



Implementing Sustainable Construction for the Czech Supreme Audit Office Headquarters

Overview

The Supreme Audit Office (SAO) headquarters project in the Czech Republic aimed to establish a building that meets high standards of effective and economic operation while pushing for innovation through sustainable construction practices. This case study outlines the implementation of sustainable construction techniques, the procurement process, and the achieved benefits.

Background

The SAO utilized a Design-Build procurement approach, which combines the design and construction phases into a single tender. This method provides a single point of responsibility, reducing risks and overall costs. The project used tools such as the FIDIC Yellow Book for Design-Build contracts and Building Information Modeling (BIM) to evaluate life cycle costs (LCC) of the building.

Country / Region
Czech Republic / European Union (EU)

Case study project name
Implementing Sustainable Construction for the Supreme Audit Office (SAO) Headquarters

Case study type

 Construction and Infrastructure

Thematic area

 Environment

 Construction

Project executing agency and Implementing agency

- EA: European Investment Bank (EIB)
- IA: State Environmental Fund (SEF)

Project objectives

- Utilizing a design-build procurement approach that combines construction phases into streamlined tenders and enhancing efficiency.
- Applying techniques such as Building Information Modelling (BIM) and lifecycle assessment (LCA) to reduce environmental impacts and costs and improve sustainability performance in construction.



Process

Environmental and Social Impacts

During construction, the project recycled 100 m³ of concrete from previous structures on-site, 8,000 m³ of sand from the construction pit, employed a nearby concrete facility to minimize transport emissions, achieved CO₂ savings of 22.5 tons through efficient material transport, and implemented wireless light-control systems to reduce wiring material.

In the design phase and through the application of BIM, the project ensured near net-zero energy consumption through advanced design, applied smart heating-cooling systems with thermo-hydraulic solutions and heat recovery, optimized light and thermal quality with controlled façade glazing and external blinds, and adopted green roofs for thermal insulation and benefits to neighboring buildings.

The post-construction benefits for employees included openable windows for improved indoor air quality, reused furniture from the previous building, a dedicated childcare centre to support working parents, bike parking with electric charging facilities, a fitness center to enhance employee well-being, and facilities to employ people with disabilities, including accessible premises and light signals for emergencies

The post-construction benefits for the neighborhood involved the final revitalization of the area, creating a walkable space with a small park; public access to the Archive and Library of the Chamber of Deputies; and potential public access to on-site catering services.

The project yields several innovation pathways and future prospects. These encompass the implementation

of a “SMART Prague system” elements like smart trash bins and optimized waste collection routes, the more widespread use of BIM for facility management, fairtrade requirements for purchases in the cafeteria, maintenance by social enterprises, and intergenerational programs with seniors visiting the child-care center.

Challenges and Lessons Learned

The project faced challenges such as integrating various sustainability measures without existing national standards for public administrative buildings. The private certification scheme “Czech SBTool.CZ” was used to assess and certify the building’s sustainability, achieving a silver certificate.

Key Takeaways:

1. **Integrated Design-Build Approach:** Combining design and construction in a single tender reduced risks and costs, while ensuring a cohesive approach to sustainability.
2. **Use of BIM:** Leveraging BIM for life cycle cost analysis and facility management enhanced precision in sustainability planning.
3. **Environmental Benefits:** Effective use of recycled materials, local sourcing, and efficient transport significantly reduced the environmental footprint.
4. **Social Benefits:** Improved working conditions, support for working parents, and accessibility for people with disabilities promoted social sustainability.
5. **Community Engagement:** Revitalizing the local area and providing public amenities integrated the building project into the community fabric.

By setting high standards for sustainability and employing innovative procurement and construction practices, the SAO headquarters project demonstrates how public buildings can achieve both economic efficiency and environmental responsibility. This case study serves as a model for future sustainable construction projects.