



SOLAR PANEL INSTALLATION GUIDE

September 2008



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If for any reason whatsoever, the installer of this product does not feel comfortable and/or safe, do not proceed with the installation. The installation of this product involves walking on the roof as well as climbing ladders. Do not attempt unless you understand all safety procedures involved with power tools, climbing ladders and working on roofs. To obtain ladder safety, roof safety and power tool safety procedures, contact your local hardware or building supply company and State or Provincial Workers' Safety Board.

The installation of Enersol Solar Panels may be performed on a low pitched shingle or metal roof. If an installation varies from these types Enersol should be advised and asked for special installation instructions. For example, with a flat roof installation, we do not advise cutting into the roof or drilling lag bolts into the roof. On ground installations, panels should be insulated from the earth.

Enersol Products Inc., its agents, distributors and sales representatives are in no way responsible if safety procedures, installation instructions and common sense are not followed or if Enersol is not consulted should an unusual problem arise. If for any reason you question the installation instructions, DVD, safety procedures and/or installation locations, do not proceed, and contact Enersol immediately at 905.659.2929.

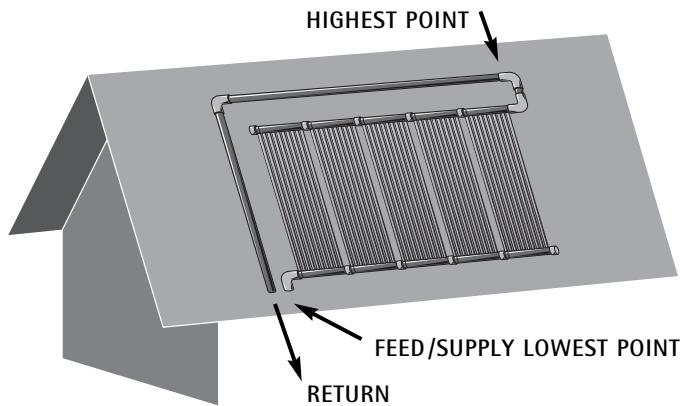
Remember ... **SAFETY FIRST!**

IN EACH PANEL BOX	SYSTEM KIT (PURCHASED SEPARATELY)
<ul style="list-style-type: none">4 SECTIONS WITH PRE-ATTACHED HEADERS8 CLIPS8 LAG BOLTS8 O-RINGS3 LONG STRAPS2 SHORT STRAPS	<ul style="list-style-type: none">1 ORANGE INSTALLATION TOOL1 ENERSOL INSTALLATION DVD1 TUBE ROOF LAGBOLT SEALANT1 TUBE O-RING LUBRICANT2 END CAPS2 EXTRA O-RINGS1 HEADER END CONNECTOR (HEC)1 INSTALLATION GUIDE1 WARRANTY CARD

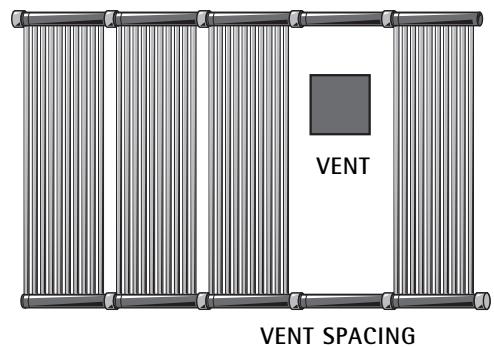
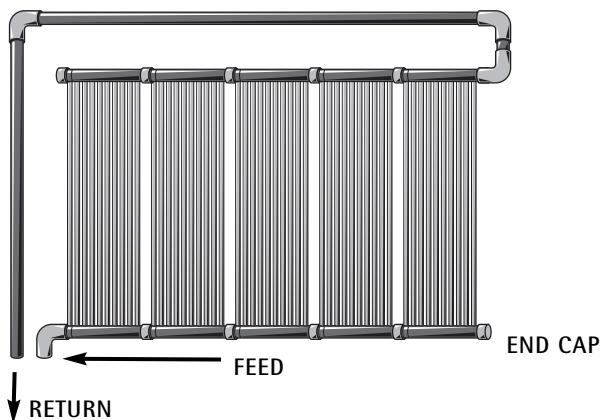
INSTALLATION

A southern exposure is best, followed by west or east. A northern exposure is not recommended.

IMPORTANT: Angle panels 4 inches for every 40 feet to drain water back to feed/supply inlet. Use chalk lines to reference angle.

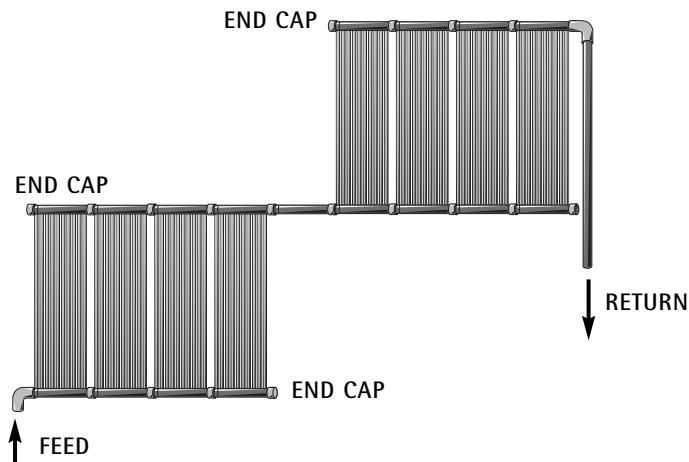


TYPICAL SINGLE ROOF SYSTEM PLUMBING

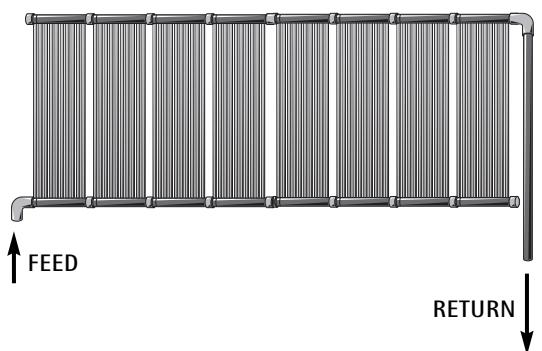


NEVER INSTALL FEED AND RETURN LINES ON THE SAME SIDE

TYPICAL SERIES ROOF



TYPICAL PARALLEL ROOF

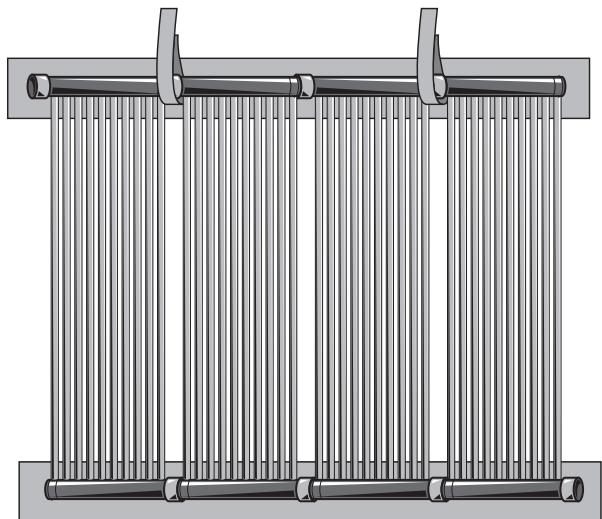


When splitting system, try to balance with equal sections in each bank. Never plumb in series from small bank to a larger bank of sections.

TYPICAL FLAT ROOF MOUNT

Attach headers to 2x6" lumber on each end. 2x6" lumber may then be attached to roof using liquid adhesive (*Liquid Nails*).

Ensure that the rubber is not blocking any roof drainage.



TYPICAL RACK MOUNT

For safety reasons do not mount panels against a pool.

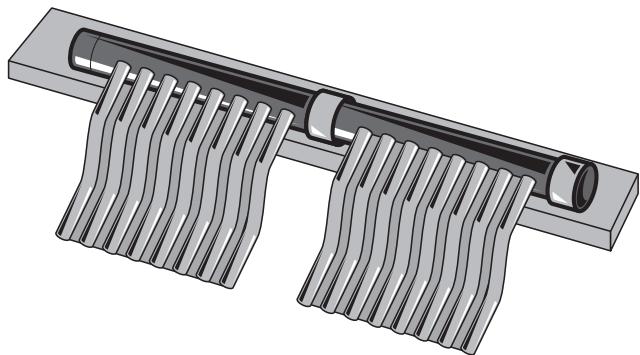
Rack plywood should be mounted 45° or less.



TYPICAL GROUND MOUNT

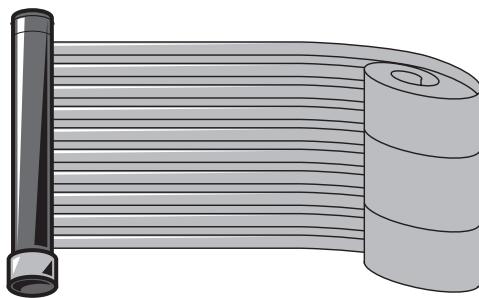
Support headers with 2x6" lumber. Panels may be set on any material that will insulate them from the earth: plywood, metal, plastic or gravel.

Note: Flat roof or ground mount panels will not gain heat if sitting in any puddles of water. Ensure proper drainage.

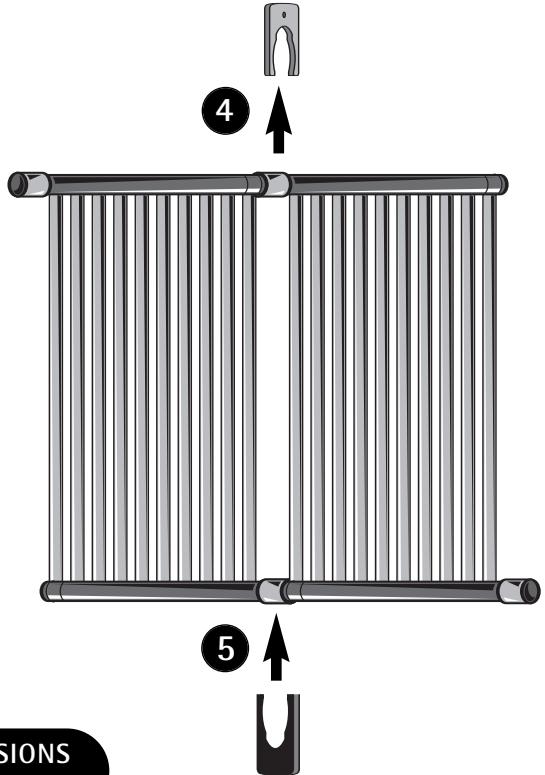
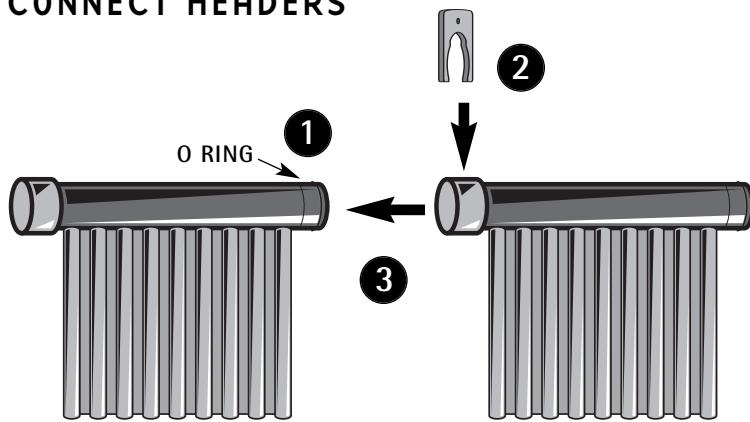


ASSEMBLY INSTRUCTIONS

Remove from box carefully and unroll panels. If panels become tangled, lay flat and untwist strips from one end to the other.



CONNECT HEADERS



MUST USE ORANGE INSTALLATION TOOL

- 1 Lubricate "O" ring.
- 2 Push orange installation tool into header clip slot.
- 3 Push header together.
- 4 Remove installation tool.
- 5 Insert black clip.

WHEN CONNECTING DIFFERENT VERSIONS
OF HEADERS, CUT OFF LOCATOR TAB

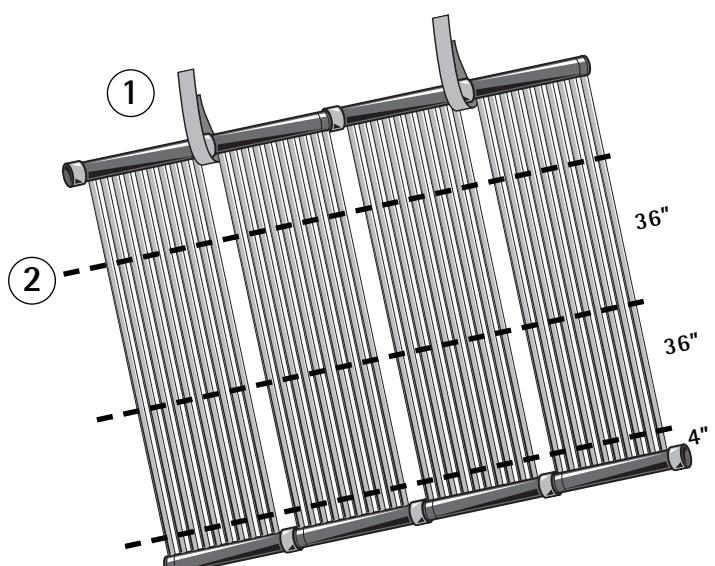
ATTACH TO ROOF

1 TOP STRAP:

Top strap every other section across top only.
Use top strap across the top row every 2 ft.
For very steep roofs, order more straps and
attach every section.

2 CROSS STRAP:

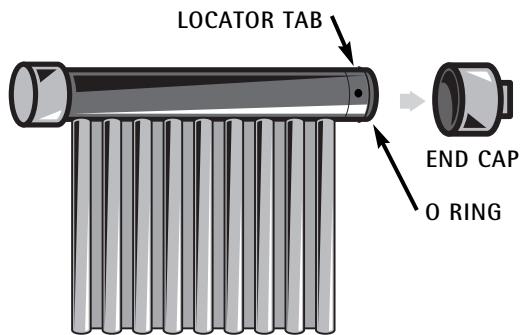
Cross strapping 4 inches from bottom, and every
3 ft. up thereafter.
Do not tighten cross strapping too tight, to allow
for expansion.
Apply generous amount of roofing cement.
Screw lag bolts through roofing cement into roof.
Use roof sealant liberally with all lag bolts into roof.



NEVER USE TOP STRAPS ON BOTTOM

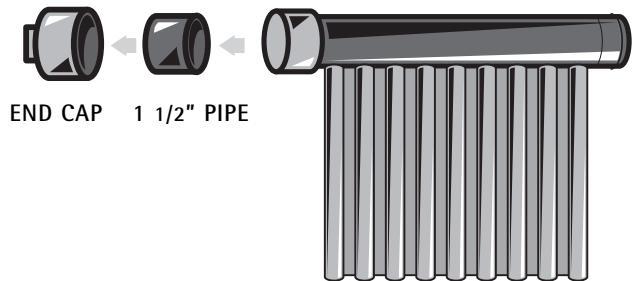
JOIN ENDCAPS TO HEADERS

Remove o ring.
Cut locator tab off.
Apply transitional solvent cement liberally to both male and female surfaces.
Cement together.



OR

Cut a piece of 1 1/2" pipe to 3" long.
Apply pvc cement liberally to all surfaces.
Glue together.

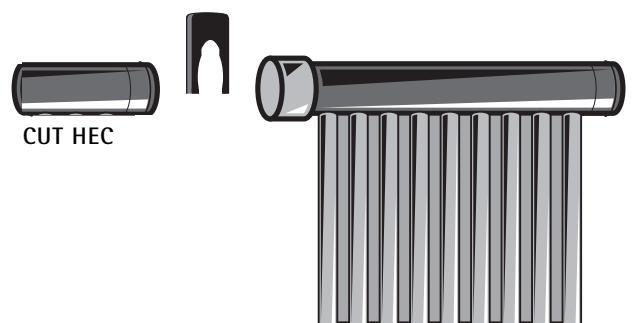
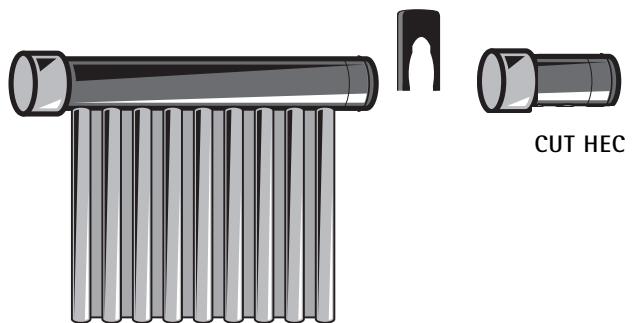
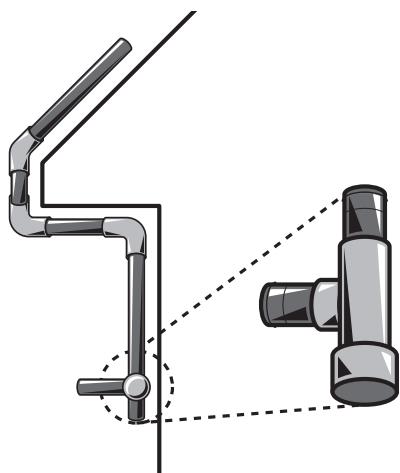


JOIN PLUMBING TO HEADERS

Cut Header End Connector (HEC) in half, creating a male and a female adapter. These ends are used at the input and output of the array.

The HEC clips into place so that the plumbing can be glued to the cut end.

The HEC can also be used as a spacer around vents and chimneys.



We recommend *Weld On 711 PVC Cement* or a heavy-bodied pvc cement.

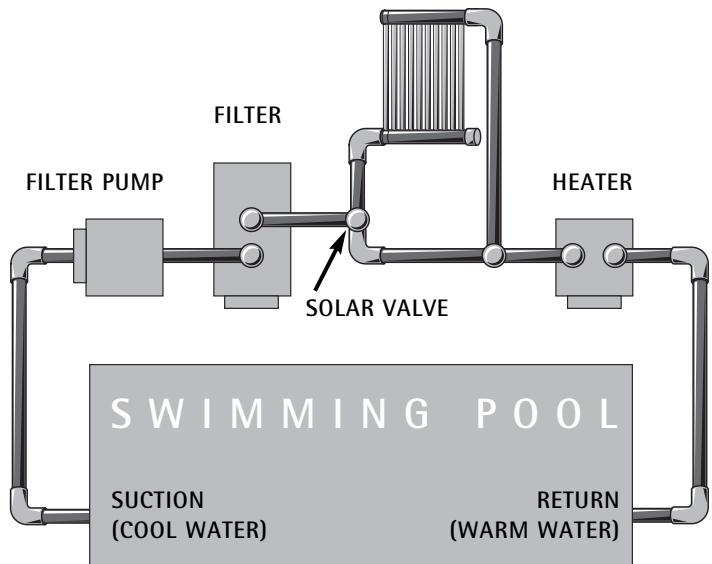
Ensure plumbing is straight.
Measure twice, cut once!

USE TEFLON ON ALL END CAPS

At any low points in plumbing, use a tee and end cap. This will allow for drainage for winter months.

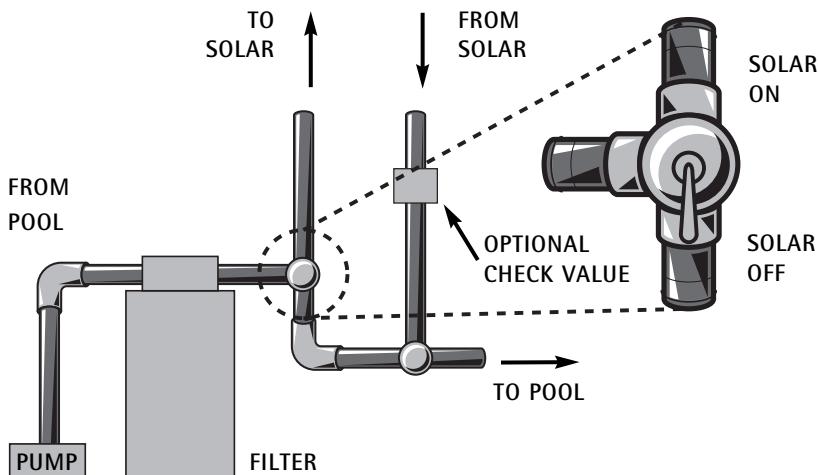
INSTALL OVERVIEW

Follow manufacturers instructions for installation of automatic control panel, motorized valve and sensors, and automatic controls.



PLUMBING

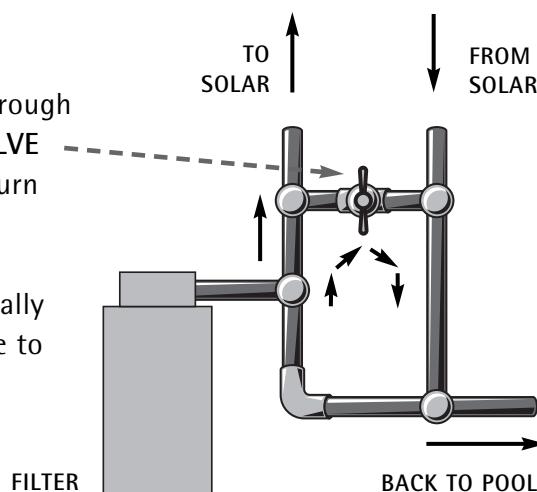
3-WAY CONTROL VALVE



BY-PASS

If pressure is too great through system, install a **BALL VALVE** between the feed and return lines.

Open the ball valve gradually to reduce flow or pressure to panels.



FLOW RATES

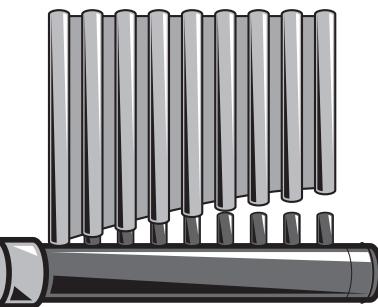
RECOMMENDED PUMP SIZE: 3/4 – 1 HP
IF SOLAR SYSTEM IS UNDERSIZED, OR PUMP SIZE IS LARGER, FOLLOW BY-PASS INSTRUCTIONS
RECOMMENDED OPERATING PRESSURE 15 PSI @ 120° F
MAXIMUM FLUID PRESSURE 20 PSI @ 120° F
RECOMMENDED FLOW RATE 4 – 10 GPM PER 4' WIDTH

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MAINTENANCE AND TROUBLESHOOTING

HEADER REPLACEMENT OR RUBBER REPLACEMENT

Any header section or length of rubber can be replaced. To remove the rubber, push the rubber off with a flat screwdriver. Attach tubes to the headers by simply sliding them over the nipples. Warm the ends of the tubes in hot water momentarily. Push each tube on until it contacts the header and completely covers the nipple. No clamps are needed.

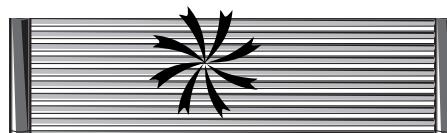


ALWAYS USE A CLIP TOOL WHEN DISCONNECTING

TUBE REPAIR

For small isolated holes:

For repair parts, call
1.800.884.6444



IF A LEAK HAPPENS



INSERT SPlicer

IF A SECTION DEVELOPS A LEAK

Allow 5 or 10 minutes for O ring to seat.

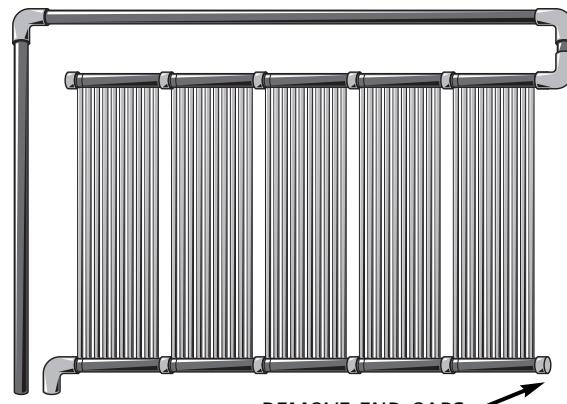
Replace O ring if marked, pinched, nicked or cut.

Use O ring lubricant as supplied.



WINTERIZATION

In winter climates, solar panels, pipes and valves must be drained of all water prior to freezing temperatures. Use blower or Shop Vac to blow out lines. Check for loose lag bolts, leaves or debris. Rotate valve half way and shut off power. After removing all water, replace end caps. It is the customer's responsibility to inspect and maintain entire system throughout the year.



REMOVE END CAPS

SUMMERIZATION IN HOT CLIMATES

In areas that experience hot summers, and solar systems are exposed to hot temperatures and water IS NOT circulating through the system, the use of a DRAIN DOWN VALVE and a ONE WAY CHECK VALVE is necessary. It is important to remember that in prolonged periods of inactivity, the solar system MUST BE DRY. Non-circulating water left in extreme heat over extended periods of time may become stagnant and promote bacterial growth.

ALWAYS KEEP YOUR WATER CHEMISTRY IN GOOD BALANCE AND CIRCULATE DAILY