



New Tricks With Old Bricks

Key findings

This study compared the CO₂ given off in building new homes and creating new homes through refurbishing old properties. The key findings are:

Reusing empty homes could make an initial saving of 35 tonnes of carbon dioxide (CO₂) per property by removing the need for the energy locked into new build materials and construction.

Over a 50-year period, this means there almost no difference in the average emissions of new compared with refurbished housing.

Carbon dioxide (CO₂) emissions from new homes fall into two distinct sources: “embodied” CO₂ given off during the housebuilding process, and “operational” CO₂ given off from normal energy use in the house once it is occupied.

The new homes each gave off 50 tonnes of embodied CO₂. The refurbished homes each gave off 15 tonnes.

Well-insulated new homes eventually make up for their high embodied energy costs through lower operational CO₂ but it takes several decades - in most cases more than 50 years.

Embodied CO₂ is not widely understood but this study shows that it accounts for 28% of CO₂ emissions over the first 50 years' lifetime of a new house.

Embodied CO₂ is an investment in the environmental sustainability of a house. Refurbished old homes have lower embodied CO₂ and therefore a distinct head start over new homes.

Empty homes in England provide an opportunity to create 150,000 new sustainable homes.

If the rate of VAT on repairs and renovation had been 5% instead of 17.5%, it would have cut the average cost of refurbishment by approximately £10,000 for each house.

Many house builders claim that new homes are four times more efficient than older houses. This study shows that refurbished houses can be as just efficient as new homes.