

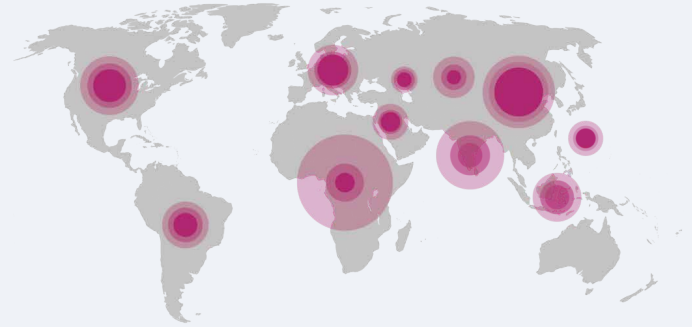


## What is it about?

Humanity's need for buildings will double by 2060 due to population growth and urbanisation (GABC and UNEP 2016). This is equivalent to adding an entire New York City to the planet each month (Architecture 2030 2023b).

Buildings play a crucial role in people's daily lives as they are used for housing, work, leisure, or storage. Simultaneously, large amounts of energy and resources are used for constructing and running them.

## Mapping the growth of building floor area



(adapted from Architecture 2030 2023b)

## Why are buildings important for our climate?

Buildings account for more than one-third of global CO2 emissions (SBTi 2022). Firstly, this includes operational emissions caused when heating, cooling, and powering buildings. Secondly, buildings embody emissions that derive from extracting natural resources to manufacture building materials such as concrete, the construction of a building, and the disposal of materials when a building is demolished.

Although operational emissions have incrementally reduced, embodied emissions of new buildings are rising (Röck et al. 2020). Overall, GHG emissions from buildings can potentially reduce by 60% compared to current levels (Andersen et al. 2021).



### Embodied Carbon

The emissions from manufacturing, transportation and installation of building materials.

### Operational Carbon

The emissions from a building's energy consumption.

(adapted from Truscott 2020)

## 3 Fast Facts

# 8%

– the share of global emissions caused by cement production alone. This is more than the emissions of any one country except China and the U.S.

(Ellis et al. 2020) (Malsang 2021).

# 50%

of emissions from urban buildings are generated by a small number of large buildings, while the remaining ½ is generated by a large number of small buildings

(Architecture 2030 2023).

# 50%

of global building emissions until 2050 will derive from embodied emissions (Ellis et al. 2020).

# What funders can do



## Enhance energy efficiency

By engaging those who use and inhabit buildings, funders can promote energy-efficient behaviours such as low-energy heating and airing habits. They can also stimulate demand by raising awareness among building owners about the benefits of energy-efficient solutions, such as smart thermostats. Moreover, investing in professional training programs can ensure that retrofitting work, like installing new insulation or upgrading windows, is scaled-up (CAGBC 2023).



## Innovation in building materials

By funding research and development, funders can scale technologies available to reduce the carbon footprint of steel, concrete and other conventional building materials. Likewise, they can help to cultivate a supply and demand for alternative and recycled building materials such as timber, blended clinker, or scrap steel.



## Change in building codes & standards

Funders can facilitate cross-sectoral collaboration to develop and apply practical guidelines for sustainable building practices. This helps to promote new codes and standards, which are an important tool for governments to stimulate the construction and maintenance of low-emission buildings.

## Things to consider when focusing on buildings

### Urgency

Buildings constructed today will last for many decades. Any delay in renewing building practices and technologies will burden future generations with additional embodied emissions. Acting now will have a huge legacy by shaping the building sector in three generations time when today's buildings reach the end of their lifespan.

### Procurement

Careful planning and governance ensure that alternative construction materials like timber are sustainable. Responsible sourcing of materials and forest management are key when seeking a win-win situation between reducing embodied emissions and protecting ecosystems.

### Social equity

For low-carbon buildings to be scaled, they need to be affordable for people at all income levels. What is more, low operational emissions can increase the quality of housing and make it more affordable e.g. by lowering energy bills. These co-benefits of retrofitting and constructing buildings are most effective when the perspectives of affected communities are heard.



[Link to bibliography](#)