

DENMARK:

Danish social housing project shows future of sustainable urban living

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Energy-efficient social housing offers a practical solution for eco-friendly urban living, and one such project in Denmark is proving an example for the rest of the country.

Built in 1966, the Gyldenrisparken residential complex located in southern Copenhagen was a pre-cast concrete structure erected quickly to meet burgeoning demand for housing. It was at that time hardly as pretty as the little, yellow flowers it is named after.

Four decades on, it has been refurbished into an energy-efficient complex which incorporates low-energy residential apartments, a carbon neutral nursery school and elderly care home.

The decision to renovate was jointly made by the 900-odd residents of the complex, who come from various social and economic classes, in tandem with City of Copenhagen authorities.



"Bringing people together across ethnic groups, age groups, rich and poor, helps to build bridges and strengthens the neighborhood. It is a social model that creates a society which is more integrated and tries to avoid segregation," said Palle Adamsen, chairman of Denmark's National Federation of Housing Associations, commenting on the philosophy behind Gyldenrisparken.

Residents continued to live in their own homes during the renovation, which stressed on retaining the original structure's architectural look and social ethos, but changed its energy-efficiency capacity.

"A place like this has been here for many years, it has its own soul. If you tear it down and build up something new, you scatter people everywhere, and you don't get the same sense of ownership for it," said Jesper Schat-Holm of engineering firm Wissenberg, which implemented the green refurbishment.

INTEGRATION

In Denmark, nearly 20 percent of the country's 5.6 million people live in non-profit housing associations which are classified as social housing. But the country has largely avoided the racial and ethnic segregation which often accompanies these places.

Gyldenrisparken is unique in Denmark in that it has an equal mix of ethnic Danes and immigrants, as well as socially vulnerable people, such as the elderly, and economically active people, all living side by side. "Denmark should have more places like this," said Bjarne West, chairman of the Resident's Board of Gyldenrisparken. "Although it is costly to do such renovations, the government should offer the money to help people, otherwise we will get a lot of ghettos and we don't want that in Denmark," he added.

Denmark's center-left coalition government, which wants to make the country independent of fossil fuels by 2050 while promoting economic growth and social equality, sees a future for such projects. "We think that a green economic transition has to go hand in hand with social welfare ... and high energy prices on the world market must not lead to social problems for the poor in our societies," said Martin Lidegaard, Denmark's Minister for Energy, Climate and Buildings.

"When developing a green, low carbon economy and energy sector, we insist on investing in getting energy efficiency up, and energy waste down, in buildings such as Gyldenrisparken. It benefits both the environment and energy bills of poor people," he added.

OLD AND YOUNG

The combination of welfare and green solutions is best evident in the Green Planet Nursery, a purpose-built day-care center inside the Gyldenrisparken complex.

"There is a special air and even sound to the place, which comes from the big, four-layered windows which let in so much light, and the high ceilings and rubber floors which help muffle sound. There are many children but you hardly hear them scream and shout," said nursery principal Lise Fischer Jensen.

Built in 2009 according to the European Passive House Standard, the nursery uses 50 percent less energy for heating than comparable buildings today. This is achieved through a combination of thickly insulated walls, ground slabs and roof, and a carpet of green moss on its rooftop to absorb rainwater, which lowers the building's temperature by around two degrees Celsius in summer.

Moreover, a smart ventilation system draws in air from outside the building, and runs it underground to tap geothermal heat.

Some 114 children are enrolled here, and learn about practical sustainability issues, such as recycling of everyday products like paper, glass and metal, from a very early age, Jensen said.

Completing the circle of life in Gyldenrisparken is the Bomi-Parken nursing center, just a stone's throw from the nursery school. It is home to some 80 residents, most aged above 75, who live in one-room apartments built to suit mobility needs of elderly people.

Helle Christiansen, who heads the center, says combining the care home with a residential complex and nursery school helps combat loneliness, a serious problem facing Denmark's elderly.

"This place gives an opportunity to have life around you, to see the little kids playing, and see families go about their day-to-day activities, just as the elderly did in their former lives," she said.

CHEAPER ENERGY

The 432, 2-bedroom apartments comprising the multi-storeyed, flat-fronted residential buildings have also been overhauled, with bigger window facades to let in more natural light, and thicker wall insulation.

"Typically, with a refurbishment like this, we have an energy consumption that falls by 20 percent for heating," said Schat-Holm.

Apartments have individual water meters to check consumption, and the complex has a low-energy common laundry unit with natural gas powered tumble dryers. Every available open space has gardens or green playing fields, and the area is dotted with trees.

According to Lejerbo, the company that manages Gyldenrisparken, the renovations cost 400 million kroner (70.6 million U.S. dollars), while the nursery and care home cost another 220 million kroner to build. Adamsen, who is also CEO of Lejerbo, said each flat cost around 1 million kroner to renovate, as opposed to 2 million kroner if they were to be built new.

Most of the funding came from Denmark's National Building Fund. Residents are also financing part of the refurbishment through average monthly rent increases of around 500 kroner. But they say they are already recouping their investment through lower monthly energy bills.

Currently, buildings account for over 40 percent of Denmark's total, annual carbon dioxide emissions, and the government wants to re-fit thousands of buildings to improve their energy efficiency, and save on future power costs.

Lidegaard believes this presents an opportunity to retain existing architecture and communities, while investing public money in a sustainable way, as Gyldenrisparken has done.

"The most important experience from the Danish side is there should not be a question of choosing between a low-carbon, good environment, or aesthetic buildings and the economy," Lidegaard said.

"We should make the green transition in a way that is economically, architecturally and aesthetically attractive," he added. (1 Danish krone = 0.18 U.S. dollar)

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