C40 Clean Construction Accelerator

Our buildings and infrastructure define our cities – from our iconic skylines to our historic architecture. They protect, connect and provide the spaces where people live, work, study, visit and play. However, our built environment is also one of the biggest sources of greenhouse gas (GHG) emissions, accounting for over half of total city emissions on average, and a significant source of air pollution.

As the urban population grows globally, the need for new buildings and infrastructure will only intensify. By 2050, we expect another 2.5 billion people to live in urban areas and the global building stock to almost double in size. This is equivalent to constructing a city the size of Stockholm or Milan (1.5 million people) every week, or a city the size of Singapore or New York every month, until 2050. The global COVID-19 crisis has made the need for our built environment to be resilient, adaptable, equitable and healthy even more apparent. We must rethink how we design and construct our buildings and infrastructure to cope not only with the climate emergency but with any other crises.

Through C40's *Net Zero Carbon Buildings* Accelerator, a number of cities have already committed to ensuring their buildings become greener, healthier and more energy efficient. These efforts must be complemented with a whole life-cycle approach to our built environment. We must acknowledge that building materials, construction, maintenance and demolition are responsible for a growing share of our buildings' carbon footprints and are the biggest source of emissions from the infrastructure we rely upon daily. We must also consider how construction materials can increase or reduce our vulnerability to climate change.

Construction is responsible for more than 23% of the world's GHG emissions[1]. The production of concrete and steel, the two most commonly used construction materials, are major contributors to the global climate crisis, with cement alone - concrete's main ingredient - representing 8% of global GHG emissions[2]. The construction sector is also responsible for more than 30% of global resource consumption, destabilising and damaging eco-systems through mining and extraction. Construction and demolition waste represent a growing environmental challenge, and toxic building materials pose a major threat to public health in many parts of the world. Construction sites generate significant amounts of air and noise pollution from diesel machinery, heavy goods vehicles, construction work itself, and traffic congestion, contributing to the global air quality crisis.

"Business as usual" in the construction sector means a world on track for 3°C or more of over-heating. We must take ambitious action on clean

[1] Huang et al. (2017). Carbon emission of global construction sector. Renewable and Sustainable Energy Reviews. 81. 10.1016/j.rser.2017.06.001.

[2] Lehne, Johanna and Preston, Felix, 2018. *Making Concrete Change: Innovation in Low-carbon Cement and Concrete*. Chatham House.

construction in order to help us keep global heating to under the necessary limit of 1.5°C.

Research by C40 Cities, ARUP and the University of Leeds reveals that changes to the construction industry in C40 cities could cut the consumption-based emissions generated from buildings and infrastructure by 44% by 2050, when only considering currently available technology.

As mayors, we are committed to working together to shift the global construction industry towards a more sustainable future. **We will lead the way towards clean construction to achieve a thriving, resilient and healthy life for everyone in our cities, especially our most vulnerable communities. Clean construction values our existing stock, prioritizes retrofits, and ensures new buildings and infrastructure embed circular economy principles in their design, material and construction choices. Clean construction helps deliver a green and just recovery from the COVID-19 crisis and improve social equity. We can create good, green jobs by investing in local sustainable business communities and expanding existing solutions; and by educating and reskilling workers.**

We acknowledge that achieving clean construction can only be done in collaboration, as acknowledged in the World Green Building Council's *Bringing Embodied Carbon Upfront* report. **While we are not able to transform built environment systems alone, we are committed to respond to the global climate emergency, take bold actions where we have the power to do so and bring together the necessary stakeholders to quickly deliver results.** We welcome market dialogues and engagement of leading companies and of innovative business communities in our cities to create collective commitments inspiring the same level of ambition. We also recognise the need to partner with state and national governments, who play a crucial role in setting standards for buildings and infrastructure, and regulations for the manufacturing of construction materials and equipment.

To ensure that our cities develop the net zero emission buildings and infrastructure of the future, we, as mayors, commit to take the following actions:

1. **Prioritise the better use, repurposing, and retrofit of existing building stock and infrastructure** across the city to ensure their optimal use before new construction projects are considered.
2. **Lead by example with municipal procurement** by:
    - requiring life cycle assessments (LCAs) and the diversion of construction and demolition waste from disposal for all municipal projects.

    - Use municipal purchasing power to procure or demand zero emission construction machinery in municipal projects from 2025, where available.
    - Reward resource efficient and circular design, use of low carbon materials, and low to zero waste construction sites for all new projects and major retrofit.
3. **Demand transparency and accountability**, starting with requiring LCAs in planning permissions and embedding them into planning policies, processes and building codes within a year of endorsing this accelerator or in the next revision of planning policies and codes. Require the public disclosure of this data to facilitate greater transparency and foster accountability to develop robust baselines, standards, certifications and policies.
4. **Work with businesses, industry, public institutions, residents, workers, social partners and other organizations to establish a joint roadmap and set interim targets towards the collective 2030 goals** adhering to circular economy principles within two years of endorsing this accelerator, and incorporate it into our Climate Action Plan. The roadmap will provide an implementation pathway to the Clean Construction Accelerator actions and to reaching its goals inclusively and equitably.
5. **Approve at least one net zero emission (operational and embodied) flagship project by 2025.**
6. **Assess the impact our choice of materials and construction design will have on our cities' overall resilience to climate impacts** (i.e., increasing urban heat island, impermeable surface increasing the risk of flooding, etc.)
7. **Work with and advocate for regional, national and supranational government** to take action on sources outside the boundaries of our control.
8. **Publicly report every year** on the progress our cities are making towards these goals.

With these actions, we pledge to enact policies and regulations where we have the powers, in order to develop the net zero emission buildings and infrastructure of the future.

We endeavour to bring together and inspire stakeholders to take the necessary action to:

- Reduce embodied emissions by at least 50% for all new buildings and major retrofits by 2030
- Reduce embodied emissions by at least 50% of all infrastructure projects by 2030
- Require zero emission construction sites city-wide by 2030, where technology is available.