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User Bulletin 10-20: Thawing Thermoplastic Water Pipes

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Thawing Thermoplastic Water Pipes

Thermoplastic piping is being used for water distribution piping within buildings and for water service lines. When freezing occurs they can be treated in the following ways:

Building Distribution Piping

When freezing occurs within the wall or crawl space, thawing should be completed as soon as possible since complete freezing may, in some cases, cause the pipe to rupture.

Several methods of thawing may be used depending on the accessibility of the pipe and the availability of the devices. The plastic material used in the pipe may be determined by reading the markings on the pipe line, and pipes made of CPVC, PEX and PE-RT may be heated to 180°F. All other piping should be limited to 150°F. The pipe temperature can be judged by an
IR thermometer. If you use hot water, a thermometer can determine if it is an acceptable temperature. Never pour boiling water or use an open flame heating source on the pipe!

The following methods of applying heat have been used successfully

1. Expose the piping in the area where the freeze has occurred as much as possible and direct a small fan into the area to circulate warmer air from the occupied space into the wall cavity in which the pipe is frozen.
2. If the frozen section of pipe is accessible, wrap it with a cloth saturated with hot water. As the cloth cools, remove; dip again in hot water and rewrap.
3. If the frozen section of pipe is fully or partially accessible, blow heated air directly on the area where the freeze occurred utilizing a low capacity heater/blower such as a hair dryer.

It may be possible to use other means of heating, provided the temperature of the plastic piping at any point does not exceed those mentioned above. It should be noted that plastics have much lower thermal conductivity than metals and, therefore, the rate of heat transfer from the exterior surface to the ice inside the pipe will be low. Thus, slightly more time is required to thaw ice in the pipe. The techniques described below can be used for distribution piping under some conditions.

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Water Service Lines

If there is an outside underground water meter, this should be checked first because it may be the point at which freezing has occurred. If there is reason to believe the meter is frozen, call the Utility Department for assistance.

Buried pipe should always be installed below the frost line. However, if a buried line freezes and the condition is localized, the pipe can be exposed and then thawed with hot water. If the exact location of the ice plug cannot be established and the line terminates in a basement or crawl space, it may be possible to cut the line and feed a small diameter tube into the pipe. By pouring or pumping warm or hot water into the small tube, it is possible to melt the ice plug. We recommend that this only be performed by an experienced plumber. A small mistake can result in a flooded basement or crawl space.

The ice plug can also be melted with a resistance heating element inserted into the pipe from the basement or crawl space as above. Take a 3/8" or ½" diameter rod type DC resistance heating element and fasten it securely to an electrician's steel fish tape. Connect two insulated wires to the heating element leads and cover these connections with insulating tape and then apply a water-tight tape wrap or a shrink fi t sleeve. Bind the wires to the fish tape at about 2' intervals. Feed the element and fish tape into the service line until the element hits the ice plug. Connect the electrical wires to a battery to provide DC current to the element. The heating element will melt through the ice plug as it is moved forward. Continue to penetrate ice plug until flow is established. If penetration is stopped, pull the tape and element back. Do not leave them in the pipe. Working with electricity in damp locations is very hazardous. Use only low voltage DC powered heating elements. We recommend that this only be performed by an experienced plumber. A small mistake can result in a flooded basement or crawl space or personal injury.

Obviously, other techniques for thawing can be devised, but the most economical method is prevention. Thermostatically controlled heat tapes may be useful for permanent protection in certain areas if insulation does not provide adequate protection.

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