



Recommended Practices for Insulating Fire Sprinkler Systems

Installing Fiber Glass and Mineral Wool Insulation Can Reduce the Chance of Sprinkler Systems Freezing

Properly installed insulation can significantly reduce the chance of sprinkler systems freezing - but it is important to understand when temperatures are very low for an extended period of time, insulation alone may not be enough to prevent freezing. These recommendations apply to fire sprinkler systems where the pipes contain water at all times, typically referred to as “wet” systems, dry pipe systems with a valve and systems containing antifreeze do not require special insulation details.

A basic knowledge of heat flow will help understand how insulation is used to reduce the chance of sprinkler pipes freezing. Heat moves from warm areas to cold areas and insulation slows the flow of heat. Insulation does not stop heat flow, so it is important the pipes are installed in areas within or close to the heated part of the building and insulation is placed between the heated area and the colder outside. Insulation’s property to slow heat flow is expressed as R-value and the greater the R-value the greater its ability to slow heat flow. It is also important the heating system remains on to supply heat to the building. If the heating system fails and the temperature is below freezing for a long enough time, the heat in the water will move to the colder areas and the pipes may freeze. In localities where electric power is not reliable or buildings which are only used occasionally (e.g. vacation homes) dry pipe or antifreeze type sprinkler systems

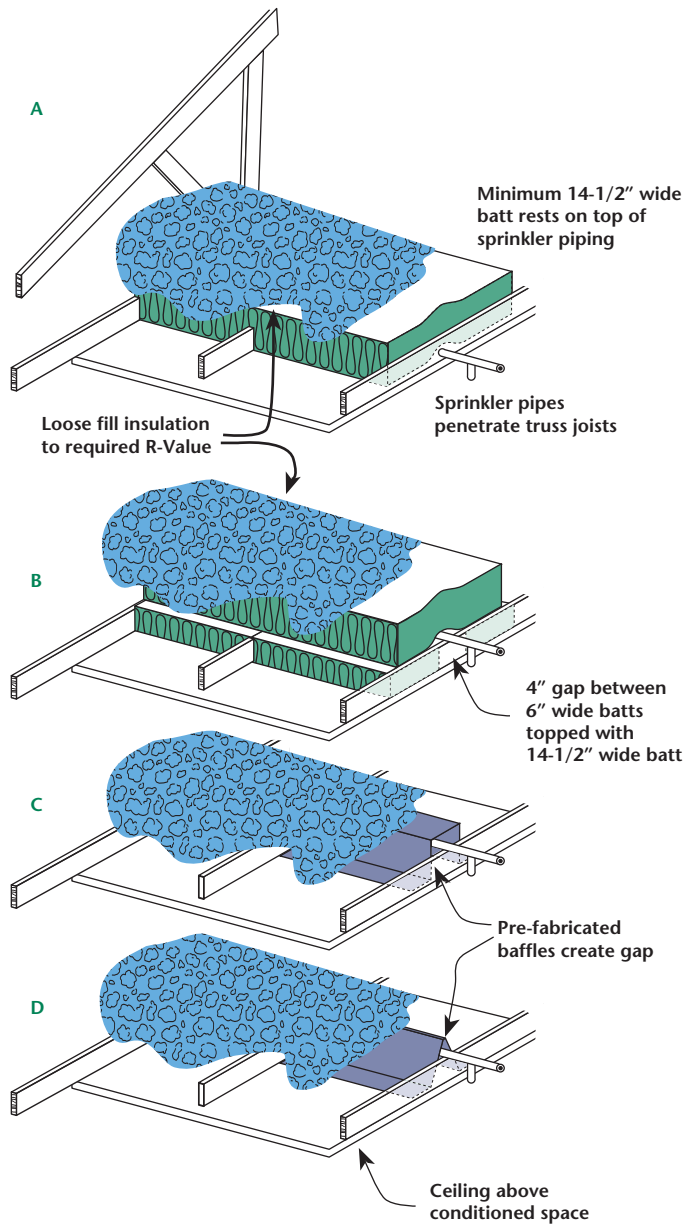
should be considered. Another strategy to reduce the chance of pipes freezing is to use “heat tracing tape” which is a flexible electric resistance heating element, typically controlled by a thermostat, which is wrapped around the pipe to supply heat when needed, but this will not help when the electric power is out.

In summary, an insulation system for sprinkler systems, containing water, has three important features:

1. Insulation with high R-value between the pipe and the cold exterior or unconditioned space.
2. Materials with very low R-value (e.g. gypsum board) or preferably nothing between the pipe and the heated area to allow heat to flow into the water filled pipe.
3. A reliable heating system to replace the heat lost to the exterior of the building.

The illustrations on the following page show some possible designs for insulation systems for fire sprinkler systems which contain water. Note - There may be other acceptable systems which will reduce the chance of sprinkler systems freezing and the systems shown here are not guaranteed to prevent pipes from freezing. The National Fire Protection Association (NFPA) Standard 13D Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes also contains guidance on insulating sprinkler systems.

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About NAIMA

NAIMA is the association for North American manufacturers of fiber glass, rock wool, and slag wool insulation products. Its role is to promote energy efficiency and environmental preservation through the use of fiber glass, rock wool, and slag wool insulation, and to encourage the safe production and use of these materials.

NAIMA, continuing its members' commitment to safety, has established a renewed Product Stewardship Program, which embodies the components of the earlier OSHA-NAIMA Health and Safety Partnership Program (HSPP). The HSPP was a comprehensive eight-year partnership with OSHA, which NAIMA completed in May 2007, and now NAIMA incorporates these safe work practices in NAIMA's Product Stewardship Program.

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