

BIOCLIMATISM

HELSINKI Finland

The setting-up of bioclimatism (use of natural energy provision without conversion into another form of energy, either electric, thermal or mechanical) is a renewable energy, in the sense that it is an inexhaustible and, moreover, a very cheap energy. Bioclimatism includes, first, analysis of the microclimate, aspect of the building, aspect of the windows and the roof, use of natural ventilation and air-conditioning, and optimization of natural light. Even if those different assets can sometimes have conflicting elements, because one cannot achieve all of them at the same time, bioclimatism has the great advantage of having no natural or seasonal boundaries. The case of Helsinki (member of Energie-Cités), given its project for the full creation of the environment-friendly district Viikki is interesting in many respects: implemented partnership, adopted methodology, scope of the project, issues. A project to follow.

GENERAL ASPECTS

Helsinki, capital of Finland, is located at a latitude of 60° north. The city has 515.000 inhabitants, and belongs to a metropolitan area of 1.2 Million inhabitants.

The centre of the town is densely populated, contrary to its suburban areas, separated by major trunk roads arranged in networks from the town centre. Its sea and coastal landscapes are highly characteristic.

Climatic data :

Degree days : 4,100

Annual mean temperature : 5.3 °C



CONTEXT

At a national level, a long-term programme for energy conservation, "The Council of State Programme on Energy Conservation" was decided on, in September 1992, as part of the continuation of a sustainable development. Its goal is to reduce specific consumption of energy from 10 to 15% by the year 2005, and to reduce polluting emissions by promoting electric production through combined heat and power and use of renewable energy. In Finland, because of the harsh climatic conditions, numerous researches are carried out concerning energy economical buildings, and there are very strict thermal regulations. A unique development of experimental ecobuilding, Ekoviikki, will be erected in Viikki area in Helsinki. The idea is to demonstrate different environmental and energy solutions that follow the principles of sustainable development. The possibilities of utilizing solar energy in the energy management have been observed from the very beginning when preparing building and land use plans for Ekoviikki. In fact, Ekoviikki is a pilot project where guidelines for ecobuilding are drawn up in a wider sense. The City of Helsinki is responsible for developing Ekoviikki area.



EXPERIENCE OF HELSINKI

Genesis of the project

- 1989 Preparation and adoption in 1994 of the town planning outlines of Viikki.
- 1994 The Municipality and the "Group for sustainable cities development" launched a competition for the planning of the ecological residential district of Viikki.
- 1995 Choice of the winning project. Beginning of the construction of the large projects of the scientific park.
- 1998 Beginning of the construction of one third of the ecological residential district of Viikki
- 2000 End of the first phase of accommodation for 2,000 inhabitants; 2,000 jobs.
- 2010 Continuation of the residential area: 13,000 residents; 6,000 jobs.



The site of Viikki is 7 km from the centre of the town, on the main road which gives access to the centre, and 20 minutes from the airport by car. It appears to be an area that is not very much urbanised, where you can find a nature reserve and an experimental farm belonging to University. The district of Viikki will be an University suburb, where this latter and the scientific park, centres for biotechnology, will become the functional centre of Viikki. The project foresees the creation, within 20 years, of a new district of 13,000 new inhabitants, and 6,000 possibilities of jobs.

The outlines for the development of the main residential district, Latokartano, located at the south of Viikki, gives priority to ecological solutions, and recommends the use of wood as the material for construction. A section of this district of 70,000 m² has been kept in order to develop an ecological residential district of 1,700 inhabitants, fit for the Nordic climatic conditions, in a natural environment. Numerous services will be available in the district: supermarkets, clubs, bus stations, a kindergarten and a school. The kindergarten, which has to be built for the year 1999, will be subject to a competition in order to include criteria for durability.

Players involved

In the Viikki project, the municipality holds the key position. It took the initiative, and is the manager of the project. A close partnership has been established, since the launching of the project, with the group for development of sustainable cities (see above). Together, they launched a double competition for the design of the residential ecological district of Viikki: the first one, concerning the laying out of the district, and the second one, targeted on the building of experimental economical accommodation.

Competition for the planning of the ecological residential district of Viikki

Among the referential terms of the competition for the planning of the ecological district, it has been advocated that:

- An economically feasible project be developed of high architectural quality, well integrated in its environment, and where it is pleasant to live which:
- promotes the mixing of economic functions, and of social origins of the inhabitants,
- promotes the use of renewable energy and of passive/active solar provision,
- promotes water savings and restrict wastewater

roof structure. This solar heating system will be come into use in early spring 2000. The rest of the systems will come into use by summer 2001, and they will then produce some 15% of the annual heat demand of the Ekoviikki area.

The future inhabitants of the ecological residential district of Viikki

One third of the inhabited districts belongs to the government, who sell them to private construction companies in charge of building dwellings and also providing access to the property. The Municipality, owning what remains, will have accommodation built, one part of which will be sold to private individuals, and the other part will be rented out. The marketing of the project to future purchasers and tenants is entirely directed towards the ecological goals of the district. Property developers try, as far as possible, to include the future occupants in the choices relative to the ecological developments of their accommodation. Advanced technology will be used to disseminate the information concerning social and cultural activities of the district through a network of data to which all the buildings will be able to connect.

EVALUATION AND PERSPECTIVES

The competitions have held an essential role in the development of the project, particularly at the level of the consciousness raising and of the training of the hired teams who, in order to deal with the actual problems, had to be initiated with a scheme including numerous professions and disciplines, by bringing together architects, ecologists, town planners, etc. In 1995, the group for the development of sustainable cities launched another competition, this time concerning ecological renovation of the district of Ristinummi in Vaasa. The competition for the planning of the ecological residential district of Viikki has been a Finland first. There did not, thus, exist any previous references to work from. In a country where there is a strong urbanisation, the issue of the competition was to prove that it is possible to include ecological criteria in urban development projects. The guide of the ecological criteria of Viikki was published on May 1998. It developed a methodology, completely integrating both the monitoring and assessment of the projects. It will therefore be important to follow up the project in the future.

FOR FURTHER INFORMATION

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