

SUSTAINABLE BUILDING AND RENOVATION IN EUROPEAN MOUNTAIN AREAS

Background Worldwide, the construction, use and renovation of houses accounts for about half the energy consumption. In Europe, heating rooms and water accounts for most of the energy used in housing. Fuel and gas are the most frequently used energy sources. Therefore construction and renovation have a

large energy reduction potential. But for many municipalities the transition to a new sustainable and energy-efficient way of building is a major challenge. With the MountEE project – sustainable public buildings, three European mountain areas show how it works.



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CITY HALL LORÜNS

WHAT

As part of MountEE, the “Sustainable:Building in the Municipality” service package is to be expanded by a Module 5, “Service and Maintenance”. An offer is also to be made concerning the evaluation of energy consumption alongside the consultation in the area of environmentally friendly cleaning. The whole building is heated and ventilated by controlled ventilation and underfloor heating. The excellent air quality in the building will improve the working conditions. Thanks to ecological construction methods, only materials that support the well-being in a working environment are used.

FACTS

Type of building (use) // City hall
Year // 2012
Size // 392m² (232m² treated floor area)
Investment // € 1.000.000
Energy demand // 15 kWh/m²_{TFA}/a
Renewable Energy // Ground water heatpump (local heating network with fire station nearby)
Ventilation System // high efficient ventilation system with heat recovery
Air tightness // 0.44 l/h
Building material // wood with wood fibre and cellulose insulation



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HOW

The basis was the separate collection of the most significant energy consumption data and a calculation model with entry of individual usage profiles and building services equipment. In the second step the documentation of the energy consumption, manually by the building owner, with calculation of the settings, parameterisations and conditions of the actual location and the definition of time intervals for documentation took place. After the evaluation with the comparison of calculation data with individualised usage profiles, parameter adjustment and weak point analysis, improvements and controls took place.

LESSONS LEARNED

With the aim of energy saving without sacrificing comfort through energy monitoring and evaluation, follow-ups of heating, cooling, ventilation, plumbing, electrical systems etc. are important and necessary. Only with systems correctly adjusted to the building - and user-specifics - such as MRS parameters - apart from properly calculated, dimensioned, hydraulically balanced systems, buildings can be really efficient. The test of module 5 confirmed that a follow-up and an energy monitoring is as important as an energy-efficient building technical concept.



CONTACT

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SERVICE

More information on the project MountEE and its pilot buildings: www.mountee.eu

Funding Programme



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About MountEE In accordance with the Energy Performance of Buildings Directive of the European Union (EPBD), all new constructions and existing buildings undergoing major renovation will have to meet Nearly Zero Energy Building standards (NZEB) by 2018. For many municipalities, especially in mountain regions, the transition

to NZEB is a major challenge. The MountEE project supports municipalities in three European mountain areas – Sweden, Alps and Pyrenees – in achieving the NZEB objectives, and will help to transform them into front runners. In six regions, 33 public buildings are renovated sustainably and energy-efficiently.

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PRIMARY SCHOOL MÄDER

WHAT

The community of Mäders takes the view that sustainable changes in the population's lifestyle are only achievable together with the youth. Therefore educational buildings are in the focus of the municipality's priority: they are exemplary in terms of resources consumption and impact on the environment, have a good air and material quality for the comfort and health of the users. After the successful experience of the secondary ECO-school in 1998, the municipality decided to refurbish the old primary school. It has been renovated and extended in 2010.

FACTS

Type of building (use) // Primary school
Year // 2010
Size // 2653 m²
Investment // € 4.900.000
Energy demand // 7.33 kWh/m²_{BGF}a
Renewable Energy // district heat with biomass
Ventilation System // high efficient ventilation system with heat recovery
Building material // concrete and wood



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