



# Sustainability

The **Wood Window** Alliance



**WOOD. AT THE HEART  
OF A GOOD WINDOW**

The wood window industry can make a significant contribution to sustainable construction:

1. Wood is naturally renewable
2. It is independently certified to be sourced from sustainably managed forests
3. Forests and wood products play an important part in reducing climate change
4. Our frames are carbon negative
5. Our windows also save energy and CO<sub>2</sub>
6. They have fewer environmental impacts than other materials.

To qualify for the Wood Window Alliance quality benchmark, windows must be made using timber that is independently certified as legal and sustainable by one of the schemes recognised by CPET (the government's Central Point of Expertise on Timber Procurement):

- FSC (Forest Stewardship Council)
- PEFC (Programme for the Endorsement of Forest Certification)
- SFI (Sustainable Forestry Initiative)
- CSA (Canadian Standards Association)

## Naturally renewable

- Wood is the only naturally renewable mainstream building material
- Thanks to strictly enforced laws, Europe's forests are growing at a rate of around 661,000 ha a year<sup>1</sup> (the equivalent of three football pitches every hour of the day and night).

## Certified sustainable

- Our members use wood that has been independently certified as legal and sustainable
- This provides an independent guarantee that the timber has been grown in accordance with a number of sustainability criteria, including the replacement of harvested trees
- Members also have Chain of Custody certification, which ensures an unbroken link from the forest to manufacturing.

## Climate change

- Forests are second only to oceans as the world's most important carbon sinks
- Wood products maximise the forests' carbon sink effect
- As trees grow, they soak up CO<sub>2</sub> from the atmosphere at the rate of one tonne of CO<sub>2</sub> for every cubic metre's growth, storing it as carbon in the wood and releasing the oxygen we breathe<sup>2</sup>

- Harvesting mature trees is part of sustainable forest management. Trees sequester CO<sub>2</sub> from the atmosphere most efficiently while they are growing. When they reach maturity, typically after 80-100 years for a softwood tree, their CO<sub>2</sub> uptake slows and they begin to die and decay, releasing methane into the atmosphere
- Forests are managed to improve the carbon sink effect, so mature trees are harvested to make way for vigorous new trees
- The greater part of the stored carbon of the harvested tree is transferred to the wood product, while the forest's carbon sink continues to grow thanks to sustainable forest management
- This double benefit of carbon sink and the growing carbon store of wood products is why wood products are often described as carbon negative: they lock away more CO<sub>2</sub> than is produced throughout their lifecycle
- The product carbon store can be extended through re-use and recycling
- Further CO<sub>2</sub> gains can be made by recovering the energy from the wood at the end of its life as a biomass fuel. The EU Landfill Directive will lead to greater use of energy recovery from waste wood.

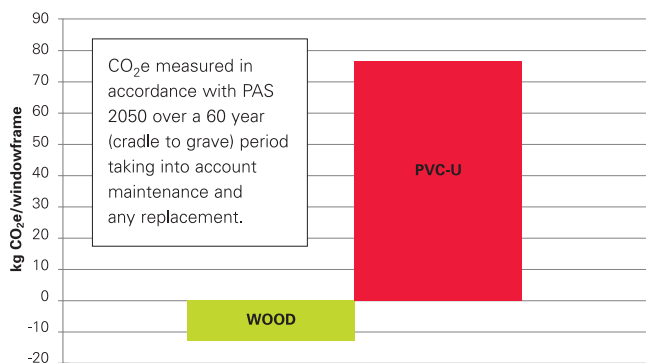
<sup>1</sup> UNECE/FAO, *State of the World's Forests, 2007*

<sup>2</sup> *Edinburgh Centre for Carbon Management*

## Our windows have carbon negative frames

- We commissioned Davis Langdon to undertake research to compare the embodied carbon emissions of Wood Window Alliance windows with equivalent PVC-U units
- They conducted Life Cycle research, taking into account all phases of growth, production, transport, maintenance and disposal
- The research concluded that WWA frames were carbon negative across the overall life cycle
- Saving 89kgs CO<sub>2</sub>e when used instead of a comparable PVC-U window
- That's a saving of around three-quarters of a tonne CO<sub>2</sub>e per average house (the equivalent of driving around 6,500 kms in a small family car).

Carbon dioxide emissions (CO<sub>2</sub>e) per window frame material over a 60 year life



Source: Davis Langdon, 2010

## Saving energy

- A window's energy-efficiency is largely dictated by the glazing unit, rather than by the material the frame is made from
- However, wood's low thermal conductivity helps reduce cold-bridging
- And triple-glazing is easier with wood
- Members' windows have to meet or exceed the performance standards for wind and weather resistance of BS 6375 Part 1 and the minimum performance standards for operational aspects of BS 6375 Part 2, or equivalent standards from other countries

- The windows are supplied factory-glazed with double or triple glazed units
- They can deliver BFRC 'A'-standard window energy ratings
- And U-values as low as 1.0W/m<sup>2</sup>K.



## Environmental impacts

- Wood windows score well in all Life Cycle Assessment (LCA) studies and are rated A+ (domestic) and A (commercial) in the Building Research Establishment (BRE) Green Guide
- BRE's Climate Change indicator rates wood windows A+/A compared to D for all other window material
- Planned maintenance prolongs the life of the window and its carbon store effect, reducing the impacts caused by new replacements
- At end-of-life, wood windows should be used as a biomass fuel.

Material	Climate change indication (BRE GG rating)	Overall rating
Softwood	A+	A+ (water based paint)
Hardwood	A+	A+
PVC-U	D	A
Aluminium (powder coated 0.88kg/m)	D	B
Steel	D	B
Aluminium composite (0.87kg/m = timber profile 2kg/m)	C	B

## The Code for Sustainable Homes

- Wood products can make a significant contribution to the credits required to meet the different levels of The Code for Sustainable Homes. This is because of good Green Guide ratings and responsible sourcing policies
- The code is significant because:
  - It replaces the EcoHomes scheme, developed by the BRE
  - It sets minimum standards for energy and water use within England, encouraging the use of more sustainable materials and the development of more sustainable housing
  - It provides homebuyers with information about the environmental impact and running costs of their new home, and builders with evidence of meeting sustainability targets
  - Level 3 is mandatory for developments and government funding through the Housing Corporation or on land held by the government or government agencies, like English Partnerships and the Olympics Development Agency
  - Level 6 is deliberately ambitious and represents the 'zero carbon house' that the Government is to make mandatory by 2016. The thermal requirements of the Building Regulations are being made progressively more demanding towards this target.

Download the code:

[www.communities.gov.uk/documents/planningandbuilding/pdf/codesustainhomesstandard.pdf](http://www.communities.gov.uk/documents/planningandbuilding/pdf/codesustainhomesstandard.pdf)

