

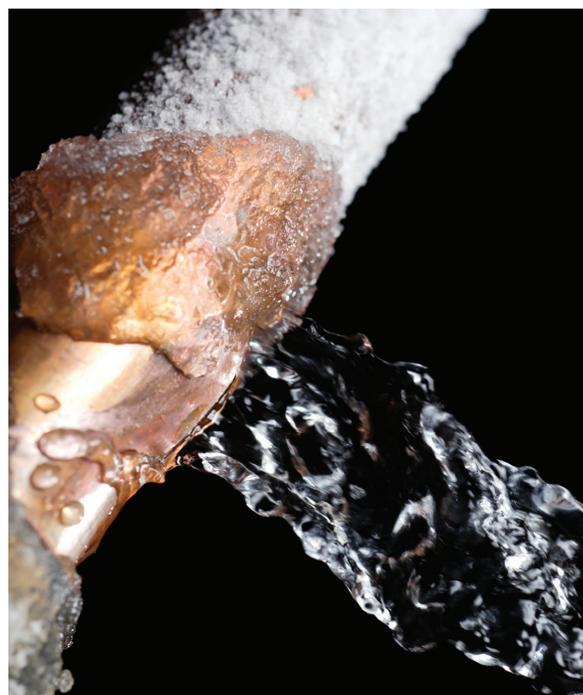
Preventing Frozen Plumbing

Introduction

Every winter thousands of pipes, fixtures, and appliances freeze and burst because of inadequate heat or insulation. When a frozen pipe bursts, the result is always extensive water damage.

A typical loss for a burst pipe can involve two or more units, and have an average repair cost exceeding \$20,000 after the deductible. Nationwide, these losses account for hundreds of millions of dollars of unnecessary property damage each winter.

This article will discuss which plumbing components can freeze and steps that an association can take, along with unit owners, to minimize the chances of plumbing components freezing and bursting inside a unit.



What CAU Recommends:

- > Avoid installing plumbing or appliances, such as water heaters, in unheated attics
- > Maintain heat in all buildings and units
- > Provide additional insulation for pipes in unheated areas, such as attics
- > Notify all owners and residents of their responsibility to maintain heat during the colder months
- > Send winterization requests to lenders for units in default or foreclosure
- > Verify utility status on units in collection and foreclosure
- > Inform owners and mortgage holders that the association's insurance policy excludes water damage in the unit unless heat is maintained or the water is turned off and all lines and appliances are drained

Need More Information?

The Institute for Business & Home Safety (www.ibhs.org) has a variety of risk management information relating to water damage. Associations may also request additional information on this topic by contacting CAU's Loss Control Department.

What Can Freeze?

When water freezes at a temperature of 32°F or below, it expands up to 10 percent in volume. Inside a pipe, that added internal pressure can cause bursting. Interestingly, the burst is often in a section of pipe that did not actually freeze.

Anything inside a unit that transports, stores, or uses water can freeze and burst if it contains water and the temperature drops below 32°F. The freezing of plumbing supply pipes is an obvious concern, but sprinkler pipes, drain lines (traps), and appliance supply lines for a washer, icemaker, or dishwasher can also be vulnerable. Additionally, other fixtures and appliances within a unit, such as hot water heaters or toilet tanks and bowls, can also be at risk of freezing.

Alternatively, the expanding ice can cause a pipe or fitting to crack, but the ice will block the flow of water while it is solid. In this case, the actual water damage will not be apparent until the ice melts and water flows out of the burst section.

Where a pipe bursts, and the time it takes to shut off the water, will influence the amount of water damage you experience as a result. Most residential plumbing systems use ½” or ¾” pipe, which, at a typical street pressure of 70 pounds per square inch (psi), will flow between 14 and 23 gallons per minute (gpm). That means upward of 350 gallons of water can saturate the unit (and adjoining units) in as little as fifteen minutes.

Preventing Frozen Pipes

The best way to protect plumbing from freezing is to provide sufficient insulation and adequate heat during the colder winter months. The type and amount of insulation must be suitable for the coldest possible local temperatures. It’s also important that the insulation be applied correctly. During construction, plumbing supply lines are usually in place before the insulation, so there is a possibility

that an installer could place the insulation on the wrong side of the pipes, thus exposing them to freezing temperatures.

Insulation helps block the flow of heat or cold from one space to the next. Most plumbing pipes are within the walls of a home. In some parts of the country they are in the attic. This presents a considerable problem. Cold air can enter these concealed spaces through small gaps in the exterior sheathing and insulation and find its way into pipe chases and soffits that focus the air directly onto the piping and accelerate freezing

For that reason, it is important to verify that piping in walls is located between the heated interior space and the insulation. Ideally there should be no plumbing in an attic at all. However if there is, the piping should be as close to the ceiling as possible, with insulation placed over the pipe in the shape of a tent to trap heat around the pipe.

In the fall it is important to seal openings around pipes, vents, and electrical wiring that can allow cold air to enter a home. Residents should also disconnect garden hoses before winter and, if possible, turn off the water supply to the hose bib at a valve inside the home and crack open the outside faucet.

If a deep freeze is expected, residents should take extra steps to prevent pipes from freezing. These could include opening cabinet doors to allow heat to get to uninsulated pipes under sinks and letting warm water drip from a faucet overnight to prevent pipes from freezing.

Extensive (and often undetected) water damage from pipes, fixtures, and appliances that freeze and burst is the biggest concern in seasonal properties. The units may be unattended with no one there to detect a potential problem and take the appropriate steps to correct it before it causes damage. Therefore, seasonal properties need to have a strong winterization policy in place. Please reference CAU Publication *P-16 Vacant and Unoccupied Units* for additional information on this topic.