



Thermal Regulation of buildings in Guadeloupe

-RTG-

LOCAL REGULATION FOR ENERGY EFFICIENCY IN THE BUILDING SECTOR

The Building sector : a critical energy issue for the island

AN INNOVATIVE APPROACH

The introduction of a Thermal Regulation (RT) for buildings in the French West Indies departments is very recent. This regulation came into force in May 2010, thus filling a real gap.

However, the very first version of the regulation remained limited in several aspects :

- It was limited to a set of constraints regarding the means to employ in the construction process. Based on this observation, professionals of the building sector clearly expressed the wish to receive increased flexibility and switch to an obligation of results;
- Its scope was limited to new housing constructions;
- It did not address all the requirements made by the European Directive 2010/31/UE ;

Based on these observations, the Regional Council of Guadeloupe used his ability to produce local regulation to address the aforementioned issues and benefit from the latest advances of the 2012 Thermal Regulation (RT) that recently came into force on the mainland..

The Region Guadeloupe is now the very first among French regions to possess its own specific Thermal Regulation. The RTG is considered as a real asset for the professionals of the building sector in Guadeloupe as they evolve in a unique technical framework in the Caribbean...

The housing sector is the second energy consumer in Guadeloupe, after transportation. Energy consumption in dwellings is estimated at more than 950 GWh, mainly in the form of electricity. Households account for approximately 50% of the total electricity consumption in Guadeloupe. Including the tertiary sector, nearly 60% of the electricity demand in the island comes from buildings.

Electricity demand has been on a constant growth for the last 10 years, driven by the rise of domestic hot water and air-conditioning equipment rates, and the growth in the number of households and single-parent families. Yet, this trend is not meant to curve in the short term in the light of the remaining potential.

This configuration, at the complete opposite of what can be observed on mainland France, implies fundamental issues for the territory. First, from an environmental point of view, 85% of the electricity produced in Guadeloupe is generated by fossil fuels and greenhouse gas emissions in buildings are considerable. Economically, the production costs of electricity, in Guadeloupe and other French overseas territories, are very high due to the size of the installations.

Yet, technical solutions are available : solar power could provide enough energy to produce domestic hot water for all the island, and allow the production of electricity that could be directly used by the consumer (auto-consumption based on photovoltaic installations). Moreover, "good constructions", where natural ventilation and limited energy consumption for air-conditioned spaces prevail, should help to tackle the growth of energy demand.

The Thermal Regulation instituted by the Regional Council of Guadeloupe aims to bring the building sector on the way toward energy excellence. Moreover, the freedom allowed to building designers to choose the best approach, thanks to the obligation of results, stimulates the development of innovative technical and material solutions.

KEY FIGURES

60%

The share of electricity demand of buildings in Guadeloupe.

+30%

The rise of electricity demand in the island over the last decade.



A regulation produced through a consultation process

The Regional Council of Guadeloupe expressed its willingness to perform significant achievement in the field through the wide consultation process set up with professionals and actors of the building sector. The goals of the consultation are :

- The expression of all stakeholders ;
- The valorization of local expertise ;
- The discussion of different points of view on the basis of the agenda set by the Regional Council ;

Several workshops on different topics have been organized with the professionals of the building sector. The composition of those

workshops has been thought to reflect the different positions and to discuss expectations and interests of all. In addition to these meetings, a web site (www.guadeloupe-energie.gp) allowed to exchange technical documents, such as the dedicated calculation tool, and even continue technical discussions through a specific forum.

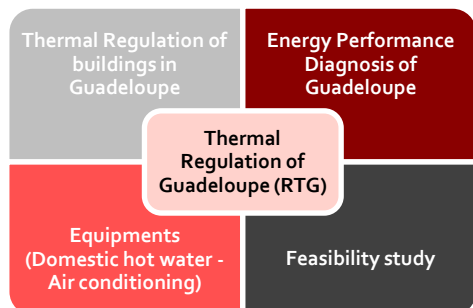
In order to ensure a proper use of the regulation, the Regional Council maintains a constant dialog with those primarily concerned: the professionals. Therefore, feedback sessions are frequently organized to ensure a continuous improvement of the regulation.



A comprehensive regulation system

The Thermal Regulation of Guadeloupe ("Réglementation Thermique pour la Guadeloupe" RTG) replaces the thermal part of the RTAADOM. It sets requirements meant to improve the energy efficiency of buildings by including local specificities of the archipelago, such as climatic, geographical or topographic conditions.

In compliance with the european regulation, all the requirements are structured according to 4 topics :



- **The building :** The Thermal Regulation of Guadeloupe introduces an obligation of results, constituting an improvement compared to the RTAADOM, based on an obligation of means. Professionals have more freedom in their choices. The obligation of results for buildings is based on 2 indicators:

- The ITC: providing the level of thermal comfort in a housing without air conditioning
- The BBIO: providing the cooling load for rooms with airconditioning

- **The Energy Performance Diagnosis of Guadeloupe (DPEG) :** is an audit system for buildings, based on their energy efficiency. The procedure complies with european requirements and had never been transposed to french overseas territories before. It provides informations to the future tenant or owner about the estimated energy consumption of the housing.

- **Equipments :** (water heaters, air-conditioning,...) The RTAADOM introduced the obligation of installing solar water-heaters in new housings. This obligation has been confirmed by the Thermal Regulation of Guadeloupe. As far as air-conditioning is concerned, the thermal regulation of Guadeloupe prevent units less performant than class A ($EER_i > 3,2$) from selling, thus influencing the market towards energy performance. In 2005, the standard EER of new equipments sold was estimated to 2,5.

- **The feasibility study :** a feasibility study for the construction or refurbishment of buildings with a surface of 1 000 m² (10 764 sq ft) or more is mandatory. The study will provide multiple technical and financial estimates on the possible solutions to adopt for air-conditioning, domestic hot water and energy production.

The Thermal Regulation of Guadeloupe came into force through its publication in the Official Journal of the French Republic, on the 20th of May 2011. Since then, the Regional Council of of Guadeloupe has provided all the necessary

materials required to facilitate its implementation. Such as :

- Calculation tools and simulators for professionals;
- Communication tools, printed or web-based;
- Certification of auditors in charge of establishing Energy Performance Diagnosis of Guadeloupe. At present, nearly 30 diagnosticians are carrying out DPEG in Guadeloupe.

On the basis of this regulation and inspired by the existing BBC label on mainland France, the Regional Council of Guadeloupe is now considering to develop a energy performance of buildings label specific to the French West Indies.



FOR MORE INFORMATION

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¹ EER = Energy Efficiency Rating