

**BOPAS**

Buildoffsite Property  
Assurance Scheme

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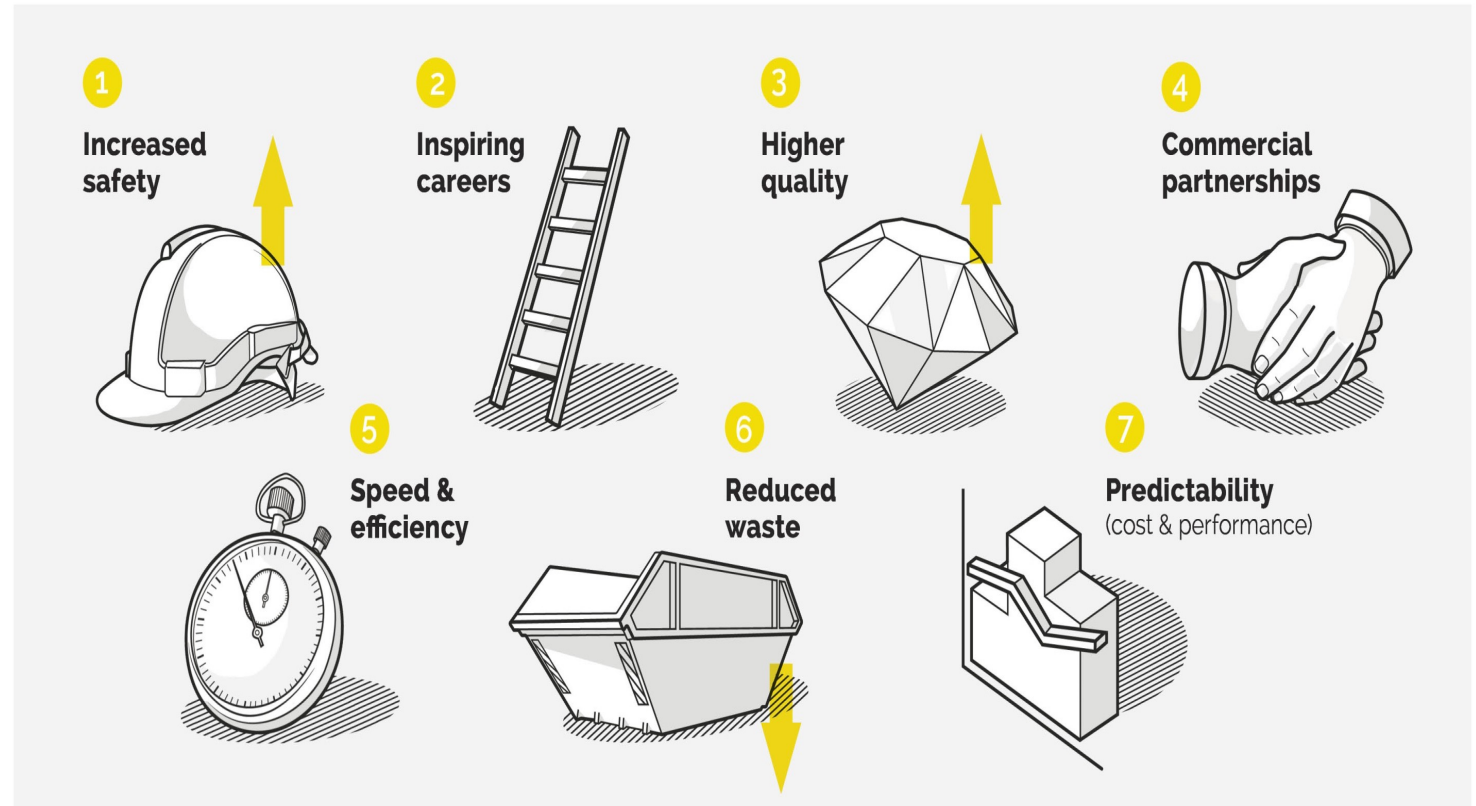
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Known benefits of MMC

## Understanding the Benefits

Traditional vs Offsite design



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## THE CARBON CHALLENGE

## Embodied Carbon: A Hidden Climate Challenge

Buildings account for at least 39% of energy-related global carbon emissions on an annual basis. At least one-quarter of these emissions result from embodied carbon, or the carbon emissions associated with building materials and construction.

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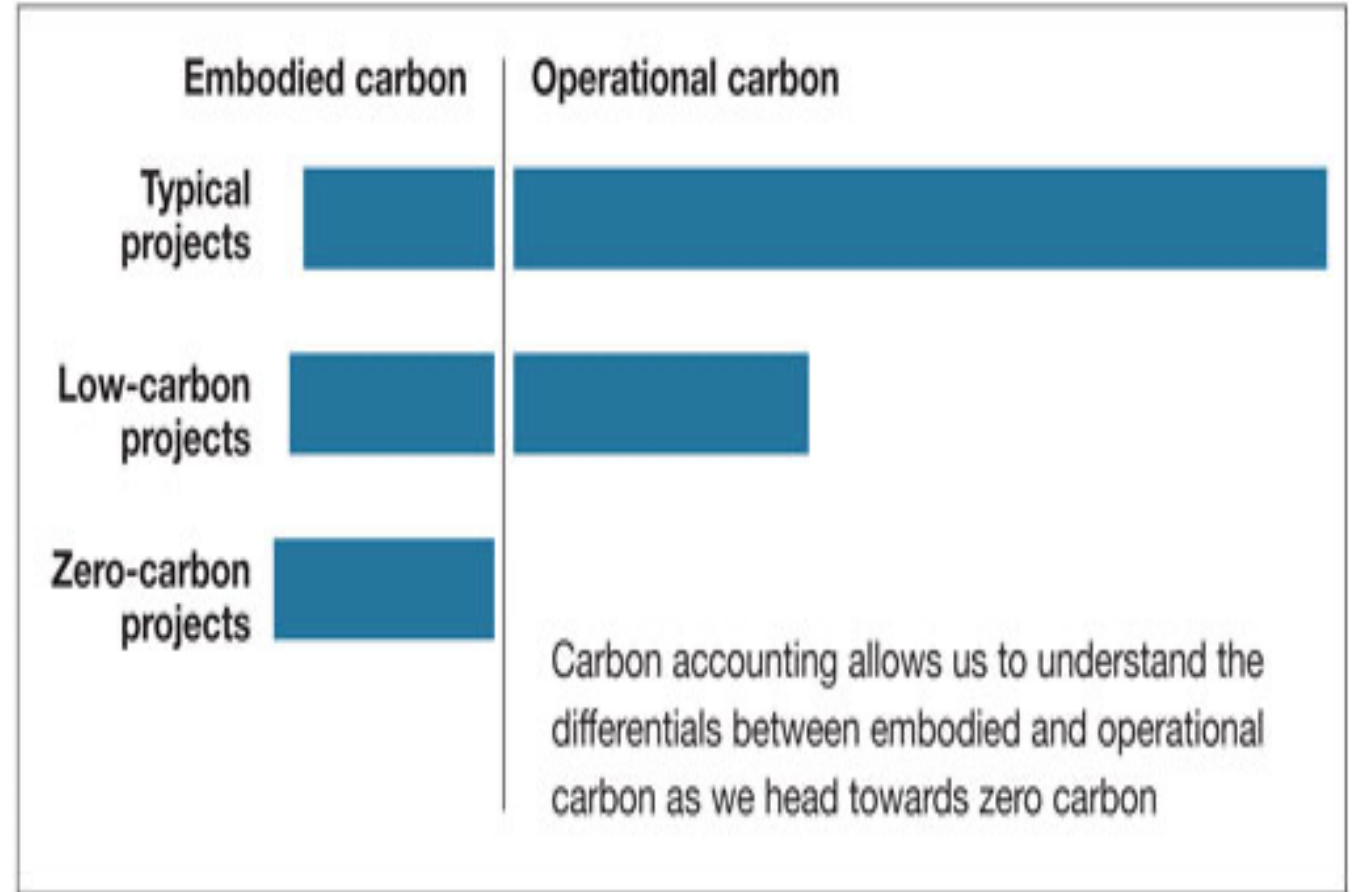
## What is Embodied Carbon

Embodied carbon is the amount of carbon emitted during the construction of a building. The extraction of raw materials, the manufacturing and refinement of materials, transportation, installation and disposal of old supplies can all produce embodied carbon emissions.

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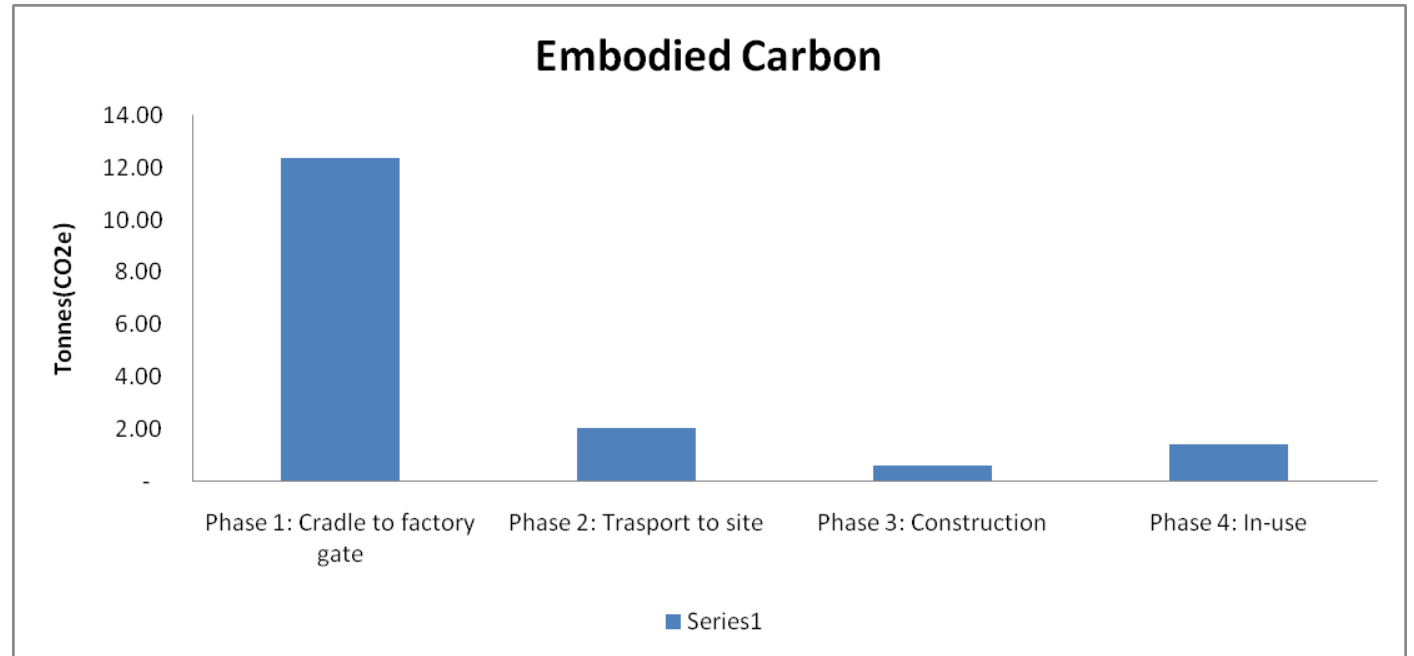
Embodied  
Carbon v  
Operational  
Carbon



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## Embodied Carbon Phases



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Which has  
lower embodied  
carbon, MMC or  
traditional  
homes?

- In a recent report the embodied carbon was found to be 34.6 tonnes CO<sub>2</sub> for a 3 bedroom semi-detached house, 405 kgCO<sub>2</sub> per m<sup>2</sup> of useable floor area. When compared with traditional methods of construction the modern methods of construction (MMC) house resulted in a 34% reduction in embodied carbon.

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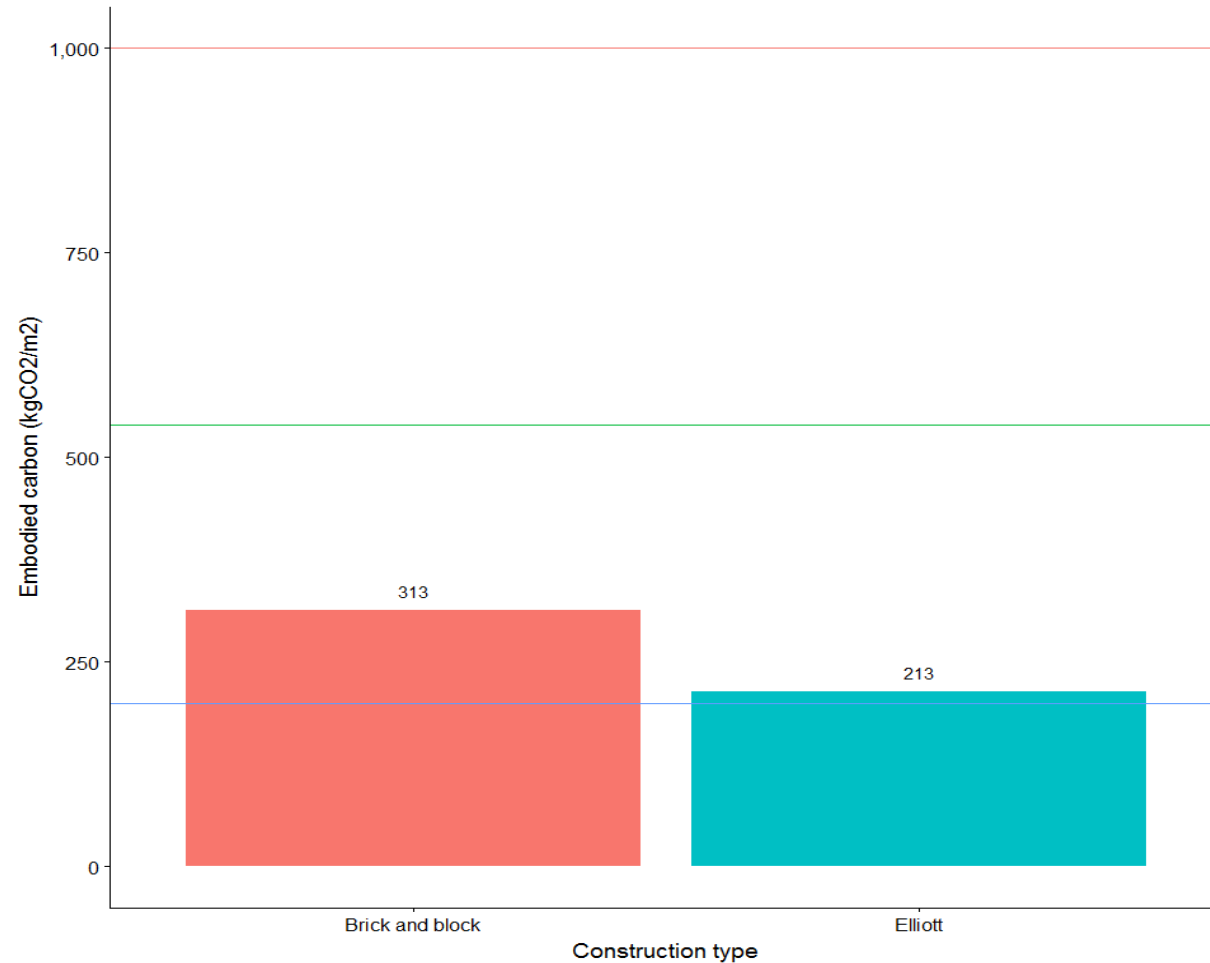
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BLP TIS Real  
life MMC v  
Traditional EE  
Comparison

## Embodied carbon dwelling comparison

Cradle to gate data for key components (substructure, superstructure and finishes)

RICS benchmarks for semi detached dwelling — max — mean — min Dwelling Brick and block Elliott





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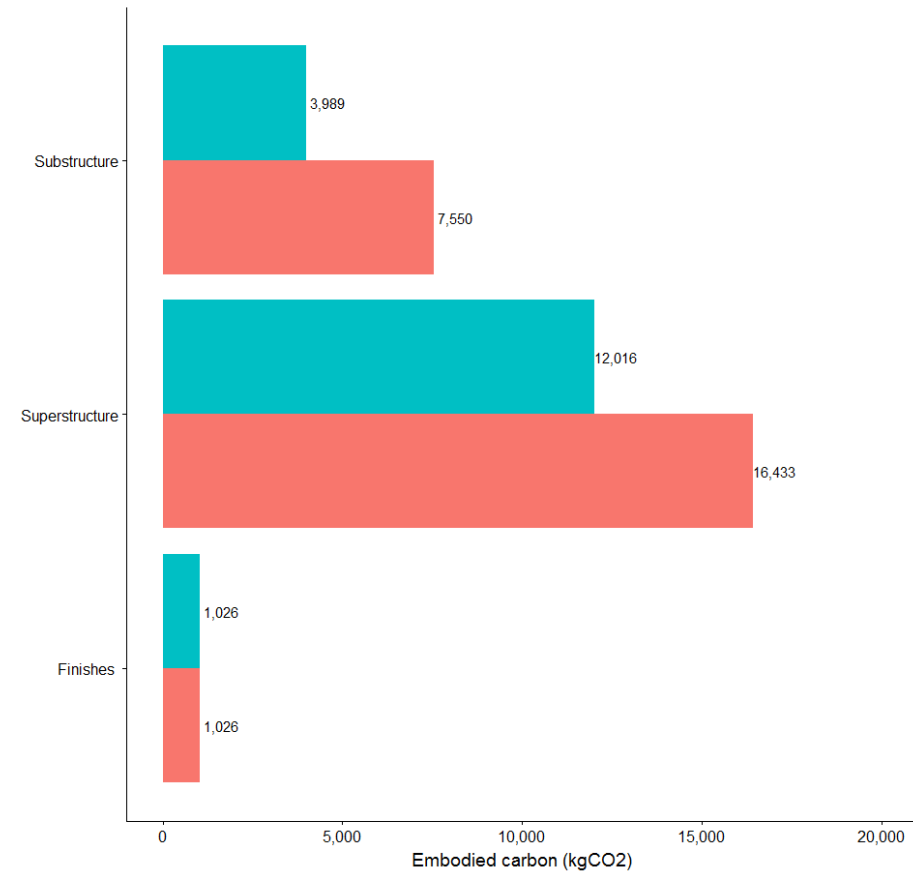
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Real life  
MMC /  
Tradition EE  
Comparison

## Embodied carbon level 1 comparison

Cradle to gate data for key components (substructure, superstructure and finishes)

Dwelling ■ Brick and block ■ Elliott



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## Guidance & Legislation

- RICS Professional Statement on WLC is used as the accepted industry methodology for WLC assessments.
- The Future Homes Standard, which should itself be brought forward to 2023.
- Government introduce, not later than December 2023, regulations to mandate whole-life carbon assessments for buildings above a gross internal area of 1000m<sup>2</sup> , or which create more than 10 dwellings.
- Some Local Authorities now considering WLC as part of their approval process.