

Irrigation systems: winterize now and rest easy until spring

By Dennis Slibsager

With winter quickly approaching, getting the turf in your care prepped to handle whatever Mother Nature decides to throw its way is a top priority. If you're located in a part of country that is regularly subjected to freezing temperatures and punishing doses of ice and snow, you probably know all too well the perils these forces can inflict on your irrigation system.

The potential problems you could face from improper irrigation system winterization are considerable. Removing as much water as possible from the pipes, backflows, valves and sprinkler heads now will not only prevent the mains and laterals from freezing and bursting, you will ultimately save yourself the headache and budget pressures of making costly repairs next spring and summer.

Getting your irrigation system ready for winter is a manageable process if you take the time to understand your options and closely follow a few relatively simple steps.

There are three basic ways to get an irrigation system prepared for winter: compressed air "blow out"; automatic drain valve method; or manual drain valve method. Whichever technique you choose, remember that it's preferable to leave the controller plugged in but in the "OFF" position during the winter months. Doing so could prevent accidental start-up if a well-intentioned crewmember plugs it in before the system is fully pressurized and operational in the spring.

Backflow preventers

Before we discuss how to properly drain water from your system, let's talk a little about winterizing the backflow preventer device. If your



system is equipped with a backflow device, remove any water trapped in the ball valves and testcocks by opening and closing them several times by hand. When fully open or fully closed, ball valves and testcocks have a tendency to trap water between the ball and the housing, so leave them open at a 45 degree position to prevent cracking during a freeze.

If you have a pressure vacuum preventer (PVB), typically all you have to do is make sure to drain the ball valves, testcocks, and

mainlines coming and going from the device. Technically, there is still a little water trapped between the #1 check valve and the outlet of the device. Usually there is enough room for water expansion in this area, but you could also take it apart and drain it completely for peace of mind.

If you have a reduced pressure backflow preventer (RP), the process is slightly more complicated. In addition to draining the ball valves and testcocks, you should also take apart any area like the #1 and #2 checks, as well as the relief valve that traps water in a confined space leaving little to no room for freezing and expansion. In addition to draining all the water, this gives you the opportunity to check the integrity of the rubber seat washers, diaphragm and o-rings in these areas to look for cracks. This will enable you to plan in advance if you need to buy any new parts for the next season. In large devices (3-10"), these can be costly items.

Before working on your system, always be sure to turn the water off at the point of connection and open any drain valves before the backflow preventer.

Compressed air "blow out"

This method uses compressed air to evacuate water from the system, from the mainline pipe to the sprinkler heads. Make sure to use the correct type of air compressor for your system. It should be capable of delivering between 80 to 400 cubic feet per minute (CFM) at 50-60 psi depending on size and length of the mainline and laterals. You want volume (CFMs), not pressure (psi). If you are unsure which type of air compressor to or rent or buy, consult either your irrigation distributor or preferred irrigation component manufacturer.

After shutting off the water to the system at the point of connection and draining the backflow, connect the air compressor to the mainline after the backflow preventer, which could be a quick coupler valve or a tee specifically installed for this purpose. As a safeguard, always check the air compressor manufacturer's specifications for the correct equipment hookup procedure.

Activate the zone of sprinklers at either the highest elevation or the farthest point from the compressor. Allow the air to flow to that zone until water and water vapors no longer appear from any of the sprinkler heads. Repeat this process until water is fully evacuated from each zone, finishing at the zone closest to the compressor.

Cycle through each zone at least two times to completely drain the lines, as water may settle into low points in the lateral pipe. Also, never run the compressor without at least one sprinkler valve in the open position, as this reduces the chance of pressure build-up that can damage your equipment and send sprinklers or tops of sprinklers flying through the air.

Automatic drain valve method

A basic winterization procedure for systems with automatic drain valves that open and completely drain the pipes when pressure falls

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below 10 psi could be as simple as turning off the water supply, the controller, and draining the backflow preventer.

An automatic drain valve is a spring-loaded device commonly installed on sprinkler heads or lateral pipes. Normally installed downstream from control valves, automatic valves open when the system is shut off and help drain water from the pipes. When the system is turned on, the resulting water pressure shuts the valve and fills the pipe with water.

Though simply shutting down the system from the controller will evacuate a considerable amount of water from the system, it will not drain any water captured in the control valves. Therefore, thorough system winterization should include the removal and disassembly of control valves.

Manual drain valve method

Winterization procedures for a manual drain valve system are similar to those for an automatic system. The biggest difference is that you will need to locate and open all of the drain valves by hand.

Manual drain valves are located at the end of each zone, at the end of the main line and at the low points on the lines. To drain the system, turn off the water supply, the controller, and drain the backflow preventer. Next, open the sprinkler control valves located farthest from the controller. Slowly open the manual drain valve to drain the pipe. Repeat this process from one zone to the next along the system mainline.

If you manually operate your electric zone valves, you still need to go the controller and cycle through each zone at least once to get the water out of the solenoid. If you don't remove the water from the solenoid, you will be buying new ones in the spring. Typically there is enough water trapped in a solenoid to freeze and damage it.

Though no two irrigation systems are alike and, in some cases, were likely designed and installed before your tenure, proper winterization can be accomplished if you take the time to understand your preventative maintenance options.

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