

DOCKETED

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SOLAR WATER HEATING SYSTEMS

CEC-CF2R-STH-01-E (Revised 01/19)

CALIFORNIA ENERGY COMMISSION



CERTIFICATE OF INSTALLATION		CF2R-STH-01-E
Solar Water Heating Systems		(Page 1 of 3)
Project Name:	Enforcement Agency:	Permit Number:
Dwelling Address:	City:	Zip Code:

A. Solar Water Heating Systems

01	Climate Zone	
02	Certification Type	
03	Central DHW System Distribution Type	
04	Certificate of Compliance Type	
05	Manufacturer Name	
06	Model Number	
07	Certification Number	
08	Solar Savings Fraction from calculator or directly from SRCC website ¹ (annual average value)	
09	Required Solar Savings Fraction	
10	Number of Collectors	
11	Collector Area (ft ²)	
12	Water Heater Storage Volume (gallons)	
13	Secondary Storage Tank Volume (gallons)	
14	Collectors Angle from True North (in Degrees)	
15	Collectors Slope from Horizontal (in Degrees)	
16	Compliance Statement	

¹ Click for [OG-300 Ratings](#)

B. OG-100 Certified Collectors

The installed system shall meet the following eligibility criteria:

01	System is installed at the same orientation as modeled.
02	System is installed at the same tilt as modeled.
03	The system shall have the same collectors, pumps, controls, storage tank and backup water heater fuel type as the rated condition.
04	The collectors are located in a position that is not shaded by adjacent buildings or trees.
05	Backup Storage tanks are insulated with either an internal R-16 (labeled on tank), or external R-12.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

C. OG-300 Certified Systems

The installed system shall meet the following eligibility criteria:

01	The collectors shall face within 35° of south and be tilted at a slope of at least 3:12.
02	The system shall have the same collectors, pumps, controls, storage tank and backup water heater fuel type as the rated condition.
03	The collectors shall be located in a position that is not shaded by adjacent buildings or trees.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

D. Sizing Compliance with Multifamily Central System Prescriptive Requirements

01	For climate zones 1 through 9 only - the solar system has an annual solar savings fraction of 0.2.
02	For climate zones 10 through 16 only – the solar system has an annual solar savings fraction of 0.35.

The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.

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CERTIFICATE OF INSTALLATION		CF2R-STH-01-E
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E. Mandatory Measures for Solar Water Heating Systems

01	Backup storage tanks for solar water-heating systems have R-12 external insulation, or R-16 internal insulation where the internal insulation R-value indicated on the exterior of the tank. (§150.0(j)1).
02	All domestic hot water piping (including solar) shall be insulated (§150.0(j)2A).
03	Solar water-heating system and/or collectors are certified by the Solar Rating and Certification Corporation. (§150.0(n)).
The responsible person's signature on this compliance document affirms that all applicable requirements in this table have been met.	

For information and data collection only. Not valid until registered with a HERS provider



CERTIFICATE OF INSTALLATION		CF2R-STH-01-E
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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Installation documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Documentation Author Company Name:	Date Signed:
Address:	CEA/HERS Certification Identification (If applicable):
City/State/Zip:	Phone:

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Installation is true and correct.
- I am either: a) a responsible person eligible under Division 3 of the Business and Professions Code in the applicable classification to accept responsibility for the system design, construction, or installation of features, materials, components, or manufactured devices for the scope of work identified on this Certificate of Installation, and attest to the declarations in this statement, or b) I am an authorized representative of the responsible person and attest to the declarations in this statement on the responsible person's behalf.
- The constructed or installed features, materials, components or manufactured devices (the installation) identified on this Certificate of Installation conforms to all applicable codes and regulations and the installation conforms to the requirements given on the Certificate of Compliance, plans, and specifications approved by the enforcement agency.
- I will ensure that a registered copy of this Certificate of Installation shall be posted or made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a registered copy of this Certificate of Installation is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Builder/Installer Name:	Responsible Builder/Installer Signature:	
Company Name: (Installing Subcontractor or General Contractor or Builder/Owner)	Position With Company (Title):	
Address:	CSLB License:	
City/State/Zip:	Phone:	Date Signed:

CF2R-STH-01-H User Instructions**Section A. Solar Water Heating Systems**

1. Climate Zone – This field is filled out automatically from CF1R.
2. Certification Type – Select either OG100 or OG 300 test procedure based on CF1R submitted. For Systems that use the OG-100 method the program used to calculate the solar fraction should be listed.
3. Central DHW System Distribution Type: From Certificate of Compliance.
4. Certificate of Compliance Type: Choices are performance or prescriptive new construction.
5. Manufacturer Name - From Certificate of Compliance CF1R-STH-01-E for OG-100 system, or user input for OG-300 system.
6. Model Number - From Certificate of Compliance CF1R-STH-01-E for OG-100 system, or user input for OG-300 system.
7. Certification Number - From Certificate of Compliance CF1R-STH-01-E for OG-100 system, or user input for OG-300 system.
8. Solar Savings Fraction - From Certificate of Compliance CF1R-STH-01-E for OG-100 system, or user input of solar fraction value from SRCC certification for OG-300 system.
9. Required Solar Savings Fraction – This is a calculated field based on answer in A04.
10. Number of Collectors - From Certificate of Compliance CF1R-STH-01-E. N/A for OG-300 systems.
11. Collector Area (ft²) - From Certificate of Compliance CF1R-STH-01-E. N/A for OG-300 systems.
12. Water Heater Storage Volume (gallons) - From Certificate of Compliance CF1R-STH-01-E. N/A for OG-300 systems.
13. Secondary Storage Tank Volume (gallons) - From Certificate of Compliance CF1R-STH-01-E. N/A for OG-300 systems.
14. Collectors Angle from True North (in degrees) - From Certificate of Compliance CF1R-STH-01-E, or user input for OG-300 systems.
15. Collectors Slope from Horizontal (in degrees) - From Certificate of Compliance CF1R-STH-01-E, or user input for OG-300 systems.
16. Compliance Statement - This field is automatically populated based on the inputs to rows A08 and A09.

Section B. OG-100 Certified Collectors - the installed system shall meet the following eligibility criteria

1. Collector System orientation from true south is within 5° of the value listed above. Declination from true north for the site should be calculated and included in this measurement
2. Collector should be modeled with a tilt within 10° of the value listed above.
3. The system shall have the same collectors, pumps, controls, storage tank and backup water heater fuel type as the rated condition.
4. The collectors shall be located in a position that is not shaded by adjacent buildings or trees between 9:00 AM and 3:00 PM. Inspect site to determine if any structural component of the building, adjacent structures, or tree may shade the collector area.
5. Backup Storage tanks are insulated with either an internal R-13 (labeled on tank), or external R-16.

Section C. OG-300 Certified Systems - the installed system shall meet the following eligibility criteria:

1. Collector System orientation shall be within 35° from true south Declination from true north for the site should be calculated and included in this measurement.
2. Collectors should be tilted at a slope of at least 3:12.
3. The system shall have the same collectors, pumps, controls, storage tank and backup water heater fuel type as the rated condition.
4. The collectors shall be located in a position that is not shaded by adjacent buildings or trees between 9:00 AM and 3:00 PM. Inspect site to determine if any structural component of the building, adjacent structures,

Section D. Sizing Compliance with Multifamily Central System Prescriptive Requirements

1. For climate zones 1 through 9 only - the solar system has an annual solar savings fraction of 0.2. For climate zones 10 through 16 only – the solar system has an annual solar savings fraction of 0.35

Section E. Mandatory Measures for Solar Water Heating Systems

1. Verify that collectors are SRCC certified.
2. Verify that all storage tanks that are part of the solar system are insulated with either R-12 external insulation or labeled that they have at least R-19 internal insulation.
3. Verify that all piping in the solar system meets minimal insulation levels per §150.0(j)2A.