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CSOB Headquarters, Czech Republic

Case Study 30

The new CSOB Group headquarters in Prague is the first building in the Czech Republic to be LEED (Leadership in Energy and Environmental Design) certified for its sustainable construction and energy efficient design features.

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

The new head office of the Czech bank CSOB has been constructed in Radlice, southwest Prague. Prior to the construction, the CSOB Group had occupied several buildings in Prague's old town. Many of these buildings lacked functionality and essential facilities, were energy inefficient and had high operational costs. The CSOB headquarters is the largest office building in the Czech Republic, accommodating approximately 2,400 employees. Skanska managed all stages of the US\$170 million design and build project, including land acquisition, the public planning process, project design, construction work and the redevelopment of a local metro station. Construction began in

February 2005 and the headquarters were officially opened by CSOB in April 2007. The 82,392 m² building consists of 5 floors above ground and 3 floors under ground, two restaurants, conference facilities, three large atrium courts and medical facilities.

The office building is the first in the Czech Republic to be Leadership in Energy and Environmental Design (LEED) certified, and was awarded Gold in a final assessment for its sustainable construction and energy efficient design features. The project was honoured with the Czech Building of the Year award in 2007 for the building's energy efficiency standards, and outstanding contribution to Czech architecture and environmental protection.

Contributing Toward Sustainable Development

The CSOB headquarters has set new standards for indoor environmental quality and energy efficient buildings in the Czech Republic, and has benefited the company by enhancing efficiency and staff productivity. The building has also contributed toward urban redevelopment by making use of a contaminated brownfield site, promoting the use of sustainable transport and stimulating local economic development. During the design and construction stages Skanska cleaned up the contaminated site prior to construction and incorporated the building into its natural surroundings. Local construction employment and materials were prioritised along with the use of environmentally friendly materials, and construction waste was reused where possible. Skanska avoided disrupting the operations of a metro station, which the headquarters were constructed above and the station was redeveloped as part of the project. Skanska promoted knowledge and awareness of sustainable design and construction by providing guided tours of the site during the construction and disseminating information among interested national and international media.

Social Aspects

Minimised disturbance to metro operations

Despite constructing the CSOB headquarters directly above the Radlick metro station, metro train operations were not disrupted during construction. State-of-the-art machinery and construction techniques were used to limit the potential disruption period to 14 days and Skanska maintained good communications with the Prague metro authorities throughout the project.

Occupational safety

A health and safety coordinator was responsible for daily site inspections and the safety training of all Skanska employees and subcontractors. One lost time accident resulting in a minor injury occurred during the project and the Lost Time Accident Rate was 0.33.

Building fire safety system

A state-of-the-art fire safety system including a fire control centre, comprehensive sprinkler system and emergency lighting has been installed. Expert help was sought during the design process to integrate a natural fire ventilation system, which

would facilitate the extraction of heat and smoke in the event of a fire.

Healthy and productive working environment

The building uses natural light, fresh air ventilation, open space and low-VOC (Volatile Organic Compound) materials to create a healthy and productive working environment for CSOB staff and visitors. Large windows, atriums, skylights and inner courtyards enable 90% of the indoor space access to natural light. Employees can also customise their personal indoor lighting from their workstation and have access to fresh air ventilation through operable windows. The office space is open-planned and includes space for casual social interaction and relaxation to create a dynamic social environment. Sound absorbent ceilings, walls and furniture dampen the build up of noise in open spaced areas. Indoor pollution has been minimised by using only low-VOC paints, coatings and carpets.

Urban redevelopment

The building has been constructed on a brownfield site to avoid urban sprawl and the destruction of natural environments. The site had not been redeveloped since Radlice was almost completely destroyed during the Second World War. CSOB is also preserving the character of Radlice by planting trees and protecting greenfield sites to restrict excessive development. Local people were informed about the site redevelopment by information boards by the entrance of the metro station.

Promoting sustainable transport

The CSOB headquarters has good public transport access and is situated above the Radlick metro station, which is on the Prague metro line B and 10 minutes from central Prague. The building is also close to tram and bus routes and has underground cycle parking for 125 bicycles. The authorities requested that the Radlick metro station be redeveloped as part of the CSOB project, and Skanska was responsible for the US\$1 million modernisation.

Sustainability construction education

The CSOB headquarters has featured in a Czech documentary film and a number of professional magazines interested in the building's sustainable design and construction features. CSOB and Skanska provided guided tours of the building for construction professionals and students during construction and after opening.



Community support

Skanska helped to preserve local history and identity by restoring the Radlice chapel, which is the symbol of the Radlice town. The grounds surrounding the new headquarters are open to the public and provide additional green space for local residents.

Economic Aspects

Construction employment

There were 850 construction workers on site during the peak of construction. The majority of the Skanska employees and roughly half the subcontractors were from the Prague area, while other subcontractors came from other parts of the Czech Republic, Slovakia and Austria.

Local construction materials

Over 90% of the materials used in the construction were manufactured and sourced within 800km of the site, most from within the Czech Republic.

Energy efficiency savings

The CSOB headquarters is one of the most energy-efficient buildings in the Czech Republic. CSOB is currently measuring energy consumption and is expecting to make significant operational savings by consuming approximately a quarter less energy than has been approved for the building.

More efficient bank

Staff at the CSOB headquarters have been relocated from 10 expensive inner city offices across Prague, which are no longer required by the bank. Additional financial and time savings will be made by reducing the need to transport employees and documents between separate offices and several bank operations are expected to become more efficient. The high quality work environment is also thought to have boosted employee satisfaction and productivity.

Local economic development

The CSOB project has attracted other businesses to the area surrounding the Radlick metro station, which has seen limited economic activity in recent years. The Louvre office building development, for example, directly opposite the CSOB headquarters was completed in summer 2008. Although CSOB are ensuring that excessive urban development does not occur in the Radlice area by protecting undeveloped green sites.

Environmental Aspects

Environmental clean up of the site

The site was cleaned up prior to construction by treating contaminated soil and reusing or removing existing waste. The site had been used as a dumping ground for hazardous wastes, and contaminated soil was treated on site by applying natural biological processes. Over 75% of building waste was diverted from disposal, including 10,000 m³ of concrete from earlier structures that was crushed and reused on site. 55 tons of contaminated wooden railway sleepers, which could not be reused, were safely disposed of at a purpose built hazardous waste facility.

Environmental awareness training

All Skanska construction workers and subcontractor managers underwent environmental training, which focused on risks and preventative measures during construction.

High environmental construction standards

Environmentally friendly construction materials that were natural, locally sourced and non-toxic were prioritised throughout the project. Noise disruption was not a significant issue due to the distance from residential areas, but dust pollution was reduced during construction by regular spraying.



Sensitive incorporation into the natural environment

The building has been incorporated into the natural character of the Radlice area by restricting the vertical dimensions and covering approximately half the site with greenery. The CSOB five story headquarters is situated at the base of the Radlice valley and does not dominate the landscape. Existing trees were preserved and 730 quick growing and local species of tree have been planted on the site and in the nearby forest park. Six landscaped roof gardens have been created, 18,000 m² of lawn laid and 7,100 small shrubs have been planted, including climbing plants that cover sections of the facades. Climbing plants have also been used within the indoor courtyards to visually connect the roof gardens with the indoor environment, where plants also feature heavily.

Light pollution

Following the initial LEED assessment CSOB took the decision to disconnect the building's external lighting in order to reduce light pollution.

Energy efficiency

The CSOB headquarters uses a sophisticated air-conditioning system, natural ventilation, natural light and an automatic indoor environmental control system to use over 25% less energy than the annual 4.1MW approved for the building. During cold weather the cooling units are capable of operating in heat pump mode to efficiently warm the building. Operable windows and valves offer the option of natural local and centrally controlled cooling during warm weather. Automatic external sunshades reduce excessive natural light and sensors regulate indoor lighting according to the level of daylight, which reduces the building's electricity consumption.

Water efficiency

Water efficient fixtures within the building have reduced water consumption by over 20% compared with conventional Czech buildings. Water efficient landscaping has reduced outdoor water consumption by over 50% and the roof gardens are entirely watered by an automatic rainwater system, which collects and stores water in underground reservoirs for use during dry periods.

Green roofing

Low-growing vegetation, trees and shrubs have been planted on the roof in a 1.6m layer of soil. The green roof and climbing plants on the facades improve the heat-insulation properties of the building and reduce the urban heat island effect.

Renewable energy

CSOB have joined the Czech Green Energy programme, which ensures that a minimum of 50% of the building's electricity requirements are met by renewable energy sources in the Czech Republic, including hydro-electric and wind power plants.

Learning From Good Practice

LEED was essential for integrating sustainability into the CSOB project and proved a useful international benchmark for the pioneering project in the Czech Republic.