

## Fire Prevention Considerations for Domestic Water/Fire Protection Piping

Fire protection is dependent on the readiness of your fire protection equipment. Severe winter weather can delay local fire department response time, so it becomes imperative to maintain your fire prevention and suppression systems.

In severe cold, water pipes have the potential to freeze and break. If safe to do so, shut off and drain water pipes that are in unheated or poorly heated spaces. If heating is lost in a building protected by wet sprinklers, they should be shut off and completely drained. However, be sure to take appropriate precautions, including notifying local fire officials of the fire protection system impairment.

Consider the following items when planning for winter weather:

- Properly insulate and/or provide approved heat tracing for water-filled pipes located in exterior walls or unheated spaces.
- During periods of freezing weather, leave faucets slightly open to decrease the possibility of frozen pipes.
- Where possible, drain piping that is not required during the winter months.
- Set thermostats at levels to help ensure the building and any concealed spaces (e.g., areas above false ceilings, rooms along the building exterior or piping in exterior walls) do not drop below 40° F (4.4° C).
- Use low-temperature alarms to monitor the temperature in the building and concealed spaces. Set alarms to provide adequate time to respond and restore the heat to prevent freezing. Items most susceptible to freezing include domestic plumbing, water lines for HVAC and production equipment, wet pipe sprinkler systems, fire pump houses and dry-pipe sprinkler system valve enclosures, to name a few.
- Wet-pipe sprinkler systems with anti-freeze solution should have the specific gravity checked by a licensed plumber to help ensure its ability to withstand freezing weather.
- Dry sprinkler systems should be inspected to help ensure air settings are correct, air maintenance systems are in good operating condition, any pipe closets are well insulated, and if any heat tape or heating systems are being used, that they are UL-listed for this specific purpose and in good operating condition. Dry-pipe sprinkler system low points and auxiliary drains should be opened, and any water or condensation removed.



- Any branch lines on wet sprinkler systems exposed or subject to extreme cold weather should be insulated and heat traced. Electric heat tracing should be UL-listed for this specific purpose.
- Fire pump test headers should be checked to ensure they have been properly drained.
- Fire pump and dry riser equipment rooms should be checked routinely to ensure the heaters are in good operating condition.
- The use of low temperature supervision can help to ensure rooms are being properly heated.
- Exit doorways, fire hydrants and access to sprinkler control valves should be kept clear of snow and ice.
- Inspect exterior valve and water meter pits for any standing water. If water is present, it should be removed before cold weather occurs.
- All yard hydrants should be inspected to assure they are properly flushed, lubricated and checked to ensure they have been properly drained. If not, they should be pumped out before freezing temperatures occur.
- Hydrants should also be kept free of any snow and ice for easy access by the local fire department. Hydrants can be marked with poles that should exceed the highest snow fall accumulation.
- All control valves should be properly lubricated and exercised to ensure proper operation.
- Any suction and or gravity tanks should be maintained at a minimum temperature of 42°F (5.6°C).

## Boilers and Processing Equipment

Providing freeze protection for boilers and process equipment is important for all types of businesses, especially where this equipment is located outside. Freeze damage is most likely to happen in water piping, including wet process, cooling tower, condensate and fire protection water lines. Freezing of water columns, level controllers and flow switches can lead to equipment damage. Steps to help protect boilers and process equipment from freezing include:

- Use insulation, heating or wind screens to protect equipment exposed to wind or drafts.
- Maintain water flow through process cooling lines and cooling towers to help prevent freeze-up and possible damage.



- Heat tracing is recommended, preferably under insulation, on pipes and water columns, valves, controllers and other equipment. If the heat tracing is electric, it should be UL-listed for the specific purpose and supervised by a constantly attended location.
- Where steam tracing is used, drips should be returned, where possible, to help maintain the condensate inventory.
- Any pipes, valves and pumps not required during the winter months should be drained. Anti-freeze may be used as an alternative to draining if done in accordance with the equipment manufacturers' recommendations.

## Additional Resources

National Fire Protection Association (NFPA), NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*

