

**CASE STUDY:** Viikki Eco  
Neighbourhood Blocks

**SECTOR:** Holistic  
**COUNTRY:** Finland

## BACKGROUND



In December 1998, the Government approved a programme of ecologically sustainable development for the construction and property sector, which focuses partly on arriving at models of good practice. In 1998-2000, a special subsidy for pilot projects in line with the principle of sustainability was linked with the Government experimental building programme. During the period 1998 to 2002, an experimental area of ecological building of international importance is being constructed at Viikki, a district to the Northeast of the centre of Helsinki.

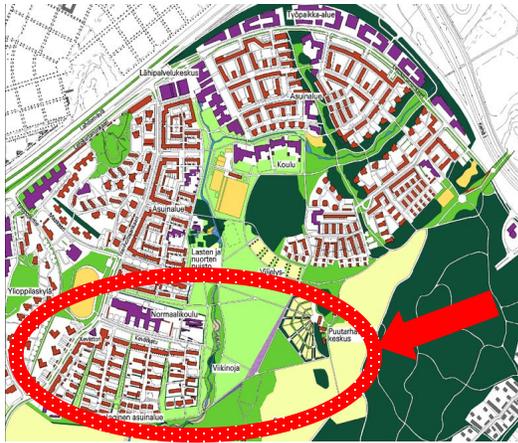


Viikki is situated 7 km from the heart of Helsinki. Buses began running between Viikki and the city centre in Autumn

1999. In the future the area will also be served by the new orbital 'Jokeri' line, running across the Helsinki Metropolitan area. By 2010, Viikki residential district will be completed with a Science Park as it's hub. The Science Park is an international centre of excellence growing up around part of the University of Helsinki in Viikki which specialises in biology and biotechnology. Viikki will then provide 6000 jobs, places for 6000 students and homes for 13000 people.

## EVALUATION

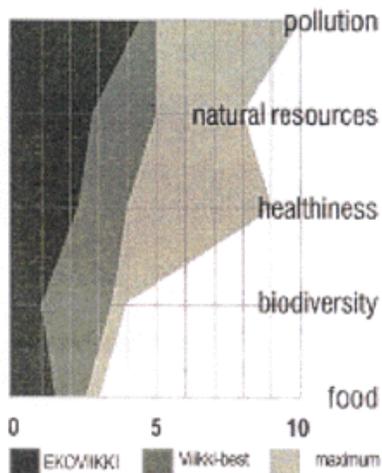
The Viikki eco neighbourhood blocks are the result of long-term work aimed at putting ecological principles into practice in actual building. Two design competitions were organised for the area and a number of seminars and debates. The master plan competition was won by a proposal based on a finger-like structure with alternating buildings and green open spaces. The layout permits functions to be combined naturally, nutrients and water to be recycled (composting, allotments, collecting surface water run-off), and the utilisation of solar energy. Another competition was organised for the first blocks. The proposals were evaluated using eco-criteria drawn up by an interdisciplinary working group. The eco-criteria define levels of five different aspects: pollution, natural resources, health, bio-diversity and growing food. An environment profile was calculated for each competition proposal. In this system, points for those five aspects are added up. A zero-points scheme fulfils the strictest minimum criteria for conventional residential building. A ten-point design represents an ecologically excellent scheme and to exceed twenty points requires exceptional innovation.



Source:  
[http://www.hel.fi/ksv/english/projects/viikki\\_kivikko/latokartano/#](http://www.hel.fi/ksv/english/projects/viikki_kivikko/latokartano/#)

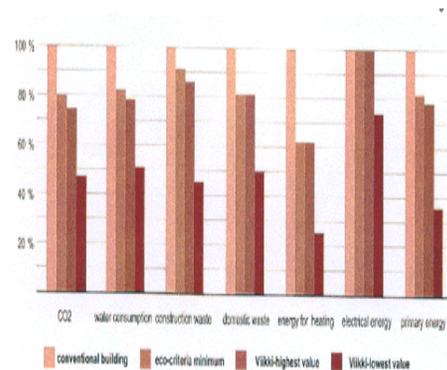
Here is an example of an environmental profile for a proposed block. This block gets 4.3 points from reducing pollution, 2.8 points from efficient use of resources, 2.3 points from healthiness, 1 point from sustaining biodiversity and 1.4 points from possibilities to grow food. 11.8 eco-points together tell that the block is an ecologically excellent scheme, but doesn't have any exceptional innovations. The best blocks in the area exceeded some 21 points. In this comparison the maximum possible number of points is 34.

### ECOVIIKKI environmental profile



### BENCHMARK DATA

Plenty of data is available based on detailed evaluation of the plans and construction. In the Viikki projects, carbon dioxide emissions will be cut at least by 20% in relation to conventional building and consumption of pure water by more than 20%. Building site waste during construction is 10% less than normal and, when the buildings are in use, the amount of mixed refuse (max. 160 kg/person/year) is aimed to be 20% less than normal. The use of non-renewable fossil fuels and greenhouse gas emissions are prevented by cutting energy consumption. A good 60% of normal heating energy is used (105 kWh/m<sup>2</sup>/year) and 45 kWh/m<sup>2</sup>/year of electricity. Consumption of primary energy (energy bound up to materials) also has been reduced by one fifth that of conventional building.



Example data on Viikki schemes and conventional building

### DRIVERS

The Viikki project can be regarded as a response to the Rio Climate Change Conference and Kyoto Agreement. The domestic driver is the Government's programme of ecologically sustainable development including aims for cutting energy use.

### LESSONS LEARNT

The area is still under construction. All the lessons are not to be seen yet. The only clear lesson so far is that much can be done. More data will be collected and reported, when the area is totally constructed. The way of organising this

kind of holistic project, environmental evaluation of the schemes and many technical innovations in construction might be the main areas of learning. The main problems which contradict ecologically favourable results are: is the area too far from the existing services and will the car use followed from this 'eat' the benefits of good house and area construction by high level of traffic energy use and pollution. Studies will be made on the topic when possible.

### **APPLICATION**

Most of the information can probably be utilised in other countries. A special follow-up or monitoring project has already been established, so the results will be reported systematically. The solar heating project included in Viikki schemes is also approved for the EU Thermie Programme. See 'Lessons learnt' above.



### **TRANSFERABILITY**

See 'Application' above.

### **IMPACT ON SUSTAINABILITY AREAS**

Environmental: High

Social: Medium

Economical: High

Institutional: Medium

### **PROJECT CONTACT**

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