In a THERMOSIPHON SYSTEM, cold water from the bottom of the elevated storage tank flows to the lowest point in the system (which is the bottom of the solar collector).

As it is warmed it becomes less dense and flows up to a side port near, but not at, the top of the storage tank. If the tank is about two feet above the top of the collector, the system will not back-siphon at night. If back-siphoning were to occur, the warm water would be cooled during its passage through the dormant collector. Thermosiphoning systems have no moving parts and are self-regulating in terms of flow rate, but they require that the collectors and exposed piping be drained each time freezing weather threatens. Furthermore, the elevated tank presents problems if it is mounted on a roof or in an attic. First, a 100-gallon tank weighs about 1,000 pounds when full of water, so special bracing may be required for its support. Second, the large tank should be attractively housed, and it costs money to make an imitation chimney or a cupola for this purpose. Third, leaks in tanks mounted above living space can present serious problems; drip pans and drain lines offer only limited protection if the homeowner allows them to become clogged with debris during the 10 or 15 years of useful tank life.