

CITY OF SACRAMENTO

1231 I Street, Sacramento, CA 95814

Permit No: 0006844

Insp Area: 2

Site Address: 1225 41ST AV SAC

Parcel No: 024-0221-005

Sub-Type: ASFR

Housing (Y/N): N

CONTRACTOR

OWNER

ARCHITECT

WELCH STEPHEN P/RENEE M
1225 41ST AV
SACRAMENTO CA 95822

Nature of Work: SOLAR HEATING FOR POOL/ON ROOF/RPLC WATER HEATER

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 _____ License Number _____ Date _____ Contractor 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 6/20/00 Owner Signature Steph P. Welch

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 herby authorize representative(s) of this city to enter upon the abovementioned property for inspection purposes.

Date 6/20/00 Applicant/Agent Signature Steph P. Welch

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:

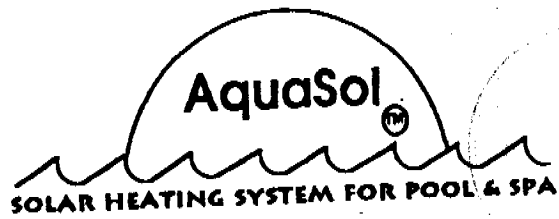
Carrier _____ Policy Number _____ Exp Date _____

(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 6/20/00 Applicant Signature Steph P. Welch

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.



Technical Data

DIMENSIONS

	AQ48	AQ40	AQ32
Model Number	4x12	4x10	4x8
Nominal Size - ft.	144.0	120.0	96.0
Overall Panel Length - in.	47.0	47.0	47.0
Panel Width - in.	51.0	51.0	51.0
Manifold Length - in.	1.9	1.9	1.9
Manifold O.D. - in.	1.5	1.5	1.5
Gross Collector Area - ft ²	47.3	39.3	31.4
Net Collector Area - ft ²	47.3	39.3	31.4

WEIGHTS

Dry - lbs.	21.3	17.1	14.3
Wet - lbs.	48.0	41.6	35.1
Wet - lbs./ft ²	1.01	1.06	1.12
Fluid Capacity - gal.	3.2	2.9	2.5

FLUID FLOW RATES

Maximum - GPM	10.0	10.0	10.0
Minimum - GPM	3.0	2.5	2.5
Recommended - GPM	5.0	4.0	3.25
Max. Panels with Single Feed at Recommended Flow Rate	10	12	12

MATERIALS

Collector
Propylene copolymer with synergistic antioxidants and UV screen including carbon

Hold-Down Straps
Polypropylene fabric strap 5/8" wide, 400PSI tensile strength

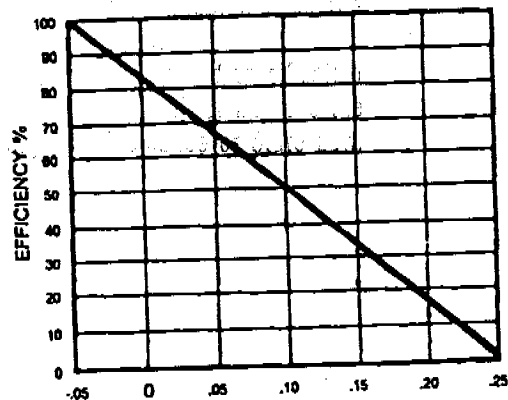
Connecting Hoses
EPDM (ethylene-propylene-diene-terpolymer)

Clamps: Stainless Steel (Type 302)
Brackets: Polypropylene

APPROVALS

Florida Solar Energy Center

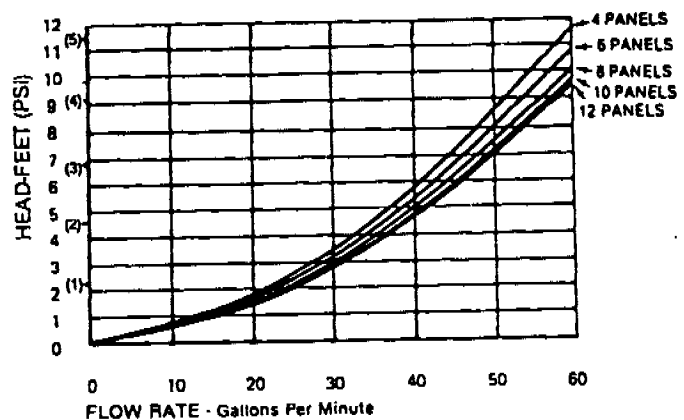
Instantaneous Efficiency of AquaSol Series Collectors



Thermal Performance Equation - $n = 86.6 - 3.48x$
Incident Angle Modifier - $K_{at} = 1.0 - 0.03x$
(Rated in accordance with ASHRAE standard 96-80)

Florida Solar Energy Center Certification
(BTU's per standard day)
4x12 - 47,700 4x10 - 39,800 4x8 - 31,800
1010 BTU/Sq Ft = Day

Head Pressure Loss of Multiple AquaSol Series Collectors



Pressures

Pressure Drop
0.30 ft. head (0.13PSI) pressure loss at recommended flow rate
0.20 ft. head (0.09PSI) pressure loss at minimum flow rate
Max. Fluid Pressure Greater than 85PSI at 80°F
Recommended Max. Operating Pressure 35PSI at 140°F

GUIDE SPECIFICATIONS

Contractor to supply and install _____ panels, nominal size (4x12', 4x10', 4x8') with overall frontal area of (47.0, 39.3, 31.4) square feet each. Panels shall be fabricated from a propylene copolymer with stabilizer combination providing long term resistance to heat and light. The weight of collector when filled with water shall be no more than 1.12 pounds per square foot of frontal area. The panels shall be capable of withstanding an internal static pressure of 85PSI at operating temperature and shall be resistant to corrosion, freezing and internal scale accumulation.
Panels shall be capable of thermal performances of at least 81% efficiency when inlet fluid temperature equals ambient temperature and be capable of collecting solar energy when the inlet fluid temperature exceeds the ambient temperature by 60°F with 260 BTU per square foot per hour.

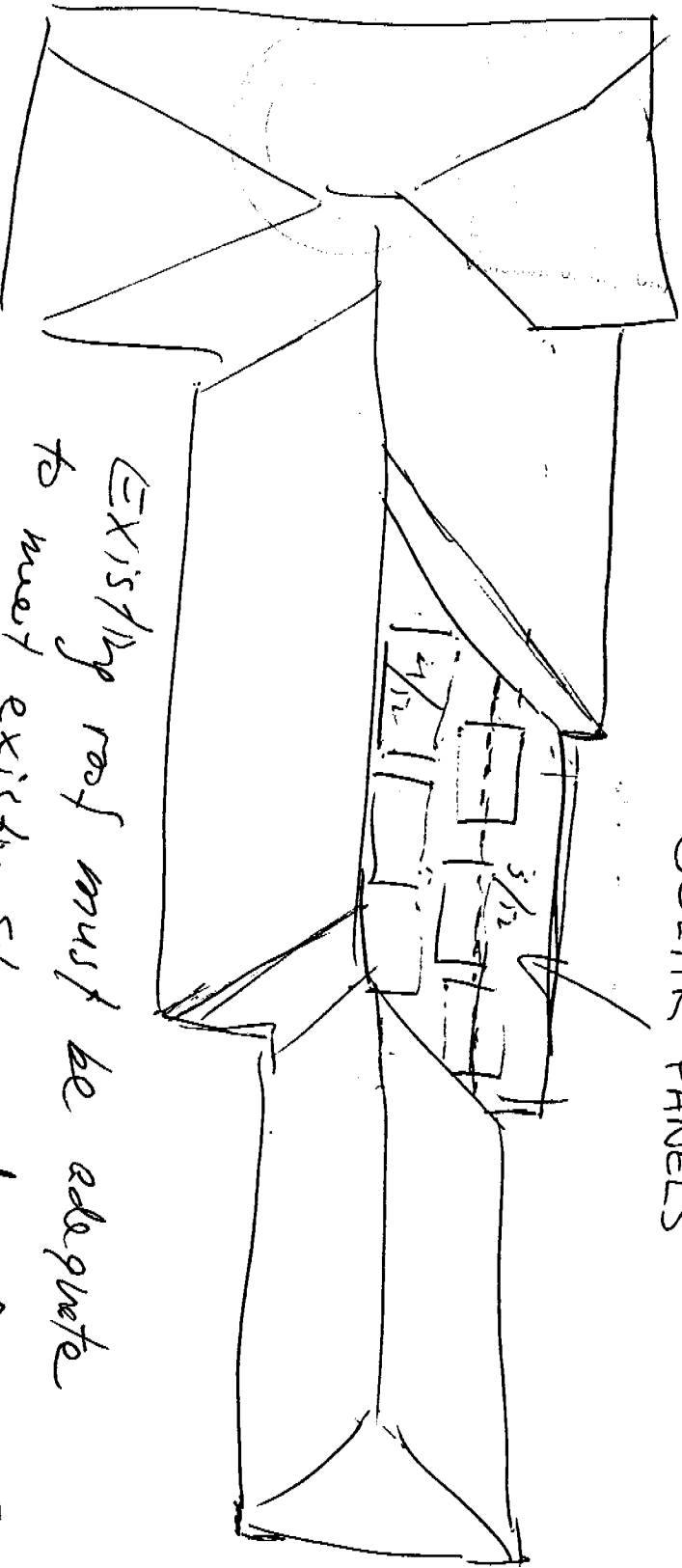
Pressure head loss of a single panel must not exceed 0.30 feet water at recommended flow rate. Header length shall be 51 inches.
Panel mounting shall consist of header straps positioned at ends of headers and three continuous transverse straps. All straps shall be made of black polypropylene fabric of 400 psi tensile strength and they shall be fastened to the roof by polypropylene butterfly brackets, lag-bolts to the roof in between collector and at the end of each collector array.
Water connections shall be made with hose sections extruded from EPDM (ethylene-propylene-diene-terpolymer) 70 durometer minimum hardness. Hose clamps shall be all stainless worm gear type with 18-8 chromium-nickel stainless band. The panels shall be manufactured in the USA.

AquaSol, Division of Solar Depot Inc., 61 Paul Drive, San Rafael, CA 94903

ISSUED
JUN 20 2000
Sacramento Building Division

(6) 4x12 panels

SOLAR PANELS



EXISTING roof must be adequate
to meet existing struc. codes. Panels (4x12)
only weigh 48 lbs. each. Negligible added weight.

2115 AVE

Matt P. 6/20/0