

### **2013 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 renovation projects have demonstrated that total primary energy consumption can be drastically reduced together with improvements of the indoor climate. However, most property owners are not even aware that such savings are possible, and they set energy targets that are too conservative. Buildings renovated to mediocre performance can be a lost opportunity for decades. It is therefore important that building owners are 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 using such solutions, the Task is communicating success stories and planning knowledge with target audiences to support the acceleration of a market break-through of highly effective renovations in non-residential buildings.

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## PARTICIPATING COUNTRIES

Australia
Austria
Belgium
Denmark
Germany
Italy
Norway

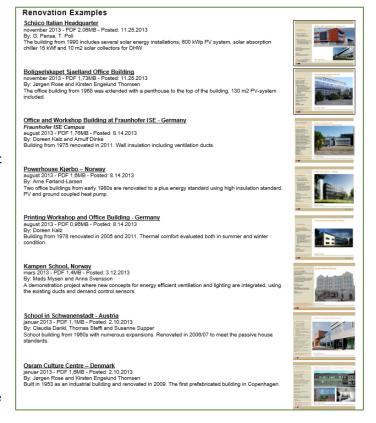
#### **KEY RESULTS OF 2013**

#### **Exemplary Renovations**

Twelve exemplary renovation projects are available on the Task webpage. The projects are described in 8-page brochures presenting the key renovation actions as well as energy performance numbers, decision-making processes and costs. Eight new project brochures were completed in 2013 (Austria, Denmark, Germany, Italy, Norway).

The projects show a 50-90% reduction in heat consumption and a 50-70% reduction in overall energy demand. One of the buildings from Norway shows that it is possible to achieve a plus energy standard combined with the highest possible BREEAM score, Outstanding.

The researchers in Task 47 interviewed key actors in the decision process in nine of the projects from six of the partner countries. It is too soon to draw any conclusions as a cross analysis will be done in the second quarter of 2014. Interestingly, in some projects the ambition level changed during the process. How and why this happened will be discussed in a final report of Subtask B.



The performance of eight buildings was analyzed in terms of energy consumption and thermal comfort achieved using long-term monitoring data in high time resolution. In particular, a comparison was made between the performance before and after the retrofit. These buildings studied show that they achieved their ambitious target values set during the design stage.

The Task work also is addressing indoor comfort and quality of life, with a special focus on school buildings refurbishment (Subtask D). Most schools in Europe are old, outdated and sorely lacking comfort. This discomfort has important consequences on the health of children and teachers (who represent a large proportion of the European population), but also on the learning and teaching abilities. The objective of this work is to offer designers and developers renovation guidelines to significantly improve the energy performance of schools, the comfort of children and teachers, and the quality of life and use of school buildings.

All these recommendations will be included in a Guide, with chapters on:

- Improve the comfort and quality of life
- Reduce the consumption of fossil fuels
- Reduce the consumption of non-energy resources (materials, water, etc.)
- Reduce waste (waste water, building and domestic waste)

The Guide will be illustrated with innovative concepts of exemplary projects and links with the BREEAM Assessment methodology.