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Pfizer Silverdal, Sweden

Case Study 25

Pfizer's new Swedish head office in Silverdal, north of Stockholm, Sweden, is a highly energy efficient building that has qualified for the European Union's Green Building Programme.

Aspects of Sustainability

This project highlights the following:

Social Aspects

Human Resources
Corporate Community Involvement
Business Ethics
Health and Safety

Environmental Aspects

Energy and Climate
Materials
Ecosystems
Local Impacts

Economic Aspects

Project Selection
Supply Chain
Value Added



Project Introduction

Pfizer, the largest pharmaceutical company in the world, has constructed its new Swedish head office in Sollentuna municipality, north of Stockholm. The office was the first to be opened in the Silverdal science park, which is part of the new Silverdal 'modern garden city'. The entire Silverdal garden city has been planned and constructed by a Skanska consortium, and includes business and residential developments. Pfizer relocated from an office in a nearby municipality in search of improved accessibility and space to create a more functional and energy efficient building.

Skanska Sweden was the general contractor of the US\$ 80 million project, which was built between 2004 and 2005. The seven-floor development has a total office area of 18,600 m² and 12,800 m² of

underground car parking space. The building includes office space for between 400 to 600 employees, conference and meeting facilities, lecture rooms, cafes and a fitness centre.

Skanska met demands for high standards of energy efficiency and environmental construction from Pfizer and the Sollentuna municipality, which aspires to create a resource efficient science village in Silverdal. Silverdal is intended to establish a vibrant area for living and working, and a location where businesses, industry and organisations can work together to develop biological science and IT solutions that can contribute toward sustainable development. In 2007 the Pfizer Silverdal office qualified for the European Union's Green Building Programme, which is a voluntary programme aimed at improving the energy efficiency of non-residential buildings in Europe.

Contributing Toward Sustainable Development

The Pfizer office in Silverdal is a highly energy efficient building, which contributes toward the company's energy use objectives. The building also offers Pfizer the flexibility to accommodate a range of working environments and functions and has created a healthy working environment that promotes social interaction among staff. The project has contributed toward sustainable urban planning by being situated in an accessible location with good access to public transport and by redeveloping a previously used site. To ensure stakeholder satisfaction, Skanska involved Pfizer employees and the Sollentuna municipality in the planning and design stages of the project. During construction high environmental standards were employed and environmentally friendly materials were prioritised. Local construction workers and suppliers were contracted and the building has been sensitively incorporated into the surrounding natural environment.

Social Aspects

Stakeholder involvement

Pfizer employees were involved in the design of the new office building to provide them with the opportunity to shape their working environment. Work groups involving 60 Pfizer employees from different departments were organised to allow staff to contribute toward the building's design, interiors, working environment and office furniture. Skanska has also worked together with the Sollentuna municipality to develop building standards and plans for the entire Silverdal garden city.

Occupational health and safety

A health and safety coordinator ensured that employees and subcontractors followed all safety regulations and procedures. Three accidents occurred during 450,000 construction hours and the Lost Time Accident Rate for the project was seven per million hours.

Healthy working environment

Pfizer has received very positive feedback from employees concerning the working environment at the Silverdal office and has perceived heightened levels of happiness and satisfaction among staff. The incorporation of natural light, quality lighting, a high distribution ventilation system and the use of natural materials within the building have

contributed toward the creation of a healthy environment for staff and visitors. All workspaces are located along the building's facades to maximise access to natural light and 2,500 m² of glass walls allow natural light to penetrate into the building and enhance the perception of open space. External sunshades prevent excessive sunlight and over heating of the building in summer and high frequency lights ensure flicker-free artificial lighting. The ventilation system distributes twice the airflow specified by the latest Swedish building code to ensure a more healthy and hygienic environment. Natural materials such as oak, pine, granite and slate have been used within the building to link the indoor environment to the surrounding nature. The Silverdal site includes landscaped parkland, which is based on Swedish nature, and is surrounded by forest.

Promoting social interaction

Office and communal areas are designed to promote social interaction among employees. There are three drink machine areas, where employees can meet and socialise, and communal spaces such as stairways are designed to encourage casual social interaction. Informal social spaces such as the roof terrace and the indoor 'winter garden' are also designed to promote opportunities for socialising and relaxing.



Minimising external noise

External walls and windows are soundproofed to minimise noise disturbance from the adjacent railway line and E4 motorway. Within the building all walls and movable partitions are also sound proofed.

Urban redevelopment

The Silverdal site was previously used as a military training area but had been vacant since the early 1970s. A Skanska consortium acquired the land in 2000.

Sustainable urban planning

The Silverdal garden city provides opportunities to live and work in the area, with approximately 65,000 m² of office space and 1,000 houses and apartments. The area is also close to the Kista and Helenalund commercial centres and is well served by public transport. The Pfizer office is within walking distance of several bus routes and a commuter train station, which is 13 minutes from Stockholm's central station. The building has outdoor cycle facilities and it is possible to cycle to Stockholm city in approximately 20 minutes along a safe cycle route.

Accessible location

The Pfizer building is situated 12km from central Stockholm and is adjacent to the E4 motorway. The Stockholm Arlanda and Bromma airports are 20 and 15 minutes respectively by car or taxi, and are accessible by public transport.

Functional building

The building is designed to be flexible to accommodate a range of working environments, and various size meetings and conferences. The office and meeting spaces can be customised by moving sliding wall partitions to create open

or closed spaces and one floor is almost entirely devoted to conference and meeting facilities for a range of functions. The large lecture theatre can be opened up to the winter garden to accommodate a large audience. Large conferences can therefore be held on site rather than at external conference facilities.

Raising awareness of more sustainable buildings

The project has raised awareness of sustainable building features within Pfizer, among company stakeholders, and the Sollentuna municipality. The building has also been publicised among external audiences through the European Union's Green Building Programme.

Economic Aspects

Construction employment

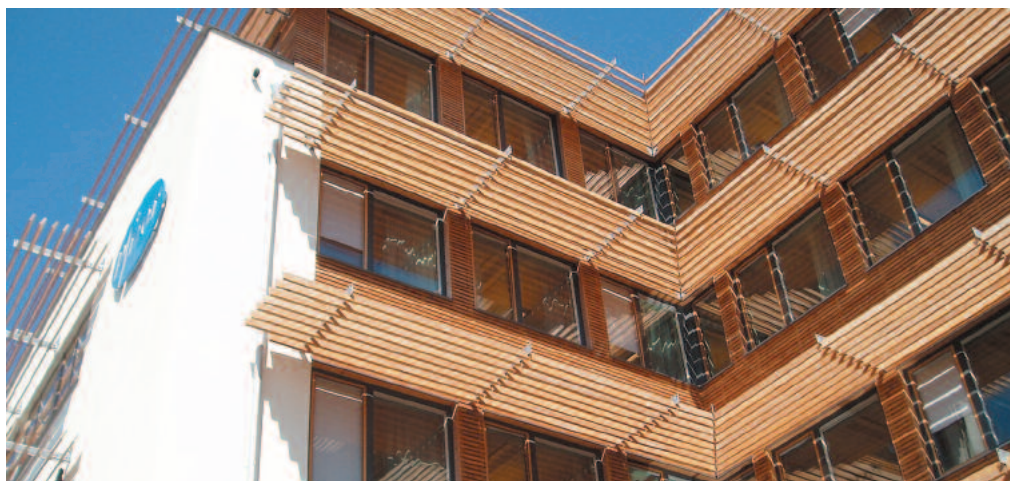
Approximately 250 construction workers, most of which were subcontractors, were on site at the peak of construction. Approximately 85 percent of the construction workers were from the Stockholm area.

Local material suppliers

Skanska contracted local suppliers they had previous experience with, although some of the construction materials were imported from abroad. Materials that were manufactured in Sweden include the glass partitions, indoor walls and doors. Sections of the ventilation system and wood for the facades were imported from Finland.

Energy efficiency savings

The building's energy efficient features save Pfizer between US\$ 50,000 and 65,000 each year due to the reduced consumption of electricity, heating and cooling.



Local economic development

The Pfizer building was the first office to be constructed in Silverdal, and is expected to attract further businesses to the Silverdal Science Park.

Environmental Aspects

Environmentally friendly materials

Wood was one of the principal construction materials. The Forest Stewardship Council certified approximately half the wood used, and high quality durable wood was imported from Finland to maximise the life span of the building's facades.

Controlling dust pollution

Dust pollution was controlled during construction to avoid disrupting the adjacent motorway and railway routes. Industrial vacuum dust collectors were used during drilling to reduce airborne dust and water spray was used on the temporary construction roads and during rock blasting.

Energy efficiency

In 2006 the building consumed 98.6 kWh/m², which is 49 percent less than the average Swedish building and 33 percent more energy efficient than a typical newly constructed office building in Sweden. In the interest of energy efficiency the building uses the existing city district heating and cooling systems, efficient HVAC (Heating, Ventilating and Air Conditioning), effective lighting systems and energy efficient windows. Using the existing city district heating and cooling systems is more efficient than localised boilers and chillers within the building. On the office floors the efficient HVAC system uses chilled water tubes and air-handling units with double battery coil heat recovery exchangers for high efficiency. The parking levels are ventilated with recycled air from the office floors. High frequency lighting, which generates less waste heat and consumes less energy than conventional lighting, is used throughout the building and infrared occupancy sensors dim light levels by 80 percent when space is unused. Efficient windows in the building are insulated with an inert gas to minimise heat loss.

Water efficiency

Low flow taps, showers and toilets have reduced the building's water consumption. In 2007 the building used 4,300m³ of water, equivalent to 60 percent of the domestic water use predicted for the building.

Sensitive incorporation into the natural environment

The building's green roof and partial wood cladding help to blend it into the surrounding nature. The landscaped grounds of the building are based on the Swedish nature and ten large pine trees have been planted together with many smaller plants.

Green roofing

The building has a sedum vegetation roof, which absorbs rainwater, provides additional insulation, creates wildlife habitats and extends the life span of the roof. The sedum roof is drought resistant and reduces runoff during wet weather by absorbing water. The green roof provides additional insulation by retaining heat during cold weather and maintaining a relatively cool temperature during warm periods. Roof vegetation creates habitats for insects and other wildlife and absorbs atmospheric pollution. The sedum layer prolongs the functional life of the roof by protecting the roof surface from UV light.

Renewable energy

The district heating system is biomass fuelled and the district cooling system uses waste cooling from heat pumps and cool water from the Baltic Sea. Electricity supply for the building is based on the Nordic production mix, which in 2006 was 52 percent from renewable energy sources, 19 percent from nuclear power and 29 percent from fossil fuels.

Contributing toward Pfizer's energy goals

The Silverdal office contributes toward Pfizer's global targets for energy efficiency and reducing carbon dioxide emissions in order to decrease their impact on global warming. The company aims to ensure that 35 percent of its electricity will be from emission-free energy sources by 2010.

Learning From Good Practice

Skanska worked closely with the project client and architects to ensure that Pfizer's needs were met. Pfizer selected Skanska to construct other company offices in Europe and the Silverdal building has strengthened their position as a preferred constructor.