



Sealed Air[®] Corporation

HCP[®] SOLAR

**SOLAR POOL HEATING
PLANNING KIT**

GENERAL INSTRUCTIONS

For Solar Pool Heater Worksheet

The information contained in this kit will enable you to take the guesswork out of solar pool heating. Follow these simple steps to determine the components necessary for your HCP® SOLAR SYSTEM. Following the instructions below, fill out the worksheet, referring as necessary to the examples on the back side.

SECTION I. POOL DATA

Completing this section will serve as a basis for the evaluation of your swimming pool system and proposed solar installation.

SECTION II. PLAN DRAWING

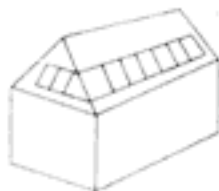
A. Read the SIZING GUIDE below, and select a potential site for your solar collectors.

COLLECTOR SITE EXPOSURE	COLLECTOR AREA (MINIMUM)	SIZING FACTOR
South	60% of pool area	.60
West	75% of pool area	.75
East	100% of pool area	1.00
Flat	75% of pool area	.75
North	----- NOT FEASIBLE -----	

NOTE – these sizing factors are approximations and are based on these assumptions as well as other variables:

1. adequate flow to the collectors;
2. pool is exposed to the sun all day;
3. pool and collectors are sheltered from excessive wind.

EXAMPLES OF COLLECTOR GROUPINGS



1. Split Collector Group Exposure: South and West



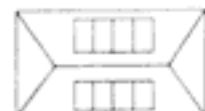
4. Multiple Collector Group Exposure: South



3. Rack Mounted Collector Group Exposure: South



2. Multiple Collector Group Exposure: Flat



5. Multiple Collector Group Exposure: East and West
UNACCEPTABLE

- B. Determine the required number of collectors by doing the calculations indicated on the worksheet.
- C. Sketch an aerial view of your pool. Next, sketch in your proposed collector site in relation to the pool and confirm that there is adequate space available for the required number of collectors. (Be sure to allow for roof obstructions, i.e., vents, chimneys, etc.) Determine where you will run the pipe and draw it in. (Normally 2" PVC Pipe is used.) Finally, approximate the number of fittings. Generally 2-T's are needed in addition to the required number of 90° elbows (1/4 turn), 45° elbows (1/8 turn), and straight couplers.

SECTION III. BILL OF MATERIALS

Once you have completed the drawing in SECTION II, figure out how many collectors, T's, elbows, etc., are required. Place these numbers in the appropriate blanks in SECTION III.

HCP SOLAR

WORKSHEET

SECTION I. POOL DATA

POOL

Surface area _____
 Inlets:
 no. _____
 size _____
 jets Yes ___ No ___

POOL EQUIPMENT

Pipe material
 plastic (PVC) _____
 copper _____
 steel _____
 Pipe size _____
 Distance to
 collector site _____
 Trenching? Yes ___ No ___

PUMP

H.P. _____
 Voltage _____
 Model _____
 Age _____

FILTER

Type _____
 Size _____
 Normal
 pressure _____
 Backwash
 pressure _____
 Age _____

GAS HEATER

Yes ___ No ___
 Model _____
 Btu
 Output _____
 Age _____

ROOF

Type _____
 Flat _____ Sloped _____
 No. of stories _____
 height _____
 Exposure _____
 Age _____

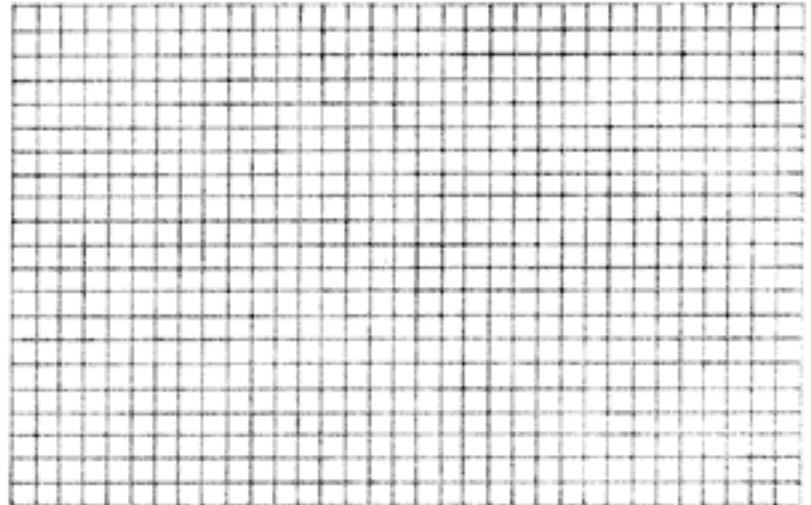
MISCELLANEOUS

Sun on pool
 A.M. ___ P.M. ___ all day _____
 Excessive wind condition Yes ___ No ___
 Desired pool temperature _____
 Desired swim season _____
 Pool blanket used Yes ___ No ___

NOTES:

SECTION II. PLAN DRAWING

_____ (Sq. ft. pool area)
 \times _____ (Sizing factor) ^{See} General Instructions
 = _____ (Collector area required, minimum)
 \div _____ (Divide by effective collector area
 for size and model chosen.)
 = _____ (No. of collectors required)



SECTION III. BILL OF MATERIALS

SOLAR HARDWARE

FS-40	4 ft. x 10 ft. framed collector with absorber plate, coupling hardware included	DS-300	AUTOMATIC CONTROL UNIT—includes: control logic with 120V or 240V Primary Transformer, valve, sensors, and electrical wire/ connectors
FS-32	4 ft. x 8 ft. version of FS-40	K-1	SYSTEM KIT (one required for each system) includes: installation manual, coupling hardware needed to connect collectors to plumbing, and plug, vacuum relief valve, and sealant cartridge
FW-40	4 ft. x 10 ft. framed collector w/windscreen and absorber plate, coupling hardware included	K-7	MULTIPURPOSE KIT (for splits within group of collectors and for multiple collector groups) includes: coupling hardware, and mounting brackets, and plugs
FW-32	4 ft. x 8 ft. version of FW-40		
BGI-40	4 ft. x 10 ft. boxed, glazed, and insulated collector with absorber plate; coupling hardware included		
BGI-32	4 ft. x 8 ft. version of BGI-40		

INSTALLATION MATERIALS

Pipe:	Size _____ Length _____	Straight Couplers	Size _____ Qty _____
Fittings:		Other	_____
T's	Size _____ Qty _____		
90 elbow (1/4 turn)	Size _____ Qty _____		
45 elbow (1/8 turn)	Size _____ Qty _____		

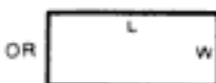
DETAILED INSTRUCTIONS AND EXAMPLES

SECTION I. POOL DATA

POOL - Compute the **surface area** by using the appropriate formula:



SQUARE



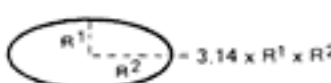
RECTANGULAR

$$= \text{Length} \times \text{Width}$$



CIRCLE

$$= 3.14 \times \text{Radius}^2$$



OVAL

$$= 3.14 \times R^1 \times R^2$$



KIDNEY = $L \times W - 12\%$

(If width varies, take average)

Inlets are the number of holes on the side of pool where warm water enters the pool (excluding pool sweep inlet). Estimate size by measuring inside diameters and make note of **jets** (round fittings at inlets which increase pressure).

POOL EQUIPMENT - **Pipe material** refers to section of pipe on the outlet of the filter; specify **type** as indicated. To determine **pipe size**, check a nearby valve or fitting which normally has size stamped on exterior, or refer to chart on reverse side of TECHNIGRAM. To determine the **distance to collector site** measure this distance along the course that measures as the pipe will lay, not in a straight line. **Trenching** is required if you desire to have the pipes buried.

PUMP - Check the manufacturer's plate. To determine **voltage**: a 220v service will normally have three wires coming into the timer box or pump whereas 110v service will have only two wires.

FILTER - Normally "**type**" is diatomaceous earth, sand, or cartridge; and the **size** is measured by sq. ft./area. **Normal pressure** is what filter gauge reads after cleaning; **backwash pressure** is what gauge reads when unit is ready to be cleaned.

GAS HEATER - Check manufacturer's plate and fill in blanks as indicated.

ROOF - Under "**type**" list one of the following: Composition, tar and gravel, tile, light cedar shingles, medium to heavy cedar shake. Indicate the number of **stories** for roof where collectors will be placed. Indicate the vertical **height** from pool equipment level to highest point of collector site.

Determine the **exposure** of your anticipated installation site from the following point of reference: the side of your house that is exposed to the late afternoon sun is **WEST**; 90 degrees (¼ turn) to the left, is **SOUTH**.

MISCELLANEOUS - The items in this section are self-explanatory, and are helpful in determining the sizing factor for an individual pool site.

Name Mr. Joe Poolowner
Address 31 FORBISHER LANE, ANYTOWN

HCP SOLAR

WORKSHEET

SECTION I. POOL DATA

POOL
Surface area 507 sq. ft.
Inlets: no. 3
size 1"
jets Yes No

POOL EQUIPMENT
Pipe material: plastic (PVC) copper steel
Pipe size 1 1/2"
Distance to collector site 92' (conc. way)
Trenching? Yes No

PUMP
H.P. 1.5
Voltage 220
Model SPA-RITE
Age 3 yrs.

FILTER
Type D.E.
Size 48 sq. ft.
Normal pressure 14
Backwash pressure 20
Age 3

GAS HEATER
Yes No
Model LAARS
Output 350,000
Age 3

ROOF
Type HEAVY SHAKE
Flat Sloped
No. of stories 2
height 14'
Exposure SOUTH, WEST
Age 10 YRS.

MISCELLANEOUS
Sun on pool: A.M. P.M. all day
Excessive wind condition Yes No
Desired pool temperature 80° - 82°
Desired swim season MAY - OCT.

NOTES:

SECTION II. PLAN DRAWING

507 (Sq. ft. pool area)
.65 (Sizing factor) See General Instructions
329 (Collector area required, minimum)
40 Divide by effective collector area for size and model chosen.
8 (No. of collectors required)

SECTION III. BILL OF MATERIALS

SOLAR HARDWARE

PS-40 15 x 10 1/2 framed collector with absorber plate, mounting hardware included	<input type="checkbox"/>	DS-30 AUTOMATIC CONTROL UNIT—includes control legs with 100' of poly Primary Secondary, valve, sensors, and electrical connections	<input type="checkbox"/>
PS-30 15 x 8 1/2 version of PS-40	<input type="checkbox"/>	K1 SYSTEM KIT (one required for each system) includes installation manual, mounting hardware needed to connect collectors to plumbing, and plug, vacuum seal valve and sealant cartridge	<input type="checkbox"/>
PS-40 15 x 10 1/2 framed collector with absorber plate and absorber plate mounting hardware included	<input checked="" type="checkbox"/> <u>8</u>	K7 MULTIPURPOSE KIT for solar water pump installation and for multiple collector groups includes: mounting hardware and mounting brackets, and plug	<input type="checkbox"/>
PS-30 15 x 8 1/2 version of PS-40	<input type="checkbox"/>		<input type="checkbox"/>

INSTALLATION MATERIALS

Pole Size 2" Length 2 1/2 Straight Couplers Size 2" Qty. APPROX. 10
 F ring Size 2" Qty. 2 OR 2 ROOF JACKS
 T1 Size 2" Qty. 2
 30 piece 1 1/2 inch Size 2" Qty. APPROX. 28
 40 piece 1 1/2 inch Size 2" Qty. APPROX. 10

©SAC HCP #10-1/81