



CIB NEWS ARTICLE

International Council for Research and Innovation
in Building and Construction

Providing a global network for international exchange and cooperation in research and innovation in building and construction, in support of an improved building process and of improved performance of the built environment.



Smart-ECO
Sustainable Smart
Eco-Buildings in the EU

Sixth Framework Programme
Priority 6.1.3.1.2.1
ECO-Buildings



December 2008

Second Project Report - The Vision

Smart-ECO is an EU funded 2,5 year programme in which CIB is one of the programme partners. It focusses on the uptake of innovations that enable the Building and Construction sector to meet the requirements of Sustainable Development. This second Report from the Smart-ECO programme is about developing a consensus based Smart-ECO Vision.

Smart-ECO is part of a cluster named "ecobuildings" that includes three such EU funded projects and that is introduced in a separate CIB News Article ([here](#)).

What is a Smart-ECO Building?

The first milestone of the Smart-ECO route is the vision. It will be reached by elaborating a consensual vision of what should be a sustainable smart-eco building in the time period 2010 – 2030, considering the actual EU starting point. The vision will be then translated into requirements as to support it, and lead to suggested tools for measuring how the requirements are being fulfilled. Both will be submitted to the stakeholders for comments. The resulting stakeholder-supported vision will serve as point of reference for the identification and discussion of innovations, and will later provide the basis for further work in the Smart-ECO project.

Applying the "back-casting" approach, the vision describes the different aspects of a sustainable smart-eco building, formulated as a goal to reach. The back-casting approach also includes the backwards description of the steps to that goal, and then, for each of them successively, the identification of barriers to achievement, requirements and solutions. The following one page text is the executive summary of the detailed vision document.

The Vision

A sustainable, smart eco-building (SSE-building) results from the practical application, at all phases of the project of the general principles of sustainability set out in ISO 15392:2008 [frame 1]. These general principles need to be applied all along the decision making process (planning, design, construction, operation, renovation, end of life), and more specifically in project planning phases, associated with the building life cycle.

An SSE-building is a new or a renovated building designed as an answer to the needs expressed by the owner and/or future user, for fulfilling its main use functions [frame 2] An SSE building contributes to sustainable development when designed and operated to match the appropriate fitness for use, with minimum adverse environmental impacts, while encouraging improvements in economic, social and cultural aspects at local, regional and global levels.

More precisely, an SSE-building:

- Results from a decision to build (or to refurbish) at a chosen location taken in sympathy with the needs and the specific conditions of the close natural and built environment and as the result of a dialogue between all the interested parties.
- Is designed from a life cycle perspective, from the environmental, economic, and social points of view, anticipating at the design phase the consequences of the choices made at each phase of the project, especially when technical and/or process innovations are required.
- Is established with consideration of its economic and cultural value over time.
- Is erected in acceptable construction conditions, including limited resource consumption (energy and materials), embodied energy, site energy consumption,

and waste; with careful environmental management of the construction site and working conditions.

- Fulfills the use functions (see above) with minimized energy consumption for the purposes of heating and cooling, lighting, hot water production, operation of appliances or other equipment, minimized waste production, and minimum operating complexity and cost, for the whole required service life, including the required maintenance and repair procedures.
- Provides monitored and traceable technical and environmental performances, thanks to the responsible behaviour of owners, operation managers and users.
- Comes with a user and operation manual in a format suitable for use by the building operators.
- Is integrated into local networks and urban life: accessible for all, safe and secure, close to local public transport, consistent with new information technologies, with nearby services, and with low impacts on the environment
- Permits and ensures refurbishing, retrofitting and adaptation: adaptable for changing performance requirements, for changing capacity and for different uses.
- Facilitates re-use through ease of demolition or dismantling, opportunities for materials recycling and site restoration.

According to local conditions (geography, climate, culture, density, etc.), the concretisation of the SSE-building may show different shapes. The above aspects may be documented with quantified targets only when defined in detail and for specific categories of buildings.

All these aspects are part of the overall vision. This vision is established on the basis of consensual scenario hypothesis for the 5 influencing factors which are: fuel and raw materials cost perspective, demography, climatic changes, public awareness, and political strength.

The nine general principles of sustainability in building construction (ISO 15392:2008):

Continual improvement,
Equity,
Global thinking and local action,
Holistic approach,
Involvement of interested parties,
Long term consideration,
Precaution and risk,
Responsibility,
Transparency

The use functions of a building

(CIB W052 "Procurement systems" – 1995):

Provide space,
Provide an indoor climate,
Guarantee safety and security,
Allow the use of goods and tools,
Allow the control of nearby relationships,
Take advantage of the site without damaging it,
Bring meaning (semiology)

Invitation to share your opinion

The readers of this News Article are invited to provide their comments to the above described Vision by filling in the questionnaire developed for this that can be downloaded [here](#) and sending that by the middle of January very latest to Prof. Christer Sjöström at christer.sjostrom@hig.se.

Overview Smart-ECO (and related) Reports

- [Report 1 - March 2008](#)
- Report 2 - December 2008
- [Cluster ecobuildings - Report 1 - December 2008](#)

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For further information on Smart-ECO please visit the designated website at www.smart-eco.eu (under construction).