



New eco-buildings in Välle Broar, Biskopshagen – Växjö (Sweden)

Keywords	Eco-buildings, energy consumption, sustainable energy planning
Main photos	 
Objectives of the action	The aim of this demonstration project was to erect apartment buildings and a pre-school designed with accordance to highly efficient CONCERTO* specifications. According to initial assumptions, the energy consumption was supposed to be 30-40% below applicable national indices and the share of renewable energy sources in the area's total consumption was meant to reach 90%. Integrated building process was designed to address energy - and cost-efficiency issues during the entire operation - from the early area planning to detailed technical design, construction phase and the project's evaluation.
Description of the action	<p>The eco-building project took place within the scheme of a comprehensive SESAC project**, which had started in 2005 as part of a larger CONCERTO initiative (the level of financing from SESAC reached 15€/built m²).</p> <p>18 buildings (with a total number of 88 apartments) and a pre-school were constructed with the application of high insulation standards, combined with the heat recovery and individual measurement system. The goal for energy usage in apartment buildings was set to 85 kWh/m²/year (heating and domestic hot water) and 20 kWh/m²/year (electricity). As for the pre-school, analogous numbers were 106 kWh/m²/year and 51 kWh/m²/year.</p>
Results / Achievements	<p>The first tentative result from energy metering revealed that the energy consumption level had been a bit lower than SESAC's energy standards regarding heating. Another very important benefit was the amount of saved CO₂ emissions due to low energy consumption.</p> <p>Monitoring and evaluation are ongoing:</p> <ul style="list-style-type: none"> • Latest results for heating in apartment buildings show the HDD corrected usage*** of around 62 kWh/m²/year. The electricity consumption in buildings reached 12 kWh/m²/year; • Pre-school's results show the HDD corrected usage of 104 kWh/m²/year and the electricity consumption of 88 kWh/m²/year; • 51 kWh/m²/year in the pre-school have been demanded (difference between the actual outcome and demand is probably due to the fact that the kitchen was not taken into consideration while setting the demand). <p>The project is one of those steps, which bring Växjö closer to its objective of becoming a fossil fuel free city (as decided in 1996) and reducing the CO₂ emissions per capita by 50% until 2010 and by 70% until 2025 compared to 1993.</p>
Friendly advice for replication	<ul style="list-style-type: none"> • It is essential to focus on energy-related issues already at the initial period of project's implementation. Consultants and architects have to bear in mind possible energy consequences while choosing construction methods and materials • Another important aspect is the need to follow up closely the quality of work being carried out (meetings with workers at the construction site, provision of adequate information and advice).
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* Concerto – project co-funded by the European Commission, aiming to demonstrate high EE/RES potential, which can be achieved through a fully integrated approach in high performing communities

** SESAC - The European Sustainable Energy Systems in Advanced Cities, more information:

www.concerto-sesac.eu

*** HDD – heating degree day