High Performance Buildings Initiative

Overview and Status
Global GHG abatement cost curve for 2030

Abatement potential (GtCO₂e per year)

- Carbon capture and storage, reduced intensive agriculture conversion
- Wind and solar power, forest restoration
- Nuclear
- Waste recycling, small hydro, other efficiency improvement
- New building efficiency, pasture, grassland, soil and forest management
- Hybrid cars, electricity from landfill gas, other industrial efficiency
- Improved cropland management, insulation retrofit (residential)
- Efficiency improvement, LED lighting, insulation retrofit (commercial)

Abatement cost (€ per tCO₂e)

High Performance Buildings

- Envelope: Materials, Design, Construction
- Systems: HVAC, Plug-ins
- Services: Food, Water, Waste
- Energy: On-site, Off-site
- ICT: Smart Connect & Monitor
- Mobility: City design, Low-C mobility

**High Performance Buildings**

*Deliver Quality of Life: Comfort, Health, Affordability, Efficiency, Sustainability*
High Performance Buildings Initiative

International Centres of Excellence

- Provide **implementation-oriented education and assistance** to building developers, contractors, architects, engineers, and regulatory and planning officials.
- Provide **community-centric knowledge development and sharing**, connecting with resources and accelerating uptake of high-performance buildings.
- Activities include:
  1. Dialogue to identify challenges, share best practices and build a community of practice;
  2. Dissemination of knowledge w/ education, training, exhibits, case studies, research, demonstration projects, and print and on-line resources;
  3. Catalyze design and construction industry tools and training development, and identify potential barriers to adoption and implementation; and
  4. Foster public demand and support for best practices through recognition and awards, open houses and tours, communication and marketing campaigns, public events, and demonstration projects.
High Performance Buildings Initiative

International Centres of Excellence

**Existing**
1. New York City (BEEEx)
2. Pittsburgh (Green Building Alliance)
3. Construction Scotland Innovation Centre (Scotland)
4. High Performance Building Alliance (Ireland)
5. South West College Innotech Center (Northern Ireland/UK)
6. Building Innovation Hub (United States)
7. EnEffect (Bulgaria)
8. Passivhaus Maine (United States)
9. Passivhaus Canada (Canada)
10. Passivhaus Trust (UK)

High Performance Buildings Initiative Secretariat (Ireland)
International Centres of Excellence

In discussion
1. Passive House Institute (Germany)
2. Econoler (Quebec City, Canada)
3. City of Vancouver, Canada
4. Hellenic Passive House Institute (Greece)
5. ZEPHIR Passivhaus Italia (Italy)
6. Onion Flats HPB Strategy (United States)
7. Bruxelles Environnement (Belgium)
8. European Center for Research & Education of Environmental Geoscience (France)
9. Barcelona Laboratory for Urban Environmental Justice & Sustainability (Spain)
10. Exeter City Council (UK)
11. City of York
12. Laval University (Canada)
13. Potomac Valley Architecture Foundation (USA)
14. Innovation and Technology Department, City of Sioux Falls, South Dakota (US)
Future Centres
1. 2030 District Centres (5)
2. 5 associate centres of EnEffect (south-east Europe)
3. 3 centres California
4. Additional centres to be established in eastern Europe, Caucasus, and central Asia as part of the IKI programme
Global Research Consortium

Research and advanced education in building materials, design, and construction for current and next generation architects, engineers, policy makers and other stakeholders will be needed.

Development of new, holistic curricula and texts and regular updates as the science of buildings progresses.

Researchers and the educational community will promote sustainable, high performance buildings worldwide in support of both the UNECE Framework Guidelines and the International Centres of Excellence.

PSU and financial contributions
### Global Research Consortium

#### ENERGY

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High Performance Buildings Initiative

High Level Strategy Group

Protocol: objectives, solutions, and priority actions to deliver required outcomes.

Outreach: raise importance of built environment for addressing climate change and 2030 Agenda.

Current Membership: recognized thought leaders in the field of buildings and the built environment.

Future membership: thought leaders from mobility, energy supply, information and communications technology, water management, and other building services (e.g., food and waste).

Near-term objective for the HLSG will be to recruit a fully-representative thought leadership group.
High Performance Outcomes – QoL

→ Energy & climate (affordable & clean energy)
→ Resilience (affordability, weather - heat, cold, wind)
→ Health (comfort, indoor and outdoor air pollution)
→ Social justice, equity
→ Water (deluge, drought, contamination, sanitation)
→ Resource conservation (land use, materials, waste)
→ Mobility
→ Technology access
→ Systemic effectiveness and technical efficiency
Mobilise industry and financial partners to deliver case studies and demonstrations of the principles at work (IKI).

Ongoing contacts with industry leaders (Covestra, Kingspan, AIB, Danfoss, PJDick) – 4th pillar re-named Industry Leadership Group.

Group in formation. Expected to deliver significant resources to underpin HPBI.

Result: application of Framework Guidelines through demonstration projects around the world to validate them in different climates, stages of development, and regulatory, legislative, and physical infrastructure.

Result: library of case studies for reference and to support training and education.
The mobilisation and coordination of the initiative will require a fully resourced HPBI secretariat, mandated by member States to accomplish the following functions:

**Administration**
→ Administer; Recruit; Convene; Support

**Outreach, Communications, Branding, Messaging**
→ **Outreach:** senior-level relationships; alignment with other initiatives
→ **Communications:** website; on-line communications platform for network education and training; online audio-visual, social media, and printed media, including outreach to journalists
→ **Branding & Messaging:** coordinated curriculum and activity themes
→ **Fundraising:** Secretariat, members of the initiative, proposals for case studies

**Advisory Council** – Representatives of each pillar plus UNECE providing strategic direction
Thank you!

Sustainable Energy
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