

A SUSTAINABLE, FAIR AND BEAUTIFUL BUILT ENVIRONMENT TO ADDRESS THE CLIMATE AND BIODIVERSITY CRISIS

Statement presented on 28 October 2021 in Brussels on the occasion of the ACE “Climate Change & Built Heritage” Conference

The way we inhabit our planet is undoubtedly a driver of the unfolding climate and biodiversity crisis. The living environment we have created, and the way we manage it, consumes vast quantities of land, raw materials and fossil fuel energies and generates significant amounts of greenhouse gas emissions and waste¹. And the trend is worrying: due to urbanisation and demographic growth, it is estimated that over the next 40 years, 230 billion square metres will be built worldwide, adding the equivalent of the area of Paris to the planet every single week.

It appears very clear that we must urgently change the way our built environment is designed, built, maintained, renovated, managed and regulated. The present Statement highlights some pathways to support the transition to a fair, sustainable and beautiful built environment that is able to meet our individual and collective needs, without aggravating climate change and jeopardising life on Earth.

Adopting a holistic approach that favours quality over short-term economic gains

Too often, climate actions relating to the built environment focus on solutions aiming to improve the energy efficiency and performance of buildings. Yet, a *holistic approach* going beyond energy considerations and favouring *overall quality* in the built environment is necessary to ensure safe, comfortable and resilient habitats that facilitate individual and community wellbeing.

A holistic and quality-oriented approach seeks to optimise, in the long term and in an affordable manner, the economic, social, environmental and cultural value of the built environment, for the benefit of all.

Over the last years, positive developments recognising the importance of this approach have taken place in Europe:

- The 2018 [Davos Declaration](#) has been a major step forward as it put *quality of the built environment* on the policy agenda. The ensuing [Davos Baukultur Quality System](#), which provides for eight criteria for the assessment of the quality of places, proves to be a useful and simple tool for all stakeholders wishing to further advance quality in the built environment;
- The report [Towards a shared culture of architecture](#), produced by an EU Member States’ expert group, highlights the importance of investing in a high-quality living environment and includes recommendations to public authorities, professionals and stakeholders on the many ways in which high-quality architecture can improve our built environment;
- The [New European Bauhaus](#), initiated by the President of the European Commission, is a promising framework for fostering cross-disciplinary thinking and reflecting on how to achieve more beautiful, sustainable and inclusive ways of living together.

¹ The operation of buildings and the construction sector accounts for more than 35% of global final energy use and nearly 40% of energy-related CO₂ emissions.

These positive developments should inspire policy-makers and stakeholders over the world.

Demolition as an exception: favouring the renovation and re-use of the existing building stock

In Europe, 85-95% of the buildings that exist today will still be standing in 2050, a large proportion of which are currently energy inefficient². However, existing buildings embody a huge amount of carbon in their materials and have strong economic, social, cultural and even heritage values.

It is crucial to renovate and extend the life of existing buildings instead of demolishing them and building new ones, to improve their performance and quality, save the carbon they embody and avoid the generation of waste. Feasibility studies should always be conducted to thoroughly explore the potential for renovation. While demolition can be the best option in specific cases, building conservation and retrofit should always be envisaged as a preferred option.

Renovation of the existing building stock does not limit itself to energy retrofit. Functional and aesthetic upgrades of buildings and neighbourhoods are essential to optimise the impacts of energy efficiency measures and improve the well-being of occupants.

Smart technical systems are often regarded as a panacea for better performing buildings. Without denying their benefits, there is ample evidence that these systems might have unintended consequences, including higher than expected energy consumption. Priority should be given to simple, passive, low-tech, locally tested solutions that do not consume energy and are less prone to human error.

Particular attention should be paid to places with a heritage value, especially those that are not listed. As underlined by the [Leeuwarden Declaration](#), through smart renovation, they can find new uses that meet the needs of our time. As a result, their social, environmental and economic value is increased, while their cultural significance is enhanced.

Applying circular economy principles in the construction and buildings sector

The construction and building sectors operate largely within a linear economy model of “take, make and waste”, assuming that resources are abundant and that we can dispose of them without consequences. There is an urgent need to develop more regenerative economic models, which allow resources to flow in a *circular* way within the economy for as long as possible.

Developing circular economy principles in the built environment is fundamentally about changing the way we design our buildings to ensure that they can be easily operated, maintained, repaired, re-used or adapted to new needs. Solutions promoting circularity should consist of a value-oriented hierarchy of actions aiming to preserve and enhance the value of resources:

- *Maintain and re-use first*: buildings that are appreciated have longer lifespans and inspire generations of owners and users to preserve the resources invested in them;
- *Build for different uses*: buildings are demolished because their adaptation to new needs is seen as an unviable economic option. Buildings’ spaces and fabrics should be designed so they can be occupied for different uses and easily adapted to new needs;
- *Design for easy replacement*: by enabling easy access to and removal of components that have a shorter lifespan, they can be cost effectively replaced or repaired;
- *Prescribe the right materials and components*: namely those that can be cost-effectively re-used or recycled; that are durable and robust; easy to handle; repairable; and biodegradable, such as wood, earth, straw, cork.

² EU Commission, Renovation Wave Strategy, COM(2020) 662 final
<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0662&rid=5#footnote2>

Tackling the whole life environmental impacts of the built environment

Current legislation focuses almost exclusively on the energy consumed by buildings when they are in use. However, around 10% of energy-related GHG emissions are attributable to *embodied carbon*, which is caused by the manufacturing of construction materials, their transportation and the whole building process. This embodied carbon is almost entirely unregulated.

A greater evaluation of the full environmental impacts of buildings over their life cycle, taking into account both *operational* and *embodied* carbon, is necessary. This would create the business case for prioritising lifecycle extension over demolition and re-build and would foster the use of local and bio-sourced materials.

At the European level, the [Level\(s\) framework](#), which offers a common set of indicators to measure the environmental performance of buildings across their whole life cycle, can support such a move towards a whole life carbon approach.

Designing a resilient built environment capable of facing the effects of climate change

In the coming decades, Europe will be much more frequently exposed to extreme weather events as a result of climate change – floods caused by heavy rains and heatwaves being certainly the two biggest risks that threaten us. Some 350 million Europeans could be exposed to harmful climate extremes every year³.

It is therefore of utmost importance to design and plan our buildings and cities to adapt to this “new normal”. High priority must be given to forecasting and early prevention, as well as the adoption of a long-term mindset. Wisdom and common sense require limiting urbanisation in risk-prone areas. Then, our built environment needs to be planned and designed with adaptation in mind from the very beginning. To combat extreme natural hazards, nature-based solutions and traditional ecological knowledge are key.

In the face of the climate and biodiversity crisis, the cost of doing nothing will far outweigh the cost of taking action. Urgent actions must be taken in the construction and buildings' sectors if we are to limit climate change.

Essentially, it means making better use of our existing buildings; reducing new construction; applying circular economy principles; better evaluation of environmental impacts over life-cycle, and adapting to the effects of climate change. What we build and retrofit today should aspire to becoming the cultural heritage of tomorrow.

Decisions taken during the design phase of a project have long-lasting consequences. The earlier the right decisions are made, the stronger the impacts on the results. It is therefore vital for the design phase to be quality-oriented and based on the views of various experts. If high-quality architecture can create significant value, conversely, ill-conceived buildings can cause considerable damage, both in the short term and for future generations.

The recent winning projects of the Pritzker Prize and Mies van der Rohe Award show that renovation projects can represent very strong and iconic architectural acts, and the winners of the 2021 New European Bauhaus Prizes demonstrate that innovative solutions already exist for designing and building a fair, sustainable and beautiful living environment.

The challenge is to deploy these solutions at the speed and scale necessary. Public authorities at all levels of governance have a vital role to play. Through leadership and better regulation, they can provide the adequate regulatory framework that would enable collective action to be taken by the sector, making it possible to achieve broader social, economic, environmental and cultural goals, for the benefit of all.

³ Multi-hazard assessment in Europe under climate change, Joint Research Centre of the European Commission, April 2016

Useful resources:

- [2018 Leeuwarden Declaration on the Adaptive re-use of the built heritage](#)
- [2020 Statement of the NEB Collective Making the Renovation Wave a Cultural Project](#)
- [2019 ACE Statement Achieving Quality in the Built Environment](#)
- [ACE study The Value of Architecture](#)
- [2019 ACE Statement Designing for Circular Economy](#)
- [ACE publication 20 Architectural Projects Against Climate Change](#)
- [2015 ACE-CNOA-UIA-CIAF Manifesto for responsible architecture. Architects' commitment to the climate of the future](#)
- [Davos Baukultur Quality System](#)
- [New European Bauhaus](#)
- [OMC Group report Towards a shared culture of architecture](#)
- [WGBC #Buildinglife initiative](#)
- [Level\(s\) framework of indicators](#)
- <https://www.drive0.eu>