INCREASING ENERGY EFFICIENCY IN BUILDINGS IN THE ARCTIC REGION

Main goals – *Identify the "best available technologies" (BAT) for increasing energy efficiency in buildings in the arctic region. Increase the municipalities in the arctic regions` knowledge of increasing energy efficiency in buildings, through knowledge and experience exchange in the region..*

Participants

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Background

Directives from the EU and political objectives have led to stricter energy requirements for buildings. The North Calotte region has a substantial building energy demand, due to the cold and dark climate, which makes the region especially affected by the new regulations.

The first implementations of Passive- and Low Energy buildings were made within the last decade. Sharing of practical experience from operation of these buildings can benefit other projects. The Norwegian Government's support service for energy effectivisation has shifted focus to the renovation of existing buildings. Information about the performance and experience from earlier implementations can be placed within a systematic evaluation together with results from research evaluations. This can contribute to achievement of the demands from the new regulations, as well as increase competence in the public sector in the North Calotte region within the energy effectivisation of new and existing buildings.

The main focus area in previous research has been to reduce the heating demand of buildings. The region has completed multiple passive and low-energy building projects. However, due to insufficient time, the long term results have not been adequately assessed. It has been reported that complicated operating systems and increased air tightness of the buildings has resulted in a decrease in the quality of the indoor climate. A compilation of the best available technologies for increasing energy efficiency in new and existing buildings in the arctic is therefore desired.

Arbeidspakker

To better identify the BAT ('Best Available Technologies') for energy effectivisation in arctic climate buildings, the existing knowledge and experience on the subject needs to collected through interaction with the regional municipalities. Multiple case studies will be reviewed on the Norwegian, Swedish and Finnish side of the project.
The Norwegian case studies include 3 new passive/low-energy house projects, as well as a review of different energy saving measures being implemented in 37 older public buildings in Narvik. Narvik district council has successfully implemented a project within "Energy Performance Contracting" (EPC) whereby the costs of renovation are covered by the future energy savings,


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through support of the national energy authority, Enova. Experiences from Narvik district council's EPC projects are to be spread to other councils in the region, and are also a rich source of information about the cost-effectiveness of rehabilitation actions in terms of energy effectivisation.

Assessment criteria

The projects` main goal of identifying the BAT for energy efficiency in the arctic region has led to these case study assessment criteria:
- The calculated energy compared to actual energy consumption of energy saving measures.
- The influence of technical installations on the indoor climate.
- Profitability of energy saving measures.
- Impact of the inhabitants` preferences on the buildings` energy demand.

Knowledge and experience exchange

The knowledge and experience from the public authorities in the region will be gathered and compared with the results from the case studies, with the use of standardized evaluation protocols.

The results from the case studies will be analyzed and compared with similar case studies from Finland and Sweden. The goal of the comparison is to identify the elements which influence the energy efficiency to the greatest extent.

The end product of the project will be a final report consisting of the knowledge and experience compiled throughout the project, as well as the results from the case studies.

The final results are to be presented to local municipalities through workshops and seminars, as well as the final report. Due to the great distances in the region, electronic communication will be used throughout the project. NORUT Narvik is interested in contact with private and public entities with interest for and experience from energy effectivisation of buildings.

Kilder

[1] foto kreditt: www.kaklauttanen.fi/en/

For more information, take contact with

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