

Do-It-Yourself (DIY): How to Winterize Underground Sprinkler/Irrigation System by Blow-out Method Using an Air Compressor

Water expands as it turns into ice, resulting in a volumetric expansion sufficient to crack pipes, fittings, valves, and sprinkler heads that are made of brass, rigid plastic, and steel. Winterizing involves removing a sufficient amount of water from the irrigation system to prevent damage due to freezing.

Congratulations! You are reading this because you are a homeowner who cares about doing the job right to preserve the functionality and value of your home. All too often, sprinkler systems are damaged or not properly winterized by commercial companies that are unfamiliar with the construction of your sprinkler system (or simply, they do not take the time to do the job right). By doing it yourself, you can make sure that it is done right while saving a lot of money too!

Consult local codes prior to winterizing the sprinkler system. The following are general procedures only; specific procedures that apply to your system may be different from these procedures. Read the instruction manual and safety information of your sprinkler system and equipment before performing these procedures.

Your air compressor tank size should be as large as possible, preferably 15 gallons or larger. The objective is to move a large volume of low pressure air to purge water out of the system. The compressed air hose should have a minimum of 3/8" inner diameter with 1/4" NPT connections (most hoses for sale at hardware stores meet this requirement). Adapters that will allow you to connect your air compressor to the sprinkler system or garden faucet/spigot are available at <https://vibrantyard.com/>.

If your sprinkler system is connected to city/municipal water supply, you are likely to have a backflow prevention assembly such as a Pressure Vacuum Breaker (PVB). The PVB is used to prevent contaminated water from entering the city water supply. Figure 1A and 2A show two common plumbing systems that are connected to the city water supply.

- Figure 1A shows a system where the water upstream of PVB is routed through your house and can be sufficiently drained by gravity so compressed air is not needed to evacuate the water. This type of system is common where the sprinkler supply valve is located in the basement. If your system is similar to Figure 1A, follow the procedures in Figure 1A to winterize the PVB and Figure 1B to winterize the sprinklers.
- Figure 2A shows a system where the water upstream of the PVB is connected directly to the city water supply without going through your house. This type of system usually consists of a stop and waste valve. If your system is similar to Figure 2A, follow the procedures in Figure 2A to winterize the PVB and Figure 2B to winterize the sprinklers.

Note: Avoid blowing compressed air through the PVB because doing so may damage the PVB.

- Figure 3 shows a common plumbing system that is connected to a well. If your system is similar to Figure 3, follow the procedures in Figure 3 to winterize the sprinklers. If your sprinkler system is connected to a well, you may not have a PVB.

Figure 1A. Winterizing Pressure Vacuum Breaker Assembly Using Gravity

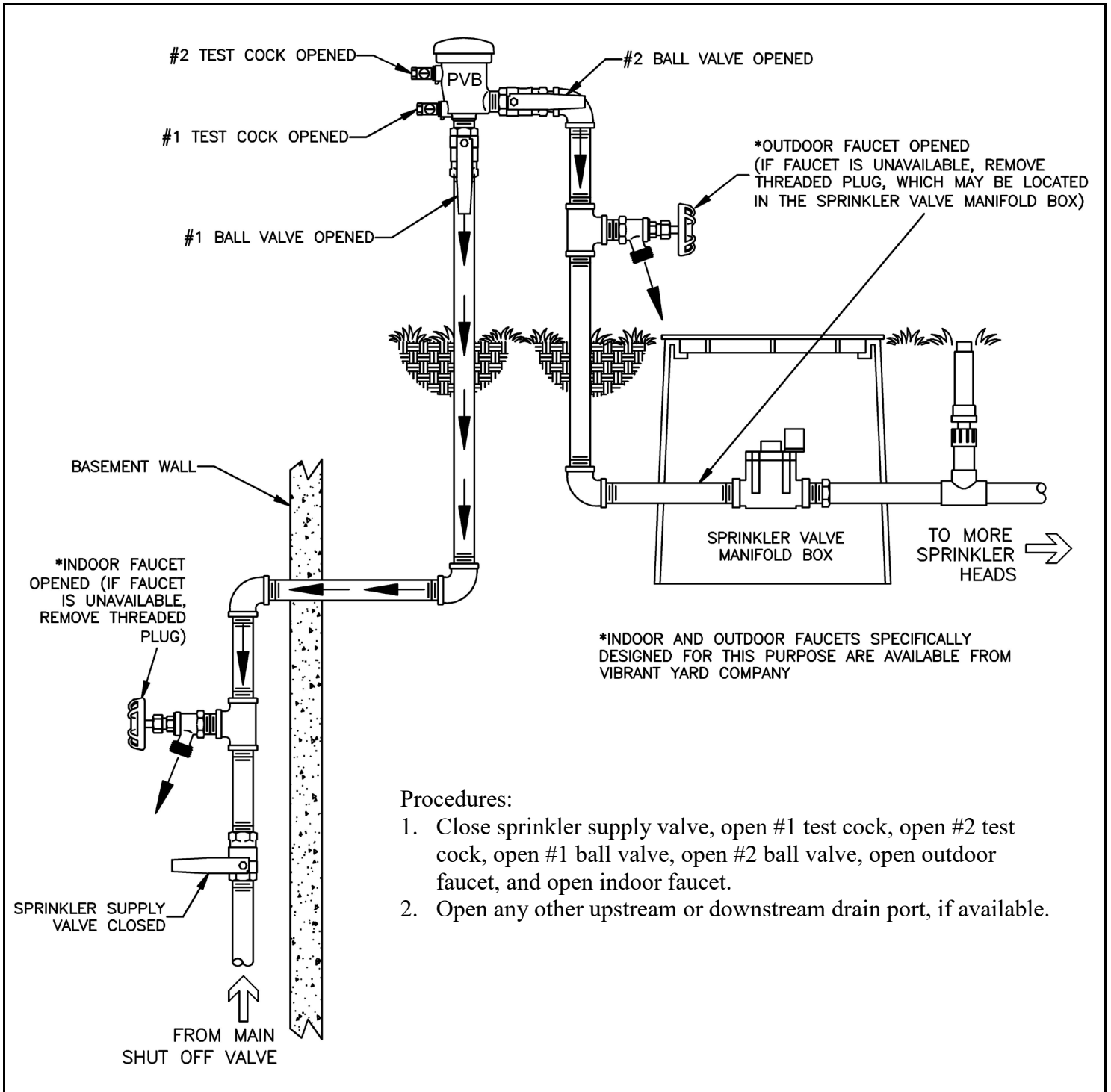


Figure 1B. Winterizing Sprinkler System Using Air Compressor

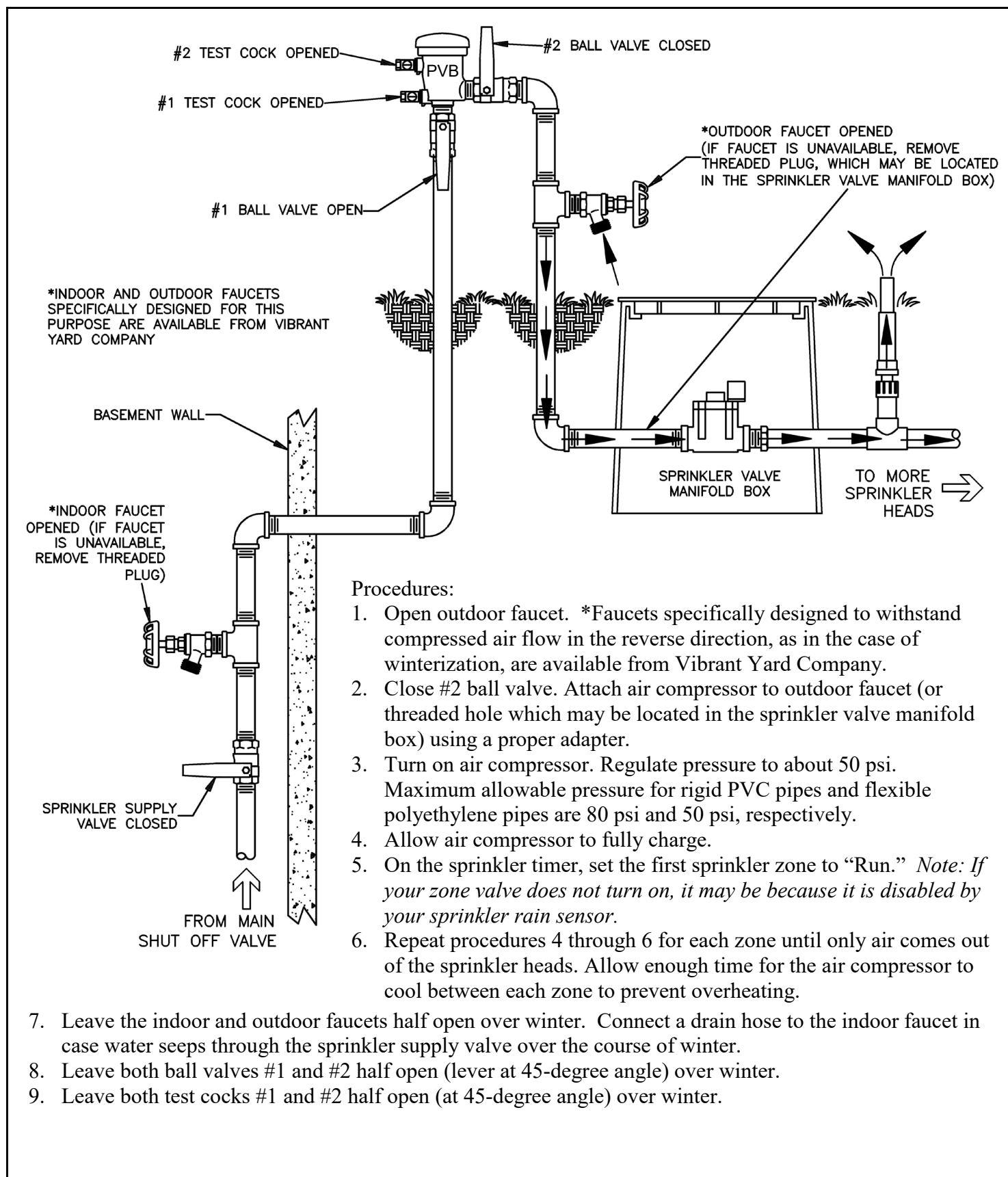
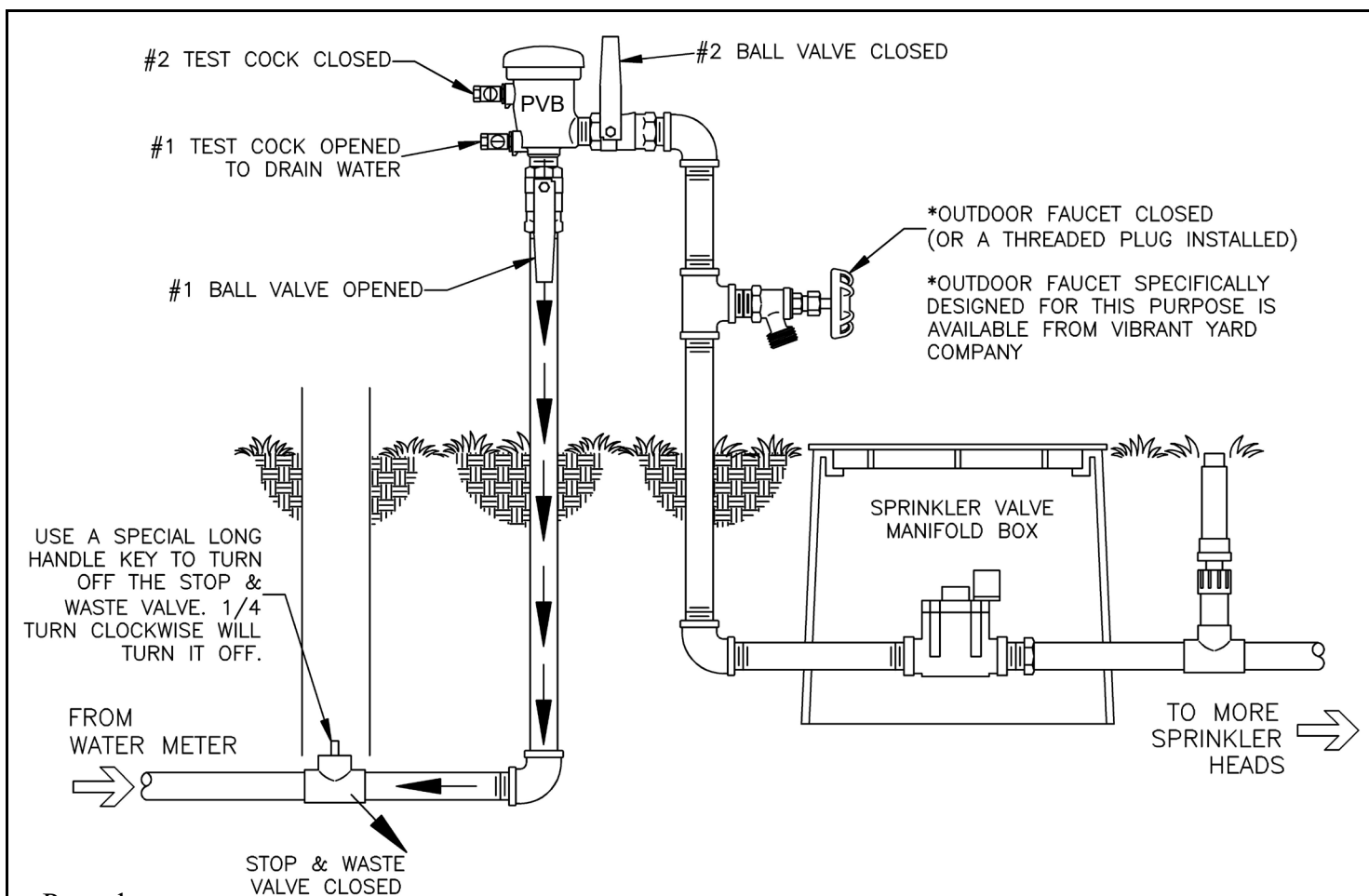
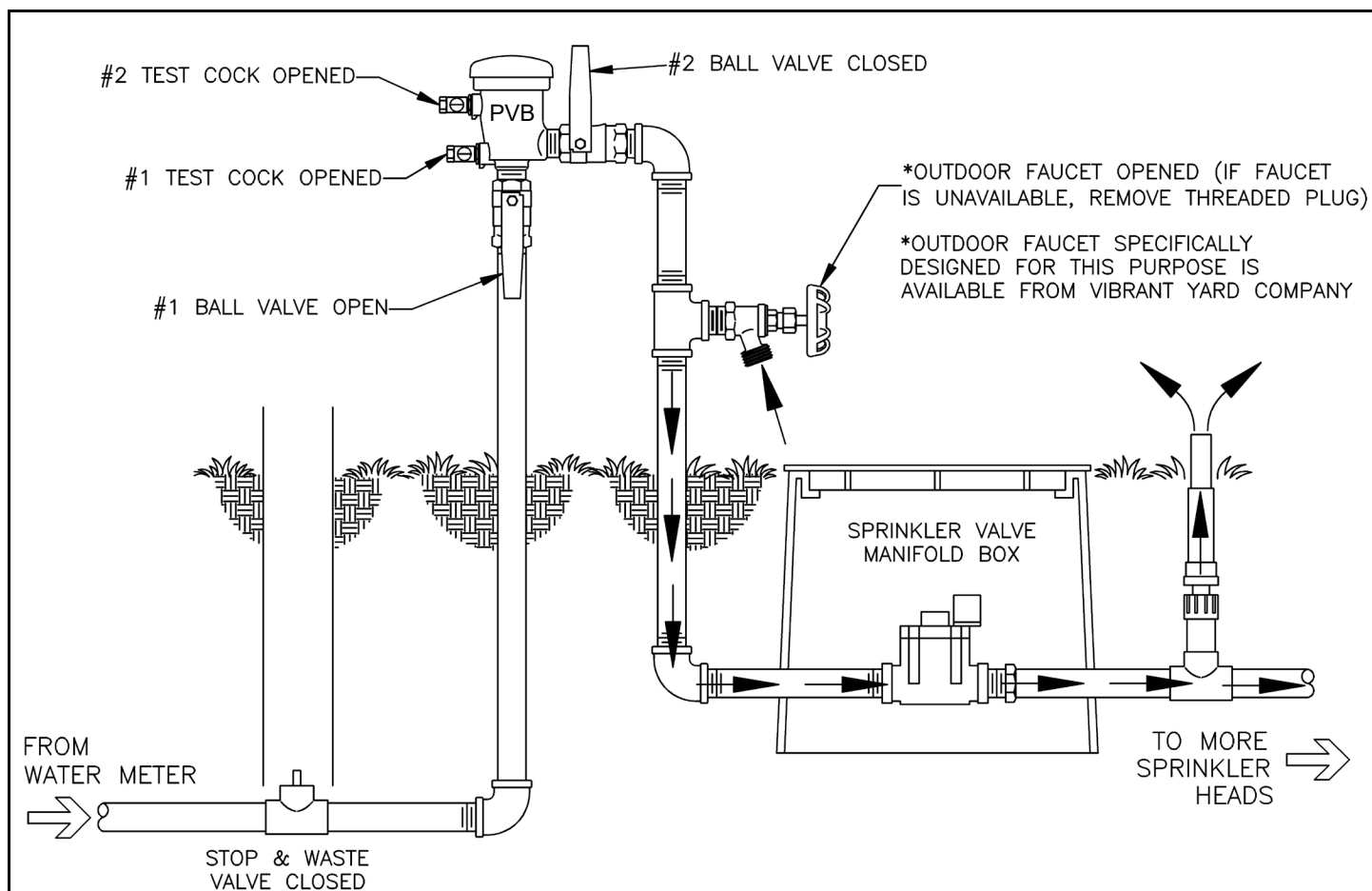


Figure 2A. Winterizing Pressure Vacuum Breaker and Testing Stop & Waste Valve**Procedures:**

1. Close stop & waste valve, open #1 test cock, open #1 ball valve, close #2 ball valve, and close #2 test cock to drain the water by gravity. When the stop & waste valve is closed, it should also drain the PVB by gravity via its built-in drain port.
2. Optional: To ensure that the stop & drain valve's drain port is not clogged, connect a manual bicycle tire air pump to #1 test cock using a suitable adapter (available from Vibrant Yard Company: part# BLT#IPV, BLT#SVA, or BLT#SVB). Pump air into #1 test cock gently and make sure that there is no pressure build up. If pressure builds up, the stop & waste valve's drain port is clogged, and the valve must be replaced. Disconnect the bicycle tire air pump from #1 test cock.
3. Open #2 test cock, open #2 ball valve, and open outdoor faucet/spigot to drain water from the PVB (not shown in the figure).

Additional useful notes: If you notice a small amount of water continually seeping out of #1 test cock, the stop & waste valve may be defective. A properly functioning stop & waste valve will drain the downstream water line when it is shut off. Over time, corrosion or debris in the ground may cause the drain port to clog. Additionally, wear and tear may cause a small amount of water to continually seep through the valve even though it has been shut off. Opening and closing the stop & waste valve a few times might clear the drain port. You may also try to clear the drain port in the stop & waste valve by blowing compressed air through #1 test port (suitable adapters are available from Vibrant Yard Company: part# BLT#IPV, BLT#IPA, BLT#IPB, BLT#SVA, or BLT#SVB). Do not exceed pipe pressure rating. Replace the stop & waste valve if the problem persists.

Figure 2B. Winterizing Sprinkler System Using Air Compressor**Procedures:**

1. Close #2 ball valve.
2. Open outdoor faucet. *Faucets specifically designed to withstand compressed air flow in the reverse direction, as in the case of winterization, are available from Vibrant Yard Company.
3. Attach air compressor to outdoor faucet (or threaded hole which may be located in the sprinkler valve manifold box) using a proper adapter.
4. Turn on air compressor. Regulate pressure to about 50 psi. Maximum allowable pressure for rigid PVC pipes and flexible polyethylene pipes are 80 psi and 50 psi, respectively.
5. Allow air compressor to fully charge.
6. On the sprinkler timer, set the first sprinkler zone to "Run." *Note: If your zone valve does not turn on, it may be because it is disabled by your sprinkler rain sensor.*
7. Repeat procedures 5 through 7 for each zone until only air comes out of the sprinkler heads. Allow enough time for the air compressor to cool between each zone to prevent overheating.
8. Leave the outdoor faucet half open over winter.
9. Leave both #1 and #2 ball valves half open (lever at 45-degree angle) over winter.
10. Leave both #1 and #2 test cocks half open (at 45-degree angle) over winter.

Once a month during the winter season: Check to make sure that there is no water seeping out of or ice buildup in the #1 test cock. See "Additional useful notes" in Figure 2A for more details.

Figure 3. Winterizing Sprinkler System Connected to a Well