

# Sustainable architecture

## What is sustainability?

Norway's former Prime Minister Gro Harlem Brundtland introduced the concept of sustainable development in 1987. Commissioned by the UN, he was the lead author of "Our Common Future", a document which defined sustainable development as "...development which meets the needs of current generations without compromising the ability of future generations to meet their own needs...".

## How is sustainability applied to architecture?

In order for a building's footprint to be as light as possible, according to the concept of sustainable development, the natural (and renewable) resources and climate of the project site need to be maximised in order to lessen the impact on "non-natural" (or non-renewable) resources. Emphasis needs to be put on three areas in order to have a truly sustainable building:

- Environmental sustainability
- Economic sustainability in both in the construction and use phases.
- Social sustainability

## Basic parameters of sustainable architecture

### Implementation

- Use the site's natural resources: sunlight etc.
- Protect against prevailing winds
- Don't destroy the site's natural resources
- Use existing public transport networks
- Prevent light pollution.

### Energy

- Reduce the building's energy consumption to a minimum
- Support energy production via renewables
- Minimise emissions of substances that are harmful to the ozone layer.

### Indoor air quality

- Eliminate products containing harmful substances (VOCs, chemical agents)
- Promote thermal comfort for users
- Promote visual and lighting comfort for users.

### Materials

- Optimum waste management, in both the construction and use phases
- Reuse building materials
- Use natural, recycled or regional materials
- Use materials with environmental certification (FSC wood, etc.).

## Water

- Minimise water consumption
- Reduce use of drinking water
- Incorporate onsite water treatment systems.

## Regulatory framework

Although European regulations have arrived at a juncture where sustainability now plays a key role in all professional disciplines, particularly in architecture, Spain has unfortunately not followed in the same direction, or at least not at the same pace as the EU as a whole; and certainly not as much as the northern and central European countries that have been leading the way for a number of years.

The European directive 2010/31/UE of 19 May 2010 states that from 31 December 2020 all new buildings must be Nearly Zero Energy Buildings (nZEB). This means that the bulk of their energy requirements need to be sourced from onsite or nearby. This requirement has been brought forward to 31 December 2018 for public buildings.

Therefore it is obvious that sustainable architecture, especially when energy efficient, will become an obligation and not a choice in the near future. A few EU member states like Belgium have brought forward the requirement for nZEB buildings to be built to 31 December 2015 in addition to the adoption of the German 'Passivhaus' standard (buildings with high levels of insulation, airtightness and minimal external energy input for heating or cooling).

The latest revision of the CTE (Technical Building Code) has set down more stringent parameters than the first document published in 2006 but is still a long way from meeting the requirements of the EU directive described above.

