



FLORIDA SOLAR ENERGY CENTER®

Creating Energy Independence

FSEC Standard

Operation of the Solar Thermal Collector and System Certification Program

FSEC Standard 101-15

December, 2015

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1.0 Purpose

This Standard sets forth criteria for solar thermal collectors and systems to be certified by the Florida Solar Energy Center (FSEC). FSEC certification, as required by Florida Statute, §377.705, ensures compliance with minimum quality and design standards and rates solar thermal collectors and systems for performance.

2.0 Scope

This Standard applies to all solar thermal collectors and systems manufactured or sold in the State of Florida.

3.0 Definitions

The set of terms in this section defines their meaning with respect to this Standard and their application to the testing and certification program.

Solar Thermal Collector - A device designed to absorb incident solar radiation, to convert it to thermal energy, and to transfer the thermal energy to a fluid coming in contact with it. Sometimes referred to as *solar collector* or simply *collector*.

Solar Water Heating System - Domestic water heating system obtaining at least part of its thermal energy from incident solar energy. Sometimes referred to as *system*, or *solar thermal system*.

Withdrawn – the voluntary cancellation of a certification or certification application by the certification holder, or; the cancellation of a certification by FSEC due to failure to pay renewal fees or noncompliance with FSEC standards.

4.0 Operating Guidelines

This section describes the requirements for FSEC certification of solar thermal collectors and systems. Two types of certification are required. The first type is Collector Certification. The Collector Certification program certifies that all solar thermal collectors manufactured or installed in the State of Florida meet a set of minimum requirements. These requirements are intended to ensure that:

1. The collector is of sufficient quality to withstand the intended operating conditions,
2. The collector performance has been tested and described in sufficient detail to allow prediction of system performance.

Collector certification is required for all solar thermal collectors sold and installed in the state of Florida. Examples of applications that require collector certification include, but are not limited to:

- Domestic water heating systems
- Pool heating systems
- Commercial and industrial applications
- Space heating systems
- Pre-heat applications
- Combined PV/Thermal (PVT) systems
- Combined heat-pump systems

The second type of certification is System Certification. The System Certification program is required for residential domestic water heating systems manufactured or installed in Florida. The system certification program certifies that a system meets a set of minimum design requirements with the annual solar thermal system performance rating estimated by a system Solar Energy Factor (SEF).

4.1 Collector Certification Requirements

Solar thermal collectors shall be certified by the Solar Rating & Certification Corporation (SRCC) in accordance with SRCC Standard 100 or the International Association of Plumbing and Mechanical Officials (IAPMO) in accordance with SRCC Standard 100.

4.1.1 Former Florida Certification Programs

Any collectors certified under previous FSEC certification programs will remain active until the certification expires or is withdrawn.

4.2 Collector Ratings

Certified solar thermal collectors are issued performance ratings under a variety of operating conditions so that performance may be estimated under various operating conditions, and so that performance may be compared across similar products.

Collector ratings shall be assigned by the certification body in accordance with SRCC Standard 100 and SRCC RM-1 or IAPMO/ANSI Standard S1001.4.¹

4.3 System Certification Requirements

Solar thermal systems shall be certified by the Solar Rating & Certification Corporation (SRCC) in accordance with SRCC Standard 300 or the International Association of Plumbing and Mechanical Officials (IAPMO) in accordance with SRCC Standard 300.

4.3.1 Former Florida Certification Programs

Any systems certified under previous FSEC certification programs will remain active until the certification expires or is withdrawn.

¹ (Informative Note): Collector ratings provide an estimate of collector performance (energy production) under a variety of pre-defined operating conditions. These ratings provide a basis to compare one product to another and an estimate of the potential energy savings. The SRCC and IAPMO provide collector ratings for several applications and climate categories. Collector ratings based on previous FSEC certification programs or any other Florida-only certification ratings should not be compared with current SRCC or IAPMO ratings because the rating methodologies are different.

4.4 System Ratings

Certified solar thermal systems are issued system performance ratings for various locations so that energy savings may be estimated and performance may be compared across similar products.

Solar thermal system ratings shall be assigned by the Certification body in accordance with SRCC Standard 300.²

Where ratings are needed for the Florida Energy Code using Florida Energy Factor (FEF) calculations, the Solar Energy Factor (SEF) provided by SRCC or IAPMO shall be used for the nearest, or otherwise most similar Florida city.

5.0 Verification

Collector and system certification may be verified in the FSEC rating database accessed online at <http://www.fsec.ucf.edu/en/certification-testing/solarthermal/index.htm> or on the SRCC ratings database accessible on the SRCC website at <http://www.solar-rating.org/ratings/index.html> or on the IAPMO website at http://pld.iapmo.org/solar/rated_listings.aspx. The user must follow the “Ratings” link to access individual certifications. Each certified collector and system is issued a rating, and a certificate is generated summarizing the certification. Collector and system ratings may be verified using the unique certification number issued by FSEC or SRCC, or by searching by manufacturer or system/collector type.

6.0 Product Labeling

A label verifying certification must be present on all solar thermal collectors. Labels demonstrating SRCC or IAPMO certification are sufficient to demonstrate compliance with the FSEC standards. The label shall contain basic product and certification information sufficient for a consumer to verify compliance with the certification program.

² (Informative Note): System ratings are intended to provide an estimate of actual system output on an annual basis for the certified system. These ratings are provided for a variety of Florida cities. Actual system output will vary based on several factors including: amount of hot water used, time of use, system orientation and shading, installed pipe configuration and insulation, quality of installation, and other site specific characteristics.