

CITY OF SACRAMENTO  
1231 I Street, Sacramento, CA 95814

Permit No: 0112584

Insp Area: 2

Thos Bros: 336J2

Site Address: 58 RAMBLEOAK CR SAC

Parcel No: 031-0520-052

Sub-Type: REP

Housing (Y/N): N

CONTRACTOR

SIERRA PACIFIC HOME&COMFORT  
2550 MERCANTILE DR STE D  
RANCHO CORDOVA, CA. 95742

OWNER

HOLLY  
58 RAMBLEOAK CR  
SACRAMENTO CA 95831

ARCHITECT

Nature of Work: SOLAR FOR POOL, INCLUDING PUMP, ETC.

**CONSTRUCTION LENDING AGENCY :** I hereby affirm under penalty of perjury that there is a construction lending agency for the performance of the work for which this permit is issued (Sec. 3097, Civ. C).

Lender's Name \_\_\_\_\_ Lender's Address \_\_\_\_\_

**LICENSED CONTRACTORS DECLARATION:** I hereby affirm under penalty of perjury that I am licensed under provisions of Chapter 9 (commencing with section 7000) of Division 3 of the Business and Professions Code and my license is in full force and effect.

License Class BGEN License Number 453302 Date 10-4-01 Contractor Signature [Signature]

**OWNER-BUILDER DECLARATION:** I hereby affirm under penalty of perjury that I am exempt from the contractors License Law for the following reason (Sec. 7031.5, Business and Professions Code; any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to its issuance, also requires the applicant for such permit to file a signed statement that he or she is licensed pursuant to the provisions of the Contractors License Law (Chapter 9 (commencing with Section 7000) of Division 8 of the Business and Professions Code) or that he or she is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than five hundred dollars (\$500.00);

\_\_\_\_ I, as a owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 7044, Business and Professional Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or herself or through his/her own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he/she did not build or improve for the purpose of sale.)

\_\_\_\_ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractors License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractors License Law).

\_\_\_\_ I am exempt under Sec. \_\_\_\_\_ B & PC for this reason: \_\_\_\_\_

Date \_\_\_\_\_ Owner Signature \_\_\_\_\_

**IN ISSUING THIS BUILDING PERMIT,** the applicant represents, and the city relies on the representation of the applicant, that the applicant verified all measurements and locations shown on the application or accompanying drawings and that the improvement to be constructed does not violate any law or private agreement relating to permissible or prohibited locations for such improvements. This building permit does not authorize any illegal location of any improvement or the violation of any private agreement relating to location of improvements.

I certify that I have read this application and state that all information is correct. I agree to comply with all city and county ordinances and state laws relating to building construction and hereby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 10-4-01 Applicant/Agent Signature [Signature]

**WORKER'S COMPENSATION DECLARATION:** I hereby affirm under penalty of perjury one of the following declarations:

\_\_\_\_ I have and will maintain a certificate of consent to self-insure for workers' compensation as provided for by Section 3700 of the Labor Code, for the performance of work for which the permit is issued.

I have and will maintain workers' compensation insurance, as required by Section 3700 of the Labor Code, for the performance of the work for which this permit is issued. My workers' compensation insurance carrier and policy number are:

Carrier EXPLORER INSURANCE Policy Number 170204301

PAID  
Exp. Date 01/01/2002  
CITY OF SACRAMENTO

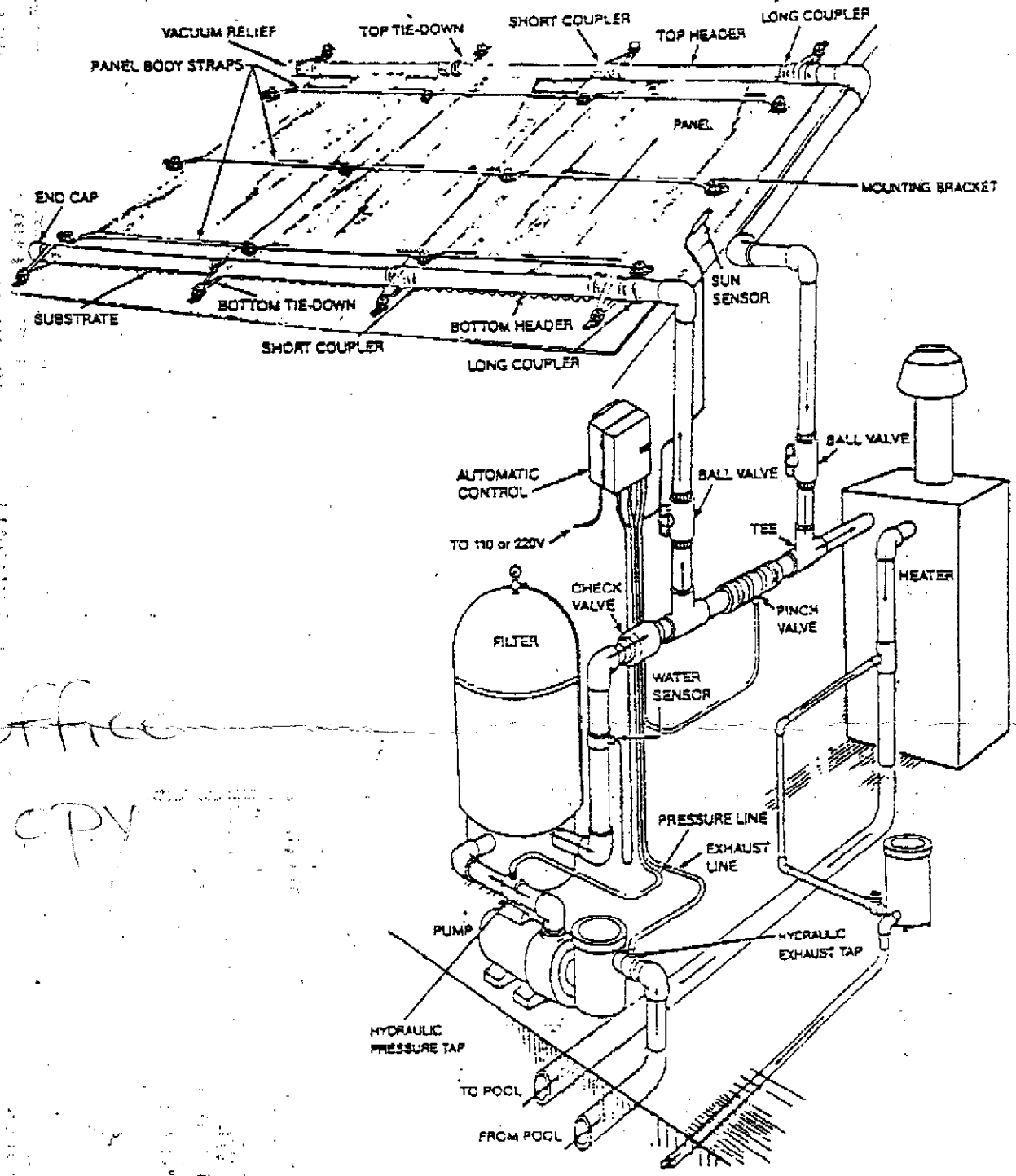
\_\_\_\_ (This section need not be completed if the permit is for \$100 or less) I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the workers' compensation laws of California and agree that if I do become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 10-4-01 Applicant Signature [Signature]

**WARNING: FAILURE TO SECURE WORKERS COMPENSATION COVERAGE IS UNLAWFUL AND SHALL SUBJECT AN EMPLOYER TO CRIMINAL PENALTIES AND CIVIL FINES UP TO ONE HUNDRED THOUSAND DOLLARS (\$100,000) IN ADDITION TO THE COST OF COMPENSATION, DAMAGES AS PROVIDED FOR IN SECTION 3706 OF THE LABOR CODE, INTEREST AND ATTORNEYS FEE.**

**THIS PERMIT SHALL EXPIRE BY LIMITATION IF WORK IS NOT COMMENCED WITHIN 180 DAYS.**

# Component Identification



*Office Copy*

*Reference Only*

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Pool/Spa

Domestic Hot Water  Space Heating

PILOT PLAN Show Location of Collector(s), Storage Tank(s) and Control

DESIGN DATA

Collector MFG. FAFCO Model PROFILE  
 Dimensions: L. 12 x W. 4 x H. 4  
 Weight 21 lbs. Dry 73.3 lbs. Wet  
 Max. Live Load 1.33 lbs/ft  
 Heat Transfer (Fluid/Gas)  
 Certification IAPMO S-1809 Size  
 Storage Tank MFG. N/A IAPMO No.  
 Model  
 Control MFG. COMPOOL IAPMO No. S-1889  
 Model LX-22 Motor  
 Circulator Pump MFG. IAPMO No.  
 Model  
 Max. Flow Rate 8 GPM/SCFM  
 System Operating Pressure 0-15  
 System Operating Temp.: HI. 95° F/Lo. 40° F

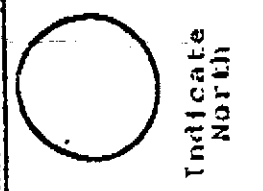
ROOF DESIGN

Type Covering  
 Type Frame: Truss  Conventional   
 Size of Frame Members 3 x 6 @ 2 o.c.  
 Clear Span. 10 Ft. Roof Pitch 4:12  
 Support Required: Yes  No

ADDITIONAL INFORMATION

MFR. Installation Data Yes  No   
 MFR. System Flow Diagram Yes  No   
 MFR. Electrical Schematic Yes  No   
 MFR. Test Instruction Yes  No   
 System Certification(s) Yes  No

Front Scale:



Telephone:

Address:

Location:

Zip:

Contractor SIERRA SUN INDUSTRIES Co. Reg. No.

EN/CL 2-20-01

**SOLAR HEAT EXCHANGER**



**DESCRIPTION:** The Revolution™ Solar Collector is manufactured in Redwood City, California. The collector is a specially developed, highly stabilized polyolefin and is of parallel, circular channel design. The collector channels are dimpled using a subtle combination of angle, depth and frequency. This technology directs the water into a spiral, revolving flow exposing all the water molecules to the sun's warmth. It is unglazed, uninsulated, and designed for low temperature applications such as swimming pool heating, heat pumps, aquaculture, and hydroponics.

**DIMENSIONS:** Header Length = 50.875 in. (1.29 m)  
Width (Panel body) = 47.5 in. (1.21 m)

**Overall Dimensions**  
 4 ft. X 8 ft. (1.22 X 2.44 m)  
 4 ft. X 10 ft. (1.22 X 3.05 m)  
 4 ft. X 12 ft. (1.22 X 3.66 m)

**Effective Area**  
 30.8 ft² (2.86 m²)  
 38.8 ft² (3.60 m²)  
 46.6 ft² (4.33 m²)

**ROOF MOUNTING SPACE:** Width = [Number of panels X 50.875 in. (129 cm)] + 24 in. (61 cm)  
Length = Panel length + 24 in. (61 cm)

**RACK SPACE:** Width = [Number of panels X 50.875 in. (129 cm)] + 2 in. (5 cm)  
Length = Panel length + 6 in. (15 cm)

**FLOW:** Maximum recommended flow = 8 gpm per panel  
 3.47 psi head loss (1.817 l/hr, 0.244 kg/cm²)  
 Minimum recommended flow = 3 gpm per panel  
 0.48 psi head loss (881 l/hr, 0.034 kg/cm²)  
 Recommended flow = 4 gpm per panel  
 0.87 psi head loss (908 l/hr, 0.061 kg/cm²)

**PANELS PER BANK:** (maximum)  
 12 panels: single end feed  
 17 panels: diagonal feed

**PRESSURE:** 80°F (27°C)  
 0 to 30 psi  
 (0 - 2.2 kg/cm²)

**NORMAL OPERATING PRESSURE**  
 0 to 5 psi  
 (0 - 0.35 kg/cm²)

**MAXIMUM INTERMITTENT PRESSURE**  
 45 psi  
 (3.21 kg/cm²)

Measured burst pressure of panel body = Over 300 psi (21.0 kg/cm²)

**TEMPERATURE:** 70°F (21°C)  
 212°F (100°C)

**CHEMICAL RESISTANCE:** Normal operating temperature = 60°F to 90°F (16°C to 32°C)  
 Maximum continuous operating temperature = 212°F (100°C)  
 Maximum intermittent temperature (unpressured) = 250°F (121°C)  
 Melt temperature = 338°F (170°C)

**CORROSION:** Non-corrosive

**FREEZING:** Compatible with common collector fluids

**WEATHERABILITY:** The system should be drained before freezing conditions occur.

Weatherometer, accelerated outdoor exposure, and other extensive laboratory testing demonstrates long-term weatherability of Revolution™ collectors (see warranty). Additionally, FAFCO's experience of nearly 30 years and over 1,000,000 collectors installed confirms that the proprietary stabilization and high mechanical strength results in negligible warranty over the FIFTEEN-YEAR warranty period.

WEIGHT:

Without Water:

4 ft. X 8 ft. 43.5 lbs (5.04 kg) or 0.42 lbs/ft<sup>2</sup> (2.05 kg/m<sup>2</sup>)  
 4 ft. X 10 ft. 45.9 lbs (5.93 kg) or 0.40 lbs/ft<sup>2</sup> (1.95 kg/m<sup>2</sup>)  
 4 ft. X 12 ft. 48.3 lbs (6.83 kg) or 0.38 lbs/ft<sup>2</sup> (1.86 kg/m<sup>2</sup>)

With Water:

4 ft. X 8 ft. 51.1 lbs (19.1 kg) or 1.60 lbs/ft<sup>2</sup> (7.81 kg/m<sup>2</sup>)  
 4 ft. X 10 ft. 59.8 lbs (22.3 kg) or 1.50 lbs/ft<sup>2</sup> (7.32 kg/m<sup>2</sup>)  
 4 ft. X 12 ft. 68.5 lbs (25.6 kg) or 1.43 lbs/ft<sup>2</sup> (6.98 kg/m<sup>2</sup>)

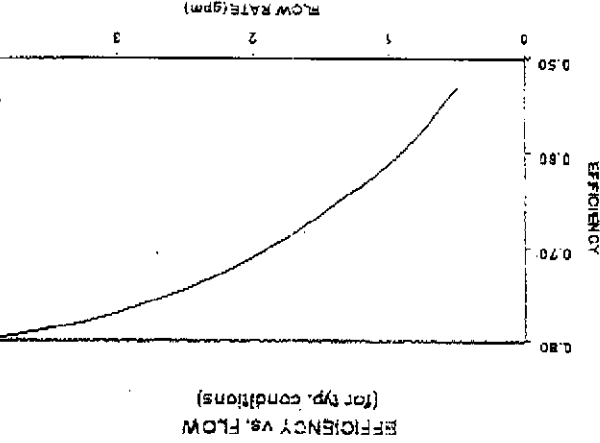
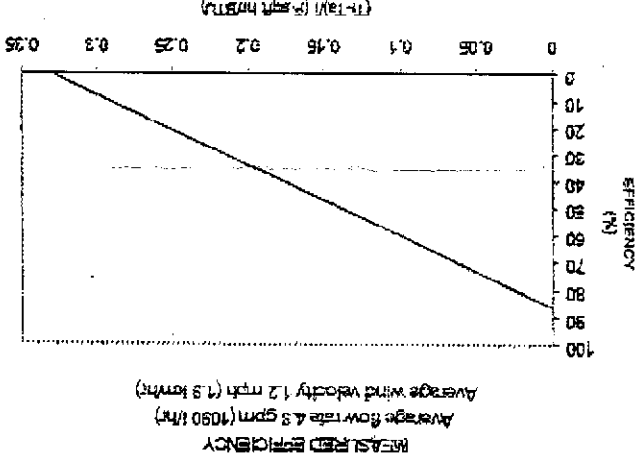
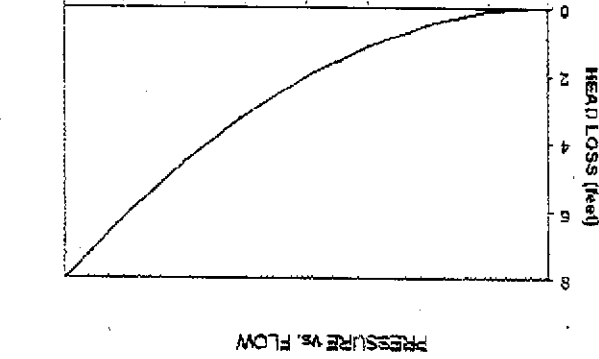
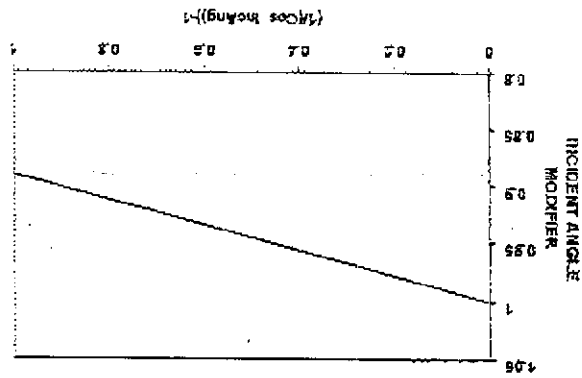
ABSORPTIVITY: 0.96

EMISSIVITY: 0.90

TIME CONSTANT: 64 seconds

TESTED OUTPUT: 1,064 BTU/ft<sup>2</sup> (Florida Solar Energy Center)

PERFORMANCE CURVES:



Additional test data available on request

# IAPMO RESEARCH AND TESTING, INC.

20001 Walnut Dr. So., Walnut, CA 91789-2825  
Tel (909) 595-8449 Fax (909) 594-3690

## CERTIFICATE OF LISTING

Samples of the product described herein have been tested by an independent testing laboratory and have been reviewed and accepted for listing by the Plumbing Research Committee of IAPMO Research and Testing, Inc. as meeting the requirements of the Uniform Solar Energy Code™. This listing is subject to the conditions set forth in the characteristics below and is not to be construed as any recommendation, assurance or guarantee by IAPMO Research and Testing, Inc. of the product or of product acceptance by local jurisdictions or authorities using the Uniform Solar Energy Code™ or otherwise affiliated with IAPMO Research and Testing, Inc.

Accepted: November 2000 Void after: November 2001

PRODUCT: Collectors (Flat Plate) FILE NO. S-1889

APPLICANT: Fatco, Inc.  
435 Otterson Drive  
Chico, CA 95928

IDENTIFICATION: Permanent label showing manufacturer's name or trademark,  
model numbers or name and US@ certification mark.

CHARACTERISTICS: Flat plate thermal collectors for use in spa, pool, space or domestic water heat exchanger systems and energy storage. Sizes and weights are as shown. To be installed in accordance with the manufacturer's instructions and the provisions of the latest edition of the Uniform Solar Energy Code. Manufactured in compliance with ASHRAE 93-77.

MODELS: Fatco 908, 910, 912 (Unglazed), 918, 920, 922, 948, 950, 952 (Models 4' wide with varying lengths from 2' to 24').

This listing is for the period indicated herein and is void after date shown above. Any change in material, manufacturing process, marking or design without having first obtained the approval of the Plumbing Research Committee or any evidence of non-compliance with applicable standards or inferior workmanship, may be deemed sufficient cause for revocation of the listing. Reproduction of or reference to this form for advertising purposes may be made only by specific written permission of IAPMO Research and Testing, Inc. This authorizes the use of the US@ on products covered by this certificate.

Any alteration of this certificate could be grounds for revocation of the listing.

CHAIRMAN, PLUMBING RESEARCH COMMITTEE

EXECUTIVE DIRECTOR

Sponsor of the Uniform Plumbing Code™, Uniform Mechanical Code™, Uniform Swimming Pool, Spa and Hot Tub Code™ and Uniform Solar Energy Code™.



**BRACKET INSTALLATION**



1. Locate bracket base on roofing above subroof or sheathing. (Do not attempt to attach brackets to roof material only!)
2. Mark and drill a pilot hole.
3. Inject the FAFCO recommended sealant into the pilot hole, being certain to leave enough on top of the hole so that a small amount will ooze out around the bracket when it is secured.
4. Put the lag screw into the bracket base and secure the bracket base to the roof.
5. Lay the panel strap through the bracket base. Panel straps can be put through single or doubled over.
6. Screw on a bracket cap and hand tighten. A 1/2" ratchet may be used to tighten the cap if desired.



**SUBSTRATE**

Substrate is a sheet of 2 1/2" corrugated 4 oz. fiberglass that is used as a protective measure and goes between the solar panel and mounting surface. It will provide the necessary support for the panels and protect the roof. Substrate is required on all roof types and shake or wooden shingle, tar and gravel, tile or cement shingle. Simply lay it under the panel.

**SEALING SEQUENCE**

SPECIAL CARE AND ATTENTION SHOULD BE EXERCISED IN SEALING THE LAG SCREWS WHERE THEY PENETRATE THE PRIMARY ROOF. FOLLOW THE DIRECTIONS CAREFULLY.

**BUILT UP ROOFING**

A tar and gravel or tile roof requires special care. For further instructions contact your local distributor.

**TOP AND BOTTOM HEADER TIE-DOWN**



Both the top and bottom ties are secured the same way. Use the webbed strap for the top ties and the stretchy vinyl strap for the bottom ties.

1. Pass the strap around the rubber coupler.
2. Mark a spot 4" to 7" from the header pipe of the panel.
3. Secure a mounting bracket at the spot you marked per the instructions above.
4. Lay both ends of the strap through the mounting bracket base and screw on a cap.

# SIERRA PACIFIC

HOME & COMFORT INC.

## SOLAR

CLN 453302 • (916) 638-0543

### INSTALLATION DIRECTIVE

CUSTOMER: PAUL + HOLLY HEIN MAP COORD \_\_\_\_\_  
 ADDRESS: 58 RAMBLE OAK CIR DIRECTIONS TO JOB SITE: \_\_\_\_\_  
 CITY: SAC  
 PHONE: work (his) \_\_\_\_\_ work (hers) 422-2991 home 491-5099  
 DATE OF ORDER 7-6-01 BUILDER \_\_\_\_\_ DESIGNER BASSLER

EQUIPMENT LIST  SPS INSTALL  SELF INSTALL

5 12' Solar Panels \_\_\_\_\_ Fiberglass Substrate  
 \_\_\_\_\_ 10' Solar Panels 1 System Assembly Package  
 \_\_\_\_\_ 8' Solar Panels \_\_\_\_\_ Sweep Delay  
Auto Type of Panel \_\_\_\_\_ Existing Control Type  
Auto Type of Control

# FAFCO

SOLAR HEATING SYSTEMS

TYPE OF ROOF: SHAKE PITCH 4/12 COMPASS DIRECTION S %  
 POOL AREA SQ. FT. 400 SHADE ON POOL? \_\_\_\_\_ ON ROOF? \_\_\_\_\_  
 PUMP H.P. 1/2 TYPE CLEANER \_\_\_\_\_ 1 STORY \_\_\_\_\_ 2 STORY X  
 FILTER TYPE & SQ. FT. IN-LINE

#### OTHER CHARGES

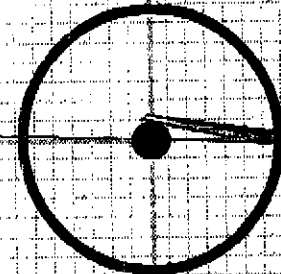
\_\_\_\_\_ RACKS SOLD? TYPE \_\_\_\_\_  
 \_\_\_\_\_ BOOSTER PUMP  1/2 H.P.  3/4 H.P.  1.0 H.P.  
 \_\_\_\_\_ NATURE II  
 \_\_\_\_\_ TRELLIS/PATIO COVER  
 SOLID OR  LATTICE COLOR: \_\_\_\_\_ SIZE: \_\_\_\_\_  ATTACHED OR  FREESTANDING  
 \_\_\_\_\_ HEATER REMOVAL & HAUL AWAY  
 \_\_\_\_\_ SYSTEM REMOVAL \_\_\_\_\_ PIPE \_\_\_\_\_ PANELS

COMMENTS TO CREW EQUIPMENT INSTALL NATURE II AT MAIN

ALERT! RISERS APPEAR TO BE PLUMBED WITH A SEPARATE LOOP. BRING COLORED DYE.

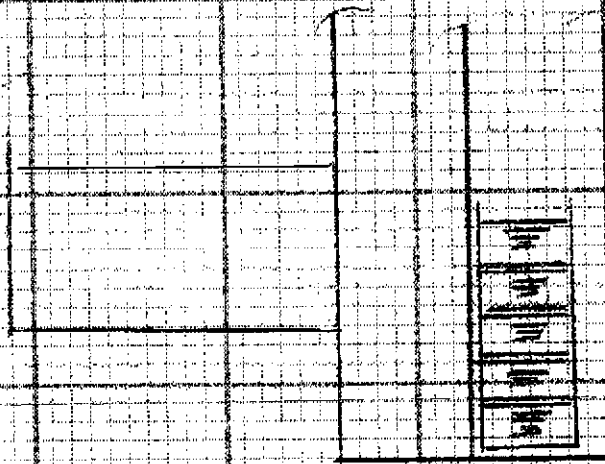
SIERRA PACIFIC COMFORT HOME  
DIAGRAM INSTRUCTIONS

Draw location of house as situated on property in relation to pool  
and pool equipment pad. Indicate roof measurements and  
placement of solar collector panels.

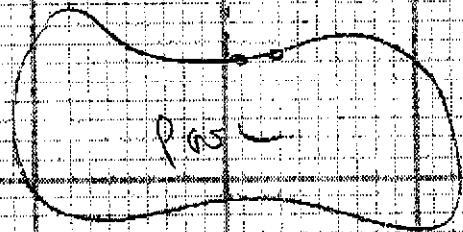


INDICATE  
SOUTH

FRONT



INSTALL 45 HP  
PUMP & IN-LINE  
FILTER



CUSTOMER HEIN DATE 7-6-01

NEW POOL EQ SOLD \_\_\_\_\_

PUMP SIZE & TYPE \_\_\_\_\_ FILTER SIZE & TYPE \_\_\_\_\_

SWEEP TYPE \_\_\_\_\_ BOOSTER PUMP \_\_\_\_\_