



Providing high quality of life for all people by rapidly transforming new and existing buildings to healthy, high-performance places

The work of the United Nations Economic Commission for Europe (UNECE) on buildings remains vital to the global future, and the expert community must be realistic and aggressive. The design, finance, construction, operation, maintenance, retirement, and recycling of buildings and communities of buildings must be informed by the full breadth of sustainable development objectives. Transforming the built environment will drive sustainability and deliver quality of life in the broadest terms. It will be an important part of the world's responses to multiple crises across environmental, social, health, and economic facets, and the transformation can be a leading force defining the society that emerges from today's chaos.

Advocates of high-performance buildings have long concentrated on energy efficiency improvements, but they are now turning to the broader set of imperatives. The players involved in the high-performance buildings' effort need to appreciate that the multifaceted services that buildings provide are critical to the vision of the 2030 Agenda. Shifting to dramatically higher performance standards for new and existing buildings can contribute to the world's transition to sustainability if the buildings community embraces the new imperatives. The buildings community is equipped to deliver across a wide range of performance metrics.



HIGH PERFORMANCE BUILDINGS

- Done right, design, materials, and perfect construction techniques, energy requirements are reduced so they can be met with low or no carbon energy sources.
- Size equipment to the building's needs. Reduce embedded carbon and energy and future component recovery.
- Source the building's energy service requirements from low or no carbon energy sources.
- Efficient urban transport coordinated with buildings connecting energy and energy storage systems with mobility options.
- Information communications technology system optimization coordinating distributed generation, smart energy use, energy service providers, and consumers. Automated monitoring and control of the systems, indoor air quality, and comfort.
- Services bring the remainder of what dwellings provide to occupants: water, food, and waste removal or treatment.

OBJECTIVES AND TARGETS OF UNECE'S HIGH PERFORMANCE BUILDINGS INITIATIVE

Moving the dial on building performance:

- grow the number of localities with building codes aligned with UNECE's Framework Guidelines for High- Performance Buildings;
- ensure that new and retrofit buildings are certified compliant, including institution of credible certification mechanisms that address the full spectrum of quality of life measures.
- reduce by 60% from 2020 levels the average energy requirement per square metre in the new building "fleet";
- reduce by 25% from 2020 levels the average energy requirement per square metre in 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 25% 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:

- reduce embedded carbon in buildings and building products;
- reduce waste;
- increase recovery of materials from decommissioned buildings.

Extending the network:

- recruit new centres of excellence and academic institutions to accelerate uptake of high-performance best practices.

PRINCIPLES UNDERPINNING THE HPBI

Getting buildings "right" is at the heart of delivering quality of life globally as expressed in the 2030 Agenda, the Sustainable Development Goals, and the Paris Climate Agreement:

- Buildings are where people spend most of their lives.
- They are responsible for 40% of global CO2 emissions by virtue of the energy services they require, and
- They include an important share of "embedded carbon", emissions that occur making the materials used in buildings.

Few systematic attempts have succeeded in realizing the opportunities buildings represent in terms of providing high quality of life for all – defined by human health, affordability, comfort, economic opportunity, and other impacts – and both energy performance and carbon emissions. Insufficient operational attention has been given to the environmental impacts of buildings over their entire life cycles and throughout their construction and operational supply chains.

Achieving high-performance in buildings requires reconceiving the product slate of insulation, windows, distributed renewables, hyper-effective heating, ventilation, and air conditioning (HVAC), and domotics to ensure that they are ultra-efficient, sized properly, and have a small carbon footprint in their own right.

Getting cash into the hands of the tradespeople – the architects, engineers, carpenters, electricians, plumbers, and the like – and the rest of the building supply chain will reinvigorate local economies rapidly in a post-corona world while delivering on long-term quality of life for everyone (climate, affordability, health, comfort).

UNECE'S HPBI AIMS TO TRANSFORM NEW AND EXISTING BUILDINGS:

- how they are conceived, built, operated, and maintained;
- how integrated building systems deliver quality of life; and
- how information and communications technology enable superior outcomes.
- UNECE's Framework Guidelines for Energy Efficiency Standards in Buildings are the driving force behind the HPBI.
- The principles that underpin the guidelines express a systems- and outcomes-based vision of building performance.
- They apply in any climatic and regulatory environment and address not only climate change, but also quality of life with jobs, economic revitalization, affordability, human health, innovation, comfort, and the like.

THE HPBI IS CONCEIVED TO APPLY PROVEN BEST PRACTICES

- The world has in hand the methods and focused technical capacity to improve building performance and reduce embodied carbon and energy.
- The initiative aims to improve the effectiveness of the entire building sector supply chain across multiple metrics to enhance the complete lifecycle performance of buildings.
- The initiative will transform the performance of the global building sector supply chain and its products to enable delivery of high-performance buildings.

HPBI connects building performance to country commitments and targets and addresses the readiness of industry to deliver the needed materials, techniques, and equipment.

Join the Movement!

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