6. Good Practice Example: Sweco Building (Stockholm, Sweden)

Keywords

Energy efficiency, retro-fitting, office building, energy performance

Name and location

Sweco Building, Gjörwellsgatan 22, Stockholm, Sweden

The architecture and engineering company SWECO (listed public limited company) has 9 000 employees and operates in 80 countries around the world, and has subsidiaries in twelve countries (Scandinavia + central and eastern Europe). Approximately 5 000 architects, engineers, planners and other sustainability experts work at the 50 offices in Sweden. The turnover is around Euro 1 billion per year.

Sweco has a long and inspiring history. Already in 1889 the basis for what is now Sweco was founded. Since 1903, Sweco has carried out projects in over 100 countries. The Swedish section of the Sweco group of today is divided into several companies: Sweco Architects (incl planners), Sweco Infrastructures, Sweco Energuide, Sweco eurofutures etc.

Background, objectives, implementation measures and financing

The 14 storey Sweco Building, with red brick façade and an interesting zigzagging window pattern, was designed by Anders Tengbom and built in 1960-62 to house the daily newspaper Svenska Dagbladet (SvD). The design, location and height of the building makes the building an important landmark in the Stockholm skyline. Today, the building is listed and only minor exterior changes are aloud.

Figure 1: The Sweco Building (formerly known as SvD Building.)
Until recently, the Stockholm offices of the Sweco companies were spread out at various locations all over the city. The company headquarters and some of the companies were sitting at the Sweco Building in Marieberg in central Stockholm since 1997. To be able to increase more cooperation among the Sweco companies and professionals, the Sweco management wanted to cluster the various companies under a single roof. After evaluating several properties, Sweco decided to transform the existing Sweco Building. From a sustainability perspective, the company saw major advantages in transforming an existing property rather than building a new one. This also created an opportunity for Sweco to use their own office as a role model for sustainable building. A major reshaping and renovation was needed in order to fit in more people, to create an interesting and creative working environment and to be more sustainable. Architecture, interior design, engineering by Sweco consultants.

Over the years the building has housed a range of different tenants who gradually added and mixed different types of technical installations, ultimately resulting in high energy consumption. Sustainable renovation and a completed building with high environmental performance were key objectives for both Sweco and the property owner AMF Fastigheter before starting the rebuilding process.

Number of workstations: More than 1,400
Gross area: 28,818 square metres

Figure 2: The new atrium in the lower parts of the building complex (the former printing building), aka “the Living room”, functions as a place for meeting colleagues from the many disciplines within the Sweco group, as well as entertaining clients. Meeting and conference rooms on the “ground floor”.

Figure 3: Bridges and stairs in the open space of “the living room” connecting various departments of the Sweco group. The book shelves to the left runs from the bottom floor to the top floor, and works as a Sweco library.
Objectives

- Facilitate spontaneous interaction and meetings among consultants (and clients)
- Turning the existing dark building divided into sections into a bright, open, warm and spacious office environment
- A holistic approach to energy and resource consumption, the indoor climate and the flexibility required to meet future needs
- To be certified according to the Sweden Green Building Council’s environmental certification system Miljöbyggnad, with an ambition to reach the highest rating, Gold, for a whole new property according to Miljöbyggnad (instead of the lower requirement for existing properties).
- Rigorous goals for reducing electricity consumption and the volume of purchased energy.
Maximise the use of renewable energy as far as possible.

**Implementation**
The renovation started in 2010 and was completed in 2012. One special challenge was that the building’s exterior is a registered cultural heritage site, which meant that any changes would not be permitted to affect its external appearance.

To meet the stringent energy goals, the best available technology was used. For example, in the ground outside the building there are 26 bore holes with a depth of 280 metres for seasonal storage of heating and cooling. The building’s climate shield has been improved by renovating the windows (1469 new window panes, U-values reduced from 2.5 to 1.2 W/m²K), through which energy losses during the winter have been cut by half. Other measures include an effective new ventilation systems with a heat recovery rate of 90 per cent and new control systems that are regulated by weather forecasts and motion sensors. The lighting is also controlled by motion sensors and the amount of daylight (5.4 W/m² electricity is used for lighting, the Miljöklass Gold max level is 8.2). Solar cells on the roof contribute to the supply of electricity.

The Sweco Building has earned preliminary certification for Miljöbyggnad at the Gold level (a verification is carried out before the certification is finalised). Among other things, the property’s need for purchased energy has been reduced by 68 per cent: from 180 kWh/m² to an estimated 57 kWh/m².

Furthermore, the building has been awarded Sweden Green Building Council’s national environmental prize in the category “Miljöbyggnad/environmental Building – existing property”.

**Financing**
The renovation is financed by the property owner, AMF Fastigheter.

**Cost benefit, effects and results achieved**

**Cost benefit:**
The rent per m² is now higher than before the renovation, but the rent per staff/person is Y slightly lower than before.

**Energy results:**
The property's need for purchased energy has been reduced by 65 per cent: from 180 kWh/m² to an estimated 57 kWh/m². (Actual numbers not available January 2014)

**Planning procedures, involvement of stakeholders and possible participation structures**
The Sweco companies developed the program and concept of the renovation and the tenant modifications (project management, architecture, structural engineering, interior design, electrical systems, HVAC and sanitation, fire protection, lightning, environment, IT, security).
AMF Fastigheter was the building contractor and Sweco was/is the client. Form of contracting: divided contract.

Lessons learnt – practical recommendations

- Now, our headquarters are well designed and engineered. The building is a good working environment and we are proud to show it to others. The renovation project gave us an opportunity to develop our skills in sustainable development, but also to show that we practice what we preach. Daan Cedergren, region manager of Sweco Architects