

NFPA® 13D-2010

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

TIA Log No.: 1060

Reference: 4.1.4, 5.2.7, 8.3, 8.3.1, 8.3.2(2), and 8.3.3

Comment Closing Date: July 2, 2012

Submitter: Dana Haagensen, Mass Dept. Of Fire Services

1. *Revise the title of 4.1.4 to read:*

4.1.4 Maintenance and Modifications of Existing Antifreeze Systems.

2. *In 5.2.7, insert the phrase, “on modifications to existing”, before “antifreeze systems”.*

3. *Revise Section 8.3 to read:*

8.3 System Types. Systems shall be permitted to be wet pipe (not including antifreeze), dry pipe, or preaction. Antifreeze systems shall not be permitted for new installations.

4. *Revise 8.3.1 to read:*

8.3.1* Wet Pipe Systems. A wet pipe system, not including antifreeze, shall be permitted to be used where all piping is installed in areas maintained above 40°F (4°C), including areas properly insulated to maintain 40°F (4°C).

5. *Delete 8.3.2(2) and renumber the subsequent paragraphs accordingly.*

6. *Move all of 8.3.3 to a new 4.1.4.2, renumber all references throughout the standard accordingly, including Annex sections, and revise the title of the subsection to read:*

4.1.4.2 Acceptable Arrangements for the Maintenance and Modifications of Existing Antifreeze Systems.

Submitter’s Substantiation:

1. Based on Fire Protection Research Foundation sponsored testing and research, it has been conclusively demonstrated that certain combinations of antifreeze type, antifreeze concentrations, sprinkler discharge pattern, sprinkler operating pressure, and nature of the fire development, can lead to situations where the discharge of antifreeze solutions in fire sprinkler systems exacerbates a fire. The latest research and testing demonstrates that the concentrations of antifreeze previously acceptable by consensus standards are not actually universally safe [see the February 2012 Fire Protection Research Foundation report - *Antifreeze Solutions Supplied Through Spray Sprinklers: Interim Report*].
2. Seeing that new installations allow for the installation of piping in heated areas when simply coordinated with residential building design, and that dry systems are also an available option, the potential risks of using antifreeze outweigh the need for antifreeze systems.
3. There are no noncombustible antifreeze products currently available to the industry, and no noncombustible antifreeze products that could be universally applied to fire sprinkler systems have been

identified. The major testing laboratories have indicated that they will not list any antifreeze products that are derived from combustible liquids.

4. The “back-and-forth” nature of the TIA’s for antifreeze create a public image problem for fire sprinkler systems. The public’s perception of the benefit of fire sprinkler systems will also be overshadowed by any further antifreeze incidents involving injury or death. Unfortunately, we cannot say conclusively that such incidents will not occur with the antifreeze systems allowed by current consensus standards.
5. Driving the industry to the use of low concentrations of antifreeze is likely to increase the number of freeze-up incidents, as there is little industry experience with these low concentrations. For the public, freeze-up incidents very much overshadow their perception of fire sprinkler protection benefits.
6. Fire protection codes and standards traditionally permit an increased level of risk for existing situations given the hardships in trying to rearrange and retrofit existing installations.

Emergency Nature: According to Paragraph 5.2(d) of the *NFPA Regulations Governing Committee Projects* , a proposed TIA can be considered emergency in nature if “the proposed TIA intends to offer to the public a benefit that would... ameliorate a continuing dangerous condition or situation.” Based on Fire Protection Research Foundation sponsored testing and research, it has been conclusively demonstrated that certain combinations of antifreeze type, antifreeze concentrations, sprinkler discharge pattern, sprinkler operating pressure, and nature of the fire development, can lead to situations where the discharge of antifreeze solutions in fire sprinkler systems exacerbates a fire [a potentially dangerous situation to occupant life safety]. The latest research and testing demonstrates that the concentrations of antifreeze previously acceptable by consensus standards are not actually universally safe [see the February 2012 Fire Protection Research Foundation report - *Antifreeze Solutions Supplied Through Spray Sprinklers: Interim Report*]. Through prohibiting the use of antifreeze for new installations, the proposed amendment ameliorates potential dangers identified by testing/research and actual fire incidents.

Anyone may submit a comment by the closing date indicated above. To submit a comment, please identify the number of the TIA and forward to the [Secretary, Standards Council](#), 1 Batterymarch Park, Quincy, MA 02169-7471.