



Use of Anti-Freeze Additives in Fire Sprinkler Systems

Park City Municipal Corporation (PCMC)
Park City Fire Service District (PCFD)

Where preventing fire sprinkler pipes from freezing is a concern, fire sprinkler piping must still be run/installed within a heated/warm space to avoid freezing conditions.

The use of an anti-freeze additive in the fire sprinkler system will need to meet the following criteria:

- A signed statement from the homeowner, general contractor, and fire sprinkler contractor must be provided to PCMC/PCFD requesting to allow the use of an antifreeze additive and identify that all parties understand the concerns associated with the use of glycerin in the fire sprinkler system including the potential increase in fire intensity, the possibility that antifreeze may not be available in the future, and concerns associated with the annual servicing of the system.
- Operating pressures within the fire sprinkler system must not exceed 100 psi. This may require the installation of a "pressure reducing valve" in addition to the culinary pressure reducing valve. This valve will need to be taken into account when the hydraulic calculations are done and be shown on the plans.
- **The minimum pipe size for the fire sprinkler piping supplying the antifreeze system:**
 - **System Riser Supply:** 1-1/2 inches in diameter minimum.
 - **Antifreeze System Piping:** Antifreeze systems greater than 40 gallons in size, must calculate the friction loss using the Darcy-Weisbach formula (NFPA13-23.4.2.1.3) or all piping must be 1-inch in diameter minimum.
- A listed expansion chamber must be provided to compensate for thermal expansion of the antifreeze solution within the fire sprinkler system. The size of the expansion chamber must include the pre-charge air temperature and pre-charge air pressure. The size of the expansion chamber must be such that the maximum system pressure does not exceed the rated pressure for any components of the antifreeze system.
- The fire sprinkler contractor shall indicate the type of anti-freeze solution to be used and the concentration/mixture proportions. Antifreeze solution shall not exceed a maximum concentration of 38% premixed propylene glycol or 48% premixed glycerin.
- The fire sprinkler contractor shall indicate on the fire sprinkler drawings the total amount of anti-freeze to be used the system.

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Request - Use of Anti-Freeze Additives in Fire Sprinkler Systems

Date:

Property Address:

Permit Number (If applicable):

Variance on Amount of Antifreeze Additive:

The owner and contractors are requesting the use of an antifreeze additive for the fire sprinkler system, based on the extreme cold temperatures in this area.

All parties acknowledge this request and understand the concerns with the use of either propylene glycol or glycerin in residential fire sprinkler systems, including the potential increase in fire intensity, the possibility that antifreeze may not be available in the future, and concerns associated with the annual servicing of the fire sprinkler system.

General Contractor Name:

General Contractor Signature:

Homeowner's Name:

Homeowner's Signature:

Fire Sprinkler Contractor's Name:

Fire Sprinkler Contractor's Signature:
