Millenium Biologix Headquarters, Kingston, Canada

Type of project: Headquarters for biotech firm
Start of construction: not known

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Project data

Project description by author

The building for Millenium Biologix in Kingston, Canada, will house the new headquarters for this biotech firm, as well as its production facilities. It will be the first component of a research park, the master planning of which is also being developed by Behnisch, Behnisch and Partner. The site, of triangular shape, encompasses ca. 2.4 ha. fronting Lake Ontario adjacent to the regional airport. The terrain has a gradual slope, dropping almost six meters down to the southern edge at lake side.

The overall scheme has been devised in response to the exceptional qualities of the site, in particular its relation to the lake. The master plan proposes an elongated, slender building typology, fully oriented to the south in order to take advantage both of the views and of natural daylight. The buildings are to be organized over a series of terraces, responding to the topography. The site sits on a limestone stratum, with shallow topsoil. This local condition will be taken advantage of in carving out the terraces, and the local stone would be used also for retaining walls as well as interior surfaces, echoing the natural, stratified formations of the lakeshore. The Millenium Biologix Building, initially of ca. 6,000 sqm expandable to 10,000 sqm, is organized around a central core, the “villa.” This is a two-story space, concentrating the main building and the communal aspects of the building: main entrance, administration, cafeteria, meeting and exhibition space, as well as delivery and storage. The research and production areas are organized within “wings” extending from this central space. These are single story extensions blending in with the landscape, maintaining a deliberately discreet appearance. A series of external terraces on the south side would create spaces for informal meetings and relaxation.

The project strives for minimal environmental impact, making use of natural means to achieve climatic comfort. The energy concept includes simple, easily implemented principles, as well as innovative technologies. Amongst the first would be the use of the central atrium for natural ventilation, and that of the limestone walls for the retention and dissipation of heat. Innovative technologies include in particular the use of the lake water, pumped in to the building, for stabilizing the interior climate. This is to be developed as a common energy concept for all buildings of the research park.

Relevance to target issues (by author)

Quantum change and transferability
The project makes use of innovative technologies for regulating the climate in the building, in particular through the use of a deep water cooling system. Lake water is to be pumped into the building, taking advantage of the stability of the water’s temperature. This would be one of the first buildings in Ontario to make use of this technology, in particular for privately funded projects.

Ecological quality and energy conservation
The energy concept, prepared in association with the Transsolar energy consultants, includes a natural ventilation scheme, a high performance envelope, a maximum use of daylight, as well as thermal storage elements in order to reduce energy consumption. Though relatively easy to implement and of low cost, these constitute innovative solutions in the given context and for the given program. This has been combined with a lake water system to control the building’s interior climate. The project also includes planted roofs for the research wings, using local grass species. The ecological concept extends to the landscaping of the site, providing for example for a controlled dissipation of rain water, through retention ponds and permeable parking surfaces.

Economic performance and compatibility
An operations cost study has been prepared in association with the Transsolar engineers. It is believed that the initial investment costs would be offset by mid- and long-term savings in energy-costs. The building, though expressive in its architecture, employs simple materials in its execution, resulting in costs comparable to typical office buildings.

Contextual response and aesthetic impact
The formal architectural vocabulary evolved in response to the qualities of the site, in particular the proximity to the Lake. In this context, it only seemed appropriate to design a unique building. The intent has been to create a working environment promoting the well-being of the staff members; the design integrates simple means of individual control over the environment, for example through self-operated windows with internal and external screening, as well as access to terraces from all working spaces.

Comment of the Holcim Awards 2005 jury for North America

The work is innovative in striving to implement solutions involving sustainable construction that are not necessarily high-cost. The energy concept includes the entire form of the building. The project displays a contextual sensitivity, responding poetically to the natural terrain and topographical setting. By proposing to utilize nearby lake water as the primary resource for a deep water cooling system, this scheme is important in promoting transferability and raising awareness of an available and renewable natural energy source. Of equal significance is the attempt to offset initial installation costs of the energy system with long-term calculations of projected savings. Deploying carefully considered technologies, the project is commended for pursuing minimal environmental impact while creatively making use of natural means to achieve maximum climatic comfort on behalf of the users. Such considerations are successfully extended to the landscaping of the site that provide for a controlled dissipation of rain water through the use of retention ponds and permeable parking surfaces. The effort to integrate the building with the environment results in an aesthetically refined contextual response and a cultivated architectural expression of energy-saving technology.