



April 26, 2022

## ANTIFREEZE IN WET PIPE SPRINKLER SYSTEMS

**Dear Recipient,**

You are receiving this letter because you have a fire sprinkler system that may contain antifreeze in your building. If you are uncertain whether your fire sprinkler system has antifreeze installed, contact your fire sprinkler maintenance contractor and have them assist in determining that for you. If you have antifreeze installed within your fire sprinkler system, please read the following information that is vital to maintaining compliance with the fire code.

In 2010 it was identified that antifreeze solutions within wet pipe fire sprinkler systems can pose a hazard due to the combustibility of the antifreeze solutions used. The National Fire Protection Association (NFPA) instituted interim changes to reduce this hazard, which included maximum percentages of antifreeze to water solutions and that the solution needed to be pre-mixed prior to installation into the fire sprinkler system. **The time in which those interim changes were allowed are expiring on September 30, 2022.**

NFPA 25 (2020 edition), the Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems states that “for systems installed prior to September 30, 2012, listed antifreeze solutions shall not be required until September 30, 2022”. Now that the end of the interim allowance of utilizing non-UL Listed antifreeze is coming to an end, you have the following options:

1. Install UL Listed antifreeze into your system in accordance with NFPA 25, Section 5.3.4.4.
2. Antifreeze systems with concentrations in excess of 30 percent but not more than 40 percent propylene glycol by volume and 38 percent but not more than 50 percent glycerine by volume shall be permitted based upon an approved deterministic risk assessment prepared by a qualified person approved by the authority having jurisdiction (i.e., Arvada Fire).
3. Systems containing less than 38% glycerin or less than 30% propylene glycol, can remain as installed.

Each of the above allowances have their own challenges associated with them. Below is information pertaining to some of the anticipated challenges:

1. The installation of UL Listed antifreeze will impose additional cost for the product and requires the system to be hydraulically calculated to ensure that the system design will still work. A major concern is the new antifreeze solutions will no longer hydraulically work and need to have modifications to the system made.
2. The requirements for a risk assessment are very challenging to meet and will require a significant amount of work from a fire protection professional to prove these percentages do not pose a threat to your individual building or space. This assessment will need to be done by a fire protection engineer and may result in needing listed antifreeze or significant modifications to the sprinkler system.
3. Less than 38% glycerin only provides protection to around 0 degrees Fahrenheit and less than 30% propylene glycol only provides protection to 11 degrees Fahrenheit. The United States Weather Bureau records show



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that the lowest one-day mean temperature for this area is -15 degrees Fahrenheit, which is significantly lower than these percentages can protect.

The Colorado Division of Fire Prevention and Control promulgates rules and regulations for fire suppression systems per 8 CCR 1507-11, which the Arvada Fire Protection District (AFPD) must follow as a “qualified fire department”. These rules adopted the 2020 edition of NFPA 25, which requires what has been outlined above and will be enforced by the AFPD. The AFPD understands the challenges and potential costs associated with this requirement and will work alongside you to ensure you are able to maintain a compliant fire sprinkler system.

Sincerely,

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