The CONCERTO Class1 project - Cost-effective Low-energy Advanced Sustainable So1utions

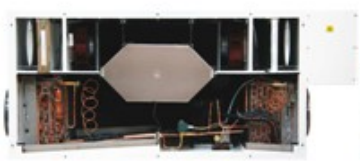
Scope and aims

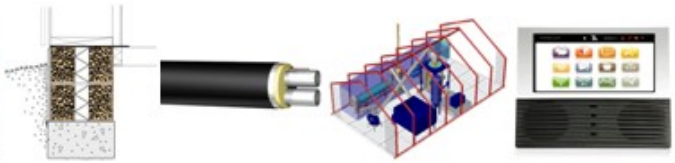
The Municipality of Egedal decided in 2005 to strengthen the energy requirements for a new settlement called Stenloese South. All the dwellings in in this neighbourhood were to be built with an energy demand corresponding to the Danish low-energy standard referred to as "low-energy class 1" – or lower. This meant that the energy consumption was to be 50% below the Danish BR08 energy regulations. The Class 1 CONCERTO project was conceived around this new settlement, adding energy renovation of public buildings, balanced renewable energy supply, R&D activities, training and dissemination. In the CLASS 1 project, the strengthening of the energy requirements was used to boost and drive the technological development of 6 selected technologies/building components covering the 3 areas: Rational of Use in buildings (RUE), Renewable Energy Supply (RES) and intelligent energy management systems and to prove the financial and environmental benefits of low energy buildings integrated with renewable energy supply. The project also covered activities dealing with town planning, regulatory means, and user acceptance and experiences.

Achievements

The Class1 project has demonstrated a municipal planning process that in combination with a R&D&D work successfully led to the implementation of more than 100 new energy efficient dwellings on market conditions, the energy refurbishment of 2 schools and 5 institutions and as well as the installation of more than 500 kWp of PV on municipal public buildings. Examples of implemented innovative technologies are prefab building elements, low-energy windows, ground-coupled heat-pumps, solar heating, pre-insulated piping for district heating, smart meters and PV. The demonstration project was supported by specific design guidelines developed within the project covering Indoor Environmental Quality and energy savings as well as requirements for monitoring and evaluation. After completion, a monitoring programme was carried out to verify savings and improved indoor climate. Within the project 6 low-energy technologies have been further developed and are now marketed as state-of the art solutions. In addition, the use of the “EU-flower” has been promoted within the Class1 project and a guide for builders has been developed. The socio-economic research has revealed user preferences, experiences and views and mapped the planning processes in the Municipality of Egedal and associated municipalities for the creation of new low-energy settlements - and resulted in a guide for Municipalities aiming at implementing energy-efficiency measures in existing buildings. The training activities defined in the project were targeted towards the technical personnel of the associated municipalities of the local authorities and the builders to directly convey the experiences within the Municipality of Egedal. The project had a far-reaching dissemination program with three focus areas: 1. The associated observer municipalities in Estonia, France, Italy and Romania, 2. Dissemination directed towards existing networks of cities and municipalities and 3. The public in general. The program also included international scientific publications and conferences. Finally, there has been a great demand, both nationally and internationally, to visit Stenloese and there directly learn about the solutions that have been implemented in the project.

Five specific guidelines have been produced: Idea catalogue for proactive planning practice for municipalities, Specific guidelines for low-energy buildings, Guide for introducing the EU-Ecolabel in building projects, Monitoring guidelines, Innovative practices for Energy Savings in the Municipality of Egedal.





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In addition **30 reports** and **10 Newsletters** can be downloaded from the project website: www.class1.dk, as well as **11 papers** for professional conferences and journals.

Conclusions

The Class1 project has shown a way for municipalities to work with implementation of sustainable solutions in urban developments and at the same time, it has enabled a greater focus on how to provide better tools for municipalities to set up tighter energy standards in the Danish planning legislation.

The demonstrated technological energy solutions have resulted in a total reduction in primary energy consumption for the Concerto community of 69% - with a corresponding CO^2-reduction. The total investments in RUE and RES technologies were 5.15 million Euro and the financial value of the reduction in conventional energy savings and renewable energy supply has been calculated to 0.47 million Euro and thus the simple pay-back time is 12 years. The monitoring shows that the implemented solutions have increased the quality of the indoor environment. Interviews with house-owners have shown that the residents are positively surprised that the increased insulation and air-tightness have minimised draught and that the mechanical ventilation systems with heat-recovery provide more fresh air.

Participants in the Class1 Project:

Egedal Municipality
Cenergia Energy Consultants
Danish Building Research Institute, AAU, DK
DIST, AAU, DK
PRO TEC Windows A/S,
Saint-Gobain Weber A/S
BioSynergi Proces ApS
Genvex A/S
Logstor A/S
EHK Home Automation Aps
IB Aksiaal OÜ
Valga Town Government – associated Municipality
Ente per le Nuove Tecnologie l'Energia e l'Ambiente, ENEA
I Istituto Cooperativo per l'Innovazione, ICIE
Comune di Bologna – associated Municipality
Sustainable Urban Development European Network
Municipality of Begles – associated Municipality
Association of the Local Development Promoters, ALDP
Municipality of Odobeşti – associated Municipality