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Czech Republic: Skanska's Project City Green Court case study

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About

Case study name:

[The greening of industries in the EU](#)

Country:

Czechia

Organisation Size:

500+

Sectors:

Construction and woodworking

This case study illustrates the implementation of green change in the construction sector by a branch of the global company Skanska AB in a new EU member state – the Czech Republic. The study focuses on the construction and development of an office building called City Green Court in Prague, which obtained the LEED Platinum pre-certification. The project introduced various green practices, green jobs and training requirements for employees in the field of environmental protection, health and safety. The case study was prepared in December, 2011.

Introduction

Skanska employs more than 5,000 people in the Czech Republic (10.8 % of its global staff). The company, a Swedish global construction and development group, moved into the Czech Republic in the 1950s. The company deals with all areas of construction, development and sales of their own residential and commercial projects, property management and also provides related services.

In the Czech Republic Skanska operates in the construction and development sector. In 2010 the Czech construction industry had a 6.4% share of national GDP and an almost 7% share of national employment.

This case study focuses on Skanska's City Green Court project, which was the first office building in Europe get a platinum pre-certificate from the Leadership in Energy and Environmental Design (LEED) international certification system for green buildings. Its energy consumption is 56% lower than that required by Czech national standards. The City Green Court project was constructed by Skanska for one of its divisions, Skanska Property Czech Republic – the developer and investor of the building. The building will be completed in 2012.

Drivers and motivations

Skanska's long-term objective, as specified in its 2011–2015 Business Plan, is to construct buildings in the Czech Republic that annually consume less energy than 74 kWh/sq m per year. In comparison the current Czech energy consumption standard for new buildings is 179 kWh/sq m per year. The City Green Court building is a significant step towards the company's objective. The building was made possible because Skanska:

- utilised the resources of the entire group – brand, the experience of their employees and a strong financial position;
- wants to be a leader in sustainable construction, particularly in the maintenance of ethical standards, health and safety protection at work and environmental protection;
- promotes ecologically responsible procedures, materials and technology;
- feels that innovative, ecologically responsible building solutions open more business opportunities, especially when the construction market is stagnating due to the global financial and economic crisis;
- thinks investors are more interested in companies skilled in green construction. The City Green Court is a pilot project for monitoring indoor and especially outdoor CO₂;

- has always had more stringent standards than those required by national regulations.

Green business practices

LEED certification

Leadership in Energy and Environmental Design (LEED) is an international certification system for green buildings developed by the US Green building Council (USGBC) in 1998. LEED certification for new construction and major renovations provides independent, third-party verification that a building has been designed and built using strategies aimed at achieving high performance in the following key areas:

- sustainable sites;
- water efficiency;
- energy and atmosphere;
- materials and resources;
- indoor environmental quality;
- innovation in design;
- regional priority.

In LEED system there are 100 base points (plus six for Innovation in Design and four for Regional Priority) distributed across these seven major areas. Buildings can qualify for four levels of certification (according to a number of points collected):

Table 1: Levels of LEED certification for new construction and major renovations (2009)

Level	Points
Certified	40-49
Silver	50-59
Gold	60-79
Platinum	80+

Source: USGBC

Steps to achieving platinum status for City Green Court

The City Green Court building was initiated by the Skanska Property Czech Republic. Construction began in September 2010 and work is expected to be completed in May 2012.

The built environment accounts for approximately 40% of all energy consumption. About 1% of this is consumed during construction, 84% accounted for during the lifetime of the building and 15% is embedded in construction materials. Consumption can be reduced by:

- saving energy;
- the use of environmentally friendly products;
- improving waste management;
- efficient use of resources.

The building was awarded its LEED platinum pre-certificate in December 2010. The green business practices implemented during the construction can be seen in Table 2

Table 2: Green business practices implemented in the City Green Court project

Sustainable sites	Green roof; parking for bicycles; showers; locker rooms; reduction of light pollution outside the building
Water efficiency	Use of rainwater for irrigation and cooling; limiting water wastage; highly efficient irrigation system; waterless urinals

Energy Efficiency, protection of ozone layer and atmosphere	Low-pressure air-conditioning, ventilation and heating; distribution of cool and fresh air; advanced lighting system (automatic light switches, movement detecting sensors, LED lights; separate metering of energy and water consumption
Materials and resources	Recycling of building waste (rubble, soil); use of regional materials such as wood; communal waste separation; use of recycled materials (such as clay, gravel, iron, glass)
Indoor Environmental Quality	Monitoring of interior and exterior CO2 emissions; healthy work environment; automatic regulation of fresh air feeding according to CO2 level; control of chemical pollution sources; individual temperature control; combination of interior and exterior shading

Source: Internal Skanska Property Czech Republic materials

These green practices mean the building uses 33% less energy than the Leed benchmark of 79 kWh/sq m per year. In comparison a typical office building in the Czech Republic consumes around 150 kWh/sq m per year. Additional energy and water savings are illustrated in Table 2 which compares the LEED benchmark with the Skanska design for the City Green Court building.

Table 2: Energy consumption of the City Green Court building and LEED base building

	LEED base building	City Green Court	Difference (%)
Heating demand (kW)	1268	764	40
Cooling demand (kW)	1450	723	50
El. Consumption of lights (%)	100	38	62
Total energy cons. (kWh/sqm/year)	118	79	33
Water consumption (%)	100	48	52

Source: Internal Skanska Property Czech Republic materials

Impact on employment

Impact on quantity of jobs

The company did not recruit any new workers for the City Green Court project. The building was constructed by an experienced and trained team, which had already built other green buildings such as Nordica Ostrava, the first Czech office building to receive EU Green Building certification. Approximately 100 workers were involved in the City Green Court project.

Both companies Skanska, a.s. and Skanska Property Czech Republic employ some green specialists who took part in the construction of the City Green Court building. There is a sustainability team at Skanska a.s., and several internal consultants, expert teams and other green professionals at the Skanska Property Czech Republic.

Skanska, a.s. is unique in the Czech construction sector because it has its own sustainability team, formed in 2008. It has experts in water management, biodiversity, air protection, transportation of materials, legislation and certificates. These green jobs were transformed from existing jobs in the Skanska Company.

At the Skanska Property Czech Republic several expert teams with the internal consultants and green specialists cooperate on many green projects. There is also the Green Business Manager for commercial development, who is a LEED Accredited Professional. She is responsible for green business support such as internal training for the City Green Court project.

There were no jobs eliminated or substituted due to the implementation of green business practice. As the company's technology was changed to become more environmentally responsible, all existing staff were trained to use it.

In the next five years, the Skanska HR manager foresees more jobs being transformed into green jobs. In line with the Business Plan 2011–2015 (and the document *Forthcoming Environmental Milestones in 2050* which predicts environmental changes) the share of green buildings will increase. Following this 5% more employees will have to be trained in saving resources (energy, water or waste); environmental protection and the implementation of LEED certificates.

Impact on quality of jobs

Skills development

Each environmental specialist in the company covers specific areas of responsibility and has great expertise in their area, which they constantly improve. They train to the Skanska group's global standards at Skanska's headquarters in Sweden; exchange experiences and information at working groups. These groups include:

- *Best Practice Group* with a focus on the certifications;
- *Environmental Performance Network*;
- *Energy Network*;
- *Green expert group*;
- *Life cycle costing and assessment group*.

These meetings often take place at the headquarters of Skanska.

The project leader for the City Green Court building is LEED trained, a member of the Green Expert Group, and was also in the project management team for Nordica Ostrava. The main design changes of City Green Court which has influenced the project the most came out of the cooperation with several experts within Skanska but also from discussions and modelling with Skanska's consultants. The LEED training was carried out internally for the whole Skanska group and took place in Warsaw in June 2010. Training was organised by parent company Skanska AB and the lecturer was from Skanska USA. Project leaders in Skanska Property Czech Republic often research available green technologies and, after discussions with Skanska consultants, try to incorporate them into projects.

The specialists also attend special conferences and meetings organised by the various organisations such as ministries and NGOs such as the [USGBC](#). For example, the Green Business Manager cooperates with the Czech Green Building Council and attends trainings on the options for green buildings for various companies.

The Skanska environmental specialists also train colleagues in the specific green skills which they have gained. Responsible staff at the level of site managers must attend special internal training, where they receive more detailed information on laws governing environmental protection.

In January 2011 all employees of Skanska Property Czech Republic were trained by the Green Business Manager on topics such as:

Why should Skanska develop and build green?;

Green in Commercial Development;

Skanska's journey to Deep Green;

Tools to help.

Similar courses take place annually. The most recent training on topical green issues (including information about the City Green Court project) was in February 2012.

All Skanska employees are also trained in environmental protection (by the HR department in collaboration with the Green Business Manager and the sustainability team) when they are hired. Blue-collar workers attend a three-hour training course about health and safety during the construction or saving on materials and resources. Architects and senior employees participate in longer (one-day) seminars where they get information about the construction design or financing costs of a project.

Some employees have worked at other green buildings where they got useful specific knowledge and skills such as:

- using wood in constructing buildings;
- saving energy;
- recycling.

A good example is the 2009 low-energy house construction project by the Environmental Education Centre in the city of Kladno. During the construction of this project Skanska received several visits from manufacturers of environmentally responsible products and from members of the Wood Industry Research Institute.

Other dimensions of job quality

Skanska's standard safety procedures for the City Green Court project were more rigorous than other Skanska projects or standard Czech safety regulations. This led to high standards of occupational health and safety with almost no accidents. A health and safety coordinator was responsible for daily site inspections and the safety training of all Skanska employees and subcontractors. Predefined hazardous substances were not used in the project in accordance with ISO 14001. Only non-toxic products were used throughout the construction in order to prevent indoor air pollution. The project was constructed in accordance with the health and safety management system specification, OHSAS 18001. The Lost Time Accident Rate was also minimal. Safety measures were followed up by the project managers and verified by an independent safety consultant from Sweden.

Pay is dependent on a specific position and not on the green content of the work. Training of all employees in green issues is required in accordance with the objectives and strategies of the company.

There were no differences between employees working in the City Green Court construction and the remaining employees of the company (regarding, for example, work intensity or pay). However, working time is generally more flexible for the economic and technical professionals than for blue-collar workers.

Collaboration

The measurement of CO2 emissions during the entire construction process, was made by environmental specialists from Skanska, a.s. in collaboration with the project team of Skanska Property Czech Republic. The team's 12 members included the project manager, key site manager, site managers, foremen on site, preparer, plus specialists in safety and health at work, in environmental protection, in LEED Certification and economists.

Skanska also cooperates (in accordance with environmental and communication strategies) with research institutes of universities or various NGOs, business partners and environmental organisations in the City Green Court project:

Skanska collaborates with the Partnership Foundation, the largest NGO in the Czech Republic, for organising conferences and seminars about green construction. Skanska is planning to present its experiences with the City Green Court project at one of these meetings.

Skanska has a voluntary agreement called 'Building ecologically' with the Ministry of Environment and partners from the construction industry. The association of these institutions organises an annual competition for ecological construction in the Czech Republic. The winner of the competition is promoted at the Building Fair EnviBrno. Skanska will probably participate in the competition with the City Green Court project.

Skanska is a founding partner of the Czech Green Building Council – a member of the World Green Building Council. This global institution organises The World Green Building Week to highlight the potential of the sustainable construction. The last such event took place in Prague on the 19 – 23 September 2011. The City Green Court project was part of the programme. Skanska described how the construction of the building is proceeding and the green designs, construction features and innovations that were being used. All participants were given a guided tour around the site but only after Skanska's health and safety policy was clearly explained to them and the visitors had undergone induction training.

Skanska offers many opportunities for students from the Czech technical university in Prague, (especially from the Faculty of Civil Engineering) to take up internships or join the Global Trainee Program for future managers. They can learn about innovative methods and technology, such as the measurement of CO2 emissions during the construction of the City Green Court building. Skanska also supports students with their theses, provides scholarships and organises excursions to the construction site.

Conclusions and recommendations

The case study shows how implementation of green practices contributes to the reputation of the Skanska Company and strengthens its position in the market. These practices are good not only for business, but also for the employees and the environment.

Skanska Property Czech Republic has set a new benchmark for energy efficient office buildings in the Czech Republic. The LEED Platinum pre-certification criteria promoted the use of cost-effective measures that have enhanced the energy efficiency of the City Green Court building. Energy reduction is more than 50 % greater than the national standard and also than a typical Czech office building.

Innovative, ecologically responsible building solutions open more business opportunities. This is especially important at a time when the construction industry is stagnating due to the global financial crisis.. Skanska has also demonstrated that the focus on green technology and the certification of buildings makes it more competitive in the industry.

Skanska did not need any new employees for the City Green Court project. The building was constructed by experienced and trained employees. The emphasis on environmental protection will be a continuing priority for Czech Skanska and it is therefore probable that the proportion of green practices, knowledge and skills will continue to grow.

Skanska employs small number of specialists in the field of environmental protection. These employees have highly specialised knowledge and train their colleagues. This method of training is very efficient in terms of time and cost.

Skanska's standard safety procedures are more rigorous for the City Green Court project than other Skanska projects and also than the Czech safety regulations. This makes it possible to ensure good working conditions and a low accident rate.

Skanska also cooperates with research institutes, various NGOs, business partners and environmental organisations. Skanska raises public awareness of ecological construction at many events in cooperation with these partners. This strategy helps to improve the company's marketing image and increases its competitiveness and also the interest of investors.

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