

Winterizing Your Lawn Sprinkler System and Backflow Preventer

With proper maintenance, protecting your sprinkler system and backflow preventer from freezing can be relatively easy.

Lawn Sprinkler System Winterization

Most sprinkling system piping is not below frost levels and therefore a risk of freezing. Even if some water is drained from the system, the remaining water can freeze, expand and crack PVC piping. Even systems with Polyethylene piping, which is more flexible and can expand under pressure, can freeze and rupture the pipe walls when water is left inside the pipe. If water freezes in the backflow preventer or the ball valves it can cause internal damage or possibly crack the device or valve.

To minimize the risk of freezing, it is almost always necessary to “winterize” your irrigation system and backflow preventer. Below are some steps and methods used to winterizing your system.

1. Shut off the water to system at the main valve or stop-and-waste valve.
2. Depending on your system type and features, there are various methods to winterize the system.
 - a. **Automatic Drain Method-** This method is used when there are automatic drains located at the end and low points of the irrigation piping. The drains will automatically be activated when the water supply (usually a stop and waste or a valve in the basement) to the system is turned off. The water pressure is what keeps the drains closed; when the pressure drops the drains open and drain water left in the piping. If you have a testable backflow preventer, we recommend you refer to the manufacturers guide to winterizing, but as a general guideline, open the test cocks to drain water within the device. Or, remove backflow all together for winter. We also recommend to keep ball valves turned to a 45 degree angle (when water is off to the valves) to avoid freezing within the ball valve. Depending on the location of the drain valves, there could be some water left in the piping, sprinklers, and backflow preventer
 - b. **Manual Drain Method-** This method is used when there are manual valves located at the end and low points of the irrigation piping. This systems are drained by shutting off the irrigation supply (usually a stop and waste or a valve in the basement), and opening the manual drain valves. Remember to drain the line between the backflow preventer and the irrigation shut off. If you have a testable backflow preventer, we recommend you refer to the manufacturers guide to winterizing, but as a general guideline, open the test cocks to drain water within the device. Or, remove backflow all together for winter. We also recommend to keep ball valves turned to a 45 degree angle (when water is off to the valves) to avoid freezing within the ball valve. Depending on the location of the drain valves, there could be some water left in the piping, sprinklers, and backflow preventer. When all water is drained out of system, close all manual drain valves (*See Diagram 1-7*).

- c. **“Blow Out” Method-** The blow out method uses an air compressor to “blow out” the excess water from the system after the main valve to the irrigation system has been shut off. We recommend the shut off ball valves on the backflow preventer be shut off before the compressor is hooked up. Blowing high pressured air through the backflow preventer may cause damage to the device. So, on systems that have a testable backflow preventer assembly, the compressor should be attached downstream of the backflow preventer. Remember to drain or blow out the water between the main shut off and the backflow preventer too though. The “blow out” method is a little bit more comprehensive, so we recommend that a qualified licensed contractor be used with this method.


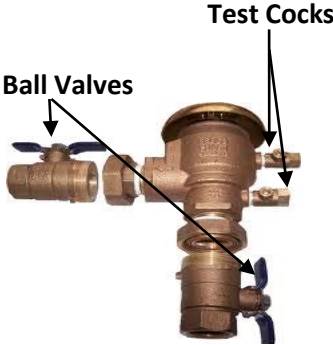
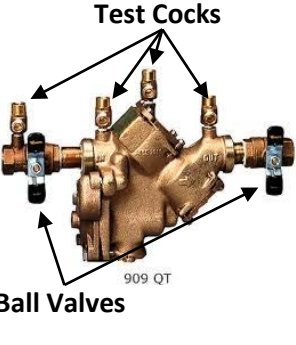
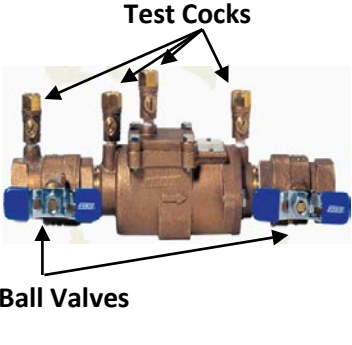
General Backflow Preventer Winterization

****For specific types and models, please see the manufacturer’s manual for winterizing your backflow preventer. The manufactures manual may give specific instruction on winterizing.***

1. Shut off the water to your sprinkler system at the main valve or stop-and-waste.
2. Drain the water from the backflow preventer by opening the test cocks. (There are 4 test cocks on the side or top of your backflow preventer), to open them turn the screw ¼ of a turn.
3. Turn the shut-off valves on both sides of the assembly to a 45 degree angle (¼ turn) so they are not completely closed or open. This will help from getting water trapped in the shut-off valve and freezing. **Remember to make sure the water between the main shut-off and the backflow preventer are drained.*
4. *(Optional) If your backflow preventer was installed with unions you can remove it and store it inside for the winter. After you take it off, make sure you drain the water from both sides, open the test cocks and close the valves ¼ turn. It may also be good to wrap it in a towel or old blanket.*
5. *(Optional) You can wrap the backflow preventer with old towels, blankets, or other insulation to further protect it from freezing.*

If properly winterized your backflow preventer should be able to sustain the cold winter months. For more information contact Salt Lake City Department of Public Utilities.

Types of Backflow Preventer and Components

			
<p>Atmospheric Vacuum Breaker (Recommended for most lawn sprinkler systems)</p>	<p>Pressurized Vacuum Breaker</p>	<p>Reduced Pressure Principle</p>	<p>Double Check Valve (No longer allowed, but may be maintained if installed under previous code)</p>
<ol style="list-style-type: none"> Does not need to be tested annually. Must have one AVB per zone. No valves are allowed downstream of AVB. Must be installed 6" above highest sprinkler head. Not designed to for continually use (should not be subjected to operating pressure for more than 12 hours within a 24 hour period) Designed to protect against non-health and health hazards when applied correctly. 	<ol style="list-style-type: none"> Must be tested annually by a certified backflow preventer tester Must be installed 12" above highest point of water it serves Designed only to protect against backsiphonage. Not backpressure. Designed to protect against non-health and health hazards when applied correctly. 	<ol style="list-style-type: none"> Must be tested annually by a certified backflow preventer tester. Must be installed 12" above ground Designed to protect against backpressure and backsiphonage. Designed to protect against non-health and health hazards when applied correctly. Must be installed where secondary water is available for use 	<ol style="list-style-type: none"> Must be tested annually by a certified backflow preventer tester. Designed to protect against backpressure and backsiphonage. Only designed for non-health hazards. No longer allowed to be installed to protect lawn sprinkling systems, but may be maintained if tested annually and if it was installed under previous code.

***Ball Valves should be turned to a 45 degree angle when finished winterizing (half open/half closed) to prevent freezing**

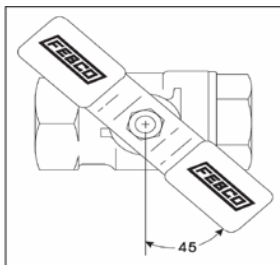


Figure A: Ball Valve in half open/half closed

Ball Valve (Febco)