The Energy Efficient Buildings Association
&
the Public Private Partnership (PPP)
on Energy Efficient Buildings
**Main Mission**
To develop new R&D&I strategies:
- to improve the competitiveness of the construction sector,
- to meet societal needs and environmental challenges.

**7 Focus Areas**
- Underground Constructions
  The future of the underground construction in Europe
- Cities and Buildings
  Cities being the most desirable places in which to live and work
- Quality of Life
  A more sustainable built environment
- Materials
  Modern functional materials for the future of construction
- Networks
  An integrated network of utilities and infrastructure
- Cultural Heritage
  Safeguarding our cultural heritage for future generations
- Processes and ICTs
  New working processes interconnecting actors of the construction industry

**26 National Platforms**

**A Roadmap with 9 major RDI Priorities**
- Technologies for Healthy, Safe, Accessible and Stimulating Indoor Environments for All
- Innovative Use of Underground Space
- New Technologies, Concepts and High-tech Materials for Efficient and Clean Buildings
- Reduce Environmental and Man-made Impacts of Built Environment and Cities
- Sustainable Management of Transports and Utilities Networks
- A Living Cultural Heritage for an Attractive Europe
- Improve Safety and Security within the Construction Sector
- New Integrated Processes for the Construction Sector
- High Added-value Construction Materials

**>230 Organisations**
Energy Efficient Buildings
Energy Efficient Buildings

• A major world-wide challenge
  • Buildings = major potential for energy/carbon savings
    • today more than 40% of energy consumption
    • and around 30% of GHG emissions

• Road Map
  • Retrofit the existing building stock
  • Develop future positive energy buildings/districts
  • Integrate new technologies (including RE technologies)

• Innovation by research
  • Recovery Plan EeB PPP call 2010: strong involvement of industry and SMEs (24%) from the whole value chain (ECTP/E2BA: >230 Members)
  • Construction sector ready to collaborate towards an “ideal house” for PPPs in FP8
Within the framework of ECTP, E2BA was established to engage into a long term partnership with EC, aiming at:

- Seeking and demonstrating industry engagement
- Coordinating research interests towards Public stakeholders
- Keeping close links with international initiatives
- Liaising with national/regional initiatives
… in the full innovation chain…

Over 160 members have joined the Association

- SMEs and SMEs associations and professional bodies: 33%
- Large companies: 17%
- Organisations and Public Agencies: 2%
- Non profit research associations: 3%
- Universities: 13%
- Research organisations with 250 employees or more: 11%
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… from all over Europe
The overall vision of the Energy Efficient Buildings European Initiative (E2B EI) is to deliver, implement and optimise building and district concepts that have the technical, economic and societal potential to drastically decrease energy consumption and reduce CO2 emissions in both new and existing buildings across the EU.
... and long term strategy

EeB PPP as first wave of a Long Term Strategy
The roadmapping process

SRAs Analysis
- SRAs and Implementation Plans from 37 ETPs have been analyzed

Inputs from Stakeholders (channeled through E2BA)
more than 200 contributions

Common targets and multi-disciplinary links have been identified

Cross-check and harmonization

Clustering of inputs

Public Consultations

List of Research Priorities
Research priorities 2010-2013

REFURBISHMENT TO TRANSFORM EXISTING BUILDINGS INTO ENERGY-EFFICIENT BUILDINGS)

- Energy and equipment for energy use for existing buildings
- Envelope for existing buildings
- Systemic approach for existing buildings

CROSS-CUTTING CHALLENGES

- Relationship between User and Energy
  - Geoclustering
  - Value Chain and SMEs focus

HORIZONTAL ORGANISATIONAL ASPECTS

- Equipment for energy use (horizontal)
- Environment
- Innovation of new solutions
- Components
- Information and control
- Life cycle analysis (LCA)
- Energy Management Systems
- Labelling and standardization
- Materials: embodied energy and multi-functionality
- Diagnosis and predictive maintenance (continuous)
- Energy (district): technical or other

INTERACTION (INTEGRATION)

- Interaction (integration)
  - Between buildings, grid, heat networks, …
## Multiannual Roadmap 2010-2013

<table>
<thead>
<tr>
<th>Research</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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</thead>
<tbody>
<tr>
<td>Envelope (components) for existing buildings, with a link to materials (multifunctionality and embodied energy)</td>
<td>Interaction (integration) between buildings, grid, heat network...</td>
<td>Systems and Equipments for energy use (including production and storage)</td>
<td>Retrofitting (at district level) (including cost effective integration of emerging technologies)</td>
</tr>
<tr>
<td>Systems and Equipments for energy use for existing buildings (focus on space heating and hot domestic water)</td>
<td>Relationship between User and Energy, leveraging on ICT tools</td>
<td>Systemic Approach, for existing buildings (including integration of Renewables)</td>
<td>Envelope and components, enabled by latest advances in multifunctional materials and nanotechnology</td>
</tr>
<tr>
<td>Envelope and retrofitting</td>
<td></td>
<td>Energy Management Systems</td>
<td>Design – Integration of new solutions, focus on assessment, simulation and visualization techniques to support decision making, removing gaps between prediction and reality.</td>
</tr>
<tr>
<td>Design – Integration of new solutions, fostering ICT technologies</td>
<td></td>
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<td>High efficiency retrofitting of buildings (including systems and equipment, ICTs,...)</td>
</tr>
<tr>
<td>Systemic approach (link to Quality of the Indoor Environment)</td>
<td></td>
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<td>Novel approaches in automation and control</td>
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<td>Envelope (components) for existing buildings, with links to cultural heritage</td>
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<td></td>
<td></td>
<td></td>
<td>Labelling and standardisation</td>
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<tr>
<th>Demonstration</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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</thead>
<tbody>
<tr>
<td>Envelope and Systems and Equipment for energy use</td>
<td>Cost effective zero energy new buildings in districts</td>
<td>Retrofitting (at district level)</td>
<td>Interaction (integration) between buildings, grid, heat network...</td>
</tr>
<tr>
<td></td>
<td>Envelope, Systems and Equipments for energy use for existing buildings</td>
<td></td>
<td>Large scale demonstration including new technologies (Envelope components, Systems and Equipments, ICTs,...) and new business models</td>
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<tr>
<th>Coordination and Support Actions</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinated actions for systemic approaches in Europe (Geoclustering)</td>
<td>Labelling and standardization (including business models, impact assessment, ...)</td>
<td>Knowledge transfer (including value chain and SMEs)</td>
<td></td>
</tr>
<tr>
<td>Relationship between User and Energy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labelling and standardization (focus on LCA)</td>
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</tbody>
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*Note: The image includes a logo for E2B (Energy Efficient Buildings).*
Projects Overview - ENERGY

BEEMUP: Building Energy Efficiency for Massive market Uptake
Coordinator: Acciona

E2ReBuild: Industrialised retrofitting of resident buildings in cold climates
Coordinator: NCC AB

School of the Future: Towards Zero Emission with High Performance Indoor Environment
Coordinator: Fraunhofer Institute for building physics
Projects Overview - ENV

3NCULT Efficient Energy for EU Cultural Heritage
Coordinator: EURAC Research
Projects Overview – INFSO (1)

- **REEB**: The European strategic research roadmap to ICT enabled energy efficiency in buildings and construction ([www.ict-reeb.eu](http://www.ict-reeb.eu))
  
  **Results**: Vision + SRA + IAP.
  
  **Partners**: CSTB, VTT, CEA, Labein, Acciona, Arup, UC Cork, TU Dresden.
  


  **Results**: Common ICT priorities for grids, manufacturing, construction and lighting.
  
  **Partners**: Loughborough Univ., VTT (+Aalto), CSTB, KEMA, Intel, FhG-IPK, Innova.
  
  **Duration**: Feb 2010 – Jan 2012.

- **ICT 4 E2B FORUM**: European stakeholders forum crossing value and innovation chains to explore needs, challenges and opportunities in further research and integration of ICT systems for Energy Efficiency in Buildings ([http://www.ict4e2b.eu](http://www.ict4e2b.eu))

  **Results**: Updated roadmap (based on REEB + E2B + ...).
  
  **Partners**: D’Appolonia, Atos Origin, VTT, SAP, Schneider Electric, Mostostal Warszawa.
  
  **Duration**: Sep 2010 – Oct 2012.

- **IREEN**: ICT Roadmap for Energy-Efficient Neighbourhoods

  **Results**: RTD & Innovation roadmap.
  
  **Partners**: Manchester, CSTB, VTT, Atos Origin, Acciona, AIT, D’Appolonia, Amsterdam.
  
  **Duration**: mid 2011 – mid 2013.
Projects Overview – INFSO (2)

• The **FP7 IntUBE** co-funded STREP project
• Contract n°224286
• Started **May 2008** (3 years)
• IntUBE: *Intelligent Use of Buildings Energy information*
• IntUBE leading to
  – increased life-cycle energy efficiency of the buildings without compromising the comfort or performance of the buildings
    • by integrating the latest developments in ICT-field into Intelligent Building and Neighbourhood Management Systems (**IBMS** and **NMS**) &
    • by presenting new ICT-enabled business models for energy-information related service provision
Projects Overview – INFSO (3)

Coordinator: Mostostal

HESMOS: ICT Platform for Holistic Energy Efficiency Simulation and Lifecycle Management Of Public Use Facilities
Coordinator: TU Dresden

EnRiMa: Energy Efficiency and Risk Management in Public Buildings
Coordinator: Stockholm university

SPORTE2: Intelligent Management System to integrate and control energy generation, consumption & exchange for EU Sport and Recreation Bldings
Coordinator: D’Appolonia
Projects Overview – INFSO (4)

CIP ICT-PSP projects
From 2007 to 2010 – 1 call / year

- **3e-Houses**: Energy Efficient e-Houses
- **BEST Energy**: Built Environment Sustainability and Technology in Energy
- **E3SoHo**: ICT services for Energy Efficiency in European Social Housing
- **eSESH**: Saving Energy in Social Housing with ICT
- **HosPilot**: Efficient energy efficiency control in hospitals
- **LITES**: Intelligent street lighting for energy saving
- **SAVE ENERGY**: Save Energy
Projects Overview – NMP (1)

www.messib.eu

- S&T goals of the project
  - Develop and integrate a new energy storage capacity in buildings able to reduce the energy consumption by thermal storage, and active management of the energy demand by electrical storage.
  - Microencapsulated hydrated salts
  - New phase change material
  - Composite nanostructured materials
  - More durable and higher performing

- Presentation of the consortium
  - Large Companies:
    - Construction.
    - Building Management.
    - Material, system Suppliers.
    - Engineering.
  - Technological SMEs
    - Power Electronics.
    - Architect.
    - Control Systems
  - Research organisations / universities

www.messib.eu
Projects Overview – NMP (2)

NANOINSULATE: Development of Nanotechnology-based High Performance Opaque & Transparent Insulation Systems and Biocide Formulations for Energy Efficient Buildings
Coordinator: Kingspan R&D

NANOPCM: New Advanced iNsulation Phase Change Materials
Coordinator: Acciona

HIPIN: High Performance Insulation based on Nanostructure encapsulation of air
Coordinator: TWI
COOL-Coverings: Development of a novel and cost-effective range of nanotech improved coatings to substantially improve NIR (Near Infrared Reflective) properties of the building envelope
Coordinator: Keraben Group

NANOFOAM: New NANO-technology based high performance insulation FOAM system for energy efficiency in buildings
Coordinator: Dow Europe

AEROCOINs: Aerogel-Based Composite/Hybrid Nanomaterials for Cost-Effective Building Super-Insulation Systems
Coordinator: Tecnalia
Project Overview – NMP (4)

FC-DISTRICT: New μ-CHP network technologies for energy efficient and sustainable districts
Coordinator: Mostostal

E-Hub: Energy-Hub for residential and commercial districts and transport
Coordinator: ECN
Results of first EeB Calls

<table>
<thead>
<tr>
<th></th>
<th>July 2009</th>
<th>July 2010</th>
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</thead>
<tbody>
<tr>
<td>Success rate:</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>17 funded of 60</td>
<td></td>
<td>24 funded of 120</td>
</tr>
<tr>
<td>Share by Org. Type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Higher Education:</td>
<td>18%</td>
<td>15%</td>
</tr>
<tr>
<td>- Private for Profit:</td>
<td>48%</td>
<td>53%</td>
</tr>
<tr>
<td>- Research Org.:</td>
<td>26%</td>
<td>24%</td>
</tr>
<tr>
<td>Share of Funding of SMEs:</td>
<td>24%</td>
<td>30%</td>
</tr>
<tr>
<td>Countries of funded partners:</td>
<td>24</td>
<td>26</td>
</tr>
</tbody>
</table>

Source: José-Lorenzo Vallés, EC EUSEW, 13 April 2011

www.e2b-ei.eu
further questions?
please consult:

www.ectp.org
www.e2b-ei.eu

or contact:
Luc Bourdeau
ECTP-E2BA Secretary General
secretariat@e2b-ei.eu