

Västra Hamnen The Bo01-area

*A city for people
and the environment*



From industrial site to a new sustainable city district

The change from harbour, shipyard and industrial area into a new urbanised district has started. There are plans for housing for 10,000 people and 20,000 employees and University students in the area.

The first stage, the Bo01 housing estate, was built and completed for the European Housing expo in 2001 as the "City of Tomorrow". The site shows a multitude of architectural solutions, forming an exciting and sustainable urban environment. Measures for a renewable energy supply and increased biodiversity go hand in hand with other initiatives to create a strong sustainability concept for the whole area. The project has received a great deal of international attention and recognition.

A strategic position in a cross-border region

Malmö is the third largest city in Sweden with 270,000 inhabitants, strategically situated in the centre of the Öresund region, with good communications in all directions. The city is a centre of culture, commerce and education. Malmö is inhabited by people from all over the world, 160 nationalities speaking over 100 different languages live here.

Structural changes in Malmö's economy have distanced the city from its traditional industrial background. Modern day Malmö has small and medium sized industrial, service and trading companies, the IT-business being the largest sector. Several strategic decisions have led to a positive development for Malmö, amongst them the bridge to Copenhagen, which was completed in the year 2000, and Malmö University with over 20,000 students bringing new ideas, research and knowledge to the city.

Västra Hamnen (the western harbour) is a developing urban area. A new modern city district, with housing, offices, shops and local services is emerging. Västra Hamnens continued development is focused on the sustainable society based on the lessons learnt from the first phase development in Bo01. The aim is to

make Västra Hamnen an international leading example of a densely populated, environmentally sound neighbourhood. A city district that inspires creativity, develops further knowledge and stimulates economic growth. Västra Hamnen is a high priority development area in the city and an important part of the plans to improve Malmö as an attractive city in which to live and work.



Above: Västra Hamnen lies in the centre of the Öresund region, close to Malmö city centre with good communications in all directions.

Below: The Bo01-area was completed for the European Housing expo in 2001. The area offers diversity of design and a rich urban landscape. The higher buildings on the outer edge of the area serve as a protection against the strong winds for the small-scale interior.



PHOTO: RONNYBERGSTRÖM

Clean soil

A marine area in the harbour has been filled up in different stages since the end of the 18th century in order to create space for the growing harbour and various industrial activities. The landfill consists of sand, clay, limestone, excavations and demolition waste and small amounts of production waste. The last landfill took place in 1987.

Previous industrial activities and the varying sources of landfill made it necessary to investigate the quality of the soil before the construction could start. The search for contaminants concentrated on oil components, i.e. polyaromatic hydrocarbons, which are suspected of being carcinogenic or mutagenic. The whole site was examined by test excavations and sampling. The results showed only

limited areas with a toxic content in excess of acceptable levels for housing. A total of 6000m³ had to be removed for decontamination and treatment. It was replaced by class A soil to a depth of 2 m, and the topsoil was increased to 1,2 m over the whole area. After these measures have been taken, the soil in the Bo01-area is of equal or superior quality to that of the parks in Malmö. Other actions taken for environmental purposes were radon safe foundation and also the choice of waterpipe material.

The seabed by Västra Hamnen is rich in marine life, with fish and thick carpets of eelgrass. The only exception was the area where the canal joins the sea. Examinations showed increased amounts of heavy metals and petroleum hydrocarbon and the sediment was removed.



Filago Vulgaris, a rare herb in the region was found in the Scania park before the construction work started.



Extensive investigations of the soil took place before construction works started, and the soil in the Bo01-area is of equal quality to that of the parks in Malmö.



A city for people – and for the environment

When the Bo01 housing area was planned, the architects discussed how a sustainable city could be attractive. This was thought to be an important selling point, when comparing it with other less sustainable areas. People should want to live in this part of the city for its inherent qualities. The ecological sustainability would be a bonus. The emphasis on human sustainability should lead to a supportive human habitat. Research has shown that close contact with green areas, sun and water make people healthier, both physically and mentally. Beauty, as for instance in art, also has a proved positive effect on health. These research results were all taken into account by the planners.

Magnificent openness versus small scale diversity

Contrasts are important in the Bo01-area. Tall houses on the outskirts form a wind shelter around a small scale and green interior. There are many small blocks and they are all very different. The variation makes you curious. It is exciting to discover the narrow alleys, what will I find when I turn around the next corner?

Cars are not allowed to dominate, pedestrians rule.

No overall idea existed regarding design of house facades. On the contrary, the aim was to create an abundance of expressions. The city specified a basic colour scheme: pale facades facing the sea and more colour towards the inner areas.

PHOTO BY: JAN-ERIK ANDERSSON



PHOTO BY: TOR FOSSUM

Twenty-six different architectural firms have designed the houses, and they have been given a lot of freedom of expression. Diversity characterises the area. There is no special “ecological look” to the houses. It is not possible to tell by looking from the outside which solutions have been chosen when it comes to measures taken for ecological sustainability. Many houses in the Bo01-area are equipped with advanced technology to cut energy needs. Others use simpler techniques to reach the same goals. Some buildings sport large solar collectors reaching towards the sky, clearly demonstrating the use of solar energy.

Twenty property developers have worked with various types of houses, apartment sizes and types of ownership. In the area you find tenant-ownership apartments, rental apartments and private housing.

Quality Programme

All houses are built to the standards set out in the Quality Programme jointly established by Bo01 expo, the property developers and the City of Malmö. The programme sets guidelines for architectural qualities, choice of materials, energy consumption, green issues and technical infrastructure.

Along the seafont

The new Dania park and promenade have become the obvious places for a quiet stroll and are among the most

beautiful places in Malmö. The park provides a wealth of opportunities for discovering nature’s seasonal changes, as well as being a place used for musical happenings, games, sunbathing and picnics. The park and the promenade meet at Scaniaplatsen, which is to become the local town square and meeting point. These recreational areas connect to the green stretch of Ribersborg beach and lead further around Västra Hamnen.

The harbour

At the southern end of the Bo01-area, right by one of the entry points, lies Malmö’s latest marina, bringing the water further into the urban environment and adding the hustle and bustle of a guest harbour.



Streets, squares and pathways

One of the main ideas with the area, was to create an exciting structural mix of individually designed streets, pedestrian walks, alleyways and open squares. The use for these varying interior open spaces caused by the structure and the social interaction resulting from this, is of great importance in creating a character for the area as a whole.



PHOTO BY: JAN-ERIK ANDERSSON



The Green City District

Cities grow and green areas shrink, both in Malmö and the rest of the world. Biodiversity is threatened. A great deal of the rainfall cannot infiltrate into the ground or be taken up by plants. Hence, the open stormwater run-off system forms an important feature in the Bo01-area. Rain is delayed on green roofs, in ponds in the courtyards and public spaces and then transported in open channels to the sea. The visible waterways combined with trees and lush undergrowth provide exciting and beautiful qualities to an otherwise rather sterile urban environment. It gets more and more difficult to satisfy increasing need for access to nature. The ideas implemented in the Bo01-area show how you can minimise the consequences of urban sprawl and make the local environment greener.

Houses are built close together – the ecological and sustainable society has to use valuable ground space efficiently. A green space factor system that has been applied ensures that not only the inner courtyards are green with plenty of vegetation and ponds – green roofs and climbing plants on the walls are also a part of the solution. To ensure quality in the green areas at least 10 Green Points have been used in every courtyard promoting eg. bat nesting boxes, butterfly flower beds, wild Swedish flower meadow, country gardens and enough soil depth to grow vegetables.

Before the area was developed, many seabirds nested on the old industrial sites. A compensation biotope has been created in the northern harbour of Malmö.

The green space factor system will also be in use in the continued development of Västra Hamnen. In the revised quality programme there is a list of green points as a good practice guide. Key words for green spaces in the courtyards will be biodiversity, natural biotopes and a varied flora and fauna.

The Anchor park

In the Anchor park various habitats have been created. An alder carr, an oak grove and a beech grove appear like islands in a large grassy area. The habitats are also a form of exhibition: “This is what nature outside the city looks like”. The idea behind this is linked to the city’s ambition to use parks for education, so called environmental education parks. An important part of the Anchor park is the wide canal with salt water taken from Öresund, creating a pleasant view with its curved shoreline against the park.



PHOTO BY: JAN-ERIK ANDERSSON

Recycling

The waste management system in the Bo01-area was developed with the aim to create a system that minimises the amount of waste, makes reuse and recycling possible and enables the use of waste and sewage as an energy source. Having waste separation units close to home is an important part of the planning of the area. The inhabitants usually have a separation room in their house or close by, making it easy for them to sort paper and packaging materials. In the area two parallel systems for taking care of food waste are tested; food waste disposers in the sink and a centralised vacuum waste chutes system.

Material in the streets and public spaces have been chosen from the aspects of long life span and possibility of future reuse. Recycled material has been used in the underlying layers of the streets and alleys.



PHOTO: NICKLA'S RUDEFELL

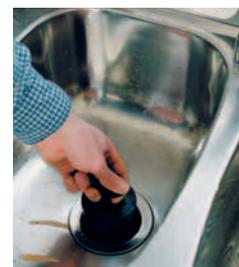


PHOTO: DANIEL NILSSON

In the food waste disposer the organic waste are grinded and disposed in separate pipes to a collector tank under ground. From there the sludge is taken to a biogas plant together with other organic waste. Through the anaerobic digestion the organic waste are transformed to biogas that can be used as fuel in cars and buses or to produce heat and electricity.

100% locally renewable energy sources serves the area

E.ON has developed a unique concept based on 100% locally renewable energy for the new city district. The concept is based on local conditions for energy production. In the Bo01-area 1000 homes get their energy supply from renewable sources; solar energy, wind power and water – the latter through a heat pump that extracts heat from seawater and an aquifer – a natural water reserve in the bedrock that facilitates seasonal storage of both heat and cold water.

1,400 m² of solar collectors, placed on top of ten of the buildings complement the heat produced by the heat pump to supply the area. A large wind power station (2MW) placed in Norra Hamnen (the north harbour) and 120 m² of solar cells produce electricity for the apartments, the heat pump, fans and other pumps within the area. A unique part of the energy concept is that the plants are linked to the energy systems in the city for district heating, district cooling and the electricity grid. The 100% renewable energy equation is based on an annual cycle, meaning that at certain periods of the year the city district borrows from the city systems and at other times the Bo01-area supplies the energy systems with its surplus. This connection also provides reserve capacity for the area.

An important part of the concept is low energy use in the buildings. Each unit is only allowed to use 105 kWh/m²/year, including household electricity.

Boel, the wind power plant is 120 m high to the tip of the wings, is placed in the northern harbour in Malmö. The maximum effect is 2 MW and the calculated annual electricity production is 6300 MWh



PHOTO BY: BERNE LUNSKVIST

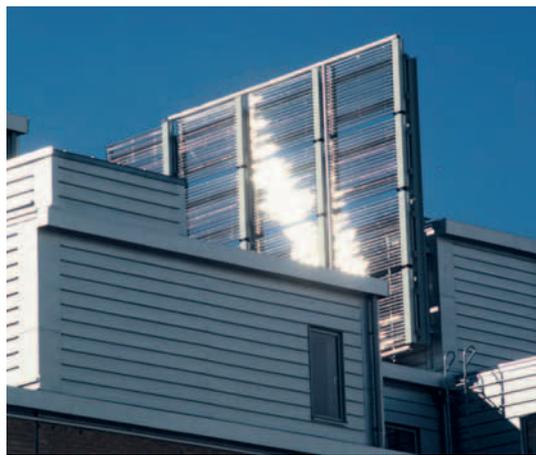


PHOTO BY: JAN-ERIK ANDERSSON

In the area 1400 m² solar collectors have been installed on ten buildings. Of these there are 200 m² vacuum collectors, these are more effective than the other flat-plate collectors. Calculated annual heat production is 500 MWh.

Several of the buildings have met the targets. But there is a number of buildings where the energy consumption exceeds the target excessively. Investigations on why the targets not has been met is ongoing, and the energy consumption is measured continuously. The energy concept is in line with the EU Commission goals to increase the share of renewable energy in Europe substantially. The solutions used in the Bo01-area have attracted much international interest, and in the autumn of 2000 the project was given the Commission's energy award "The Campaign for Take-off Award".

Environmentally sound Transport

In order to reduce the need for transport, the area has been planned with lots of different types of services and recreation. The inhabitants are encouraged to use environmentally friendly modes of transport. Pedestrians and bicycles have priority in the area, and the area is car free. Bus stops are within 300 m's distance from the flats. The bus service which connects with several of the main central points in town run in seven minute intervals. There is only 0,7 parking spaces per household.



Businesses and homes in the area have been given information and guidance. The mobility office has carried out travel habit enquiries, developed information material and continually work with various campaigns.

IT-solutions

In some of the properties there are IT-solutions for reading meters and control of energy use and ventilation. The broadband net in the area gives excellent conditions for distance work and electronic trade, which minimises the needs for transport for the inhabitants. In the future there will be digital displays for real-time information on bus arrivals at the stops.

The website www.ekostaden.com has been established for the inhabitants and also for others seeking information on the area. On the web site the concept of Web-TV is being tested, with informative films, interactivity and news.



Local investment programme

The City of Malmö has received support from the government for a local investment programme for the environmental measures taken in the Bo01-area. The money has mainly been used for physical investments, covering some of the extra costs the developers have incurred in order to meet the high goals set. Part of the money has been invested in technical systems, soil decontamination and infrastructure. Funds have even been used for information and educational projects. The EU has also given some support for the energy measures taken.

Research and evaluation

Money from the local investment programme was earmarked for the Bo01 project, with the explicit requirement that a scientific evaluation be made. The goal was to capitalise on the experience gathered on urban sustainable development, and to be able to use it in future projects, both locally and in other parts of the world.

The project has generated a lot of attention. No less than 10 universities and colleges were involved in the evaluation work. And the area receives studyvisits from all parts of the world.

Studying the infrastructure and the function of the technical systems is an important part of the evaluation, for example waste disposal system and energy supply. As the technology has to be used by people, the inhabitants are instrumental in the evaluation. Some studies focus on the use of the systems, others on perception of housing and surroundings.

There are ongoing research within all areas of priority: soil decontamination, traffic, energy, green structure and storm water, building and living, recycling, environmental information and education and sustainable development.

An anthology presenting the assessments can be ordered from www.formas.se:

"Bo01 - experiences of a Swedish housing expo".



PHOTO BY: TOR FOSSUM

Turning Torso designed by the architect Santiago Calatrava is the new landmark of Malmö with its imaginative design and height of 190 m. 54 storeys with a total of 147 apartments and offices was ready by autumn 2005.



The continuous development of Västra Hamnen

The historical heritage of the area will be preserved by keeping some of the large, and very often beautiful old industrial buildings. This contributes to the specific character of the area and creates a unique sense of identity.

Housing of varying types is planned, providing people with different requirements the chance to settle here. The urban environment should offer natural meetingpoints and a well-balanced mix of housing, activities, education, service and green areas. Human needs for a variety of sensory impressions like beauty, human proportion, nature, water, contact and safety should be met.

PHOTO BY: TOR FOSSUM





FACTS

- Västra Hamnen 160 ha
- Fully developed the area will consist of housing for 10.000, 20.000 will be working or studying in the area
- Malmö University is continuing its extensive expansion and moved into new premises by 2005
- Around 80 large and smaller companies are established in Västra Hamnen
- Today 6000 people are working in the area
- The Bo01-area is 25 ha
- 950 housing units have been completed by 2006
- Eight restaurants/café's and seven shops have been established by 2006
- A new park will be ready 2007
- A private school started 2002
- Public school is planned
- Public transport serves the area every 7 minutes
- 290 millions SEK have been granted for environmentally related investments through the Local Investment Programme (LIP)



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