FAFCO
SOLAR SWIMMING POOL HEATING
SELF-INSTALL DESIGN QUESTIONNAIRE INSTRUCTIONS

The following may clarify important points of the questionnaire:

1. Print attached PDF files for questionnaire and plot plan using Acrobat Reader software. IF you don't have this already download at www.adobe.com/support/downloads/.
2. **Please fill-out questionnaire with plot plan completely and accurately. If you are attending a scheduled seminar, fill out PRIOR to coming. Otherwise FAX to ecosystems at 503-492-7862.**
    a. Accurate information is essential to properly design your solar system.
    b. If you have questions, please call Mike Fitzgerald at ecosystems **800-382-9002** or email at ecosystems@attbi.com.

3. **First determine your pool's surface area.** Use a tape and measure with care. Use the formulas attached for the more common shapes. If you have a **freeform pool**, take maximum length and maximum width x 80% for pool surface area.

4. **Note any shading on the pool** (% of pool affected and hours of shade). Shading increases heat loss off the surface.

5. **If you use a blanket, note type used** (bubble, foam, vinyl). Blankets are highly recommended to retain heat overnight.

6. **Pump horsepower** is located on the label of the pump motor. You may need a mirror to see it. **The "make" of the pump** is usually not on the motor since it can often have a separate manufacturer. Some examples of pump manufacturers are StaRite, Hayward, Purex, or PacFab. I need to know pump horsepower since flow is important for solar performance. Fortunately, in most cases in the NW, existing pumps are adequately sized for most solar pool heating applications.

7. The three **filter types** are DE (diatomaceous earth), sand, or cartridge. It should be obvious. I recommend that you have a functioning pressure gauge on your filter. Note filter pressure prior to seminar if possible but surely before your solar installation. This pressure will increase only slightly when solar is operating. This pressure reading with solar ON and OFF gives you important ongoing information on system performance.

8. The important **pipe size** is in-between the filter and heater (if there is one). Also note pipe size at the suction and pressure side of your pump. All water pipe is measured by its inside diameter (for example, 1.5" PVC has about a 2" outside diameter) so be careful estimating pipe size or try and locate it stamped on the outside of the pipe.

9. **Pool sweep information** is most important if you have a pressure type sweep. These have a separate booster pump. Where the suction connection for this pump is located at the pool equipment is important relative to how to connect the solar valving. It can be anywhere downstream of the filter.

10. **Panel location is THE most critical consideration.** Panels should be located on a pitched surface (at least six degrees) facing somewhere between SE and due West (ideally south to southwest). If you are more familiar with pitch indicated by 4:12 or 3:12 use it. FYI, a 3:12 roof is roughly 14 degrees and 4:12 is 18.4 degrees. Standard roofs are 4:12. 9 out of 10 systems are located on house roof since there is adequate surface area available and it is typically out of harms way and free from shading. Solar system sizing is generally 60-75% or more of your pools surface area depending on location. For example, if your pool's surface were 600 square feet, the solar system should be close to 360 sq. ft. east of the Cascades and near 450 sq. ft. on west side.

11. Panels come in 4x8, 4x10, and 4x12 foot sizes. The top to bottom panel measurement is exactly 8, 10, and 12 feet whereas the header width is actually 51". When you consider panel location(s), make sure you measure the roof accurately. This will determine panels size needed and the number that can fit. In many situations, panels will need to go on more than one roof. This is OK but note all locations accurately on your plot plan drawing. Please note location of roof plumbing vents, chimneys, and attic vents, skylights, etc.

12. **The roof material determines how the panels are mounted.** One of the most common types is asphalt shingle or variations thereof. This is an easy roof to mount to. Others include: cedar shake, metal (aluminum or steel), tile (either concrete, composite, or clay) and even plastic. Metal roofs vary quite a bit on design so note cross-sectional contour of the roof's shape.

13. **The height of the roof is relative to the pool equipment.** I need to know how high the water needs to be lifted by the pump in feet or stories (10'/story).

14. **The structure of the sub-roof also is important to know how to mount the panels.** Is your roof open beam with tongue and groove (T&G) boards between the beams and the roofing material? What is the spacing of the beams and their dimensions? Is your ceiling vaulted and drywalled without visible beams? Is there an attic under the roof in question? These are all questions you need to answer before the seminar.

15. **The only other information needed is what the pipe run between the pool equipment area and the panels is like.** How long is the run one way? Do you need to go under any sidewalks or decks? Concrete can be cut but it can be a chore. If any piping will be trenched, it should be generally about a foot below grade.

16. **Do a plot plan drawing showing pool, location of panels, and pool equipment.** Draw to scale as much as possible. Use more than one page if needed. Note North or South magnetic reading on your drawing. Use a compass if possible.

17. **Finally, the more accurate you are with this information the better I can assist you with your solar system design and installation.** Take the time to do it right and bring the information with you to the seminar or fax the questionnaire and plot plan to ecosystems at 503-492-7862. Always **call if you have questions especially if attending a seminar at 800-382-9002 or email to ecosystems@attbi.com**. Good luck.