



**ENBRI**  
European Network of Building  
Research Institutes

# **European Network of Building Research Institutes (ENBRI) ENBRI Manifesto 2024**

## ***Need for a Holistic Pathway to Carbon Neutrality***

### **History & Objective of ENBRI**

*ENBRI serves as a platform for the national building research institutes to collaborate, innovate and contribute to the development of a more sustainable and resilient built environment in Europe. Through their strong links with industry, standardization and government bodies, ENBRI members play a crucial role in creating, disseminating and implementing new knowledge and assuring impact of construction innovation.*

The European Network of Building Research Institutes (ENBRI) aims to foster collaboration and knowledge exchange among building research institutes across Europe. It was founded in 1986 to address, in dialogue with the EC, the various challenges and opportunities within the construction and building industry. An issue of paramount importance, as the construction sector represents almost 10% of the added value of the EU economy and employs almost 25 million people in more than 5 million companies.

In the late 20<sup>th</sup> century, there was a growing recognition of the need for interdisciplinary research and innovation in the construction sector. The network was established to promote cooperation in areas such as sustainable building practices, energy efficiency, building materials research and construction techniques.

One of the primary objectives of ENBRI is to facilitate the sharing of best practices, research findings and technological advancements among its member institutes. By promoting collaboration, harmonization and information exchange, ENBRI seeks to accelerate progress towards a more sustainable and resilient built environment.

The 17 institutes that form ENBRI also play a pivotal role in advocating for policies and initiatives that support the advancement of the building sector in line with environmental, economic and societal goals, both on a national and European level. This includes participating in research programs, policy discussions and industry forums to promote innovation and sustainability across the European construction industry ecosystem.

## An Overview of the ENBRI Research Roadmaps

*Policies and research roadmaps for the development and preservation of the built environment must include a wide range of societal issues on a holistic level. This includes energy efficiency, housing affordability, cultural heritage preservation, public health, climate change mitigation & adaptation, circularity, social equity and economic development. By addressing these interconnected challenges holistically, construction stakeholders can develop more effective strategies for building sustainable and future proof resilient communities. Obviously, as a cross-cutting issue, digitalization is crucial in all these endeavours and should get due attention for all aspects. Policies and research roadmaps play a crucial role in managing these relationships effectively. As a group, ENBRI is committed to align the individual roadmaps of the institutes towards a common 2030 goal.*



**Climate Change Mitigation & Adaptation:** Buildings account for a significant portion of global greenhouse gas emissions. Policies and research roadmaps aimed at mitigating climate change focus on lower emissions through energy efficiency improvements, a shift to a carbon-neutral energy mix including renewables and the use of materials with low or negative carbon emissions. All this must be considered on building and neighbourhood levels. Additionally, adaptation strategies focus on enhancing building resilience to natural hazards such as earthquakes, extreme weather events and rising sea levels, including the use of nature-based solutions with due attention to the preservation of biodiversity.



**Circularity:** The construction industry is by far the biggest consumer of minerals and materials. It is also one of the biggest sources of waste, but at the same time it offers huge opportunities for reuse, recycling and recovery. It is not a surprise that construction has been identified as a particularly relevant sector in the recent ‘Advanced Materials for Industrial Leadership EC Communication’. Avoiding waste by making building structures robust, safe and long-lasting while improving circularity in construction practice and addressing the broader environmental performance of materials and construction contribute not only to a carbon-neutral economy, but also to a sustainable and resilient construction value chain. Digitalization will be also be here the enabler to make this happen.



**Affordable Housing & Urbanization:** Many European countries face challenges related to affordable housing and urbanization. Industrialization, digitalization and a common European market are key towards higher productivity in the construction sector and towards realizing affordable, sustainable and healthy housing. Strategies aimed at preserving buildings should include measures to renovate and retrofit existing structures for energy efficiency, thus reducing the environmental impact of urban development while also addressing social equity concerns by ensuring affordable, sustainable housing options. Likewise, the preservation and safeguarding of cultural heritage embedded in historical buildings would also contribute to protecting our European identity.



**Health & Well-being:** Buildings significantly impact human health and well-being. Indoor air quality, access to natural light, acoustic and thermal comfort, fire safety engineering and ergonomics, inclusive architecture and design all play essential roles. In particular when applying innovative new biobased materials risk assessment is relevant. Building standards and regulations need to consider healthier indoor environments and risk assessment strategies to improve overall quality of life.



**Economic Development & Job Creation:** A strong, healthy and productive construction sector contributes to economic development and welfare. Preservation efforts and sustainable building practices can stimulate economic development and create employment opportunities. Policies that incentivize energy-efficient retrofits, historic preservation projects and green building construction not only benefit the environment, but also support local economies and job growth. Appropriate development of skills and digital competences are essential to live up to the expectations on the increasing energy renovation market.

## **Targeting Whole Lifecycle Carbon Neutrality**

*The European Union has set a goal to achieve climate neutrality by 2050, requiring significant changes in the construction industries. To stay on track, direct CO<sub>2</sub> emissions from buildings must be reduced by over 50% by 2030, ultimately leading to a carbon-neutral building stock by 2050. This reduction involves cutting emissions at every stage of a building's life cycle, including operational (like heating and cooling) and embodied (like materials production) emissions. As a group, ENBRI is committed to coordinate the work at the different institutes towards a common approach and to reflect on tools and methods to monitor the impact of specific solutions.*

One of the most urgent actions in pursuit of the targets of the European Green Deal is to achieve 'Whole Life Cycle Carbon Emissions Neutrality' in the construction industry. Reaching this objective faces several challenges, including accurately measuring and tracking emissions throughout complex supply chains and considering the use and end-of-life phases. Limited data availability and transparency can hinder efforts to assess the full environmental impact of products, processes, buildings and infrastructure. Balancing economic considerations with environmental goals presents another hurdle, as implementing greener practices may require significant upfront investments. Addressing emissions from consumer behaviour and product disposal also poses challenges, as changing societal norms and infrastructure may be necessary. Overcoming these obstacles requires coordinated efforts from governments, businesses, knowledge institutes and consumers to prioritize sustainability and innovation.



## **ENBRI's Commitment ...**

*The Manifesto presents ENBRI's commitment to align innovation roadmaps, to share knowledge with interested parties inside and outside the ENBRI community to accelerate the widespread adoption of more sustainable construction methods, materials and processes towards the 2050 goals, as well as to work towards a common approach for calculation and disclosure of Whole Life Cycle Carbon Emissions.*

The ENBRI members commit to align innovation roadmaps and share their knowledge with interested parties inside and outside the ENBRI community. Interested parties are invited to participate in the ENBRI working groups to accelerate knowledge sharing and the widespread adoption of more sustainable construction methods, materials and processes towards the 2050 goals.

Through the strong links with industry, standardization and government bodies, ENBRI members play a crucial role in creating, disseminating and implementing new knowledge and assuring impact of construction innovation across Europe. In particular and with reference to the 'Transition Pathway for a resilient, greener, and more digital construction ecosystem', co-created by the Commission and the 'High-Level Construction Forum (HLCF)', ENBRI is well positioned to facilitate consistency in standards, calculation methods and disclosure protocols of whole life cycle greenhouse gas emissions, for the designed and the as-built performance of buildings. ENBRI as such commits, in line with the Transition Pathway Actions 3.14 and 3.15, to coordinate the work at the different member institutes towards a common approach for calculation and disclosure of 'Whole Life Cycle Carbon Emissions'.

## ENBRI Signatures



**BAM** Bundesanstalt für Materialforschung und -prüfung, Germany



**BUILD** Institut for Byggeri, By og Miljø - Department of the Built Environment, Denmark



**BUILDWISE**, previously Belgian Building Research Institute, Belgium



**CSTB** Centre Scientifique et Technique du Bâtiment, France



**EMI** Építészeti Minőségellenőrző Innovációs NKFT, Hungary



**EMPA** Eidgenössische Materialprüfungs- und Forschungsanstalt, Switzerland

Materials Science and Technology



**Enterprise IR** Enterprise Ireland, Ireland



**IETcc-CSIC** Instituto Eduardo Torroja de Ciencias de la Construcción - Consejo Superior de Investigaciones Científicas, Spain



**IMS** Instituta za Ispitivanje Materijala, Serbia



**ITB** Instytut Techniki Budowlanej, Poland



**LNEC** Laboratório Nacional de Engenharia Civil, Portugal



**SINTEF** Stiftelsen for industriell og teknisk forskning, Norway



**TNO** Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek, The Netherlands



**TSUS** Technický a Skúšobný Ústav Stavebný, Slovak Republic



**URBAN-INCERC** Institutul Național de Cercetare-Dezvoltare in Construcții, Urbanism și Dezvoltare Teritorială Durabilă, Romania



**VTT** Valtion Teknillinen Tutkimuskeskus, Finland



**ZAG** Zavod Za Gradbeništvo, Slovenia

