

CITY OF SACRAMENTO
1231 I Street, Sacramento, CA 95814

Permit No: 0105753
Insp Area: 4

Site Address: 1028 LOS ROBLES BL SAC
Parcel No: 251-0252-023

Sub-Type: RES
Housing (Y/N): N

CONTRACTOR
ANN POWER CORP
5840 GIBBONS DR
CARMICHAEL, CA 95608

OWNER
DIERKS DAVID JEFFRY
1028 LOS ROBLES BL
SACRAMENTO CA 95838

ARCHITECT

Nature of Work: SOLAR WATER HEATER INSTALLATION

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 C46 License Number 184313 Date 5/7/01 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 the ~~same~~ 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. The 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 5/7/01 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 _____ Policy Number _____ Exp Date _____

(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 should become subject to the workers' compensation provisions of Section 3700 of the Labor Code, I shall forthwith comply with those provisions.

Date 5/7/01 Applicant Signature [Signature]

WARNING: FAILURE TO SECURE WORKER'S 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 ATTORNEY'S FEE.

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

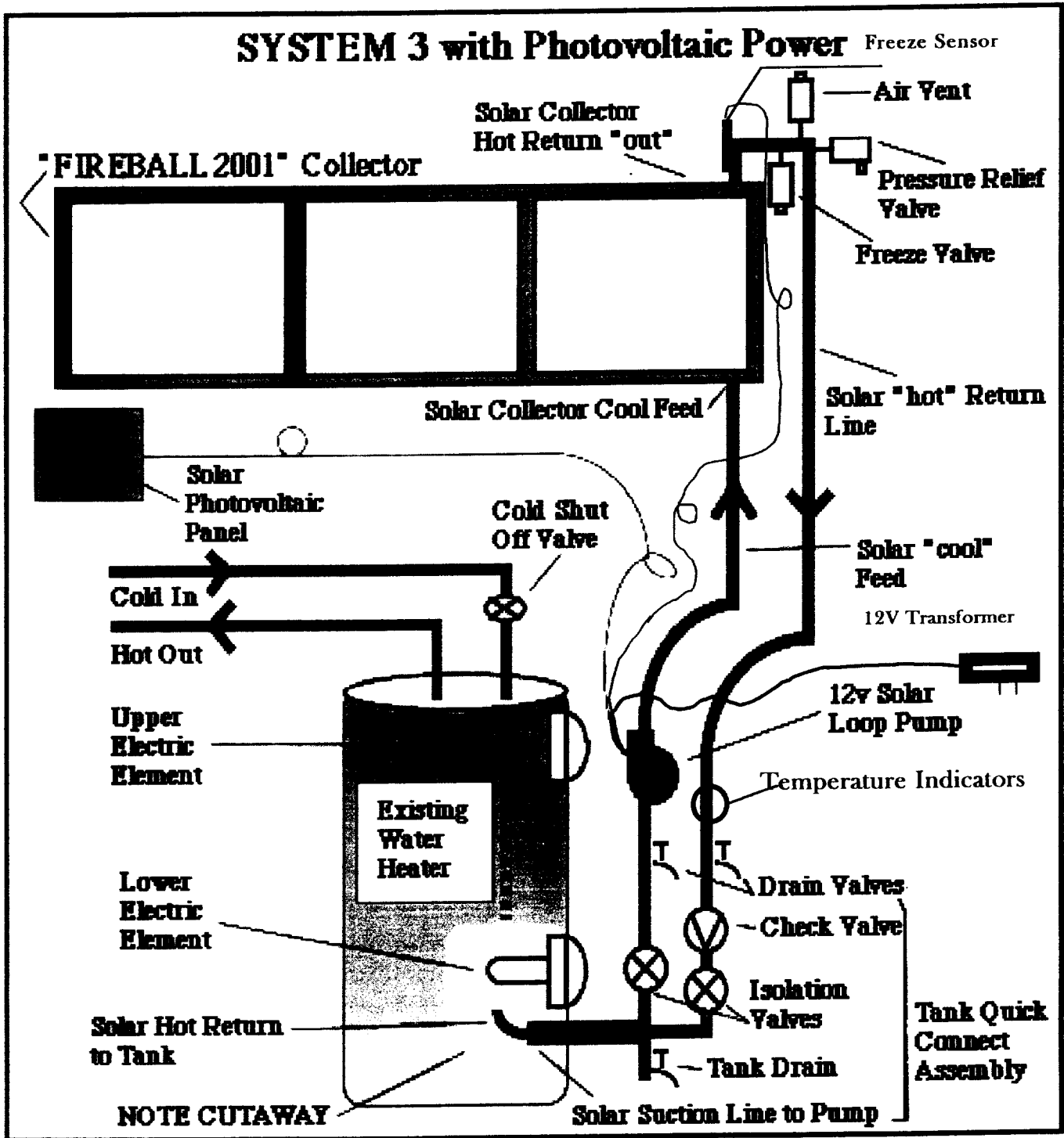
AnuPower Corp.

New Power for a Safe Environment

SolarRoofs.com



Manufacturer of the Exciting
"FIREBALL 2001"
Solar Water Heaters



AnuPower Corp. 5840 Gibbons Dr. Suite G, Carmichael, CA 95608

Phone: (888) 801-9060 (916) 481-7200 Fax: 481-7203 Email: Info@SolarRoofs.com / Web Site: www.anupower.com

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SolarRoofs.com Specifications



**Manufacturer of the Exciting
"FIREBALL 2001"
Solar Water Heaters**

COLLECTOR (Panel)

Trim & Frame Materials: Finished 27 mil Aluminum Trim and Frame = Total 54 mil (1.37 mm).
Absorber Material: "Black Crystal" coated - all Copper or copper tube with alum. fins
Glazing: .236" (6.0 mm) Twinwall Polycarbonate UV Treated. Acrylic or glass optional.
Dimension / Weight: FIREBALL 2001 - 144.3" x 20.7" x 3" 38 lb (3.67 m x 0.51 m x 0.076 m 17.24 kg) 18.4 Net s/f (1.71 m²)
Fluid Capacity: 4 Gallons
Recommended Flow Rate: 20 to 35 GPM (0.946 to 1.324 L/min)
Maximum Working Pressure: 150 PSI (10.21 atm)
Maximum Stagnation Temp: 250 °F (121.11 °C)
Heat Transfer Fluid: Potable water or Propylene glycol
Standard Components: Mounting brackets, tech screws
Color: Musket Brown (C101) - optional

CIRCULATORS

115 Volt AC: Taco 006 Bronze or equal

PV (Photovoltaic) POWERED CIRCULATOR (option)

12 Volt DC PV Panel: 11 Watt. or 21 Watt. 12volt DC
12 Volt Circulator: "El Sid". Hartell or equal.

FREEZE PROTECTION (Optional)

Type: Passive Thermal Bleed Valve for light freeze protection down to 30F - Opens at 45 °F
Type: Recirculation, jumper set in Differential Controller or with 12 Volt Circulator with 40° F Snap switch in collector and Transformer for light freeze protection

CONNECTING LINES, INSULATION (standard)

Tubing: 1/2" (12.7 mm) OD copper - 50' (15.24 m)

Insulation: 1/2" (12.7 mm) ID 1/2" (12.7 mm) or 3/4" (19.05 mm) wall

TUBING CONNECTION METHODS (standard)

Type: Brass Union, Compression, (Solder for Quad Rod to tank)

STORAGE TANK (Not Supplied)

Standard Connections: Use Existing or added 50 gal (189.27 L) -120 gal (454.25 L) tank
Heat Exchanger Option: Existing or added 50 - 120 gal. with side pressure relief port.
Max. Temp. - 190 °F (87.77 °C)
Max. Pressure - 150 psi (10.21 atm)
80 Gallon Rheem / Rudd Heat Exchange tank (80EX)

"QUAD ROD" HEAT EXCHANGER (option)

(for use with standard circulator and differential control or with PV Option)

Type: Thermosyphon, double wall, 3' (.914 m) long, and 4' (1.22 m) for 4 collector systems.

Fluid: Propylene Glycol (Sierra)
Components: Expansion Tank, floating check valve, fill, isolate and drain valves, pressure gauge.

CONTROL (standard - non freeze application)

Type: 12 Volt Circulator with 110F Snap Switch and 110 volt Transformer.

DIFFERENTIAL CONTROL

Type: Independent Energy CM30 or Equal
Sensors: Two 10K Sensors with wire
Turn on Differential: 8 - 24 °F (Ave. set 12 °F)
Turn off Differential: 4 °F (fixed) Recirculate on: 38°F (3.33 °C)

Storage High Limit: 110 - 230 °F Set at 180 °F (82.2 °C)
Power requirements: 105-120VAC, 50/60hz,
Output power: 115VAC, 1/3HP (248.56 W)

Although we will make every effort to give notice, Specifications and prices subject to change without notice.

AnuPower Corp. 5840 Gibbons Dr. Suite G, Carmichael, CA 95608

Phone: (888) 801-9060 (916) 481-7200 Fax: 481-7203 Email: Info@SolarRoofs.com / Web Site: www.anupower.com

**SOLAR COLLECTOR
CERTIFICATION AND RATING**



SRCC OG-100

CERTIFIED SOLAR COLLECTOR

SUPPLIER: ACR Solar International
5840 Gibbons Dr.
Carmichael, CA 95608

MODEL: Fireball 2001
COLLECTOR TYPE: Glazed Flat-Plate
CERTIFICATION #: 100-1999-004A

COLLECTOR THERMAL PERFORMANCE RATING

| Megajoules Per Panel Per Day | | | | Thousands of Btu Per Panel Per Day | | | |
|------------------------------|---|---|--|------------------------------------|---|---|--|
| CATEGORY (Ti-Ta) | CLEAR DAY 23 MJ/m ² ·d | MILDLY CLOUDY 17 MJ/m ² ·d | CLOUDY DAY 11 MJ/m ² ·d | CATEGORY (Ti-Ta) | CLEAR DAY 2000 Btu/ft ² ·d | MILDLY CLOUDY 1500 Btu/ft ² ·d | CLOUDY DAY 1000 Btu/ft ² ·d |
| A (-5 °C) | 22 | 16 | 11 | A (-9 °F) | 20 | 15 | 10 |
| B (5 °C) | 20 | 15 | 9 | B (9 °F) | 19 | 14 | 9 |
| C (20 °C) | 17 | 12 | 6 | C (36 °F) | 16 | 11 | 6 |
| D (50 °C) | 10 | 5 | 1 | D (90 °F) | 9 | 5 | 1 |
| E (80 °C) | 2 | | | E (144 °F) | 2 | | |

A-Pool Heating (Warm Climate) B-Pool Heating (Cool Climate) C-Water Heating (Warm Climate) D-Water Heating (Cool Climate) E-Air Conditioning

Original Certification Date: January 20, 2000

COLLECTOR SPECIFICATIONS

Gross Area: 1.867 m² 20.10 ft²
Dry Weight: 18.5 kg 41 lb
Max. Oper. Pressure: 552 kPa 80 psig

Net Aperture Area: 1.697 m² 18.27 ft²
Fluid Capacity: 1.4 l 0.4 gal
Max. Oper. Temp.: 100 °C 212 °F

COLLECTOR MATERIALS

Frame: Aluminum
Cover (Outer): Lexan Polycarbonate
Cover (Inner): None
Absorber Material: Tube - Copper / Plate - Copper Fin
Absorber Coating: Non-Metallic Oxide
Insulation (Side): None
Insulation (Back): Polyisocyanurate

PRESSURE DROP

| Flow | | Δ P | |
|------|------|-------|---------------------|
| ml/s | gpm | Pa | in H ₂ O |
| 20 | 0.32 | 1539 | 6.18 |
| 45 | 0.71 | 6952 | 27.91 |
| 70 | 1.11 | 15439 | 61.98 |

TECHNICAL INFORMATION

Efficiency Equation [NOTE: (P) = Ti-Ta]

SI Units: η = 0.543 - 2.3040 (P)/I - 0.0270 (P)²/I
IP Units: η = 0.543 - 0.4060 (P)/I - 0.0026 (P)²/I

Y Intercept 0.56
Slope -4.29 W/m²·°C
-0.756 Btu/hr·ft²·°F

Incident Angle Modifier [(S) = 1/cos θ - 1, 0° ≤ θ ≤ 60°]
K_{air} = 1.0 - 0.1727 (S) - 0.0362 (S)²
K_{air} = 1.0 - 0.20 (S) (Linear Fit)

Model Tested: Fireball 2001
Test Fluid: Water
Test Flow Rate: 37 ml/s 0.58 gpm

REMARKS:

January, 2000

Certification must be renewed annually. For current status contact:
SOLAR RATING & CERTIFICATION CORPORATION

c/o FSEC ♦ 1679 Clearlake Road ♦ Cocoa, FL 32922 ♦ (321) 638-1537 ♦ Fax (321) 638-1010

SOLAR WATER HEATING
SYSTEMS CERTIFICATION AND
RATING



SRCC OG-300

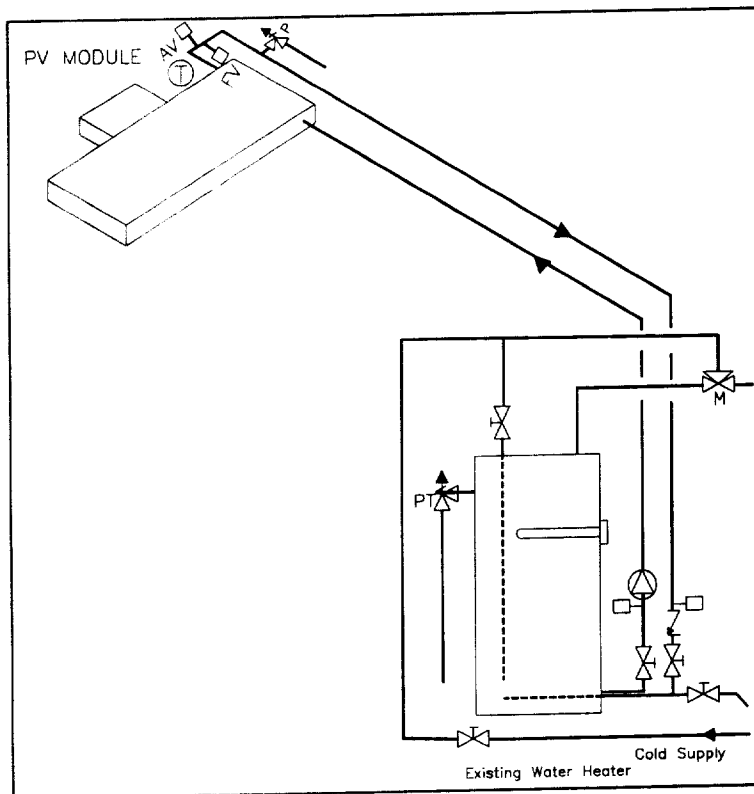
CERTIFIED SOLAR WATER HEATING SYSTEM

SUPPLIER: ACR Solar International
5840 Gibbons Dr.
Carmichael, CA 95608
(916) 481-7200
(916) 481-7230 Fax
(888) 801-9060

SYSTEM NAME: Fireball 2001 System 3
SYSTEM TYPE: Direct Forced Circulation

Description: Glazed Flat-Plate Collector, Photovoltaic Panel Controller, No Supply Side Heat Exchanger, No Load Side Heat Exchanger, Fluid Class I, Freeze Tolerance: -1.11 C (30 F), Electric Auxiliary Tank

| System Model Name | Cert 300-# | Cert Date | Collector Panel Manufacturer | Collector Panel Name | Total Panel Area (Sq-m) | Total Panel Area (Sq-ft) | Solar Tank Vol (l) | Solar Tank Vol (gal) | Aux Tank Vol (l) | Aux Tank Vol (gal) | SEF |
|-------------------|------------|-----------|------------------------------|----------------------|-------------------------|--------------------------|--------------------|----------------------|------------------|--------------------|-----|
| 200131C50 | 1999003A | 5/24/00 | ACR Solar International | Fireball 2001 | 1.9 | 20.1 | | | 189 | 50 | 1.3 |



OG 300 System Reference : 1999003A

ACR Solar International

Fireball 2001 System 3

May 2000

Certification must be renewed annually. For current status contact:

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