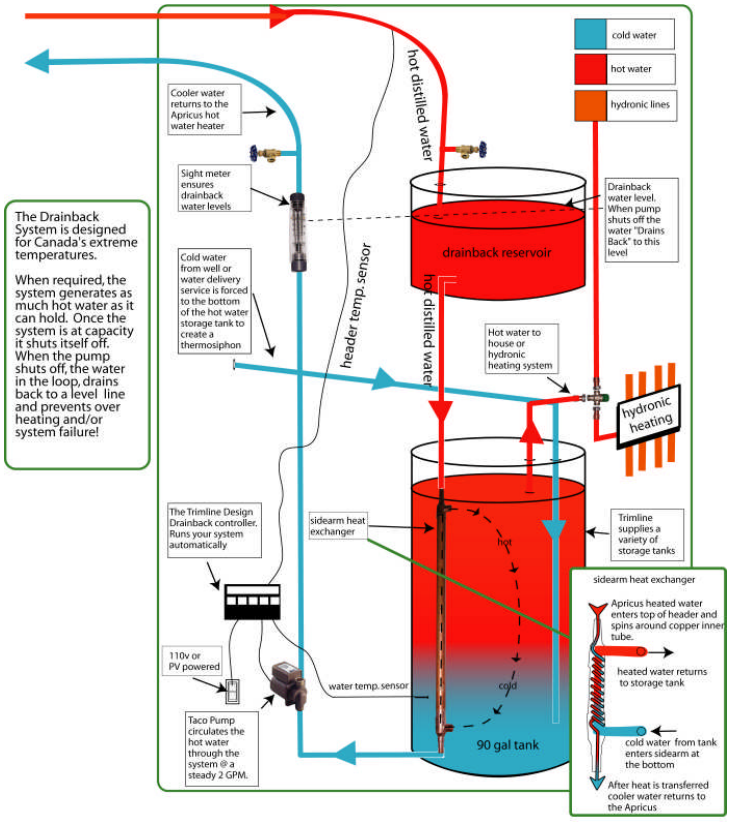
Drainback Systems



How they work

A pump circulates the heat transfer fluid (HTF) in a closed loop which re-circulates the same HTF over and over again to the Solar Collectors to be heated, then to the drainback reservoir, then to the storage tank, which stores the heat for future use. When the storage tank is full of hot water, the pump stops and the HTF drains back into the drainback reservoir due to gravity. This leaves the Solar Collectors and piping empty to prevent damage from over heating in the summer months or freezing in the winter months. Typically this type of system is used to heat domestic hot water, but is also commonly used for heating radiant floors, hot tubs, greenhouses and swimming pools. The possibilities are endless once the Sun has heated the water.

Advantages

- The easiest closed loop system for the do-it-your-self person to install and maintain.
- Most efficient and highest performing Solar Thermal System.
- The least maintenance of all closed loop systems.
- No concerns when going away for vacation or during periods of reduced hot water requirements.
- The only closed loop system that can be stopped when the storage tank is full of hot water, without degrading the heat transfer fluid or causing major system component failures due to fluid/collector stagnation.
- Immune to system component damage due to power outages, because the heat transfer fluid drains back into the drainback reservoir when the pump stops. This also prevents boiling or freezing of the HTF.
- Immune to reverse thermosyphoning. (The effect of stored hot water naturally circulating back through the Solar Collectors at night, and cooling the water that was heated during the day)
- Can add more Solar Collectors for higher efficiency in the Winter months, without the worry of boiling over the storage tank or causing high system pressures in the Summer months due to stagnation. All of which could cause major system component failures.
- Solar Collectors will last longer than in other systems. This is due to the degradation of the HTF (Glycol) fluid when it boils, and avoiding the high pressures when the HTF boils (Glycol or Water). When Glycol has boiled it will turn sludgy and acidic and eat away at all the copper piping and Solar Collector manifolds. Glycol is used in all closed loop systems that are not Drainback.

Disadvantages

- Attention to installation detail. Gravity only works when allowed to work. This means all piping must be sloped, collectors must be level, and all fluids must drainback into a warmed space.