Holcim Awards 2005

A Library - Accordance to Sustainable Guidelines, Medellin, Colombia

Comment of the Holcim Awards 2005 jury for Latin America

The project is commended for advancing a strong tectonic initiative that promotes the particularities of the culture and significantly contributes to improving the degree of ethical standards and sustainability in the region. The proposed use of indigenous materials is a commendable measure for considerably lowering implementation costs and for stimulating the local economy. Energy conservation and thermal comfort for the users is achieved by a competent use of passive design, which includes such features as a double skin roof and walls. Also contributing to the performative efficiency of the building is the situational strategy that takes advantage of solar heating throughout the year. The scheme promises to make a beneficial impact on the surrounding context, raising awareness of the potential of sustainable construction while providing an aesthetically refined social attractor. It is convincing in the measures taken to increase cost efficiency and proves that conventional standards of durability need not limit formal attractiveness or finesse. The work is successful in giving lucid, material expression to environmental forces and also serves to display the latent capacities inherent to vernacular techniques of construction.

Project description by author

Aims
To design a library building in accordance to proper sustainable design practice.

Attitude
The project considers the social and cultural benefits of a correct integration of the constructed environment. Accordingly, its sustainable architecture suggests the replacement of the mechanical-technic, artificial manufacture of space with a generative sensorial approach, layering sensations and enoding the environment to convey the architectonic form. In the developing world context, sustainability must be a means to manage the existing resources; this includes economical and social resources, thus although regarded as a landmark project it must become sustainable in a low cost manner. The main intention is to achieve a desired climate comfort utilizing passive cooling, thermal mass management and protection from direct solar radiation. These passive systems are a key factor when concerned in reducing cost because mechanical and energy intensive processes are omitted in the building through its life span.

As a first hand issue, local and traditional materials and constructive systems are implemented to reduce the initial investment although influencing in the best possible way the realm of the local economy providing employment in direct and indirect levels, and cutting cost and environmental harms by reducing transportation energy.

Location
Medellin, Colombia in a tropical upland climate close to the equator.
The immediate location is in Niquitao district sloped streets in.

Building
Given the program, orientation and sustainable design premises, the configuration becomes evident, the building gives way to a finger type arrangement resulting from a rigorous solar chart analysis allowing passively controlled solar access, permitting morning sun and shading in the afternoon and maximizing its relation with the environment and the natural forces that surround between them. Common spaces such as circulations, halls and lounge areas are opened as courtyards, verandas or shading canopies to receive maximum air flow. Well-illuminated shelter utilizing cross ventilation for cooling is provided to the coffee area, administrative offices, library and reading rooms. Spaces that require darkness such as the lecture theatre take advantage of stable underground thermal mass and use stack effect ventilation cooling. The layout arrangement begins (access) in the east where the best morning sun is received, then distributing uniformly different spaces towards the west, obtaining a homogeneous wind flow in each space of the building. Amenities and services are located in western end providing a buffer zone from the peak afternoon sun radiation. A double roof protects the horizontal planes where most of the solar radiation is received.

Relevance to target issues (by author)

Quantum change and transferability
The project proposes a proper sustainable design practice with every day technology and constructive systems. In the Medellin’s case, brick and on site concrete. Consequently, the subject is to apply these materials according to sustainable design, exploring the specific climate condition, utilizing wind passive cooling, thermal mass management and protection from direct solar radiation.

Ecological quality and energy conservation
Developing nations have low energy outputs and need a sturdy infrastructure that able to sustain an appropriate society. According to other realms, a structure of this kind may contain high levels of embodied due to the labor-intensive process. In the Colombian context, this is a benefit, providing employment and an extended life cycle with high resilience factors lowering maintenance factors.

Economic performance and compatibility
Cultural buildings are public institutions, these must propose sustainable thinking as an exemplifying measure on society within the duty of the government to encourage progress in the medium to long time span. In addition, the design proposes a simple structure that involves well-known local technologies and materials, which are cost efficient and durable, proven in the everyday usage.

Contextual response and aesthetic impact
The project suggests that the usage of natural forces as a medium to configure the built environment. The sources of these forces are not to be found in the commodity of novel construction and legislation codes. Nature in the everyday vernacular, the biological and original. It strives on common sense and simplicity. This design was explored in these terms as to find its proper art.