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"Readying Your System for Winter"

By Luke Frank
 Reprinted from the October 1999 issue of Landscape & Irrigation

The days are getting shorter and the nights cooler. Leaves are flaming their oranges, reds and yellows, and landscapes are preparing for hibernation. As Old Man winter approaches, so should your winterization plans.

Winterization is a fact of life in some areas more than others, and, although it's not overly complicated proper winterization needs to be performed to avoid pipe and system damage that may surface next spring or later.

Water in your system can be your worst enemy in the winter. Some contractors believe poly pipe offers sufficient flexibility to absorb the expanding and contracting forces of water in the winter. However, most experts agree that all piping needs to be thoroughly blown out. Even if the poly pipe holds through the next irrigation season, the freezing and thawing of water left in the system over the winter can stress the piping and easily result in failure down the road.

A combination of strategically placed drains in the system's low spots and a good, properly selected air compressor will make relatively quick work of residential or commercial system winterization. However, speed is not the issue here—thoroughness is.

Opinions vary on just how much pressure and volume of air are required to properly blow out a system. But high pressures (60 psi and greater) should be avoided. Air volume—not pressure—is the critical component to evacuating a piping system of water.

Air volume and pressure should be based on the specific irrigation system pipe pressure ratings.

SHUT'ER DOWN

What is obvious to some may be obscure to others. Begin your winterization by shutting off the water to the irrigation system at the isolation valve. The main shut-off valve to separate the irrigation system from the home's potable water system should either be insulated in a valve box or located inside the home. If there's no isolation valve to separate the irrigation system from the home's potable system, install one. You'll need it to winterize and can really save the property owner an inconvenience if there are future irrigation system problems that require long term care.

Drain valves must be installed at the proper location in the piping system to enlist gravity's assistance. Your system should

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have a drain in every low spot on each lateral in the site. Most contractors will install piping at a grade to assist with the drainage.

When installing drains, dig out an 18-inch deep posthole and fill it with gravel so that the water has a place to go. Install them where you need them. It won't take long, and they help to completely winterize the system. Remember that any drains you open in your winterizing need to be closed so that no water can re-enter the system during the winter months.

Air relief at the high points on each zone (most of the time a sprinkler will do) allows the water to flow from the drains. You can remove a sprinkler head at the end of each lateral to accentuate air relief. Never stand over a sprinkler head or work on any other system components while you're performing a blow-out.

THE EVACUATOR

Akin to time, compressed air is the other water evacuator. If you haven't used it, find a coach. Don't perform your first blow-out solo.

A significant element of successful winterization is the size of your compressor. For the average residential system, a 50-cubic-feet-per-minute (CFM) compressor is adequate. A 125-CFM compressor will handle a larger commercial system with 2-inch main. Make sure that your compressor has an accurate pressure regulator valve and gauge.

Your isolation valve is closed, your drains are in and your air relief is open. It's almost time to introduce compressed air.

Have an organized plan for your blow-out before you begin. Determine which isolation valves you want opened and closed at what point in your winterization process, so that you're not just pushing water around in the pipes.

The air compressor line should be connected to the piping system prior to the back-flow preventer through a minimum 1-inch inlet with a valve shutoff on the main. Don't use back-flow preventer test ports as blow-out points, nor should service valves be used as shut-off valves—they should remain open. Ball valves on your back-flow preventer should be left in a 45-degree position for the blow-out and for the season. Don't leave valves fully open or closed. Consult the back-flow preventer manufacturer before you commence your blow-out.

Blow out the zones furthest from the connection point first, which will evacuate water from the main line initially, enabling the operator to winterize the remaining zones faster. Piping at higher elevations on the site should be purged early in the procedure to prevent water from running back into already winterized areas. Remember to gradually fill the system with air. Don't try to blast a bunch of air into the system all at once, and make sure that nobody is standing over a sprinkler head when you begin the blow-out.

Avoid running air through the system when no water is present; it could damage piping or system components. Sprinklers should be operated no more than one minute when no water is present. Open all manual zones and quick-coupling valves during the winterizing procedure to evacuate the water.

If it's taking longer than three minutes to completely blow out a single lateral, turn the compressor off and let everything cool down. Then proceed. Some superintendents have found that using a turbine-type air compressor won't heat the piping up so quickly. If you can't get the air out of the system with a gradual increase of compressed air, then you need to look at a larger compressor.

Open the valve farthest from the point of connection. Don't open more than one valve at a time. Turn on the air compressor and slowly introduce the pressurized air. Watch that the pressure doesn't exceed 50 psi. The lower you can keep the pressure and completely evacuate the system, the better for the components.

Operate each zone until the water exiting each nozzle is a fine vapor mist. Winterize each zone at least twice. Use several short cycles of air for each lateral line, so any water that drains back into the pipe will be evacuated with the next blow-out cycle and the piping system won't heat up. Operating each valve multiple times will also exercise the valves' and back-flow preventer's operating parts, thus vacating them of water. Several short cycles are better than one long cycle. Take your time. A good blow-out of a larger residential or commercial system can take a day or more.

Any low-lying sprinkler heads also need to be drained, especially those with check valves. Pull 'em and drain 'em. If your system is composed of open-orifice sprinkler heads (pop-ups), it may benefit you to install check valves to prevent any water from re-entering the piping network through these heads.

THE SHUT-DOWN

After the system is free of water, slowly shut down the flow control on the compressor until it is no longer introducing air. Then shut down and disconnect the compressor. (Never disconnect the compressor when the system is still under pressure.) Make sure that all parts to the system are dry and replaced before winter settles in.

A good winterization ensures a good recharge in the spring. It's worth reminding you to flush your system in the spring, particularly drip zones, to eliminate any debris or critters that may have settled in for the winter.

After your piping system is empty, go into the garage and shut down the controller. If you want to save the programs, leave the power on and use the rain override feature for the upcoming winter season. By interrupting the signals to the valves, your run-times and days are saved, and you won't have to re-program the controller next spring.

If there's no rain override, unplug the controller. If a pump station is connected to the control system, unplug the timer. Speaking of rain, if you have a rain catchment device, turn it upside down for the winter.

Winterizing your system slowly and deliberately goes a long way in preserving the piping and components for seasons to come. Show a little respect for Old Man Winter in the fall, and he's less apt to demand your respect in the spring. ▲

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