





## 8. Eco-Viikki (Helsinki - FI)

<p><b>Project description</b></p>	<p><b>Eco-Viikki</b> was built between 1999 and 2004 and is situated at about 8 km from Helsinki city centre, near an extensive area of open farmland that forms a vital green belt for an important wetland nature reserve. The Viikki Science Park and Helsinki University's Biocentre are located close to the new housing project as well, consisting of apartment blocks and row houses for 2000 inhabitants and services: 2 daycare centres, social and health centre, clubhouse, school and local shop. The mix of housing types is typical for Helsinki: approx. 50% of the homes are owner-occupied, 15% are rented, and the remaining homes are right-of-occupancy homes. The whole Viikki housing area has a built area of 6400 m<sup>2</sup>.</p> <p>During the planning and construction of Eco-Viikki exceptionally strict ecological criteria were set by the City of Helsinki as conditions for the transfer of building plots to housing construction companies. Point scores were calculated for construction plans on the basis of a special set of ecological criteria defined by external consultants.</p> <p>The 17 criteria mostly related five main issues:</p> <ul style="list-style-type: none"> <li>• reduction of pollutants (CO<sub>2</sub>, sidewater, site debris caused by construction, domestic waste, ecolabels),</li> <li>• use of natural resources (reduce fossil fuels/purchased heating energy, primary energy, the convertibility of living area floor plans, the communal use of spaces, and the multi-purpose use of spaces),</li> <li>• healthiness (indoor climate, moisture risk control, noise, the wind-free and sunny qualities of the site, alternative floor plans),</li> <li>• biodiversity (plant choices and habitat types, storm water),</li> <li>• nutrition (plants, soil).</li> </ul> <p>Strict environmental controls have been regularly carried out during the construction phase. The City of Helsinki controls the evaluation process as a client and supervisor.</p>	
<p><b>Objectives</b></p>	<p>The main objectives were:</p> <ul style="list-style-type: none"> <li>• To implement design and construction according to ecological building trends and gain experience for future projects: a display window of Finnish know-how.</li> <li>• To support National Program of Ecologically Sustainable Buildings.</li> <li>• Energy: use of low temperature technologies, geo-thermal heating and RES - solar energy (15% of the total heating demand of the area), wind- and solar-energy-boosted natural ventilation, wood-heated communal saunas and novel cold-storage solutions; cut CO<sub>2</sub> emissions by 20% when compared to a conventional building</li> <li>• Water saving technologies (target: 40-50 l/person/day).</li> <li>• Waste: 20% less than usual (max 160 kg/person/year)</li> </ul>	
<p><b>Driving factors</b></p>	<p><b>Government programme</b></p> <p>During the 1990s, ecological planning and construction objectives were defined in Finland. In 1998, the Finnish government started an experimental sustainable building programme guaranteeing the framework for ongoing and new construction projects. On the initiative of the City of Helsinki, Eco-Viikki was selected to be a testing ground.</p> <p><b>Planning competition</b></p> <p>Once the project area was defined, a planning competition was organised to find an ecologically sustainable planning model for the whole area. Detailed planning was then started on the basis of the winning proposal. Furthermore, architectural competitions were organised for housing blocks, emphasising the role of ecological innovation and practical environmental friendly construction design.</p>	
<p><b>Financing structure</b></p>	<p>The project was mainly financed by the <b>city of Helsinki</b>, the <b>National Technology Agency (TEKES)</b> and <b>Ministry of Environment (€ 4 million)</b>. The project is also part of the energy demonstration project – Thermie, <b>EU PV-Nord</b> project. Closely linked to the <b>government programme</b>, in 1998-2000 a special <b>subsidy</b> plan for sustainable pilot projects was developed and Viikki benefited also from this subsidy.</p>	

<b>Partners &amp; Roles</b>	<p>In 1993, the Finnish Ministry of the Environment, the Association of Architects and the Municipality of Helsinki launched a design competition for the creation of Eco-Viikki. 91 applications were received and the competition jury was assisted by a wide multi-disciplinary expert group.</p> <p>The main partners are:</p> <ul style="list-style-type: none"> <li>• City of Helsinki</li> <li>• Technology Agency Tekes</li> <li>• The European Commission</li> <li>• Implementation team: developer, architects, engineers, contractors</li> <li>• Inhabitants, users (active participation in the decision-making process concerning their neighbourhood block)</li> </ul>	
<b>Results/Achievement</b>	<p>All the approved construction projects surpassed the minimum environmental standards set for Eco-Viikki, which were much stricter than those usually applied in Finland at the time.</p> <ul style="list-style-type: none"> <li>• <b>Energy:</b> solar energy, 2 local solar heating schemes cover a total of 10 properties; low energy housing design; co-generation-based district heating network,. One apartment block uses electricity collected by more than 200 square metres of solar energy panels, which have been integrated into apartments' balcony railings. The heat-collecting panels have a total area of 1,400 m<sup>2</sup> making this the largest such project in Finland.</li> <li>• <b>Materials:</b> flexible timber construction techniques have also been innovatively applied at Eco-Viikki; many natural construction materials were used (mostly wood)</li> <li>• <b>Land use:</b> conveniently located allotment plots where residents can grow their own vegetables; combined housing areas with parks and green spaces</li> <li>• <b>Water:</b> new uses for rain water for gardening and green spaces</li> <li>• <b>Waste:</b> 10% less building site waste generated</li> <li>• <b>Social:</b> Viikki garden cultivation centre: residents can rent an allotment garden of 500-1000 m<sup>2</sup>; creation of Viikkari Park for children and young people; shared sauna and laundries in apartment blocks; construction of kindergartens; local commercial centre comprising large department store, various shops and restaurants; varied green spaces and abundance of vegetation species.</li> </ul>	
<b>Difficulties faced and solutions found</b>		<p>There were no banking or postal services in the area, and only one grocery store, which cannot meet the demands of a population of almost 2,000. The situation is not helped by public transport in the area, which consists of only one bus line to the city centre. According to residents, the bus is too slow and too crowded during rush hours. Consequently many residents have considered buying or have even bought a car. Obviously, such a situation is not in harmony with the goals and the basic idea of Eco-Viikki. Today, as a solution, a shopping centre was built near Eco-Viikki, featuring the most important public services – although not quite within easy reach for all pedestrians.</p>
<b>Next Steps</b>	<p>Building mistakes are being corrected, systems are adjusted and people are learning to use them.</p>	
<b>Friendly advice to those who want to build new eco neighbourhood</b>	<p>The Eco-Viikki experience shows that ambitious goals and ecological criteria do not automatically create the desired end result. In order to achieve the goals set, a sufficiently concrete monitoring and feedback system is needed; furthermore knowledge, goals and responsibilities must permeate the whole production chain. The development work entails a long-term commitment to goals, and in the building sector the central committing factor seems to be the money.</p>	
<b>Online information</b>	<p><a href="http://cic.vtt.fi/eco/viikki">http://cic.vtt.fi/eco/viikki</a>  <a href="http://www.hel.fi/wps/portal/Helsinki_en/?WCM_GLOBAL_CONTEXT=/en/Helsinki">www.hel.fi/wps/portal/Helsinki_en/?WCM_GLOBAL_CONTEXT=/en/Helsinki</a>  <a href="http://www.helsinginenergia.fi/kaukolampo/ekoviikki.html">www.helsinginenergia.fi/kaukolampo/ekoviikki.html</a>  <a href="http://www.hel.fi/wps/portal/Kaupunkisuunnitteluvirasto_en/Artikkeli_en?WCM_GLOBAL_CONTEXT=/en/City+Planning+Department/Town+Planning/City+planning+projects/Viikki-Kivikko">www.hel.fi/wps/portal/Kaupunkisuunnitteluvirasto_en/Artikkeli_en?WCM_GLOBAL_CONTEXT=/en/City+Planning+Department/Town+Planning/City+planning+projects/Viikki-Kivikko</a>  <a href="http://www.eukn.org/finland/themes/Urban_Policy/Urban_environment/Environmental_sustainability/Renewable_energy_supplies/ekoviikki_suburb_1005.html">www.eukn.org/finland/themes/Urban_Policy/Urban_environment/Environmental_sustainability/Renewable_energy_supplies/ekoviikki_suburb_1005.html</a></p>	
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