Towards Net Zero Energy Solar Buildings

ANNEX 52 / TASK 40

The project has successfully studied current net zero, near net zero and very low energy buildings and is now close to completion. Over the past five years it has developed a common understanding, a harmonized international definitions framework, tools, innovative solutions and industry guidelines. This was achieved primarily by documenting and proposing practical net zero energy building (NZEB) demonstration projects, with convincing architectural quality. These exemplars, supported by a sourcebook, guidelines and tools, are viewed as essential for industry adoption.

The project has investigated the cost effective equalisation of the small annual energy needs of such buildings through building integrated heating and cooling systems, power generation and interactions with utilities. It has learnt from recent industry experiences with net zero and low energy solar buildings and the most recent developments in whole building integrated design and operation. This joint international research and demonstration project is expected to:

1. Establish an internationally agreed understanding of NZEBs, based on a common methodology,
2. Identify and refine design approaches and tools to support industry adoption,
3. Develop and test innovative, whole building net zero solution sets for cold, moderate and hot climates with exemplary architecture and technologies that would be the basis for demonstration projects and international collaboration, and
4. Support knowledge transfer and market adoption of NZEBs at a national and international level.
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 in Buildings and Communities Programme has co-ordinated various research projects 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 co-ordinated research.

**EBC VISION**

By 2030, near-zero primary energy use and carbon dioxide emissions solutions have been adopted in new buildings and communities, and a wide range of reliable technical solutions have been made available for the existing building stock.

**EBC MISSION**

To accelerate the transformation of the built environment towards more energy efficient and sustainable buildings and communities, by the development and dissemination of knowledge and technologies through international collaborative research and innovation.