

towards a sustainable city

by Chris Hancock

The Swedish city of Malmö has designated its docklands as an ecological quarter, with strict environmental codes for developers and a pool of electric vehicles for residents. Chris Hancock reports.

Malmö is the capital of the southern Swedish province of Skåne, with a population of 264,000. A recession in shipbuilding in the 1970s hit the city hard, leaving a residue of abandoned industrial and docklands along the coast to the north of the city. Now however there are signs of economic revival, with the Öresund Bridge link to Denmark bringing business to the "gateway city".

Plans for the former western docks centre on Västra Hamnen, a site of some 30 hectares which the city regards as an international flagship for dense urban development, with a planned 1100 apartments and integrated commercial activity. The public

purse contributed 250 million Skr to the development, for reclamation of the site, environmental improvements, infrastructure and green transport, with construction of the homes undertaken by private developers.

As befits a city district that opened in the 21st century, Västra Hamnen is committed to sustainability. The infrastructure provided by the city encompasses renewable energy sources, waste recovery, IT, ecology and green transport. As a condition of building leases, developers have to meet the city's programme, which defines architectural quality, character of public space, building performance, standards for colours, materials, energy and ecology. Materials harmful to the environment are proscribed and building energy use for the homes must be less than 105 kWh/m² and year.

Taller apartment blocks face the

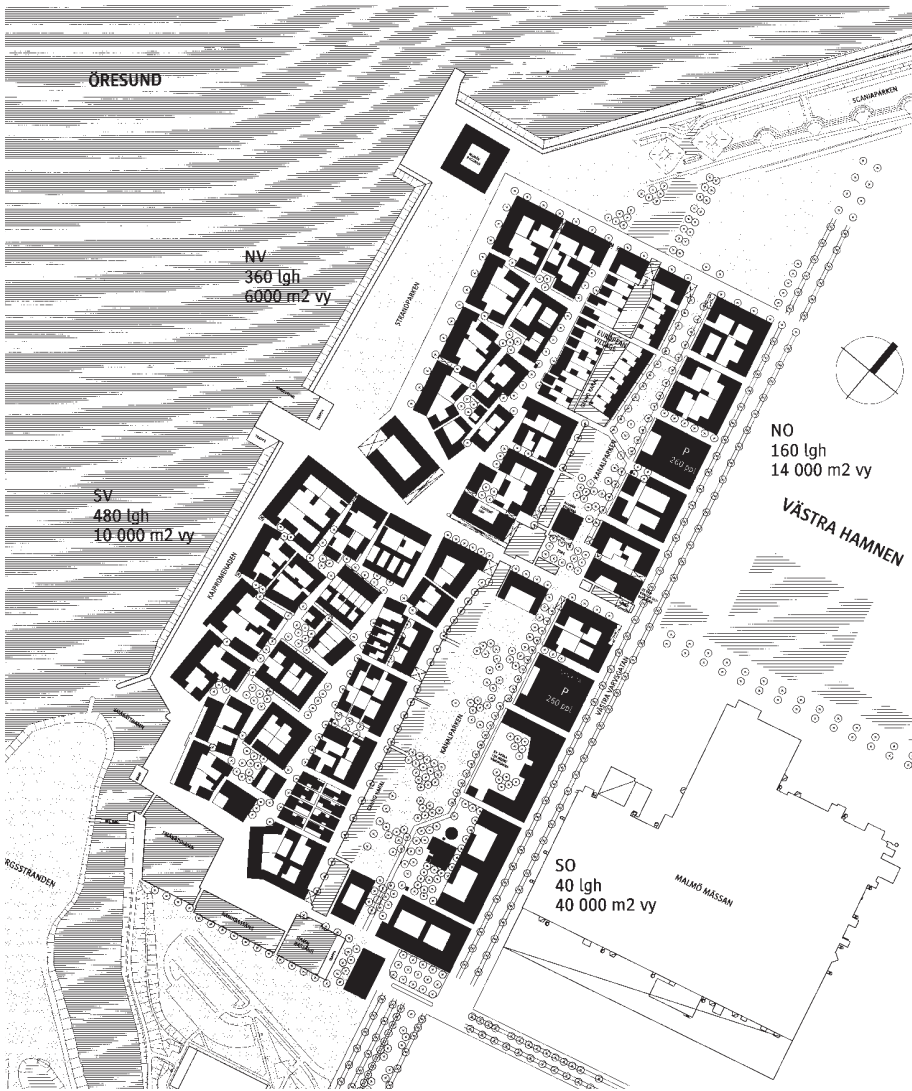
sea and the canal, forming a sheltering ring for terraces in the centre.

Located at the junction of the main approach road and the quayside is the central piazza, the Scaniaplatsen. Designed by Oslo-based landscape architects 13.3, this paved space is extended by the ocean view and delimited by apartment blocks and a raised basin of water that cascades into the sea. The other main urban elements are the Sundspromenaden quayside (designed by Jeppe Aagard Andersen), the marina, boulevards, ornamental canal and watercourses, plus courts, gardens and lanes to give a distinct urban grain. Urban parks such as Daniaparken (designed by Thorbjörn Andersson) and Anchor Park (Stig L. Andersson) provide other waterside meeting places.

Throughout there is a verdant theme, from indigenous flower gardens to a backdrop of woodland along the new



The Bo01-area is situated in the Western Harbour in Malmö, close to the center of the city. Old industrial land is being used for building a new, sustainable area. 19 different developers engaged 21 architects to build the 450 apartments in the neighbourhood. Diversity has been a prime goal. The Western Harbour will have 30 000 people working, living or studying when the exploitation has been finished in some ten or twenty years time.

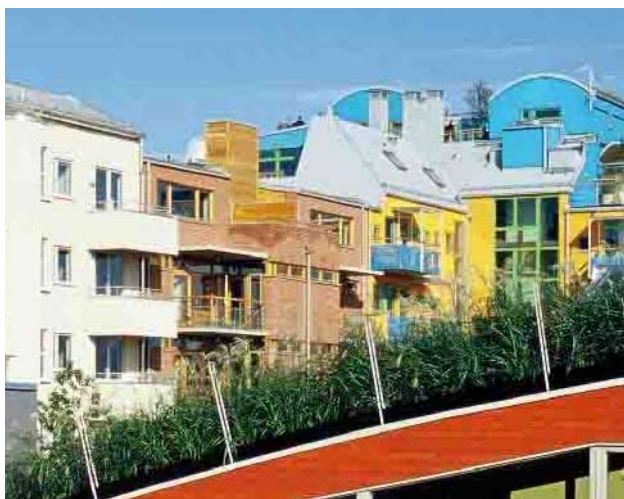


Above: View from an apartment in a dwelling designed by architect Gert Wingårdh.

canal. A "green points" and "green space factor" inspired by the Berlin city codes requires developers to provide for onplot vegetation such as planted roofs and surface watercourses. All rainwater is collected for distribution in open channels – a symbol of the life and ecology of the district. Access priority is for pedestrians, with cycles and cars on sufferance. Residents are encouraged to use underground car parks.

Tenure is a mix of rental, shared ownership and freehold, with noticeable social segregation – the luxury freehold flats enjoy the prime outlooks and privacy facing over the ocean and canal. Most of the apartments have west- and eastfacing glazing. This makes good use of the sea and canalside views but it loses the passive solar advantages of south-facing glazing. Even in this eco-friendly plan, it seems, energy-saving loses out when it comes to prime real estate.

Non-housing activity is vital to the development plan. Some apartment blocks have ground-floor space suitable for small business or residential use with connections to the first floor to allow living over the shop. The existing congress centre stands across the canal. Santiago Calatrava's residential tower, the Turning Torso, will be a major landmark when completed in 2003 and may help to stimulate economic activity. Overall the urban planners have produced a masterplan (designed by Klas Tham in collaboration with

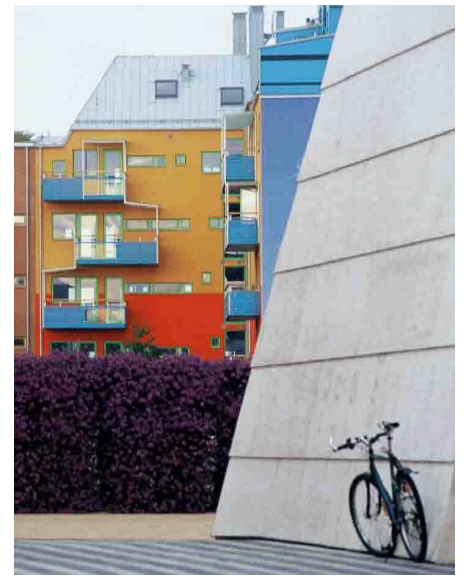


Above: A wall of houses shelters the inside from the strong winds of the sea. The contrast is striking between the calm, green and dense inside of the area, and the open, windy outside where the sky and horizon are the only boundaries.

Left: The divers roof landscape of Bo01, with green roofs as a main character.

Below: The Dania Park by Thorbjörn Andersson, is situated right by the sea. The materials used are stone, wood and foliage.





Malmö city planning office) that exploits the natural waterside advantages of the site and produces a variety of stimulating and distinct public spaces. While it suggests little in terms of the cultural and visual identity of the sustainable city, Västra Hamnen demonstrates that

an ecological strategy and infrastructure can be integrated into a market-led development process, producing homes to Sweden's high energy standards that meet householders' needs.

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All photos by Jan-Erik Andersson, Malmö

Above: Ralph Erskine has designed a dwelling in the area that sticks out with its strong colouring.

Left: Kai Wartianen and Ingrid Reppen designed a building with communication between the rooms both on the outside and the inside. An attempt to make the apartments sustainable; they can be used in many different ways, rooms can be let out etc.

It's possible to take a walk on the beplanted roof in the foreground.

Below: The row of facades that forms the sheltering wall. All buildings are designed by different architects.





*Above: Solar panels help to heat the buildings (Bergcrantz, Björkman, Vretblad)
Below: Many of the roofs are green. A way to increase the biological diversity and to delay the rainwater. (Johan Nyrén).*



Left: Building by Ralph Erskine, the waterfall in the Anchor Park and (bottom left) the Scaniaplatsen, a square by the sea, designed by Norwegian landscape architects 13.3.



Communications

Supplied by Telia, the neighbourhood communications network includes broadband information to all apartments. Most residents will be able to monitor their use of water and energy and also tap into an environmental advice web-television-channel.

Ecology

Plays a key part in the design and planning of parks, housing courtyards and planted roofs, with the “green space factors” requiring contractors to provide foliage.

Rainwater

Run-off is controlled locally through the use of green roofs, with collection by open paving channels which discharge via the ornamental canal into the sea. There is no rainwater harvesting for washing water. Waste water is not recycled locally, it is sent to the city’s main treatment plant and discharged to the sea.

Renewable energy

The community infrastructure plan aims to achieve 100 per cent local renewable energy. Electricity comes from regional wind power and, to a limited extent, photovoltaics. Heat is provided by a range of energy sources, including natural gas; biogas from processed refuse and sewerage; heat pumps from aquifers and seawater, and active solar collectors. The energy is distributed by district heating/cooling mains. Local power generation will use the city grid to balance supply and demand for zero net import.

Transport

Recognising that alternatives to the petrol engine must be encouraged in all urban planning, Malmö is promoting alternative fuels for car and public transport in Västra Hamnen. “My other car’s shared electric” must be the bumper sticker for the affluent resident. Streets are car-free and central parking is limited to 0.7 place per dwelling. A pool of electric vehicles will be available for residents to travel to the city centre, while a neighbourhood natural gas/biogas station will dispense alter-

native fuels and charging for electric cars (from wind power). Pedestrians, cycles and gas-fuelled buses will have priority on the street. Bus stops will have arrival time displays.

Waste and refuse

The city has provided systems for collecting, separating, reprocessing and extracting value from waste. Residents have access to local terminals for two-pipe underground vacuum tubes, one for food waste and one for residual dry waste, which is incinerated. From collected food waste, biogas (methane and carbon dioxide) and compost is obtained. A municipal biogas reactor is being built to convert organic waste into fertiliser and biogas, with the biogas returned to the apartments via the gas main. From sewerage, nutrients and phosphorous will be extracted for recycling as fertilisers. The residue will be used as incineration fuel to render the final discharge less harmful to ecosystems. Waste reclamation generates energy estimated at 290 kWh/yr for each resident, enough to run seven low-energy lamps in each apartment each evening.