

The Problems with High Efficiency Furnaces, Water Softeners and Iron Filters Discharging into Onsite Sewage Treatment Systems

High Efficiency Furnaces

These furnaces operate at a high efficiency and therefore save on energy use. One of the results of the heating process is that condensation occurs in the unit. When this condensation builds up water slowly trickles out of the unit and into the plumbing that is often connected to an onsite system. This water can cause freezing problems in the onsite system because of the slow steady flow. In addition, this water is clean and therefore does not need to be treated. When the furnace is in operation this water typically trickles out of the unit totaling 5-10 gallons on a cold day.

Water Softeners and Iron Filters

Water softeners, reverse osmosis, and iron filter recharge water adds a large volume of water to the system - typically 30 to 80 gallons per cycle. This is water that does not require treatment as it does not contain viruses or bacteria.

A growing concern with water softener recharge water is that it may cause an increase in the amount of solid material staying suspended in the liquid layer (effluent) in the septic tank ending up in the drain field trenches or a mound. These solids may shorten the life of the soil treatment system increasing the chance of drainfield or mound failure. This water softener discharge concern has conflicting results in research studies, but it does appear that scum layers are often absent in tanks where the water softener recharge water enters the septic tank. Iron filters typically take in-soluble iron and convert it to soluble which can result in an accumulation of sludge. This sludge has the potential to plug out soil.

Solutions

1. Be sure to check with the local government unit before any changes are made to the onsite system.
2. If only the furnace condensate water is being added this can go into the onsite system but a sump or other device to collect the water must be used if the home is left vacant for extended periods of time so water is not trickling out, causing freezing problems.
3. Route your furnace, water softener and iron filter discharge out of the onsite system. **Note:** The soil treatment area where the water is being dispersed must meet setbacks to the water supply well.
 - Route the water to an old onsite system no longer being used for sewage treatment. Be sure no sources of sewage are allowed to enter this system.
 - Install a small separate section of drainfield (trench or bed) to deal with this water. In most cases 20-50 feet should be sufficient. Since this is not sewage it does not need to have three feet of treatment, but to assure the effluent will disperse it should not be set in the watertable. Consult a septic professional to determine the proper siting.
 - If the water includes an iron filter a septic tank should be installed to attempt to settle out some of the iron sludge. There is concern that over time some of the soluble iron may plug up the soil so replacement of the soil dispersal system may need to occur over time. The timer period for replacement will depend on the method of iron removal and the amount of iron in the water.
4. If rerouting is not an option, a good solution for everyone is to minimize the amount of water used by the softener, osmosis system or iron filter.
 - Reduce the total volume of water used in the home.
 - Read your manual for your water treatment device and use it according to the manufactures requirements.
 - Only treat water used inside the dwelling and not the water used outside the dwelling for irrigation, car washing, etc.
 - Adjust the water softener or iron filter to recharge less frequently. Adjusting the frequency can be done by lengthening the time between recharges on a timed unit or increasing the volume of water passing through the unit before recharging on a metered unit.
 - Add heat tape in the pipe receiving the furnace discharge. This will help prevent freezing.