



Partnership of European Regions on Energy Efficiency in Buildings

Opportunities for economic, social, environmental and territorial development linked to energy efficiency in buildings



DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2010/31/EU on the energy performance of buildings



"Energy efficiency first" is a key element of the Energy Union

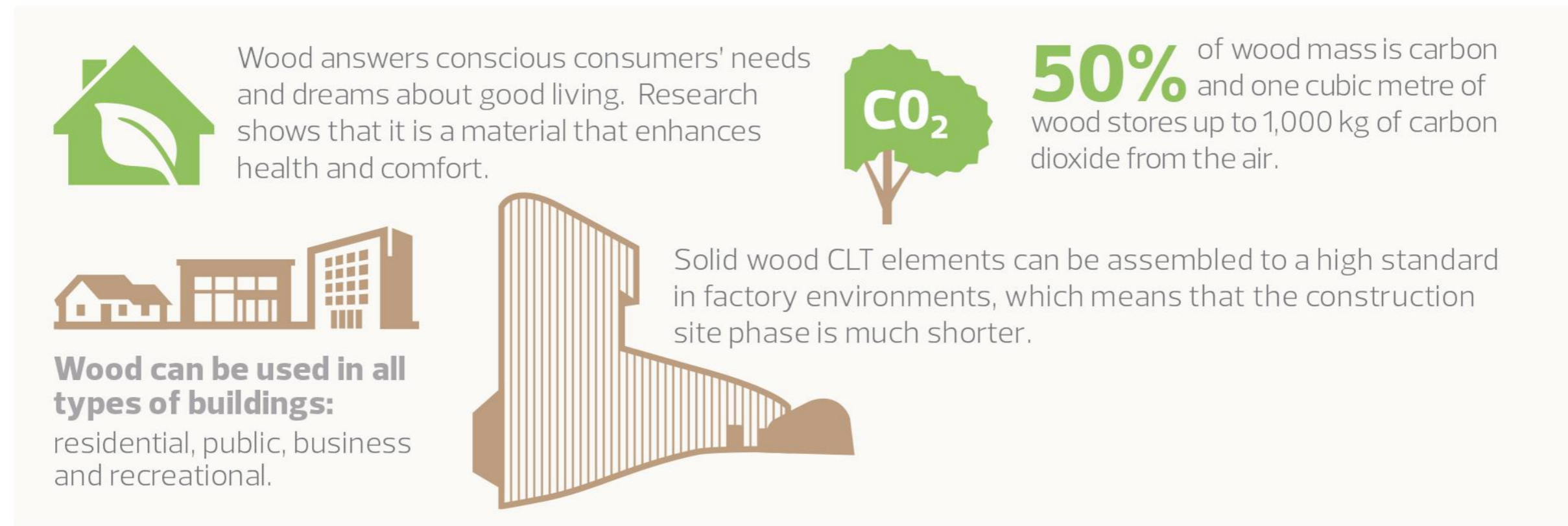
– this proposal puts it into practice.

- The huge potential for efficiency gains in the building sector which is the largest single energy consumer in Europe, absorbing 40% of final energy.
- About 75% of buildings are energy inefficient.
- Depending on the Member State, only 0.4-1.2% of the stock is renovated each year.
- The main objective of this proposal is to accelerate the cost-effective renovation of existing buildings, which represents a 'win-win' option for the EU economy as a whole.

Good living



Solution



The European construction industry has the potential to respond to a number of economic and societal challenges:

- jobs and growth
- urbanization
- digitalization
- demographic changes
- and at the same time energy and climate challenges

The construction industry generates about 9% of European GDP and accounts for 18 million direct jobs.

Construction activities that include renovation work and energy retrofits add almost twice as much value as the construction of new buildings

SMEs contribute more than 70% of the value added in the EU building sector.

This proposal will update the Energy Performance of Buildings Directive ('EPBD'2) by:

- Integrating long term building renovation strategies (Article of 4 Energy Efficiency Directive)
- Supporting the mobilization of financing and creating a clear vision for a decarbonized building stock by 2050
- Encouraging the use of ICT and smart technologies to ensure buildings operate efficiently
- Streamlining provisions where they have not delivered the expected results

Better performing buildings:

- Provide higher comfort levels wellbeing for their occupants.
- Improve health by reducing mortality and morbidity from a poor indoor climate.
- Adequately heated and ventilated dwellings alleviate negative health impacts caused by dampness, particularly amongst vulnerable groups such as children and the elderly and those with pre-existing illnesses.
- The energy performance of buildings also has a major impact on the affordability of housing and energy poverty.
- This proposal could contribute to taking out from energy poverty between 515 000 and 3.2 million households in the EU (from a total of 23.3 million households living in energy poverty - Eurostat).

- The EPBD will directly contribute to the proposed Energy Efficiency Directive (EED) target of a 30% increase in energy efficiency by 2030.
- It complements measures that Member States are required to take under the EED as well as EU legislation on energy efficiency of products.
- Ecodesign and energy labelling legislation set requirements for the energy efficiency of building-related products
- Member States set minimum requirements for the energy performance of installed retrofitted or replaced building elements under their national building codes.
- Consistency is ensured on a case-by-case basis during the process of developing specific ecodesign and/or energy labelling implementing measures, bearing in mind the requirements of the EPBD.
 - For instance, it was decided not to set ecodesign requirements for thermal insulation as they are already well covered by the national implementation of the EPBD.

European Strategy for Low-Emission Mobility and the leading example of some Member States, the preferred option also proposes a measure to support the development of electro-mobility and contribute further to the decarbonisation of the economy.

The estimated impacts are the following:

- Economic impact: a slightly positive impact on growth, driven by the extra energy efficiency investment and reduction in energy imports, a boost to construction and engineering which are highly related to additional investment, positive impacts on the insulation and flat glass sector and investment in building renovation benefiting especially SMEs.
- Social impact: the employment impact will follow a similar pattern to GDP, although smaller in scale. Improvements to the indoor climate will significantly reduce mortality, morbidity, and health care costs.
- Environmental impact: greenhouse gas emissions decrease slightly in all Member States.

EU action leads to a modernization of national regulations in the building sector

- Opening wider markets for innovative products and enabling cost reduction. Before the adoption of the 2002 EPBD, many Member States did not have energy efficiency requirements or promotional instruments in their regulation and building codes.
- As a result of the 2002 and 2010 Directives, all Member States have now energy efficiency requirements for existing and new buildings in their building codes
- The 2010 EPBD has resulted in significant modernization of national building codes through the introduction of the concept of cost optimality, followed by the adoption of nearly zero energy requirements.

There are several reasons why a collective EU approach is beneficial.

1. The added value of addressing building energy performance at EU level resides mainly in the creation of an internal market, supporting the EU's competitiveness and taking advantage of synergies with climate policy and the modernization of national regulations in the building sector across the EU.
2. The finance sector needs more comparability **of energy performance measurements across the EU**. Financial institutions have clearly indicated that work is needed at both national/local and EU levels to increase public and private investments' effectiveness and to contribute to the development of attractive financing products.
3. Although countries have different building code requirements, building typologies and local and climatic conditions, there are multinational users too.

Key findings:

The choice of the cost-optimal methodology to steer existing national energy performance requirements towards cost-efficient levels has proved to be an effective approach.

Targets for all new buildings to deliver nearly zero-energy consumption by 2020 have ensured a 'future-proof' vision for the sector and stakeholders have mobilized accordingly.

However, the same level of ambition is missing for existing buildings.



- National certification schemes and independent control systems are still at early stages and their usefulness could be improved.
- Due to the diversity and disaggregation of the building sector value chain, it remains challenging to acquire reliable data on building characteristics, energy use, and financial implications of renovation in terms of cost savings or asset values.
- This generalized lack of data has negative consequences on the market perception of the cost-effective energy saving potential of the EU building stock, and on the enforcement, monitoring and evaluation of the Directive.
- Energy performance certificate ('EPC') registers/databases can be a key instrument for reinforced compliance, improving knowledge of the building stock and better informing policy makers and supporting the decisions of market players.

Proposes a measure to support the development of electro-mobility and contribute further to the decarbonization of the economy. The estimated impacts are the following:

- Economic impact: a slightly positive impact on growth, driven by the extra energy efficiency investment and reduction in energy imports, a boost to construction and engineering which are highly related to additional investment, positive impacts on the insulation and flat glass sector and investment in building renovation benefiting especially SMEs.
- Social impact: the employment impact will follow a similar pattern to GDP, albeit smaller in scale. Improvements to the indoor climate will significantly reduce mortality, morbidity, and health care costs. A moderate positive impact is expected on energy poverty.
- Environmental impact: greenhouse gas emissions decrease slightly in all Member States.

What you measure, you can manage and develop

National building legislations rarely take a stance on **the carbon footprints of buildings or define the maximum energy consumption permitted** – despite the fact that it is recognized that in developed countries, buildings and real estate constitute about 40% of our energy consumption and 35% of our emissions.

It is proven that sustainable development principles brings in savings in maintenance costs, boosts worker efficiency, and increases profits from rent for the property owners.

Achieving these benefits is not always straightforward and in some cases it can be hard to connect profits specifically to a sustainably developed project. This is why the planning of sustainable solutions needs to start as early in the project as possible.

ECO CONSTRUCTION, BIOCLIMATISM AND INSULATION OF BUILDINGS

ECO CONSTRUCTION

In this context ecology means comprehensive actions that take the environment into consideration, minimizing the consumption of energy and natural resources as well as the production of waste and emissions.

An ecological product is produced, used, recycled and disposed of in a natural manner.

Sustainable development are challenging designers, manufacturers and consumers alike to consider ecological values and operating methods. A designer is in a key position to influence the operating methods.

It is not sustainable to build zero energy construction if the carbon footprint of the building materials were not minimized at the same time. The key factors when building energy effective buildings are the thermal proof envelope with proper interior ventilation.

BIOCLIMATISM

What is bioclimatic architecture and what does bioclimatic design include?

Bioclimatic architecture refers to the design of buildings and spaces (interior – exterior – outdoor) based on local climate, aimed at providing thermal and visual comfort, making use of solar energy and other environmental sources.

Basic elements of bioclimatic design are passive solar systems which are incorporated onto buildings and utilize environmental sources (for example, sun, air, wind, vegetation, water, soil, sky) for heating, cooling and lighting the buildings.

INSULATION OF BUILDINGS

- The minimum requirement for insulation in buildings is to follow national heat penetration value regulations.
- It is more profitable and effective to add insulation on to the roof than on external walls.
- The envelope of the construction should be air tight, otherwise the influence of the insulation will be lost.
- When the target is energy efficiency the properly designed and fulfilled ventilation is one of the key issues.

A warm welcome to Skellefteå!

7-8 of November, Skellefteå, Sweden

<http://www.woodbuildingsummit.se/>

Thank you.