

Estimating whole life carbon savings from increasing the use of timber in construction

This research for DEFRA and DESNZ examined the use of timber in construction to reduce carbon emissions, highlighting recommended data and methodology improvements.

The study analysed 11 typical UK building archetypes to estimate carbon impacts of increasing timber use in the structure, façade, and internal partitions.

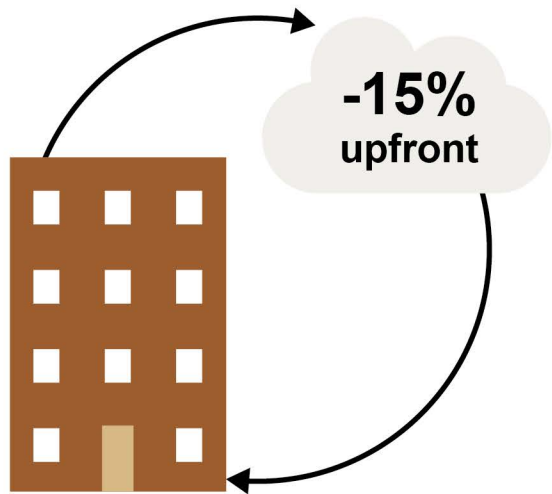
Nine future scenarios, with varying levels of timber uptake and material and energy decarbonisation, were then modelled to understand the possible carbon savings at the whole-UK level.



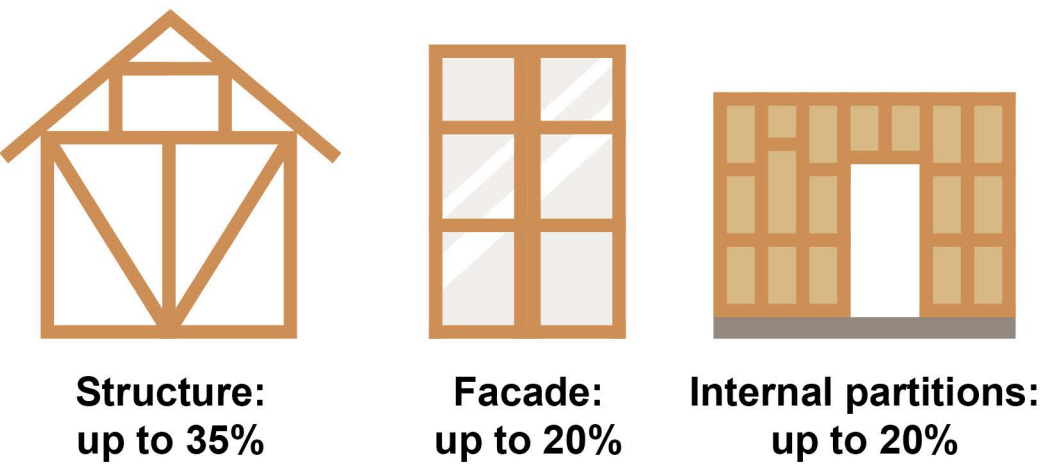
DEFRA
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Increased timber use could reduce full-building life-cycle embodied carbon and upfront carbon across all archetypes by up to 9% and 15%, respectively.



Embodied carbon reductions were more pronounced when considering individual building elements in isolation:



Sensitivity analyses highlighted how the timber source, end-of-life scenario, building lifespan and carbon analysis approach impact whole life carbon results.



High timber use scenarios could reduce national UK consumption-based emissions by up to 37MtCO₂e, between 2023-2050, compared with equivalent low timber use scenarios.

