/405-8272 · FAX: 905/405-1292