



Towards Net Zero Energy Solar Buildings

IEA SHC / ECBCS Project Factsheet
Task 40 / Annex 52

The Solar estate 'Solarsiedlung Freiburg am Schlierberg',
Freiburg, Germany, source: Büro Disch.



The EnerPos Building, Université de la Réunion, île de la
Réunion, France.



The EcoTerra™ house by Les Maisons Alouette, Eastman,
Quebec, Canada.



CONTEXT: Energy Use in buildings worldwide accounts for over 40% of primary energy use and 24% of greenhouse gas emissions. Energy use and emissions include both direct, on site use of fossil-fuels and indirect use from electricity, district heating / cooling systems and embodied energy in construction materials. Several International Energy Agency (IEA) countries have adopted a vision of so-called 'net zero energy buildings' as long-term goal of their energy policies. However, what is missing is a clear definition and international agreement on the measures of building performance that could inform 'zero energy' building policies, programmes and industry adoption around the world.

OBJECTIVES: The objectives of the joint Task/Annex "Towards Net Zero Energy Solar Buildings" is to study current net-zero, near net-zero and very low energy buildings and to develop a common understanding of a harmonised international definitions framework, tools, innovative solutions and industry guidelines. To achieve this objective the Task/Annex will document and propose practical NZEB demonstration projects, with convincing architectural quality.

SCOPE: The Task/Annex will cover major building types (both residential and non-residential), new and existing, for the climatic zones represented by the participating countries. Individual buildings, clusters of buildings and small settlements will be considered.

AIM: To support the conversion of the NZEB concept from an idea into practical reality in the marketplace. Demonstrating and documenting real projects will also lower industry resistance to adoption of these concepts.

STATUS: On-going to September 2013.

RESEARCH STREAMS

Subtask A: Definitions & Implications

- Activity A1: NZEB definitions framework
- Activity A2: Monitoring, verification and compliance guide
- Activity A3: Grid interactions

Subtask B: Design Processus & Tools

- Activity B1: Processes and tools
- Activity B2: Pre-concept design, feasibility tools
- Activity B3: Tools guide and worked examples

Subtask C: Solution Sets (Design, Engineering, Technologies)

- Activity C1: NZEB STC Database:
- Activity C2: Analysis Matrix
- Activity C3: Research analysis of themes undertaken
- Activity C4: STC Source Book

Subtask D: Dissemination & Outreach

- Activity D1: NZEB web page
- Activity D2: Reports production, Source book(s): Vols. 1, 2 and 3
- Activity D3: Education network for PhD students and summer schools
- Activity D4: Outreach (conferences, seminars, workshops etc.)

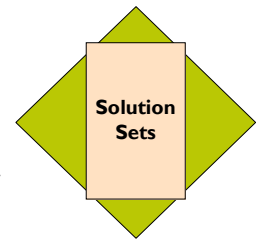
<http://www.iea-shc.org/task40/>



Task 40 / Annex 52

PRODUCTS

- A source book, targeting specific groups such as national policy makers, Industry and industry associations, utilities, academic and funding programme managers
- An international education network
- Expansion of the US DOE High Performance Buildings Databases with `as-designed` and `as-achieved`
- Knowledge transfer portal / web-site



SUBTASK (ST) LEADERS



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SHC Vision

The greater use of solar designs and technologies in the built environment, and for agricultural and industrial process heat.



International Energy Agency
 Energy Conservation in
 Buildings and Community
 Systems Programme

ECBCS Vision

For near-zero primary energy use and carbon emission solutions to be adopted in buildings and communities, where energy is produced on demand.

INTERNATIONAL ENERGY AGENCY

The International Energy Agency (IEA) was established as an autonomous body within the Organisation for Economic Co-operation and Development (OECD) in 1974, with the purpose of strengthening co-operation in the vital area of energy policy. As one element of this programme, member countries take part in various energy research, development and demonstration activities. The Energy Conservation in Buildings and Community Systems Programme has sponsored various research Annexes associated with energy prediction, monitoring and energy efficiency measures in both new and existing buildings. The results have provided much valuable information about the state of the art of building analysis and have led to further IEA sponsored research.

OPERATING AGENT

(STD Leader)

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