



## The Advantages of Using Wood as a Building Material

### The Real Cost of Red Brick

A tonne of red brick for instance requires four times the amount of energy to produce than sawn timber, whilst concrete is five times less carbon efficient, steel 24 times and aluminium 126 times. By increasing the wood content of a building there is a proportional decrease in its carbon footprint. This is due to the extremely low energy consumption in the production of sawn timber and wood products in comparison with other building materials.

Factory production to the exact dimensions of timber frame structures contributes further to wood's carbon advantage by dramatically cutting waste on site during the building process. In fact, it is possible to achieve CO<sub>2</sub> reductions in the order of 88% on the build of a typical three bedroom detached house if softwood cladding is used in conjunction with a timber frame.

It costs around 5% less to build an energy efficient timber frame house or building. Timber frame building has grown incrementally in the UK to an overall market share of around 25%. Lower build costs are a significant contributing factor to the increasing popularity of timber construction. Wood's thermal insulation properties are 10 times better than brick and 5 times better than concrete. This adds up to a key cost advantage of timber construction in the achievement of reduced HLP (Heat Loss Parameter) when compared to masonry: the overall build cost savings range from 2.2% to 5.2% to achieve HLP compliances in the range of 1.3, 1.1 and 0.8. Timber frame construction methods lead to a more efficient build process. Water tight within 5 days, a timber frame house is not subject to the traditional delay to other trades whilst the brickwork is finished. In comparison to wet construction methods there is little time lost due to drying out. Construction time on site is more predictable and 30% shorter with timber frame.

In its lifetime a uPVC window produces 1200 times more CO<sub>2</sub> than one made from wood.

### Always use Wood for Modern Construction

Taking all material, production, transport and maintenance procedures into account wood is by far the least carbon intensive window material available. In production, uPVC's oil base and the energy intensive smelting of aluminium contribute enormously to the carbon footprints of these materials. Wood's exceptionally good natural insulating and cold-bridging properties are at least the equal of uPVC making it ideal in double and triple glazed applications.

Accelerated ageing tests simulating a range of environmental exposures have shown properly maintained, factory pre-coated units to have a life time in service similar to that of aluminium. uPVC units proved to be over 30% less durable. Uniquely, a wood window may also be economically repaired throughout its life. In these circumstances it is not uncommon for wood windows to last 100 years or so.

An 'EUR' wooden pallet stores around 29kg of CO2 taken from the atmosphere during the growth of the tree

Pallets made from wood and wood derived packaging materials are the most carbon efficient option. Accounting for approximately 20% of European timber consumption these products are in most instances carbon neutral. Oil based PET, PVC and other plastics along with metals such as aluminium are significant net carbon contributors and remain so even once recycling is taken into account.

Heat treated wooden pallets have been shown by German researchers to be less susceptible to bacterial growth than those made of plastic. Wooden pallets conforming to ISPM 15 meet the most rigorous global hygiene standards and costs 50% less than the plastic alternative.

Once damaged a plastic pallet's useful life is over. Wooden pallets are repairable, greatly extending their life and further reducing overall cost. When beyond service, wood pallets and packaging provide a substitute to fossil fuels if burnt as biomass to produce energy.



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