

Operation and Installation instruction for Sun Ray Solar Pool heating system

Operation

The system is adapted to the existing circulation and pool filtration system. A large flow of filtered water is circulated through the solar panels which are exposed to solar energy and transfer the collected heat into the pool. A manual or an automatic valve is added to divert the water to the panel when heat is available. The pool pump timer is set to operate during the sunny hours of the day.

Installation

In order to protect the panels from freeze damage and corrosion, it is good practice to install the panels above the water level of the pool. The panels and lines must be installed in such a way to allow the pool water to drain back to the pool when the pump is not running.

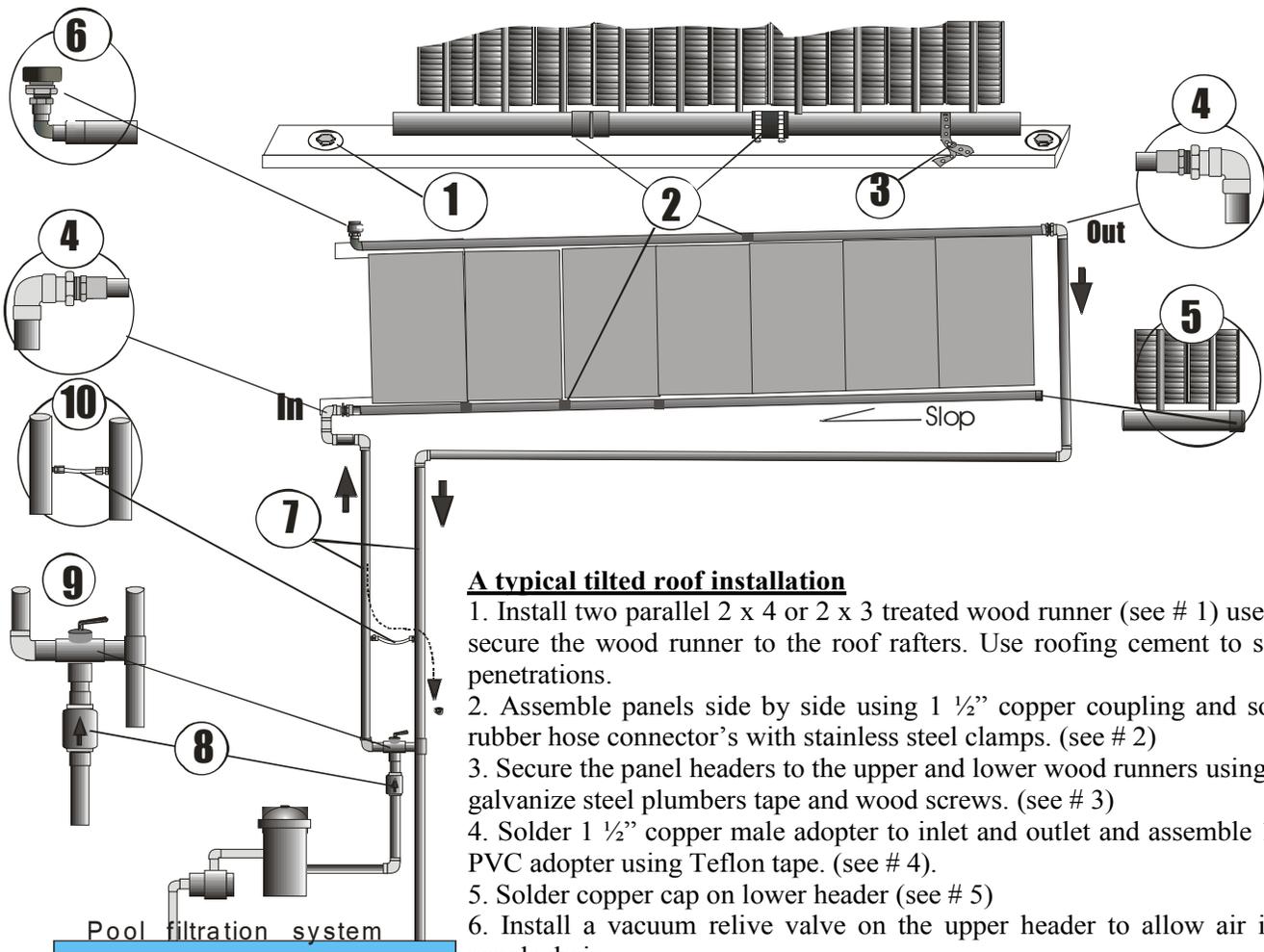
Pool water should not be allowed to set in the panels for a long duration without circulation.

Ideal panel surface area: 50 to 80% of the pool surface area.

Ideal orientation: No greater than 90 degrees from south.

Ideal panel tilt: No less than 15 or more than 40 degrees.

Sun Ray panels can be installed on a roof or a ground rack. The panels do not require any special hardware to be assembled, use common materials.



A typical tilted roof installation

1. Install two parallel 2 x 4 or 2 x 3 treated wood runner (see # 1) use leg bolts to secure the wood runner to the roof rafters. Use roofing cement to seal the roof penetrations.
2. Assemble panels side by side using 1 1/2" copper coupling and solder or use rubber hose connector's with stainless steel clamps. (see # 2)
3. Secure the panel headers to the upper and lower wood runners using galvanize steel plumbers tape and wood screws. (see # 3)
4. Solder 1 1/2" copper male adapter to inlet and outlet and assemble 1 1/2" female PVC adapter using Teflon tape. (see # 4).
5. Solder copper cap on lower header (see # 5)
6. Install a vacuum relief valve on the upper header to allow air in when the panels drain.
7. Install a 2" PVC feed and return lines from pool equipment to panels. (see # 7)
8. Install a check valve after the filter to prevent a back flow from the panels when the panels drain. (see # 8)
9. Install a three way bypass valve and a PVC "T" to connect the feed and return lines. (see # 9)
10. Install a small tubing to connect the feed and return lines to insure proper panel's drainage. (Drill and tap 1/4" compression tube and fittings or use small drip irrigation tubing and fittings) (see # 10)