Low-energy university mediatheque, Rio de Janeiro, Brazil

Project description by author

The situation of the Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio) Mediatheque project takes into account the "two existing ground levels" as a proper arrangement for its dual program: 1) Book collection and administrative offices as the support building placed on lower ground lev- el (0m); and 2) Plaza providing access to the Mediatheque public building at upper-ground level (1m).

The roof of the support building is a reflecting pool. The plaza above is a natural extension of the existing plots (pier-supported) area, the most important meeting point on campus. The water is poured onto the slab as soon as it is cast in order to make it impermeable and free of any asphaltic membranes, etc. The product is choice for providing effective thermal insulation.

The book collection shelves are inside a glass enclosed area that forms a rectangular core surrounded by office spaces. The construction ensures that offices are always close to the windows and shelves and reduces the energy consumption for temperature and humidity control required by protecting the book collection from the outside by a double layer of single glass.

Visitors access the building foyer from the plaza by a half-level up-ramp. Although the plaza is placed on the upper ground level, it is also linked to the lower ground level by a ramp and stairs. The plaza interconnects the two different ground levels and also several paths in the area.

The main reading room is open to south and north, both properly shaded by sun sails. In order to prevent heating and direct sunlight, the longitudinal façades have no windows. This is a way of using the space outside of the building that works as a "natural lamp" where it is far from direct sunlight, the longitudinal façades have no windows. In order to prevent heating and direct sunlight, the longitudinal façades have no windows. In order to prevent heating and direct sunlight, the longitudinal façades have no windows. The design was selected in a competition organized by the PUC-Rio School of Architecture, the jury decided after having studied the proposals and also after a public presentation of each one of the architectural teams. The process and its result were widely publicized through the world media.

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Comment of the Holcim Awards jury Latin America

The PUC-Rio Mediatheque serves different purposes: it is both the knowledge base of the adjacent university campus but also is open to the public and offers educational programs to the residents in the nearby informal settlement of Favela da Rocinha. The support building acts as an attractive landmark demonstrating the high standard of Brazilian architecture and exploring ultimate construction technology its concept is driven by passive design elements such as proper orientation, heat insulation, a combination of natural ventilation and natural lighting which will contribute to a substantial reduction of the energy consumption despite the unusually high requirements regarding the interior climate for book and media preservation.

A further strength lies in the careful integration of the rather voluminous building into the sensitively landscaped surroundings. The project was commended as an excellent example of modern Brazilian architecture responding to the very different needs of academia and the public, and was created by a multidisciplinary team effort based on a sound strategy for passive thermal control.

Relevance to target issues by author

Quantum change and transferability
High-quality and innovative architecture, by considering the Brazilian modern tradition and exploring ultimate construction technology BIM (building information model) for architectural design development, coordinating all the designers team engaged in the project, checking performance with 3D models and also for providing records to future maintenance of the building.

Architectural proposal manages the results from several consultants and designers in each specific knowledge field in order to share solutions between two or more fields of expertise: e.g. water on the support building roof was incorporated by the landscape designer, for thermal control, to provide water for fire control system, and, finally, to ensure the impermeability of the concrete slab.

Ethical standards and social equity
The design was selected in a competition organized by the PUC-Rio School of Architecture, the jury decided after having studied the proposals and also after a public presentation of each one of the architectural teams. The process and its result were widely publicized through the world media. The access to the Mediatheque is NOT restricted to the university, it is open and free for everyone. Its social impact is enhanced due to its location on the Marques de São Vicente St, the main entrance to "Favela da rocinha". Stimulate education, access to multimedia information is probably the most impacting social action in Brazil.

Ecological quality and energy conservation
Design avoids import/export of soil. Replacement of an outside parking area by recovering a green area. Reflecting pool, façade system and natural ventilation as strategies for passive control of thermal performance. Low energy air conditioning system, will be completely turned off over four months per year high level of natural light inside combined with low energy lamps.

Economic performance and compatibility
NGO management for fund-raising program and budget administration. Paid by donors through 5% bonus federal program considering project approved by the Ministry of Culture. Approach provides a way to submit the project to society and also engage people in the process. The sustainability standards of the building ensure low ongoing maintenance costs to PUC-Rio.

Contextual and aesthetic impact
Footprint of the support building preserve existing trees. Reduced impact on surrounding building by retained and re-covered trees. Provides visibility to the Mediatheque as a way to give it identity as institution and also to stimulate reading and multimedia information access. Promotes a cultural building as a land mark for the city of Rio de Janeiro.