



UNECE

High Performance Buildings Initiative

Buildings are central to meeting the sustainability challenge. In the developed world, buildings consume over 70% of the electric power generated and 40% of primary energy and are responsible for 40% of CO₂ emissions from the energy services they require. In Europe, 75-90% of today's buildings will be in use in 2050. Developing countries will need to accommodate 2.4 billion new urban residents by 2050. Renewable energy technology alone cannot meet these requirements, despite recent improvements. The energy performance of buildings must be managed. The capability to meet the challenge exists today.

High performance buildings are key to achieving the 2030 Agenda. They help deliver on many of the Sustainable Development Goals in areas including:

- promoting sustainable urban development by recognizing buildings as complex systems embedded in community, city, and country-level energy networks
- tackling poverty by reducing energy bills
- accelerating the sustainable energy transition by improving the efficiency with which buildings' energy services are provided, and
- supporting climate action by reducing the energy requirements of buildings to a point at which residual needs can be met by no or low-carbon energy sources.

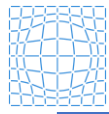
UNECE has launched its programme on high performance buildings to deploy its Framework Guidelines for Energy Efficiency Standards in Buildings and its Geneva UN Charter on Sustainable Housing with the aim of accelerating the transformation of the world's building stock.

*UNECE has launched a programme known as the High Performance Buildings Initiative (HPBI) to disseminate and deploy its **Framework Guidelines for Energy Efficiency Standards in Buildings**¹ worldwide. The initiative will focus on capacity development and impact in the field, developing:*

- *the intellectual, material and financial resources to educate, advocate and advise for transformation to high performance buildings;*
- *the outreach required to create a worldwide urban shift to truly sustainable buildings.*

The ultimate objective is to improve health and quality of life within the built environment while simultaneously decarbonizing building-related energy requirements, thus breaking the historic link between improved health, quality of life and atmospheric carbonization.

HPBI comprises three pillars aimed at radical reduction of the global carbon footprint of buildings and dramatic improvement in the health and quality of life provided by buildings.



International Centres of Excellence

- Provide implementation-oriented education and assistance to building developers, contractors, architects, and engineers, as well as regulatory and planning officials.
- Provide community-centric knowledge development and sharing, connecting with resources and accelerating uptake of high performance buildings.



Global Building Network

- Research and advanced education in building materials, design, and construction for current and next generation architects, engineers, policy makers and other stakeholders.
- Promote sustainable, high performance buildings worldwide in support of both the Guidelines and the UN International Centres of Excellence.



Case Studies Demonstration

- Application of the Framework Guidelines in countries around the world to demonstrate their validity in different climates, stages of development, and regulatory, legislative, and physical infrastructure.
- Preparation of a library of case studies for reference and to support training and education.

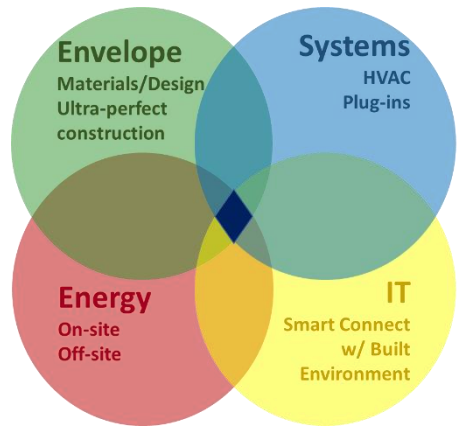
Objectives and Targets

The High Performance Buildings Initiative aims to achieve the following objectives:

- **Moving the dial on building energy performance:** grow the number of localities with building codes aligned with UNECE Framework Guidelines; ensure most new buildings are certified compliant; reduce by 60% the average energy requirement per square meter in the new building “fleet” and by 10% for existing buildings.
- **Moving the dial on GHG emissions and indoor air quality:** reduce by 40% CO₂ emissions associated with meeting buildings’ energy service needs; increase by 10% the amount of carbon “stored” in buildings; improve indoor air quality and reduce pollution-linked health issues.
- **Improving the global supply chain for the construction business:** enhance “carbon storage” by increasing embedded carbon in buildings and building products and by reducing waste.
- **Extending the network:** recruit new centres of excellence and academic institutions to accelerate uptake of high performance best practices.

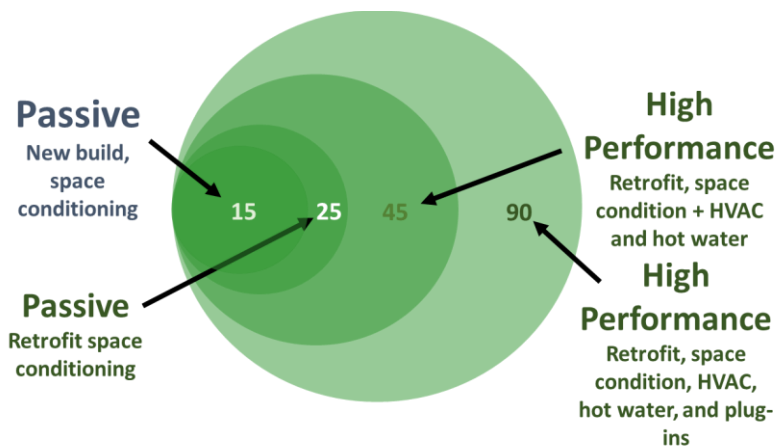


Architects, building contractors, and engineers are those who are perfecting building envelopes – getting the materials and design right and then ensuring perfect construction techniques. Systems professionals deliver heating, ventilation, and air conditioning as well as plug-in loads. Energy suppliers are essential if we are to ensure no- or low-carbon solutions meet the systems’ needs. Energy can be provided on-site through a distributed energy services model – imagine roof-top solar or on-site storage – or through some sort of network connection. A fourth community delivers on ICT – the information and communications technology that connects a building to its built environment.



Rather than address efficiency or quality on a component-by-component basis, the Framework Guidelines deal with a building as a complex system in its own right, one that is embedded into a community then into a city then into a regional or national network. ICT connects all the parts and allows for system-wide optimization that enables full participation by both consumers and intermittent energy resources. Until now, each of the four communities have been operating as stand-alone contributors. Getting them to act together enables an integrated approach, unlocking the potential of buildings to make the ambitious vision of the 2030 Agenda a reality.

A Typical Building in New York City Consumes 490 kWh / m² per year





How to Join the Movement?

Please direct any questions or other inquiries to

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¹ Framework Guidelines for Energy Efficiency Standards in Buildings:

http://www.unece.org/fileadmin/DAM/energy/se/pdfs/geee/geee4_Oct2017/ECE_ENERGY_GE.6_2017_4_EEBuildingGuidelines_final.pdf