

## **COUNTRY REPORT: FRANCE**

Prepared by:

CSTB

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This short report includes a brief description of the most important elements in France regulations and certification/subsidy schemes related to solar thermal products is given here below. The description is valid for September 2010 <sup>1</sup>.

## **Regulatory Framework**

There are many rules/regulations directly or indirectly applicable for solar thermal systems/components in the French regulation.

### Building Regulation (general)

The general regulations for installation have to be fulfilled (concerning e.g.: plumbing, electricity, roof tightness, etc.). Concerning the way to install a collector on a roof, a specific standard for solar systems installation (DTU 65.12) has to be fulfilled. Concerning roof integrated collectors, there are many (more than 10) installation rules for different kind of tiles that have to be fulfilled. There are also specific rules for mounting collectors on flat roof.

### Building Regulation, Thermal regulation

An energy performance regulation is applicable on building. A new release of this regulation has come into effect in 2006 and applies to both residential and non residential buildings. This energy performance regulation includes a "Calculation method Th-C" where the energy performance is expressed as a coefficient "C" (kWh/m<sup>2</sup>/year). The requirement is that C must be less than a reference coefficient Cref<sup>2</sup>. Solar thermal systems for domestic hot water or space heating are implemented in the calculation method and they will have to fulfil the requirement  $C < C_{ref}$ . The characteristics of the solar components according to standards - EN 12975 and 12976 - are taken into account in the calculation method. However if the solar component is not certified, a penalty is applied on its characteristics. This certification could be the CSTBat, the Solar Keymark or others.

In the future regulation, RT 2012, applicable on July 2011 for non residential buildings and on January 2013 for all types of new buildings, there is no more Cref depending on the shape of the building but a Cmax (the yearly maximum consumption) which is 50 kWh/m<sup>2</sup> (average value however depending on the building location and its use).

### Fire-regulation

There is many fire regulations In France (depends of the building type or use). The most important for solar system is that the cover of building must be protected from external fire and must not facilitate fire transfer. The requirement is especially high as far as the façade of a building open to the public is concerned while a solar collector on the roof of single family roof is subject to light requirement.

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<sup>1</sup> The original report was published in 2007 and was developed in the framework of the project Solar Keymark II with the support of the Intelligent Energy Europe programme.

<sup>2</sup> Cref depends on the shape of the building and on the system type

A classification of system use shall be done by test or with the different class of materials used. For solar collector/systems this classification is done in the Technical Assessment (see next page). For some kind of collector that could lead to a fire test (plastic cover for example).

#### Sanitary water-regulation

All products in water installations have to be approved by the French Ministry of Health. This regulation is covering many kind of material or fluid. Ministry of Health is editing regularly a list of product and material allowed. There is no relation between this list and other European regulations. For solar system this have to be taking into account for all pieces in contact with sanitary water and also for anti freeze fluid when the exchange with sanitary water is done with only one barrier. To avoid risk of scalding, the temperature of use at the end user shall be limited to 60°C in houses (this will change in the near future to 50°C).

#### Wind and snow load-regulation

The calculation of snow and wind load is done in France in accordance with NV65 (DTU P06-002). This calculation rule is applicable by the regulation in the "public call for tenders code". The results are, in standard cases, quite similar to Eurocodes. For solar collectors, the calculation defines a minimal admissible pressure that collector has to withdraw without any permanent deformation or even worth failure.

#### Safety

A specific regulation is applicable to collectors because they could raise high vapour temperature. In practice, because the volume is <than 25 litres, most of collectors don't have to fulfill anything.

### **Public Incentives (subsidies, ordinances or other)**

Two forms of financial support exist for Solar Thermal. One is for individual houses and the other for apartment and service sector buildings.

#### Homeowners tax credit

This financial measure is a tax credit for homeowners and not a reduction of the tax. Therefore, people who do not pay taxes can still receive a payment. The amount of the subsidy is half of the equipment price before taxes and does not include installation. The tax credit is applicable for heating and hot water solar systems with CSTBat or Solar Keymark certified collectors. Unfortunately, monitoring is not required and so the heat production from this initiative is not measured and recorded.

#### Fonds chaleur "heat funding"

This financial measure supports the production of hot water in apartments, office buildings, hotels and swimming pools. A minimum of 50 m<sup>2</sup> of collectors is required to be eligible, and heating and cooling solar system are not eligible for the "fond chaleur". This subsidy is proportional to the heat production and the location of the building within the country. A

certain amount of the subsidy is granted for monitoring so that energy performance can be measured for a ten year period. The collectors must be CSTBat or Solar Keymark certified and the building must comply with the French thermal heating regulation. Contrary to the tax credit, this subsidy scheme provides a financial incentive to measure the solar heat production.

#### Other subsidies

Regional or local subsidies complement the national subsidy scheme. All together, subsidies can represent from 40% to 80% of the total cost. A list of all possible national and regional subsidy schemes can be obtained at (in French): <http://www.enerplan.asso.fr>

## Testing

Test required in the French scheme:

- On solar system, the thermal performance test (EN 12976 / ISO 9459-5)
- On solar collector, EN 12975-2 thermal performance test, EN 12975-2 quality test (not all, depends of the type of collector), mechanical load done in accordance to EN 12211 and a specific ageing test.
- In France, for the moment only CSTB is recognised to perform thermal performance tests of solar collectors but test results from most European test labs are accepted.
- For solar thermal systems, two lab (CSTB and Belenos) are recognised to perform thermal performance test according to ISO 9459-5 (DST method).

As far as Solar Keymark is concerned CSTB will be soon recognised for testing (2011).

## Certification

#### Product certification:

- Product certification: A national certification scheme for solar thermal products exists (CSTBat mark). As far as forced circulation solar water heaters are concerned, a new certification scheme (NF-CESI) exists since may 2010
- CERTITA is a certification body created by CSTB and other laboratories for HVAC systems. It delivers Solar Keymark and NF-CESI.
- Contact point for certification:  
Sophie Bocquillon ([s.bocquillon@certita.fr](mailto:s.bocquillon@certita.fr))

#### Installer certification:

- There is voluntary certifications scheme for installers but they are not specified for solar thermal systems.

## Insurance

In France there are 2 years and 10 years insurances of building. Both of them are affected by the installation of solar thermal systems (for example problems on the roof, bad performance, etc.). Installers shall have an insurance to work in that field. In some case, manufacturer could be "solidarily responsible". It is not easy to give any rules about that because, in most cases, it's depends on court decisions.

## Other relevant information

### Technical assessment

A Technical Assessment issued by an inter-ministry committee, called "Avis Technique", could be given on systems, materials, elements or equipment used in building. This procedure is not mandatory.

Technical Assessments are formulated and issued under the conditions set by the inter-ministerial departmental order of December 2, 1969 and the Internal Regulations of the Commission in Charge of Issuing Technical Assessments, approved by the Ministry of Equipment and Housing.

This Technical Assessment is given on the product (or system) and on installation methods.

For each of the uses proposed, and taking into account the conditions specific to the location of use, the Technical Assessment expresses:

- a) the assessment that the product or system in question satisfies the laws and regulations in force;
- b) indications concerning durability:
  - either that this durability can be assessed: in this case, the Technical Assessment indicates the points of comparison with other products or systems which are already known, or;
  - that it cannot be assessed: in this case, the Technical Assessment indicates whether the system is nevertheless promising enough so that experimentation with it can be recommended;
- c) the assessment of the suitability for use based upon criteria other than those alluded to in (a) and (b);
- d) the indication of the level of qualities which are not determinant in the assessment of the suitability for use, but of which the builder should be aware.

## Trade Barriers

- Extra tests needed for French subsidy scheme.
- Difference between the French requirements and the European standards and certifications

## Actions needed

The actions needed for:

- Improving standards to limit extra tests for French subsidy scheme.
- Improving Solar Keymark schemes for a better quality level.
- Harmonizing the French requirements with European standards and certifications
- Implementing - with respect to solar thermal systems - the European directive on energy performance of buildings and energy labelling of hot water tanks

are listed below:

### Regulation

- No major trade barriers are existing in French building codes.

### Rules

- Make a Technical Description of what is needed for France concerning roof integrated collectors to avoid a specific Agreement in that field.
- Go on the way of revision with French installation rules (DTU 65.12) to take into account EN 12975 and EN 12976.

### Subsidies

- Get inspiration from other countries concerning effective subsidy schemes.
- Investigate possibilities for implementing a “green heat certificate” scheme allowing also small solar heating systems to sell CO2 emission allowances. This certification should make use of the European standards and certifications like the Solar Keymark.
- Define a common European methodology to assess the thermal performance of solar thermal systems in order to grant only high energy performance systems.

### Testing

- Improve ageing test: The actual exposure test is very poor (30 days at 14MJ). We have to find a good compromise between all European countries to get a good test of ageing and to avoid test that could be done in only one location (like in France at this time).
- Improve mechanical load test: The Eurocode or other rules (like NV65 in France) are giving pressure highest than 1000Pa (minimum level in the collector standard) in many cases. We have to work on that field to find a solution acceptable by manufacturer to avoid test done on higher pressure for elsewhere then where the test was done.
- Improve the use of thermal performance test for certification: We have to be confident in the reproducibility of test between different laboratories and different methods (particularly in thermal tests). For collector, we propose to extend the round robin test done by DIN Certco. For systems, we have to discuss the certification scheme when different methods are used (CSTG / DST) and to find good compromise in this field.

### Certification

- Define uniformized certification schemes for solar thermal systems. A collaborative work with other certification bodies is underway to improve these schemes rules and to establish agreements between certification bodies.

### Insurance

- Insurance companies are still reluctant to accept solar keymarked products because a deficit of information on these product is still existing (durability, safety ...).

### Other

- Improve awareness upon solar keymarked products through communication to make them more familiar to non specialists.
- Participate in the work on the energy-labelling scheme for (solar) hot water tanks according to Mandate 324.
- Make national workshops, disseminating status and results of the project to the interested parties / target groups not already involved directly in the project.
- Promote Solar Keymark from the European solar thermal platform.