

Seminar: Transizione energetica e architettura Low Carbon B
Architecture for Sustainability, MsC – MAST



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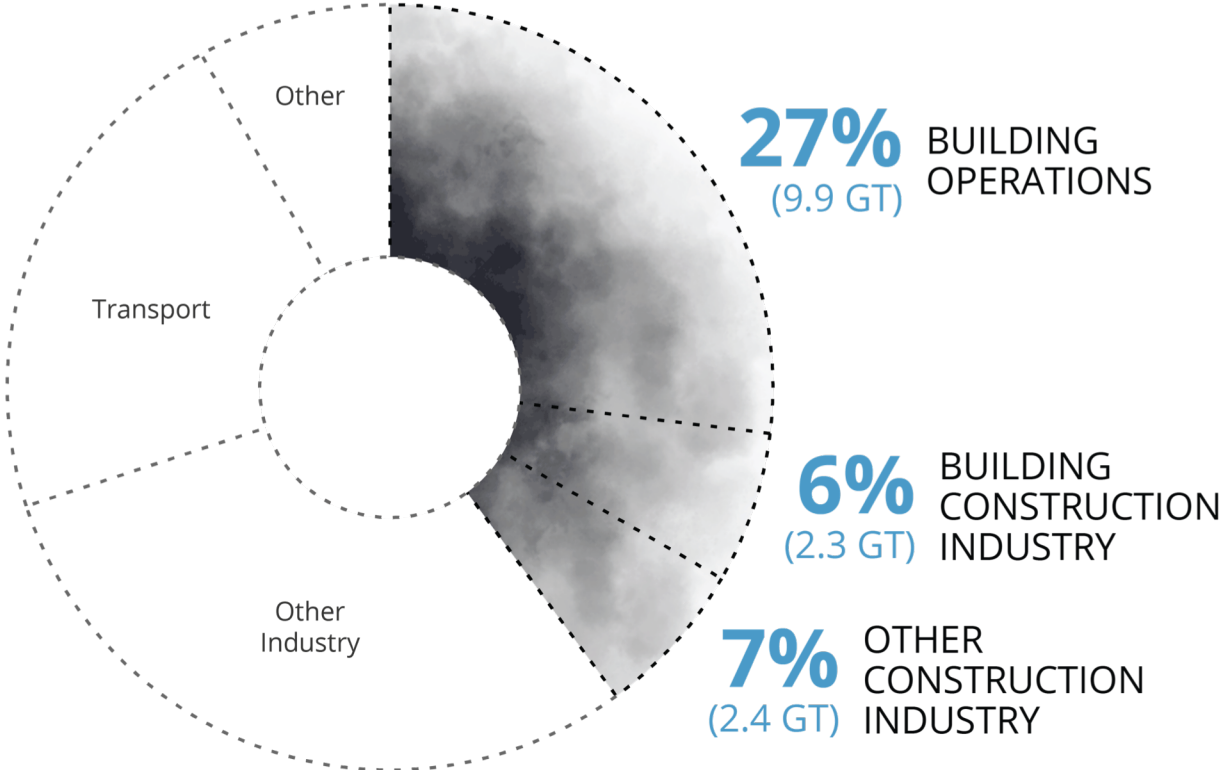
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WHY a seminar about the Energy
Transition and the Decarbonisation
in the construction sector?



WHY: built environment generates 40% of annual global CO₂ emissions.

Annual Global CO₂ Emissions



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Building Construction Industry and Other Construction Industry represent emissions from concrete, steel, and aluminum for buildings and infrastructure respectively.

WHY: 2050 IS «NOW»

Why cities, regions and the built environment matter

Buildings are responsible for almost 40% of global energy-related carbon emissions and 50% of all extracted materials.

The building and construction sector's demand on natural resources accelerates climate change, and inefficient, unhealthy buildings negatively impact human health and wellbeing.

**BY
2050**

- 1.6 billion urban dwellers will be regularly exposed to extreme high temperatures
- Over 800 million people living in more than 570 cities will be vulnerable to sea level rise and coastal flooding
- The world's building stock will double and almost 70% of the global population is projected to live in urban areas

By 2030, efficient buildings will be an investment opportunity worth \$24.7 trillion

Despite this, under \$3 of every \$100 spent on new construction goes to efficient buildings. Out of the 186 countries that have submitted Nationally Determined Contributions (NDCs) to the United Nations Framework Convention on Climate Change (UNFCCC), 136 countries mention buildings, 53 countries mention building energy efficiency, and 38 specifically call out building energy codes. Most countries do not include full building decarbonisation targets and certain areas such as building materials are under addressed.



BUILDINGS AS CRITICAL CLIMATE SOLUTION

We need stronger and more built environment-related contributions in the Nationally Determined Contributions (NDCs)

We urge countries to include decarbonisation targets for the entire building system / whole value chain, concrete policies and measures and related implementation mechanisms in their NDCs.

The Global Alliance for Building and Construction is working with its country members and beyond on a commitment '**Buildings as Critical Climate Solution (BCCS)**' that will advance building sector measures at national level, creating the appropriate enabling environment towards a zero-emission, efficient and resilient buildings and construction sector.

WHY: Delivering the European Green Deal

Renovating buildings for greener lifestyles



Renovating our homes and buildings will save energy, protect against extremes of heat or cold and tackle energy poverty.

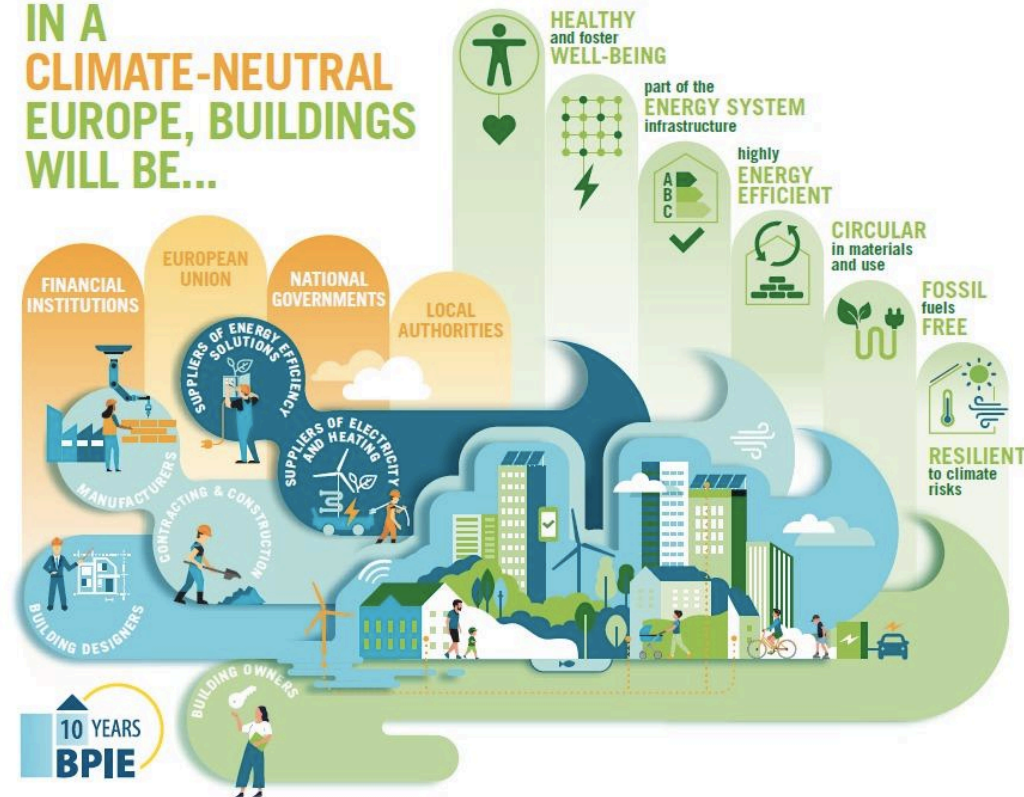
The new Social Climate Fund will support EU citizens most affected or at risk of energy or mobility poverty. It will help mitigate the costs for those most exposed to changes, to ensure that the transition is fair and leaves no one behind.

It will provide EUR 72.2 billion over 7 years in funding for renovation of buildings, access to zero and low emission mobility, or even income support.

In addition to homes, public buildings must also be renovated to use more renewable energy, and to be more energy efficient.

AN ACTION PLAN FOR THE RENOVATION WAVE: COLLECTIVELY ACHIEVING SUSTAINABLE BUILDINGS IN EUROPE

IN A
CLIMATE-NEUTRAL
EUROPE, BUILDINGS
WILL BE...



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WHAT will be done in the a seminar



WHAT: NEW CITIES AND ARCHITECTURAL PARADIGMS

The seminar aims to investigate some paradigms of the low energy and carbon-built environment, as challenging and contemporary themes of environmental design and assessment

The contributions intend:

- 1) to explore some themes that characterize the design and evaluation of micro-urban systems and the building system, paying attention to the relationships between morphological-settlement setting, languages of architecture, detailed design and material-constructive choices.
- 2) to deepen the tools and scientific bases for understanding the scenarios related to the energy transition and low carbon processes at different scales, through the critical analysis of renewable and non-renewable energy sources, related technologies, and the evaluation of primary energy and polluting emissions through balance equations.



HOW: THE LEARNING MODEL

The seminar programme is organised into thematic sections:

- 1) Energy transition challenges and Zero Carbon Architecture
- 2) Renewable and unconventional energy sources for the energy transition
- 3) Building systems and Service technologies for the energy transition
- 4) High-performance & low-carbon materials

