



ROLE OF THE CONSTRUCTION INDUSTRY IN INCREASING ENERGY EFFICIENCY

Turning the building industry into a sustainable business

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ECTP

INNOVATIVE BUILT ENVIRONMENT



ENERGY EFFICIENT BUILDING
AN ECTP COMMITTEE

The Construction sector: a key sector in the EU

- 30,7% of industrial employment
- 40% of total energy consumption due to buildings
- 36% of CO₂ emissions due to buildings

Strategic objectives of the sector

- Develop **technologies and solutions** enabling to speed up the reduction in energy use and GHG emission, through a **higher renovation rate** of the building stock at **lower cost**
- Develop **energy efficient solutions** in order to turn the **building industry** into a **knowledge-driven sustainable business**
- Develop **innovative and smart systemic approaches** for green buildings into smart cities

Public-Private Partnership on Energy Efficient Buildings (PPP EeB)

- **Joint initiative** between the **European Commission** & the **Construction Sector** (ECTP-E2B Association)
- Set up under FP7 (in 2009) and continued in the framework of Horizon 2020

Objectives of the PPP EeB

- Promote **research & innovation** through **lighthouse projects** integrating and demonstrating **new technologies** and **renovation methodologies**.
- The projects demonstrate technological excellence from **early stage conception** to **demonstration of the potential for commercialisation**.



Technologies for acceleration of
building stock renovation

Ensuring energy performance
during service life

Interactive and sustainable buildings
embedded at district and city scale

Around 120 projects funded so far through the PPP EeB
Some examples of fields of innovation:

Nanotechnology-based high performance insulation systems

- Aerogel-based insulation
- High reflectance coatings
- Nanostructured encapsulation of air
- Vacuum insulation panels
- Smart electrochromic glazing
- Hybrid (electrochromic-photovoltaic) film
- Super-thin insulation

Reduced embodied energy

- Bio-composites
- Innovative bricks
- Foam and fibre boards
- Lightweight concrete integrating waste materials
- Lightweight insulation mortar system

Sensors and Networks

- Indoor comfort and air quality monitoring
- Natural ventilation control
- Lighting
- Hybrid wireless network
- Pervasive sensor networks

Storage

- Phase change materials
- Thermo chemical materials

Energy Management

- Gas absorption heat pumps
- Control of HVAC systems
- Nanotechnologies for improved heat transfer and improved properties of coolants
- SOFC-based micro-CHP

