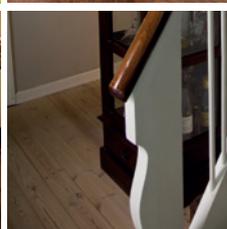
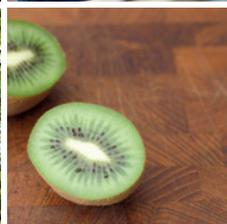
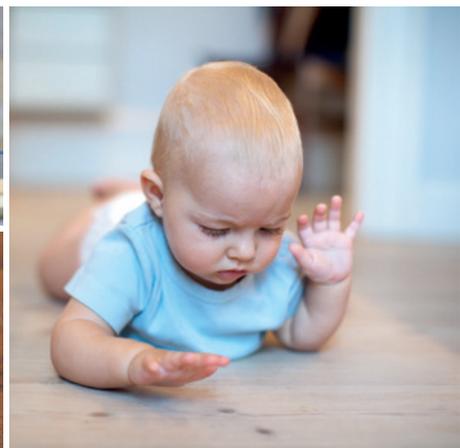




# Wood

Use wood and benefit the climate, environment, forests, mood, health, construction and economy

## - nature's stroke of genius



Wood is the world's most environmentally friendly raw material

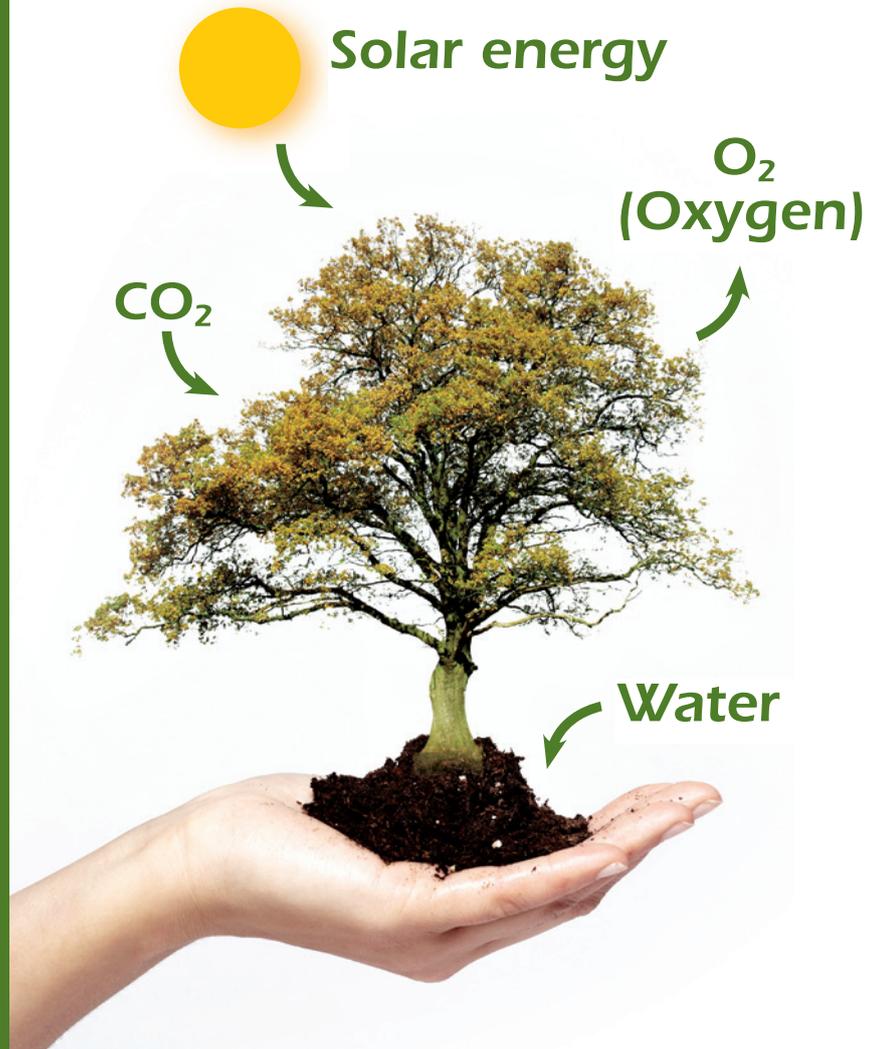
**Wood is the key to a sustainable future:**

1. Wood is a renewable resource, a product of solar energy and atmospheric carbon.
2. Wood produces no waste but energy that can replace the use of coal, oil, and natural gas.

**Wood grows: It's a renewable resource**

More and more trees are growing in the forests of Europe.

Over the course of centuries, only a fraction of the forests' annual growth – as measured in cubic meters of wood – is harvested.



## Wood removes CO<sub>2</sub> from the atmosphere

Like all other plants, wood is made of atmospheric CO<sub>2</sub> and solar energy.

Trees and wood products thus benefit the climate by removing CO<sub>2</sub> from the atmosphere and storing it until they rot or are burned.

## Wood is CO<sub>2</sub> neutral when burned

Regardless of whether wood rots or is burned, it releases CO<sub>2</sub> and solar energy. This energy can be utilised, for instance at home or at a power plant, to replace the use of coal, oil, and natural gas.

Wood is thus a CO<sub>2</sub>-neutral source of energy: You use energy and carbon (C) that is already in the cycle instead of adding more carbon from the underground in the form of coal, oil, and natural gas.





## Use of wood benefits the forests

Trees are harvested in nearly all forests in Europe. And that is actually good for the forests:

- Young forest stands need to be thinned for the remaining trees to reach maturity.
- Forests are replanted when trees are felled. Forested areas are growing throughout Europe and have been growing for many years.
- Using more wood creates a greater basis for planting new forests and to increase the forested areas.
- Sale of wood provides income for forests, making it possible to promote the forests' other values, such as rich flora and fauna.

## Wood can be certified

Certified wood comes from forests that can document sustainable forestry techniques, for instance the replanting after logging.

Many wood certification systems exist, such as PEFC and FSC.

On a global scale the forest area is decreasing due to clearing of tropical rainforests, often by simple burning.

Rainforests are destroyed in particular on account of poverty: Forests are transformed into agricultural land used to produce beef cattle, soy and maize.

One way of preserving rainforests is to make them more valuable to the local community than the agricultural land in the same area. This will happen if the rest of the world purchases sustainably produced wood from rainforests.





# Wood is wonderful

## Wood is good for all the senses

- Wood is beautiful and is available in a variety of colours and grains.
- Wood feels good. It's warmer and softer against the skin than, for instance, metal, stone, and plastic. This is why it's so pleasant to stroke a piece of wood furniture.
- Wood sounds good. Concert halls are built from wood because this results in the best acoustics. Wind instruments, guitars, double basses, pianos, grand pianos, drums, and xylophones are all made from wood for the same reason.
- Wood smells good, especially when it's fresh. Scents vary widely according to species.
- Wood tastes good, for instance when wine is matured in oak barrels.

## Wood is hygienic

Wood dries out and kills bacteria. This is why, for example, wooden cutting boards are more hygienic than those made from plastic or metal.

All normal washing fluids are just as effective on wood as on other materials.

## Wood is wonderful to inhabit

Many people find that wooden houses possess superior interior climates than other houses. This might be because:

- Wood is a living material that regulates humidity and removes the sensation of stagnant air.
- Wood is pleasant to walk on. Wood floors are slightly springy and are less stressful on the back than, for instance, concrete. In many indoor sports players prefer wood floors.

## Wood provides heat

A wood-burning oven lets you enjoy your own CO<sub>2</sub>-neutral heating.



Use your wood-burning oven correctly with clean and dry wood, plenty of air, and a high temperature.

Go outside and make sure that the chimney smoke is scarcely visible.

This ensures the most economical and environmentally friendly means of heating your home.

Go inside and enjoy the cosiness and good air circulation that results from your wood-burning oven.



# Wood is practical

## Wood is strong

- Wood is the world's strongest material relative to mass. This is why wood tower blocks are becoming more and more popular.
- Wood is elastic. For instance, wooden houses remain standing during earthquakes that cause concrete houses to collapse.
- Wood is easy to work with.

As a result, wood possesses technical possibilities unavailable to other materials. Wood can be used just about everywhere and for all different purposes.

## Wood is a living material and it can be controlled

Wood is a biological material and can thus be broken down by sun, wind, water, and microorganisms. However, under the right conditions, a wooden building can last generations:

- Select the right type of wood.
- Use the wood correctly, for instance, by ensuring designs minimizing water and moisture traps.
- If wood preservation is necessary, use the right kind.



# Wood is economical

## Wood is often cheaper to build with

Modern wooden constructions – from detached houses to multi-storey buildings to long bridges – are often price competitive with similar constructions of other materials. For instance, it takes nine weeks to build a five-storey wooden building but one year to construct such a building with concrete.

The main reason for this is wood's combination of high strength and low weight.

Experiences from Sweden's wood construction programme show that multi-storey buildings are often cheapest in wood.

In addition, extensions on pre-existing buildings are often least expensive in wood.

## Wood is superior from a macroeconomic perspective

The future will see ever-more-stringent requirements on energy consumption and CO<sub>2</sub> emissions in fields like construction.

When energy consumption and CO<sub>2</sub> emissions are factored into the societal costs of construction, there is no doubt: Wood is far and away the most economical material.



# Wood: By the numbers

## Forests of the world

Forests cover nearly 40 million km<sup>2</sup> worldwide, in other words 30% of the Earth's land area.

Forested areas are declining at a rate of 50,000 km<sup>2</sup> annually. This decrease is due to the clearing of tropical rainforests, which is only partly made up for by forest expansion elsewhere.

The world's forests are unevenly distributed. The ten most-forested countries contain 2/3 of all forests: Russia, Canada, USA, China, Australia, Republic of Congo, Indonesia, Peru, and India.

## Plant two to three trees per year and become CO<sub>2</sub> neutral

The average European is responsible for around 12 tonnes of CO<sub>2</sub> per year. A mature tree, ready for harvesting,

stores around five tonnes of CO<sub>2</sub>.

By planting two to three trees per year, the average European can thus lead a CO<sub>2</sub>-neutral life if all of these trees are allowed to grow to maturity.

In forestry, however, around 20 to 100 times as many trees are planted than actually reach maturity. Most trees are thinned out during the growing process and used for paper, composite products, and CO<sub>2</sub>-neutral energy.

## 1 m<sup>3</sup> wood removes two tonnes CO<sub>2</sub> from the atmosphere

When wood is used instead of materials such as steel and concrete, the climate benefits in two ways:

1. Around one tonne of CO<sub>2</sub> is stored in each cubic meter of wood.

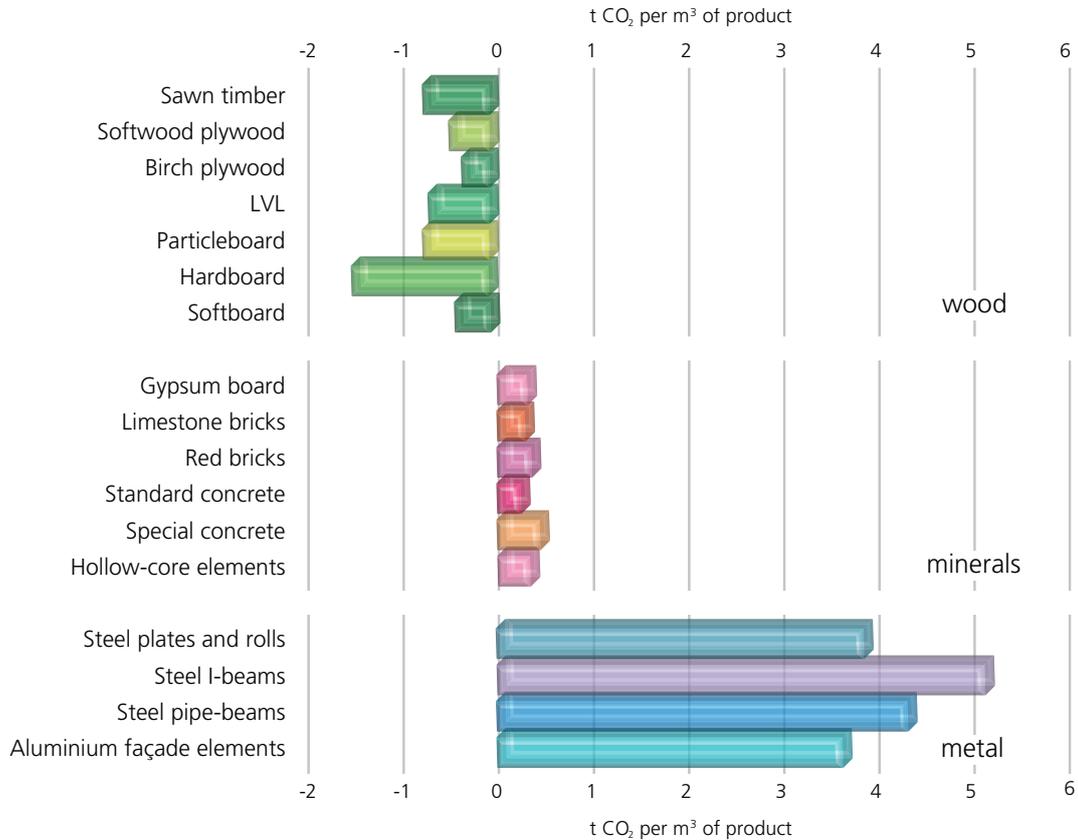
2. A further tonne of CO<sub>2</sub> is saved on average compared with the production processes for a comparable steel or concrete product.

This means that two tonnes of CO<sub>2</sub> are saved when one cubic meter of wood replaces one cubic meter of concrete or steel for use in, for instance, construction.

Finally there is a third benefit to the environment: Once wood products are no longer fit for purpose, they can be burned, thereby utilising their stored solar energy. This replaces the use of coal, oil, and natural gas while resulting in no waste materials.

One tonne CO<sub>2</sub> is the equivalent of 430 litres of petrol.

## How much CO<sub>2</sub> can be saved using wood?



## Wood is brilliant

- Wood grows. It is a renewable resource.
- Wood can be used and reused.
- Wood creates no waste, but CO<sub>2</sub>-neutral energy when it is burned after use.

This is why wood is the world's most environmentally friendly raw material.

In addition, wood is economical to use, and most people love wood products.

Wood is the raw material of the future.

Wood – nature's stroke of genius

## Learn more

This pamphlet is issued by The Danish Wood Initiative, [www.trae.dk](http://www.trae.dk).

We aim to create awareness and knowledge of the environmental qualities of trees, whether they grow in forests or are used in industry, buildings and homes.

Send us your feedback at [info@trae.dk](mailto:info@trae.dk).

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