Vacant and Unoccupied Units

Introduction

Every winter thousands of pipes, fixtures and appliances, inside vacant units, freeze and burst because the heating system was shut down or the winterization process was not done or done improperly. This can result in extensive water damage. While all properties in cold climates are susceptible to this type of loss, vacant and unoccupied properties are even more susceptible.

A typical water damage loss for a plumbing related freeze and burst in a multi unit property can involve two or more units and have an average repair cost exceeding $30,000 after the deductible. Nationwide, these losses result in hundreds of millions in dollars of unnecessary and easily preventable property damage each year.

This article will discuss what plumbing components can freeze, the increased hazard in vacant or unoccupied units, and steps that an association and unit owner can take to minimize the chances of plumbing components freezing and bursting inside a unit.

What CAU Recommends:

The quantity of vacant and unoccupied units fluctuates year to year and in different regions of the country. The potential for catastrophic water losses in vacant or unoccupied units is a constant concern for associations. CAU recommends that associations take the following actions:

- Check the association's governing documents for the right of entry for repairs and maintenance
- Develop and enforce a winterization policy
- 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
- Watch units for utility termination notices, notice of default, or trustee sales

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 32ºF or below it expands up to 10 percent in volume. When water freezes inside a pipe the internal water pressure in the pipe increases and causes the pipe to burst. 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 32ºF. 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 freeze and burst. There are other fixtures and appliances within a unit that can also freeze and burst including hot water heaters and toilet tanks and bowls.

Additional water damage can occur when sump pumps fail to operate inside units that have had the electricity shut off.

Vacant and Unoccupied Units

Extensive and often undetected water damage from pipes, fixtures and appliances that freeze and burst is the biggest concern in a vacant or unoccupied unit.

The resident status and the presence of personal belongings inside the unit determine whether a unit is vacant or unoccupied.

A vacant unit has no occupants or furnishings, usually because of abandonment or foreclosure. An unoccupied unit has occupants and furnishings but the owners are away for an extended time or it is a rental unit or seasonal property without a current occupant. In both cases, many owners and banks will shut off the gas and electric to save money but fail to shut off the water and drain the pipes, fixtures, and appliances.

Whether a unit is vacant or unoccupied does not matter, the unit is unattended with no one there to detect a potential problem and take the appropriate steps to correct it before it causes damage.

Most insurance policies exclude coverage for water damage in a vacant or unoccupied unit unless there is adequate heat or the water lines are closed and drained. With this in mind, it is in the best interest of all associations to establish and enforce a policy addressing owner responsibilities for vacant and unoccupied units, often called a “winterization policy.”

Establishing a Policy

The governing documents usually grant the association the right to enter a unit for emergency repairs and maintenance. Verifying that this right exists is the first step in establishing a winterization policy.

An effectively written winterization policy will allow the association to enter an unattended unit to prevent an impending water damage loss and enforce the winterization requirements.

A winterization policy should give unit owners a choice of either of following minimum requirements:

1. Require owners to maintain heat in the unit and
   › Set the thermostat no lower than 60°F
   › Open kitchen and bathroom cabinets to allow warm air to circulate
   › Turn off the water supply to individual appliances
   › Turn off and drain outside hose bibs
   › Set water heater temperature to the “vacation” setting

2. Require owners to turn off the water supply and
   › Drain all water lines by opening faucets and flushing toilets
   › Turn off the water supply to all outside hose bibs then drain the lines and keep the outside faucets open
   › Drain any appliance, such as a water heater, that may have residual water in it
   › Add bio-friendly antifreeze solution to drain traps and toilets

Other points to consider relate to residential fire sprinkler systems and hot water heating systems. When units have a residential fire sprinkler system, heat must be maintained in the unit because the sprinkler system will not operate if the water supply is turned off. When units are heated with hot water radiant heating systems it is generally more dangerous to leave the hot water boiler unattended so the owner should be required to shut down the boiler, turn off the water supply and drain the lines.
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 32ºF 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 32ºF. 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.
Introduction

Short of fire, nothing causes more damage to the inside of a property than leaking water. It is estimated that water from failing pipes, hoses, plumbing fixtures and appliances cause 65% of the property damage to community associations.

This guide addresses water heaters, a leading cause of residential water damage. Our research shows that there are simple and inexpensive steps associations can take to prevent most of this damage.

How do Water Heaters Fail?

A water heater holds and transfers water continuously — from installation to replacement or failure. Over time, deposits will accumulate on the bottom of the tank. These deposits corrode the tank liner and heater elements. Water quality, particularly water hardness, directly influences the amount of sediment deposited.

Moving water also causes wear on the tank and piping. The hotter the water, the greater the fatigue on the parts it touches. The constant heating of cold water also subjects the unit to extreme temperature swings. No household appliance works under tougher conditions than the storage water heater.

In most cases, water heaters fail gradually, but not always. Some of the telltale signs of imminent failure include water accumulation beneath the heater, a hissing or whistling sound characteristic of a worn valve, and chronic hot water shortages during periods of normal demand. Prompt corrective action is required once the signs of failure appear.

When the corroded bottom of a tank fails without warning, the water already in the tank and the continuously fed cold-water supply create a deluge. If not stopped, this water will continue to flow. In these cases, it’s crucial to stop the flow of water by turning off the cold-water supply valve at the water heater or at the water main shut-off.

What CAU Recommends:

> Encourage and remind residents to check their water heaters for leaks and other telltale signs of failure on a regular basis.
> Establish a formal and documented association inspection program for water heaters.
> Implement and enforce a mandatory replacement program for water heaters.
> Require residents to equip water heaters with catch pans and drains.
> Encourage the use of an ASOV for water heaters.
> Remind all residents to know the location of the water main shut off to their residence and how to use it.

Need More Information?

The devices discussed in this guide are available at plumbing supply houses, home improvement centers and at several on-line outlets. Associations can also contact CAU’s Loss Control Department for additional information.

Associations can obtain a sample water heater replacement resolution and resident notification letters by contacting CAU’s Loss Control Department. These documents are intended to guide Board members in drafting their own similar resolution, introduce the program to all residents and follow-up with residents who have not complied as of the compliance date. Your legal advisor should review any resolution before it is proposed.
Water Heater Inspection and Replacement Programs

A good first step toward minimizing the chance of a water heater failure is regular inspection by residents. If residents detect any sign of failure, they need to contact a licensed and insured plumber promptly and have the heater replaced. The association should also have an annual inspection program for water heaters and maintain a record of inspections.

A diligently managed replacement program for water heaters is an asset to any community. You cannot repair a failed water heater. You can only replace it. When replacing water heaters, record the installation date on the body of the unit or on a tag attached to the feeder pipe.

Storage water heaters have an expected life span between five and ten years. That is why it is good to have a strong program to replace heaters before their life expectancy is up.

Ways to Minimize Potential Water Damage

Residents can take several steps to minimize the damage from a failed water heater before a loss occurs.

Installing a catch pan with a drain connected to a waste line, sump pump or other means of channeling water out of the building will help in the event of a small leak. The pan and drain should be large enough to keep water from rising and contacting any electrical or gas controls in the heater and should allow for access to controls mounted on the water heater.

There is an automatic shut off valve (ASOV) readily available for nearly every residential appliance that uses water. An ASOV for storage water heaters uses a water sensor linked to a water-controlling valve mounted to the heater’s cold water supply.

When the sensor detects water beneath the heater, the valve automatically stops the flow of water to the heater. This device can prevent damage from a slow leak and limit the damage from a tank failure to the contents of the tank. ASOV devices retail for around $100 plus installation.

Another popular ASOV—a Water and Gas Safety Valve (WAGS)—will simultaneously shut off the water and gas supply when it detects a leak. The WAGS valve is located in a drain pan beneath the water heater. The company also sells a foam “water dam” that can be placed around the water heater in lieu of a drain pan. The WAGS device retails for around $200 plus installation.

Water alarms are also available from several manufacturers. These devices will not prevent damage but may alert a resident to a leak or failure. The catch: the resident must be there to hear the alarm and respond to the situation.

On demand or instantaneous water heaters are becoming more popular. These devices eliminate the traditional storage tank and heat water directly when there is a call for hot water. Installation can be expensive, and there often is not enough capacity for large, simultaneous demands for hot water.

Conclusion

Water is the most insidious and relentless of property destroyers, ruining more property than fire. The only solution is prevention. Implementing the suggestions in this guide can minimize this threat and add years of useful life, safety and value to property.

Associations that take prompt, effective action to prevent water damage do more than preserve their property. They relieve some of the financial pressure on their maintenance budgets and reserve replacement funds. In addition, they avoid large, special assessments for the unanticipated, early replacement of major building elements!
Introduction

Short of fire, nothing causes more damage to the inside of a property than leaking water. It is estimated that 65% of property damage to community associations is caused by water leaking from failing pipes, hoses, plumbing fixtures and appliances.

This guide addresses water valves, a contributing factor in many losses resulting from failed washer hoses. Our research shows that there are simple and inexpensive steps associations can take to prevent most of this damage.

Turning Off the Water

Closing the faucets when the washer is not running is a great way to extend the life of a washing machine hose. It also limits the chance of a hose failure to a single wash cycle.

However, if the faucets are not closed regularly and if they are not properly maintained, closing them could become impossible. Corrosion and mineralization can lock them up tight.

To eliminate that problem, we offer the following suggestions. Please note: You should implement these measures in addition to hose replacement, not instead of it.

What CAU Recommends:

- Encourage and remind residents to turn off the water when not using washers.
- Require residents to equip washers with guaranteed, leak proof/burst proof washer hoses.
- Equip feeder pipes with a washing machine valve or automatic shut off valve.
- Remind all residents to know where the water main shut off is in their residence and how to use it.

Need More Information?

The valves discussed in this guide are available at plumbing supply houses, home improvement centers and at several online outlets. Associations can also contact CAU’s Loss Control Department for additional information.

Water is the most insidious and relentless of property destroyers. It ruins more property than fire.
The Washing Machine Valve

The easiest, fastest and cheapest way to prevent problems is to replace the faucets with a washing machine valve. This valve requires a fraction of the force needed to turn faucets and opens and closes both lines in a single, quick stroke. With washing machine valves, residents quickly get into the habit of turning off the water. The washing machine valve requires installation by a plumber and ranges in price and quality.

There is an ASOV readily available for nearly every residential appliance that uses water. For washing machines, there are three basic types:

The Automatic Shut off Valve

1. A water-controlling valve is intended to replace the standard washing machine faucets. The device mounts on the hot and cold water lines and an electronic valve opens the water lines only when it senses electricity flowing to the washing machine. When the electricity stops flowing, signaling that the washer is off, the ASOV closes and stops the flow of water into the washer hoses. This device retails for around $175, plus installation.

2. An appliance specific valve mounted to the supply lines will automatically shut off water to the washer once the sensor detects water. A water sensor placed beneath the washer signals the electronic valves to close and sounds an alarm once water is detected beneath the appliance. Most of these valves are equipped with a battery backup so you’re still protected during a power outage. These devices retail for around $100, plus installation.

3. A whole house valve described by Popular Science as “a circuit breaker for your home’s plumbing system” is installed at a single point in the water main. If water flow into the residence exceeds a defined limit, it shuts off water to the whole house and sounds an alarm. The alarm signal can be connected to an existing security system and the valve is equipped with a battery backup. These devices retail for around $1,100, plus installation.

Installing and using either the knife switch or a water-controlling ASOV limits the significant risk of hose failure to the washing cycle – about 25 minutes. Installing the correct type of hose further reduces the risk of failure. The use of an appliance specific or whole house ASOV will not reduce the risk of a hose failure but will limit the resulting water damage if a hose does fail.

The Water Main Shut Off

When a hose fails (in the absence of an ASOV) and the faucets cannot be closed, the last resort is the water main shut off. It stops all water flowing into the residence. The water main, which is the largest feeder pipe, enters the residence at the lowest floor level.

The shut off is usually a single lever mounted on the main at its point of entry. Turning the lever clockwise 90 degrees turn turns the water off. The shut off should be clearly marked with an arrow indicating the direction of closure. Everyone using or taking care of the residence should know its location.

Conclusion

Water is the most insidious and relentless of property destroyers. It ruins more property than fire. The only solution is prevention. Implementing the suggestions in this guide can minimize this threat and add years of useful life, safety and value to your property.

Associations that take prompt, effective action to prevent water damage do more than preserve their property. They relieve some of the financial pressure on their maintenance budgets and reserve replacement funds. Moreover, they avoid large, special assessments for the unanticipated, early replacement of major building elements.
Introduction

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

A typical loss for a burst sprinkler pipe can involve two or more units and have an average repair cost exceeding $30,000 after the deductible. Nationwide, these losses account for hundreds of millions of dollars of unnecessary property damage each winter.

This article will discuss how sprinkler piping can freeze and burst resulting in water damage and ways that an association or unit owner can protect their sprinkler system from freezing.

What CAU Recommends:

If your association has experienced water damage because of frozen sprinkler pipes, this is the first indication that you need additional freeze protection to prevent this from happening again. The following points will help reduce the risk of frozen sprinkler pipes.

> Maintain heat in all buildings and units
> Require an annual service and maintenance contract on all fire sprinkler systems
> Provide additional insulation for pipes in unheated areas such as attics
> Install water flow alarms to alert occupants that water is flowing in the sprinkler system
> Install freeze alarms to warn of potential freezing conditions before the pipes freeze

Need More Information?

Additional information on freeze protection is available through the National Fire Protection Association (www.nfpa.org). Associations may also request additional information on this topic by contacting CAU’s Loss Control Department.
Impact of Building Codes

There are approximately 3000 residential fire deaths each year. Statistics compiled by the National Fire Protection Association (NFPA) conclude that the chance of dying in a home fire decreases by 80% when residential sprinklers are present.

Many municipalities already require sprinkler systems in new one and two family homes, townhomes and condominiums. The 2009 edition of the International Residential Code (IRC) requires sprinkler systems in these homes. As more municipalities adopt this edition of the building code, the number of systems will increase and so will the potential for water damage from burst sprinkler pipes.

Building and fire codes are regulatory requirements that establish minimum standards for construction of safe and habitable buildings. The code requirements for residential sprinkler systems seeks to minimize fire deaths by controlling heat, smoke and flames so occupants have time to escape. There is minimal emphasis on preventing frozen pipes and water damage.

While one cannot equate the value of a human life to water damage, you cannot overlook the extensive damage caused by accidental discharges from faulty systems and burst piping, which is often more extensive than fire damage.

When Pipes Freeze

When water freezes at a temperature of 32°F or below it expands up to 10 percent in volume. Sprinkler pipes tend to freeze before other water pipes because the water is not moving. Most sprinkler systems are wet systems that contain water all the time. Sprinkler systems include check valves and backflow preventers to separate the sprinkler water from the potable water supply. These valves create a closed system in which the pressure cannot escape.

When water freezes inside a sprinkler pipe, it creates an obstruction that can render the sprinkler system useless in the event of a fire. As the ice expands, it increases the internal water pressure in the pipe and causes the pipe to burst. Interestingly, the burst is often in a section of pipe that did not actually freeze.

Alternatively, the expanding ice can cause a pipe, fitting or sprinkler head 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 the pipe bursts and the time it takes to shut off the water will influence the amount of water damage to the unit.

Most residential sprinkler systems use 1" pipe, which, at a typical street pressure of 70 pounds per square inch (psi), will flow about 30 gallons per minute (gpm). In as little as fifteen minutes, almost 500 gallons of water will saturate the unit and adjoining units.

Preventing Frozen Pipes

The best way to protect a residential fire sprinkler system from freezing is to provide sufficient insulation and maintain adequate heat during the winter months. The type and amount of insulation must be suitable for the coldest local temperatures. During construction, sprinkler systems are usually in place before the insulation so there is a possibility that the installer could place the insulation on the wrong side of the pipes thus exposing them to freezing temperatures.

Insulation helps block the flow heat or cold from one space to the next. Most sprinkler pipes are within the walls or ceilings of a home. 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 sprinkler piping and accelerate freezing.

It is important to verify that sprinkler piping in walls is located between the heated interior space and the insulation. In attics, 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 sprinkler pipe.

When sprinklers are required in unheated spaces such as attics or crawl spaces, the use of a dry system, or special dry sprinkler heads are required.

A dry system has no water in the piping. The pipes contain air or nitrogen under pressure and when a sprinkler head activates, the pressurized gas escapes and allows water to flow.

Dry sprinkler heads have a short, length of pipe with a seal mechanism installed to prevent water from entering the unheated space until the sprinkler head activates. The sprinkler piping is in a heated space and the sprinkler heads extend into the unheated space.

As of August 2010, the NFPA has banned the use of antifreeze in all new sprinkler systems. For existing systems, NFPA recommends draining the antifreeze and filling the pipes with water then providing additional insulation along with other measures to prevent the pipes from freezing.

If you have sprinkler systems that contain antifreeze, contact your sprinkler contractor immediately to drain the antifreeze and refill it with water then verify that there is sufficient insulation, installed correctly, to prevent the pipes from freezing. The contractor should also install any additional protection needed to prevent the pipes from freezing.