

# WHOLE LIFE CARBON

## EXPLAINER GUIDE

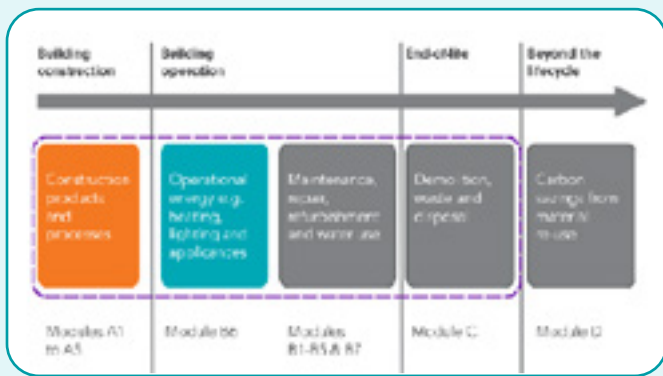
This **Explainer Guide** covers the key principles of whole life carbon\* in the built environment.

### What is whole life carbon in the built environment?

Greenhouse gases are emitted throughout a building's lifecycle, from the raw materials used in construction, through to the electricity used to run the building, right up until the demolition and end of life treatment of building's materials.

Whole Life Carbon is a way to describe this, and can be **defined as** 'the combined total of **embodied and operational** emissions over the whole life cycle of a building'. The whole life cycle of a building is 'the entire life of a building from material sourcing, manufacture, construction, use over a given period, demolition and disposal, including transport emissions and waste disposal'.

In the below diagram, the dashed purple line demonstrates the Whole Life Carbon of buildings and infrastructure. As can be seen, Whole Life Carbon covers modules A, B, C (this reflects the **WLCA Professional Standard from RICS**). This method is based on **EN15978**, which splits a building's lifecycle into separate modules (more information on this later)



### Why is it important?

The built environment is responsible for **25%** of UK emissions. The urgency to act on climate change has never been greater, and the built environment sector has a moral and legal responsibility to address the climate emergency and accelerate sector decarbonisation.

In order to tackle this problem, it is important to think about all of emissions (both **operational and embodied**) that a building emits across its lifetime. In addition, we should also assess the interrelationship between them. 'Whole life carbon (WLC) thinking therefore means considering these emissions together so as to optimise their relative and combined impacts' (**RIBA**).

There is an internationally accepted standard for calculating a building's whole life carbon that helps define operational and embodied carbon by breaking down a building's impacts across its lifecycle stages, known as **EN15978: Sustainability of construction works - Assessment of environmental performance of buildings - Calculation method**.

### What is the role of the built environment?

The UK has a legal commitment to achieve **Net Zero by 2050**, with pathways and recommendations for how this could be achieved set out by the Climate Change Committee (CCC) through their UK Carbon Budget analysis and reports.

In order to reach this target the built environment will need to radically change the way it is planned, designed, constructed, maintained, repurposed and operated. This means reducing carbon throughout its entire (whole) life cycle and even beyond, considering how the buildings elements can be reused in its next lifecycle.

The **UKGBC Net Zero Whole Life Carbon Roadmap for the Built Environment** aims to build a common vision and agreed actions for achieving net zero carbon in construction, operation and re-use of buildings and infrastructure in the UK.



### HAVE YOU READ...

The UKGBC **Whole Life Carbon Roadmap** outline a common vision for achieving **net zero carbon** across the whole lifecycle of the UK built environment.



### FURTHER RESOURCES

UKGBC **Advancing Net Zero**

WorldGBC **Advancing Net Zero**