

2012 HIGHLIGHTS

SHC Task 47 Renovation of Non-Residential Buildings towards Sustainable Standards

THE ISSUE

The EU Parliament approved in April 2009 a recommendation that member states have to set intermediate goals for existing buildings as a fixed minimum percentage of buildings to be net zero energy by 2015 and 2020.

For the existing non-residential buildings a dramatic reduction in primary energy consumption is crucial to achieve this goal. A few exemplary renovation projects have demonstrated that total primary energy consumption can be drastically reduced together with improvements of the indoor climate. Because most property owners are not even aware that such savings are possible, they set energy targets too conservative. Buildings renovated to mediocre performance can be a lost opportunity for decades. It is therefore important that building owners be aware of such successes and set ambitious targets.

OUR WORK

The objectives of this Task are to develop a solid knowledge base on how to renovate non-residential buildings towards the NZEB standards in a sustainable and cost efficient way as well as to identify the most important market and policy issues as well as marketing strategies for such renovations.

The Task began by analyzing highly successful renovations and innovative concepts for the most important market segments.

To reach local authorities, companies and planners who need the knowledge on how to achieve market penetration of such solutions, the Task is communicating success stories and planning knowledge with target audiences as a means to accelerate a market break-through of highly effective renovations in non-residential buildings.

PARTICIPATING COUNTRIES

Australia
Austria
Belgium
Denmark
Germany
Italy
Norway

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KEY RESULTS OF 2012

Four exemplary renovation projects are available to download from the Task 47 website.

The projects from Denmark, Italy and Norway, are described in 8-page brochures presenting the key renovation actions as well as energy performance numbers and costs. However, due to differences in the energy calculation standards among the countries, the energy numbers are not always comparable.

The projects show a 50-75% reduction in heat consumption of and a 50-70% reduction in overall energy demand.

To identify barriers and opportunities in the renovation process, a number of interviews were conducted with key persons involved in renovation projects. Some of lessons learned when it comes to the decision process are:

- There is still skepticism about indoor air quality in Passive-House-standard buildings.
- The BREEAM classification system is a useful tool for putting energy savings on the agenda.
- The innovative attitude is considered important for the Passive-House-standard decision.

The Task work also addresses indoor comfort, which is of special importance for schools. Not all designers and planners are aware of the fact that children are not “small adults” and that their metabolism, nervous system and respiratory system are not mature:

- Compared to their weight children drink and eat more, they also absorb a larger proportion of pollutants in their food.
- Children inhale twice as much air as adults compared to their weight. They breathe mainly through the mouth.
- Their metabolic elimination of toxic substances is weak.
- They spend more time near the floor and put their fingers in their mouths, increasing their exposure to toxic agents in dust and soil.

RENOVATION EXAMPLES

Kindergarten Vejtoften - Denmark

October 2012 - PDF 1.23MB - Posted: 10/19/2012

By: Jørgen Rose and Kirsten Engelund Thomsen

Built in 1971 with minimal insulation standard. One of 27 kindergartens in the municipality that will undergo an extensive energy renovation. The method developed in this project will be applied in all the other kindergartens.



NVE Building - Norway

October 2012 - PDF 1.23MB - Posted: 10/19/2012

By: Anders Johan Almas, Michael Klinski, Niels Lassen

The office building was constructed through 1962-64 for the Norwegian Water Resources and Energy Directorate. Protected elements both internal and external. The first protected building in Norway to be renovated to energy level B or better.



School Renovation - Cesena, Italy

June 2012 - PDF 0.79MB - Posted: 7/2/2012

By: Task 47

Presentation that outlines a major renovation of a primary school built in the 1960s. Includes building envelope, heating system, renewable energy system and lighting.



Norwegian Tax Authority Building Renovation - Oslo, Norway

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By: Task 47

Presentation that outlines the renovation of the high-rise Norwegian Tax Authority building in Oslo, Norway. The renovation includes high insulated building facade, increased air tightness, energy recovery, and high efficiency technical systems.

