

FRANCE

Status

A brief description of the most important elements in French regulations and certification/subsidy schemes related to solar thermal products is given here below. The description is valid for November 2007.

Rules and Regulations

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/m²/year). The requirement is that C must be less than a reference coefficient C_{ref} (C_{ref} depends on the shape of the building and on the system type). 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.

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 from other building. 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 fulfil anything

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 interministerial 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.

Subsidies

Since 2005, direct subsidy scheme for solar thermal applications has been replaced by a tax income rebate applying on the material cost (installation cost is not considered). In 2006 the tax rebate rate has been brought to 50% (instead of 40% previously). Conditions to get access to this tax rebate are as follows:

- **Solar collectors have to be certified.** Only solar collectors having either the French national certification CSTBat or the European certification Solar Keymark are accepted.
- The installation has to be done by a **qualified professional having signed the "Qualisol" quality chart.**

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 / ISODIS 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, two test labs are recognised to perform thermal performance tests of solar collector (ARMINES, CSTB) but test results from most European test labs are accepted. For solar thermal systems, only CSTB is performing thermal performance test according to ISO DIS 9459-5 (DST method).

Certification

- Product certification: A national certification scheme for solar thermal products exists (CSTBat mark).
- Installer certification: There is voluntary certifications scheme for installers but they are not specified for solar thermal systems.
- No French certification body is empowered for Solar Keymark.
- Contact point for certification: Franck Cheutin (franck.cheutin@cstb.fr)

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 "solidary responsible". It is not easy to give any rules about that because, in most cases, it's depends on court decisions.

Others

- NF performance labelling on electrical hot water tank.

Actions taken in the project period

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

- A European standard procedure for calculation of the influence of solar thermal systems on the energy performance of buildings has been adapted by CEN. The EN 15316-4-3 standard will be implemented in the next release of the building energy performance code in France..
- Implementation of a CE marking scheme for solar collectors and solar systems to be consistent with the EPBD.

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

- Propose CSTB to be empowered in Solar Keymark;
- Having collaborative work with other certification bodies to improve Solar Keymark schemes rules and to establish agreements between certification bodies.

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.

Others

- Implement the European procedure for calculation of solar thermal systems in the French energy performance building code.
- 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.

Remaining trade barriers at the end of the project

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..

Subsidies

- Although significant efforts have been done, uniformization of subsidy schemes at regional or local level is still underway. Some regions are still basing their subsidies on local requirements..

Testing

- France is still performing ageing test using its own methodology (exposure test over 1 year). All other mechanical tests are now complying with EN 12975-1 and 2.

- Up to now, solar thermal systems tested according to ENV 12977 (custom-built solar systems) are not recognised to get funding..

Certification

- France has its own certification scheme for solar thermal systems based on the DST method (ISO DIS 9459-5).
- CSTB is not empowered in Solar Keymark yet. .

Rules

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Others

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

Action needed to overcome remaining trade barrier

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

- The EN 15316-4-3 standard will be implemented in the next release of the building energy performance code in France.

Subsidies

- In 2009, only solar thermal systems having being tested according to NF EN 12976-2 will be granted.

Testing

- Ageing test: Define a uniformized test taking into account all climatic influences.
- Technical Specifications (CEN TS 12977-1,2,4,5) should be transformed and published as EN standards.

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.

Rules

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Others

- Improve awareness upon solar keymarked products through communication to make them more familiar to non specialists..