



Feb. 14, 2012

Uponor Testimony to the 1309 International Residential Code Committee of Minnesota Regarding the Sprinkler Requirement in the 2012 IRC Adoption

Committee Members and Other Interested Parties,

This document is intended to provide an overview of residential multipurpose fire sprinkler systems, describe our experience as a manufacturer, designer and supplier of such systems, and explain the benefits and impact for home builders, code officials and homeowners who use these systems.

Uponor is a global manufacturing company with its North American headquarters located in Apple Valley, Minn. Uponor employs approximately 3,300 worldwide, with over 300 located in Minnesota. Uponor manufactures a flexible plastic tubing called crosslinked polyethylene, or PEX-a. This tubing is used in hydronic radiant floor heating and cooling, plumbing and residential fire sprinkler systems.

In 1996, Uponor introduced a residential multipurpose fire sprinkler system called AquaSAFE™ that integrates with a home's cold-water plumbing system. The 1999 Edition of the National Fire Protection Association (NFPA) 13D Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes allowed the use of listed PEX tubing in multipurpose systems. The purpose of 13D systems is to control fires early and prevent flashover so occupants can evacuate or be rescued. The additional benefit of the extraordinary reduction in property loss, in addition to the obvious benefit of preventing loss of life, has been well documented by several studies and reports in areas such as Scottsdale, Ariz.; Prince George's County, Md.; and Bucks County, Penn.

Since its inception, the AquaSAFE system has been successfully installed in more than 4,000 homes in 40 states and provinces across North America — with over 40 homes in the state of Minnesota. While those opposed to sprinkler requirements have raised concerns about the cost, inconvenience or perceived liability of residential fire sprinklers, in Uponor's experience, these concerns are easily addressed with a thorough understanding of sprinkler installation standards and proper installation techniques.

In fact, there are several characteristics of PEX-a multipurpose systems that provide significant benefits to all stakeholders. First, because multipurpose systems circulate water every time a cold-water plumbing fixture is used, fresh water is always available to the sprinklers, eliminating water stagnancy and the need for backflow prevention or antifreeze. This "non-stagnant" system provides exceptional peace of mind for homeowners as well because they know if water is flowing to their sinks and showers, it is also available to their fire sprinkler system.

Second, because the Uponor system uses an extremely flexible PEX-a tubing, there is an added level of protection against burst piping due to freezing. PEX-a tubing can expand up to three times its original diameter without bursting, so if there is a situation resulting in the sprinkler piping being exposed to freezing temperatures, the pipe can withstand these increased pressures without bursting and causing damage.

Moreover, when installed properly, and with adequate attention to the amount and location of insulation, sprinkler systems can be installed in attics with minimal concern of freezing. In fact, NFPA recently released a research report titled *"Sprinkler Insulation: A Literature Review"* (submitted as a standalone document) that provides information on several documents detailing the amount and proper application of insulation. One such document is Uponor's *AquaSAFE Attic Insulation Guide* (submitted as a standalone document).

Third, because the fire sprinkler system is tied in with the home's cold-water plumbing, the Authority Having Jurisdiction (AHJ) knows there is an incentive for homeowners to maintain the fire sprinkler system and quickly address any water disruption issues that may arise.

Fourth, Uponor AquaSAFE systems address concerns over the perceived difficulty of installing a sprinkler system when the home's water supply is provided by a private well. Uponor AquaSAFE systems have been installed in hundreds of homes supplied with well water. In many cases, increasing the well pump slightly can meet the increased hydraulic requirements for the sprinklers, beyond the needs of the plumbing system. This can be accomplished as long as the recovery of the well, how fast it can provide water, and the storage capacity isn't exceeded. If the well can't provide enough water, a storage tank may be added to provide the 10 minutes of water NFPA 13D requires.

Lastly, the Uponor AquaSAFE system eliminates scheduling concerns for builders and the hassle of adding another trade to the jobsite. Because multipurpose systems are typically, and in Minnesota required to be, installed by a licensed plumber, it eliminates the need to schedule an additional contractor. Builders can simply use the trusted plumber already on the jobsite to install both the fire sprinkler and domestic plumbing systems. (Note that there are licensing requirements for multipurpose fire sprinkler system contractors and installers to ensure these systems are installed properly. In Minnesota, there are over 30 contractors that are qualified and licensed to install Uponor AquaSAFE systems.)

To further minimize the impact for builders, Uponor offers professional design services providing custom layouts by NICET-level designers. Our design staff uses supplied home plans and water supply details to develop a cost-effective sprinkler layout that is hydraulically calculated to ensure proper performance. In fact, a well-designed multipurpose system often results in a significant reduction in piping materials when compared to standalone systems. Additionally, because Uponor designers are closely involved with the installers who use the AquaSAFE system, they have gained extensive experience and understanding in the wide variety of construction techniques and methods of addressing unique climate challenges with sprinkler systems, providing an even greater advantage for builders.

Additionally, training the professionals who install our systems is also a large part of our business. As an industry leader in PEX-a plumbing, radiant heating and cooling, and residential fire sprinkler systems, our reputation is extremely important. Our commitment to training extends back to our early history while introducing North America to PEX. Since first introducing Uponor AquaSAFE systems over 10 years ago, Uponor has trained approximately 600 installers across North America. Our training is conducted in a two-part series, with a focus on understanding NFPA 13D.

In addition to classroom training, contractors are involved in hands-on training at a jobsite or in our factory training center. This two-level training course must be completed before receiving a qualified installer card. The contracting company must also become an Uponor Alliance Member before they are allowed to purchase or install AquaSAFE products. These checks and balances are in place to ensure

proper understanding of the NFPA 13D Standard, installation requirements, local ordinances and codes, and to provide peace of mind for all stakeholders that the fire sprinkler system will operate as intended.

To further ensure peace of mind for installers, AHJs and the homeowner, Uponor requires a flow test after the system has been installed. This requirement goes above and beyond NFPA requirements, but serves as a final test that the system is operating as designed.

Uponor has developed strong relationships with builders who have embraced residential fire sprinklers as an important safety feature of the homes they build. Murray Pound of Gold Seal Homes in Alberta, Canada installs fire sprinklers in every one of his homes. Murray has installed 28 Uponor AquaSAFE systems over the past four years. Even in a shrinking market, Gold Seal Homes has grown, and Murray attributes some of that success to his inclusion of fire sprinklers (see Gold Seal Master Builder submission of Testimony for the 2012 IRC Adoption submitted as a standalone document).

In summary, Uponor firmly believes in the benefits of residential fire sprinklers. We have a strong team dedicated to AquaSAFE systems, products, training and support. We work closely with all stakeholders and truly believe residential sprinklers can be a winning situation for everyone involved. We will be happy to cooperate and contribute as needed to ensure a complete understanding of the residential fire sprinkler market and industry.

Respectfully submitted,



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