Cost Effective Commissioning of Existing and Low Energy Buildings

ANNEX 47

Buildings are complex systems containing many interacting sub-systems. These systems must balance diverse and sometimes conflicting performance requirements such as energy efficiency, indoor air quality, comfort, and reliability. Further, in many countries the vision of achieving 'zero energy buildings' is becoming more important.

Commissioning methods and tools are necessary to ensure that building systems operate as intended. However, documented commissioning methods are currently only available for certain conventional HVAC systems and do not address the advanced systems that are important for low energy buildings.

Although the current focus of commissioning practice is to attempt to make buildings work as designed, significant additional energy savings can be achieved by commissioning to optimize building operation based on actual occupancy and use. This approach to "field optimization" of building HVAC systems considers the long-term persistence of savings and benefits achieved during the commissioning process.

This project has enabled the effective commissioning of existing and future buildings for improved operating performance. The commissioning techniques developed through this research will help to transition the industry from the intuitive approach that is currently employed in the operation of buildings to a more systematic operation that focuses on achieving significant energy savings.

The target groups for this project are designers, commissioning agents, facility managers, building owners, and policymakers.

PRODUCTS
– Methods and tools for commissioning advanced systems and low energy buildings
– Methods and tools for field application
– Information on the costs and benefits that can be used to promote the wider use of commissioning
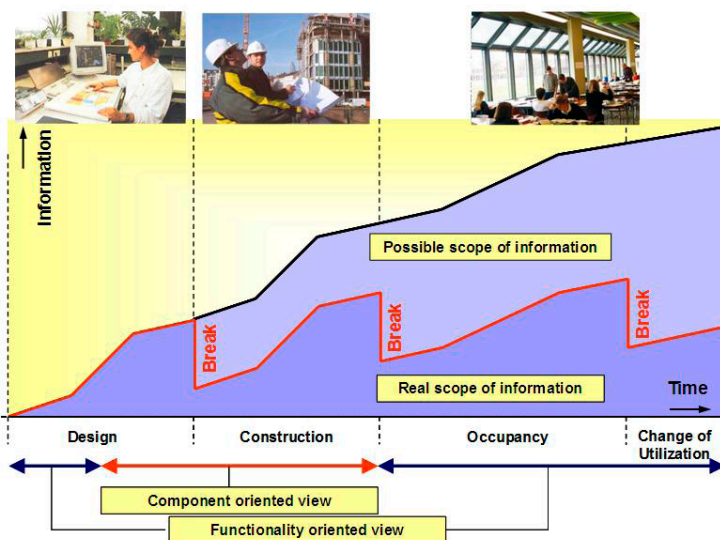
The loss of information over the building lifecycle and the need to improve information flow.

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 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.

Deployment of energy metering in a commissioning project.

Project duration
Completed (2005 - 2010)

Operating Agents

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Participating countries

Belgium, Canada, Czech Republic, Finland, France, Germany,
Japan, Norway, Sweden, the Netherlands, USA
Observers: China (Hong Kong), Hungary

Further information
www.iea-ebc.org

EBC is a programme of the International Energy Agency (IEA)