

NEW GREEN HOMES
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Sustainability

Global warming and the energy crisis are topics of great current significance and there is no doubt they are foremost in the minds of world leaders and authorities, and in public opinion in general. Sustainability is an issue that has come to the fore, although it is still not clear what this concept implies and whether it can be applied to all fields. What is important is awareness of these problems and how architecture can provide efficient response in a globalized world.

Can we claim that sustainable architecture exists? Is there enough awareness of the real urgency that exists for us to be able to respond to the demands of society?

I have my doubts. Discourse seems more important than convictions right now. Only real demand coming from society can bring about large-scale research and, consequently, drive us towards changing the current situation.

It is an undeniable fact that architects are presented with opportunities when it comes to creating our designs. We have the real and unavoidable responsibility to solve these problems in the measure of our technical and economic resources.

Nations face a very different reality. Some are equipped with technical and economic advantages, but also drawbacks, such as the lack of fossil fuel resources (oil and gas) and the high costs involved in satisfying increasing demands for development. However, this disadvantage can be turned to our advantage as it provides an OPPORTUNITY to use our imagination and find substitutes in passive energies, and other forms of energy that climate and nature have blessed us with.

Bioclimatic systems are alternatives that contribute to protecting the environment, saving energy, and improving our quality of life. There is no need to be overly complex. If we observe the ingenious solutions achieved by local architecture in different areas of the planet, we will have greater success and come that much closer to finding the appropriate solutions in our designs, which does not mean overlooking other solutions in this broad field of research.

The use of geothermal and wind energy systems to condition large industrial sites has produced good results in recent projects in a number of countries that are now at the international cutting edge (as is the case of Chile in South America). These projects have achieved remarkable energy efficiency levels compared with what had normally only been empirical exercises. Owing to their large size, industrial buildings permit interior environments to be controlled more effectively; they use more energy, and production costs accurately reflect this use.

Dwellings involve other complexities, and finding new solutions to them has become a matter of urgency. A large number of sustainable dwelling projects are being developed with sustainability parameters that range from the use of passive systems (solar energy and light, natural ventilation, etc.) to more complex technologies, such as computerized systems for solar shades on façades and the quest for greater energy self-sufficiency. Homes have different variables, such as size, location, and end use, influenced by different customs and cultures.

Development of dwellings must combine many qualities: they must adequately satisfy demand, provide solutions to the setting (urban and geographical environment), seek beauty and rational use of resources (natural, material and economic resources), respect cultures, and provide quality of life to people.

Architecture can offer imaginative responses to the challenges brought by global warming, and should be developed in a responsible manner by taking into account the problems facing the planet and attempting to produce the least impact on the environment and the immediate surroundings.

Guillermo Hevia Hernández is a Chilean architect who specialized in sustainable architecture at the Catholic University of Chile. He has pioneered solutions for large complexes and individual projects, for which he has received national and international recognition and prizes. Planta Cristalchile, one of his latest projects, received the distinction of *Highly Commended* at the World Architecture Festival held in Barcelona in 2008.

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Mount Hotham House

Giovanni D'Ambrosio

Location **Mount Hotham, Victoria, Australia**
Surface area **2,690 sq ft**
Construction **2007**
© **Giovanni D'Ambrosio**

Built using steel, concrete, wood and local stone, the structure of this house is inspired by the architecture of Frank Lloyd Wright. The project had to fulfill a number of conditions. In addition to using local materials and typical features of the buildings in the area, it had to be comfortable in both summer and winter. Unlike most mountain houses, where windows are typically completely covered with blinds or curtains, this design makes great use of transparency. Large floor-to-ceiling windows allow the view to be enjoyed and merge the interior with the exterior.

The dwelling is divided into two levels. The lower level is given to common spaces, and from here it is possible to see the landscape framed by the windows and to access the deck. The upper floor contains two bedrooms, one of which is equipped with a spa.

There is a shelter in the car park. It is designed to be used during winter, when rain, snow, low temperatures and occasional storms predominate.

The project was developed with the requirement to produce the minimum impact possible on the natural environment. The roof is made of sheet steel and has significant thickness for the thermal insulation. Brown was chosen in its color scheme to favor insertion of the building into the landscape.

Faucets with water-saving systems



Natural materials and materials with low environmental impact



Flat terrain



Temperate wet without a dry season

