PASSIVHAUS AND NEW FRONTIERS OF SUSTAINABLE CONSTRUCTION IN SPAIN

In Sant Joan de Labritja in Ibiza (Spain), Terravita company is building a house which has been designed under maximum international standards of energy efficiency and environmental sustainability.

The *passive house* called *Can Tanca*, reduces by 80% the need of air conditioning regarding similar houses, and comply in full its demand of energy with the solar sources installed only. The house presents a high thermal insulation, avoiding the circulation of uncontrolled internal air.

The constructive style of Ibiza has inspired the house. Over reinforced concrete foundation, the structure is made of a lightweight wooden framework. Also the fibreboard insulations are 30 centimetres thick, incorporated in the roof and the facade, finished in plaster. The exterior carpentry is double and triple low emissive glazing.

In summer, outdoor blinds and vegetation protect it from heat and night natural ventilation can keep the house cool. For air conditioning has been installed a mechanical ventilation system with an enthalpic dual-flow heat recovery, a battery for cold together with a 14 m2 of refreshing roof radiant ceiling panels work on cooling. It is powered with aerotermia, renewable energy that also heats the water in the house.

Can Tanca is a zero energy building: It is totally disconnected from the power grid, providing more renewable energy than consumed. Through a photovoltaic installation on the roof it is energy self-sufficient. To ensure an uninterrupted supply of electricity, it has a battery storage system capable of supplying the house even in less sunny days. It has been designed an automation system to optimize energy use. It is also installed a rainwater collection and treatment system that allows domestic supply.

Another aspect to note is the speed in work execution, which requires only eight months in total.

The project design and construction of this sustainable and innovative house has attained the goal of combining maximum energy savings with reduced environmental impact, with a high level of

interior comfort in a healthy space. All this is made according the local traditional architecture style.

Taking into account the achieved significant results, the Terravita Company decided to start the process to obtain the Passivhaus Premium Certificate and the environmental seal BREEAM Exceptional. Only three other building in the world obtained the Passivhaus Premium Certificate that credits low energy inputs needed to enjoy a comfortable temperature in the house throughout the year. The BREEAM Exceptional certificate recognizes the highest level of sustainability in construction. BREEAM assesses the impacts in 10 areas (management, health and wellness, energy, transport, water, materials, waste, ecological land use, pollution and innovation) and its analysis covers the entire life-cycle of the building from its design phase, through construction and uses.

The achievement of this high level certification process will undoubtedly be presented on the website of the company Terravita. Meanwhile, the results of this innovative work represent a challenge for all stakeholders involved in the sector of sustainable construction. The construction sector, according to data from UNEP, has a significant influence on the generation of gases that causes global warming. The European Union alone is responsible for 40% of energy consumption and 36% of CO2 emissions, and open innovative paths in this area is a priority for a more sustainable future of the entire planet.

To know more

Terravita website

Terravita in Twitter.com

Passive House Institute

Plataforma edificación passivhaus

Passive Hause classes in passipedia

Breeam website

Article in ecohabitar.org

Article in madera sostenible.com

Article in hausehabitat.es

Passive house in wikipedia

Passive house in issuu.com