

This is how we are building green at the New Karolinska Solna



A part of
Skanska's
green
initiative

New Karolinska Solna is being designed and constructed keeping the patient in focus. It also has the goal of becoming one of the world's most sustainable university hospitals. It will be a green flag ship for the Stockholm County Council, Skanska and our partners and suppliers. We are constructing the hospital with the catchphrase; a green and secure work place. New Karolinska Solna's vision is to have a high environmental performance during the operation of the hospital as well as during the construction. In order to fulfill this vision, the design and construction process must comply with environmental requirements which are a lot higher than the current norms, standards and laws.

Environmental certification for buildings

New Karolinska Solna's goal is to be certified according to the international LEED system (Leadership for Energy and Environmental Design) Gold level. The hospital is also to be certified according to the Swedish system, Miljöbyggnad Gold level. All inbuilt materials will be evaluated from an environmental standpoint and approved in the Building Materials Assessment (Byggvarubedömningen) and certain prioritized materials are to fulfill additional environmental requirements. Life cycle is always kept in mind, and life cycle costs will be carried out for significant systems and components. The running of the hospital will take place with Coor Green Services which will reduce energy and resource use, and in turn the impact on the environment.



The world's first climate neutral hospital

New Karolinska Solna will function with 100% renewable electricity. The buildings will be provided with heating and cooling in an efficient manner with geo-energy from 154 bore holes. When the entire hospital will be up and running, the energy sources will be completed with climate neutral district heating and district cooling from biofuel.

Energy efficient buildings

The buildings' design will reduce the energy need due to the well planned climate shell, insulation, ventilation and lighting. Simultaneously, a good indoor environment is secured. Purchased energy to the New Karolinska Solna will be 40% lower (58kWh) compared to the Swedish building standards. The buildings' energy usage will be 110 kWh per m² Atemp and year.

Climate infrastructure

When the hospital will be operational, the internal transports will be reduced with an efficient internal distribution system with the aid of among other things robots in culverts and pneumatic dispatch. In order to travel, to and from the hospital in a good way, pedestrian paths are being constructed, and charging stations are being set up for electric cars.

Sustainable material and resource use

Green roofing will be placed on the mantle on the main building and in the courtyards. With the help of low flush volume building service (VVS) fittings and toilets, the water usage will be 20% less than normal. When the hospital is operational, waste will be sorted thoroughly in approximately 32 fractions (groups).

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Good indoor environment

The hospital is being constructed keeping in mind the best interest of the patient and work environment for more than the 7000 employees. Environmental certification in LEED and Environmental Construction (Miljöbyggnad) implies among other things that emissions from chemical substances/compounds and building materials are to be limited in order to create the best possible indoor environment. The comfort level must be high with good ventilation, a lot of daylight, individualized control in the rooms, high sound proof and reduced vibrations. The buildings and building production will be moisture-proofed in order to prevent chemical reactions of materials and growth of micro organisms.

Our way of building

In order to build one of the most sustainable university hospitals in the world, requirements are set so that one can fulfill a green construction project. With the help of Skanska's unique instrument "ECO2" a climate estimate has been carried out for the construction project. It gives us knowledge regarding how much carbon dioxide emission will be produced from the manufacturing of the materials we are using, from transports as well as the production. Through this knowledge we are putting into place active measures in order to reduce the impact on the climate.

The project is a Green Work Place, which is Skanska's own environmental labeling for the project which commits itself to reduce energy and resource use and its effects on the environment. One can take the example of the work cabins which are called "environmental cabins". The energy need for the "environmental cabins" corresponds to approximately half of that of a regular shed.

By having our own concrete factory at the construction site, we are reducing the number of rock transports with approximately 20.000 during the first three years. All vehicles and working machines which are used during the construction period fulfill the requirements in the environmental zone of Stockholm. They have environmental labeled fuels, and the number of renewable fuel is increasing rapidly. We are also the first in Sweden to have gas hybrid lorries/trucks.

We are working proactively to reduce construction waste, as well as to increase recycling. In 2010 a maximum of 5% from the building waste went to the landfill. Our aim is to come down to 0% landfill waste to 2015.

During the construction period, high requirements on noise pollution, dust, vibrations, transports, emissions and water impact are all met in order to reduce disturbances to the surrounding by the construction site. The deliveries to the construction are coordinated which reduce disturbance and environmental impact, and leads to a more secure health and safety environment. We are working to make sure that Sweden's largest construction site is to be as green as possible.