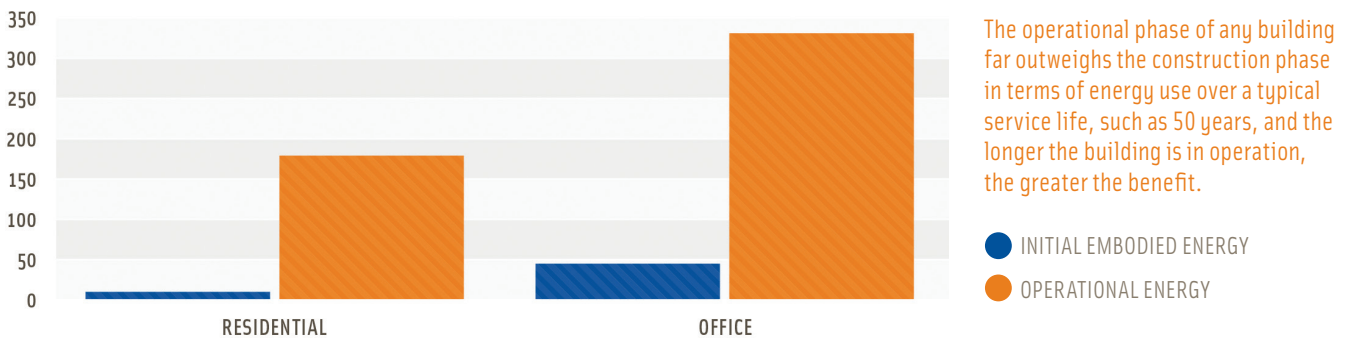


THE REAL VALUE OF RESILIENT CONSTRUCTION

Spotlight: Carbon Footprint

LIFETIME EMISSIONS OF BUILDINGS



By the numbers—carbon emissions

- **Operating buildings uses significant amounts of energy**, amounting to 80-90% of their lifetime emissions.
- In the US, **more than 40% of carbon dioxide emissions each year** are attributed to **heating, cooling, and operating buildings**. This represents about **10% of the world's energy use**.
- A cradle to grave life-cycle analysis approach to realistic carbon accounting would show that from material harvest to disposal, concrete compares similarly to many other building materials in carbon emissions.

How can concrete help?

- The thermal mass properties of concrete wall systems allow them to slow down heat transfer, reducing heating/cooling costs by maintaining temperatures for longer. Concrete walls form a tight envelope to eliminate gaps in walls and reduce drafts and hot/cold spots.
- Concrete systems are built to last a long time—even if they're exposed to an extreme weather events—and the durability results in minimal costs for maintenance and repair.
- The **greater resilience of concrete buildings = more sustainable construction**. With a lower cost to operate and maintain, longer use results in bigger savings.

Concrete for a reduced carbon footprint

Carbon dioxide is a greenhouse gas and its presence in the atmosphere is associated with carbon emissions from all sorts of activities, both natural and those associated with human activity. All construction materials emit CO₂ during manufacture, but that is only part of the story. **The carbon footprint of a building must also take into account the building's energy usage and how long the building lasts.** Given the proven durability and resilient performance of concrete materials and systems, concrete buildings can save owners money with reduced operating costs over a long life. Long life plus good energy efficiency helps to minimize harmful CO₂ emissions.