

Wood as a construction material



What wood can do

Wood is the only renewable construction material. It is aesthetic, elegant and has endless structural possibilities.

Those features, coupled with Finnforest's extensive experience, unite to form the most impressive constructions made of wood.

Finnforest has products for simple buildings as well as the most complex public projects. But products alone are not enough - complete systems are needed.



Sawn timber



Glulam



Plywoods



LVL

Wood – a versatile construction material

- Natural, beautiful, warm, sensual
- Light but strong, easy to process, insulates heat
- Excellent acoustical properties
- Improves the indoor air quality

- The only 100% renewable construction material, due to sustainable forestry
- Recyclable, non-toxic
- Manufacturing wood products requires little energy
- Wood products compare well in material life-cycle comparisons
- Using wood slows down climate change

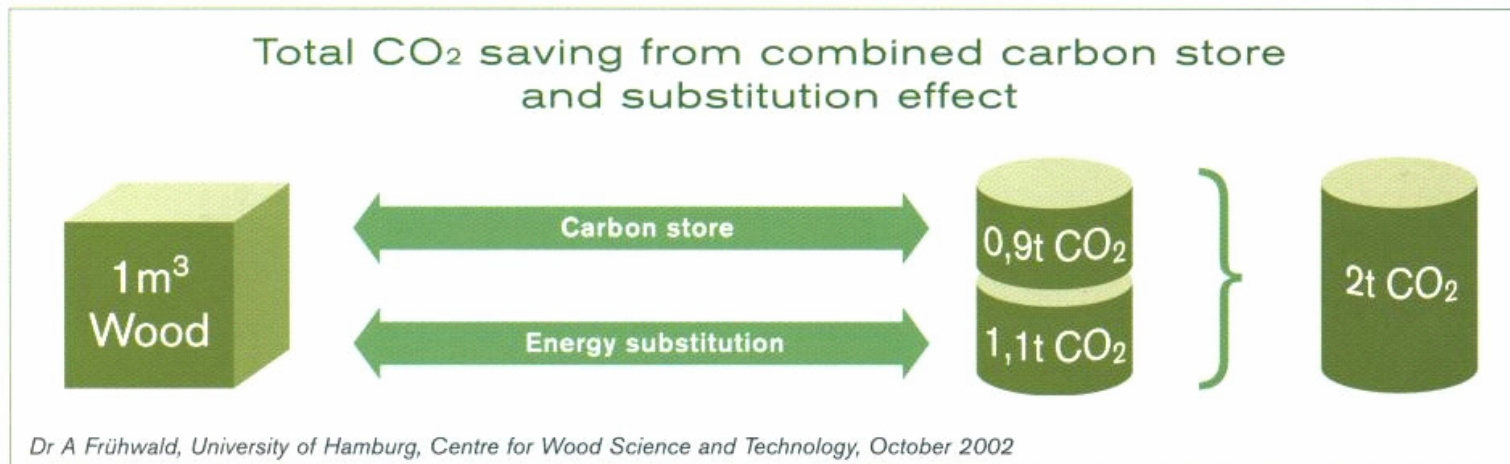
Wood products for a better environment

Wood is a renewable raw material



Source: Finnish Forest Industries Federation

Tackle climate change: Use wood



Every cubic metre of wood used as a substitute for other building materials reduces CO₂ emissions to the atmosphere by an average of 1.1 tonnes of CO₂. Add this to the 0.9 tonnes of CO₂ stored in wood, each cubic metre of wood saves a total of 2 tonnes of CO₂.

A 10% increase in the percentage of timber frame houses in Europe would produce sufficient CO₂ savings to account for 25% of the reduction prescribed by the Kyoto Protocol.

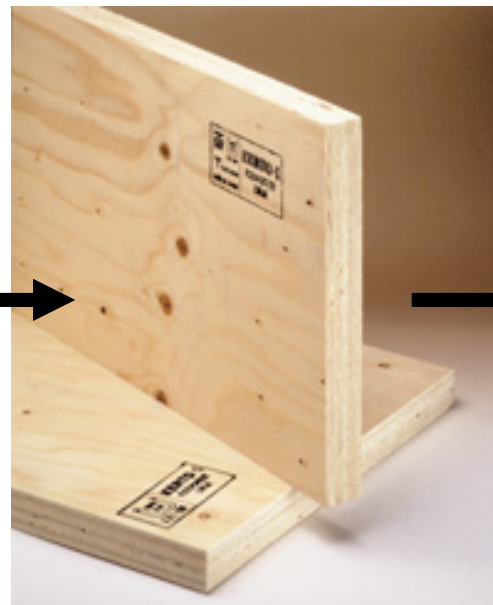
CEI-Bois, European Confederation of woodworking industries, 13 February 2006

Adding value

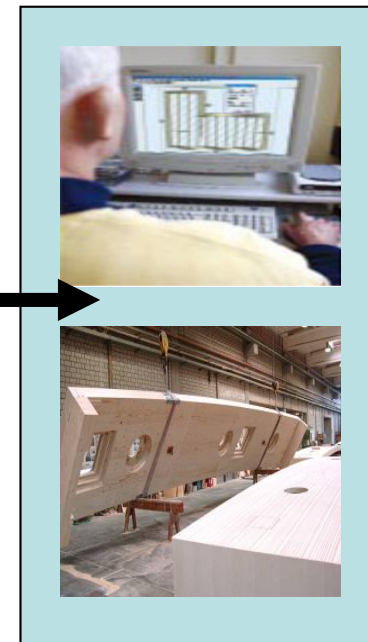
Value adding to the wood industry can be achieved through intelligent products, advanced engineering and manufacturing



From forest....



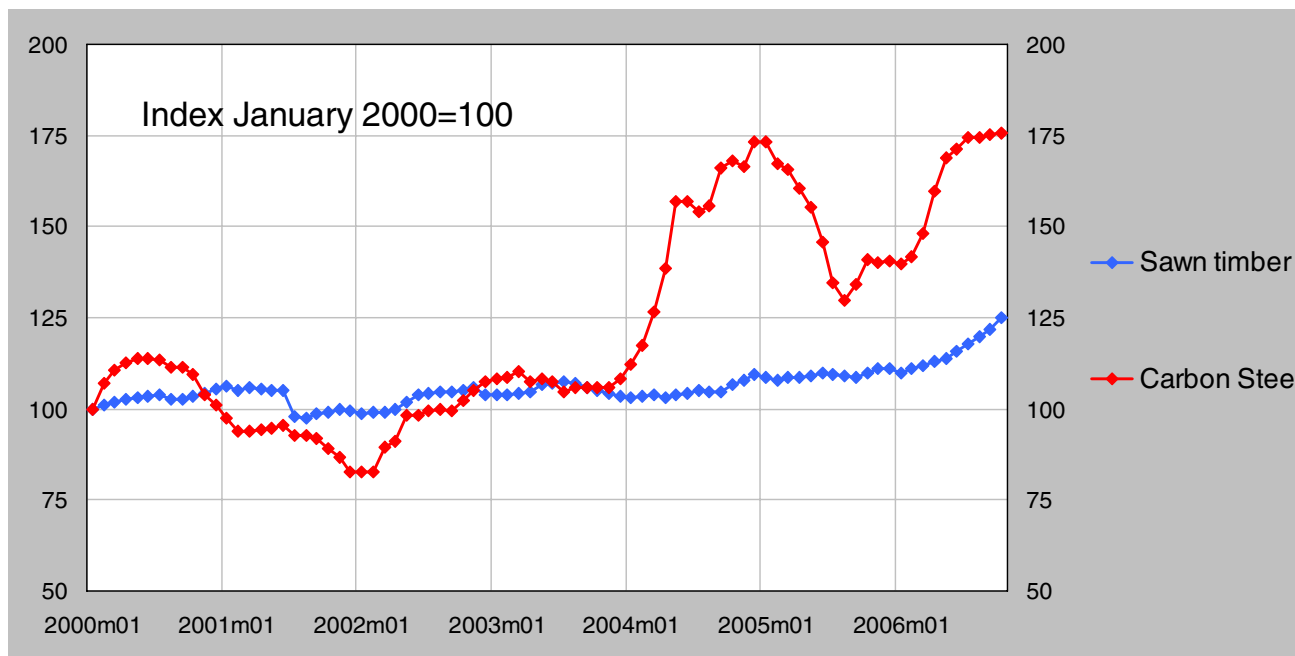
to intelligent engineer products...



...to solutions and components

Market competition

Globally on the construction market, the market position benefits wood as a construction material against one of its main rivals, Steel ; particularly on non-residential buildings



Material competition

In material competition the selections will be made by:

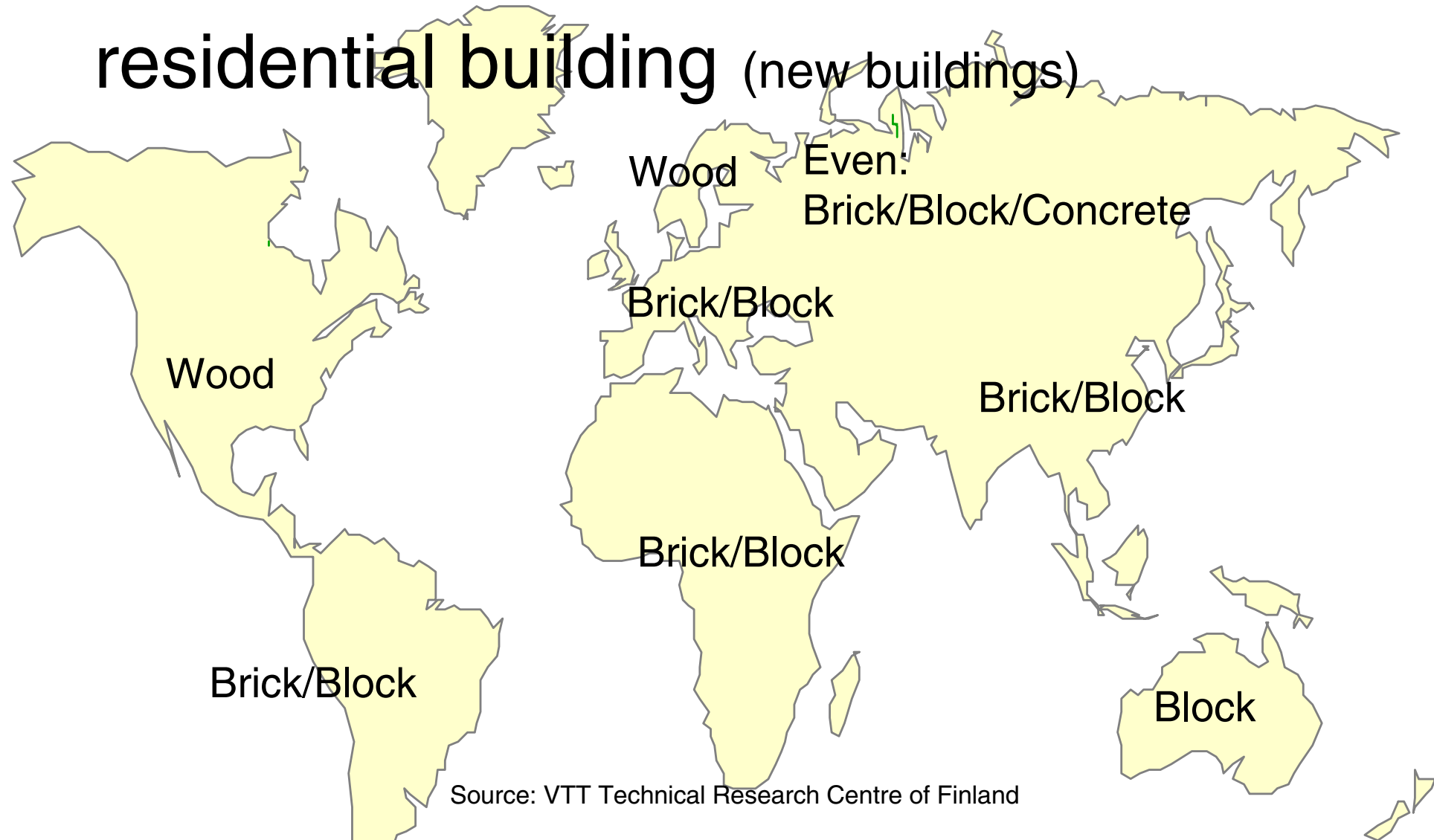
- Architects and engineers
- Construction industry
- Norms and rules

In that competition wood has several superior characteristics:

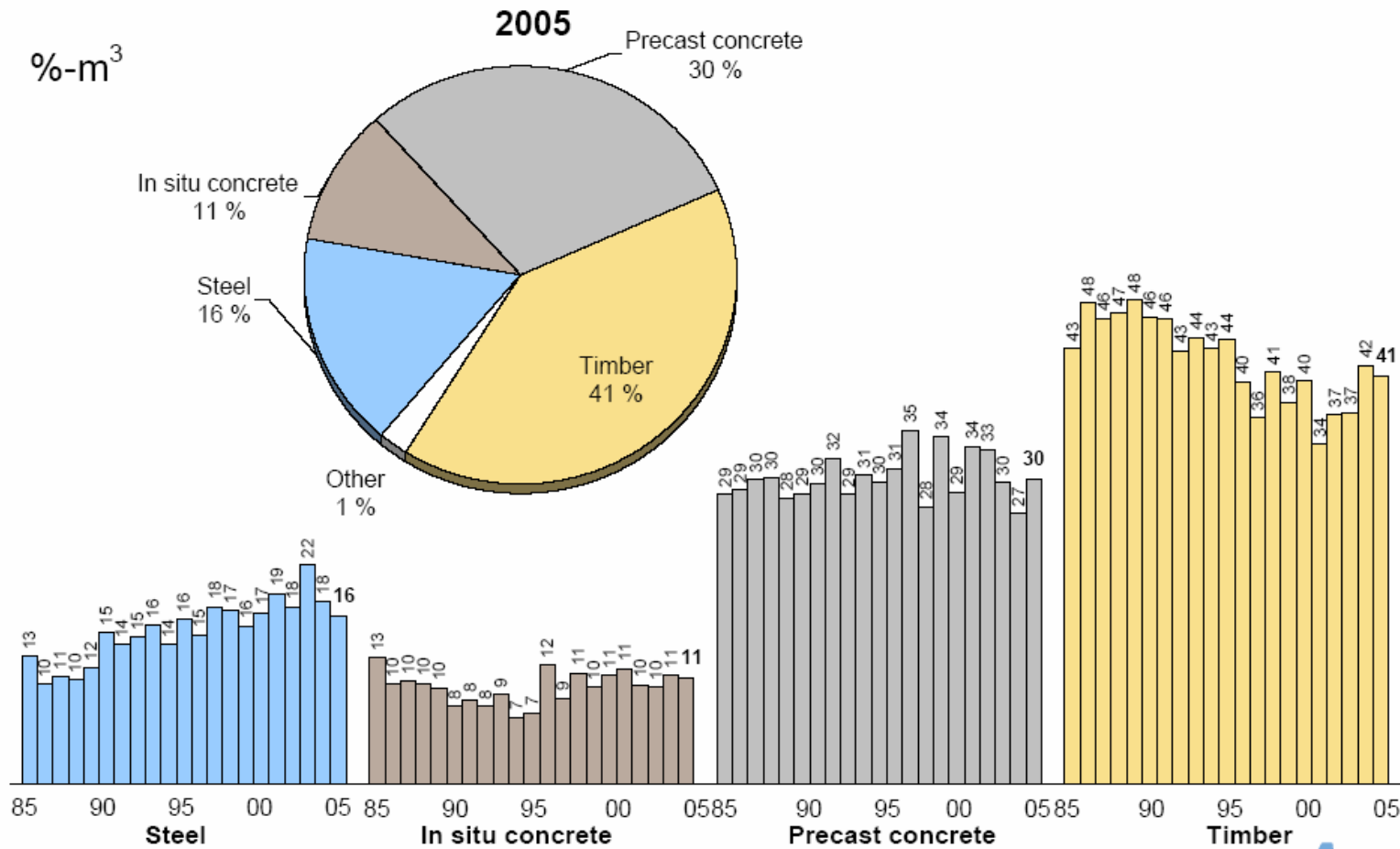
- Esthetics
- Acoustics
- Fire resistance
- Easy machine-tooling
- Strength versus weight



The most common frame materials in residential building (new buildings)



Shares of frame materials in new buildings in Finland All buildings



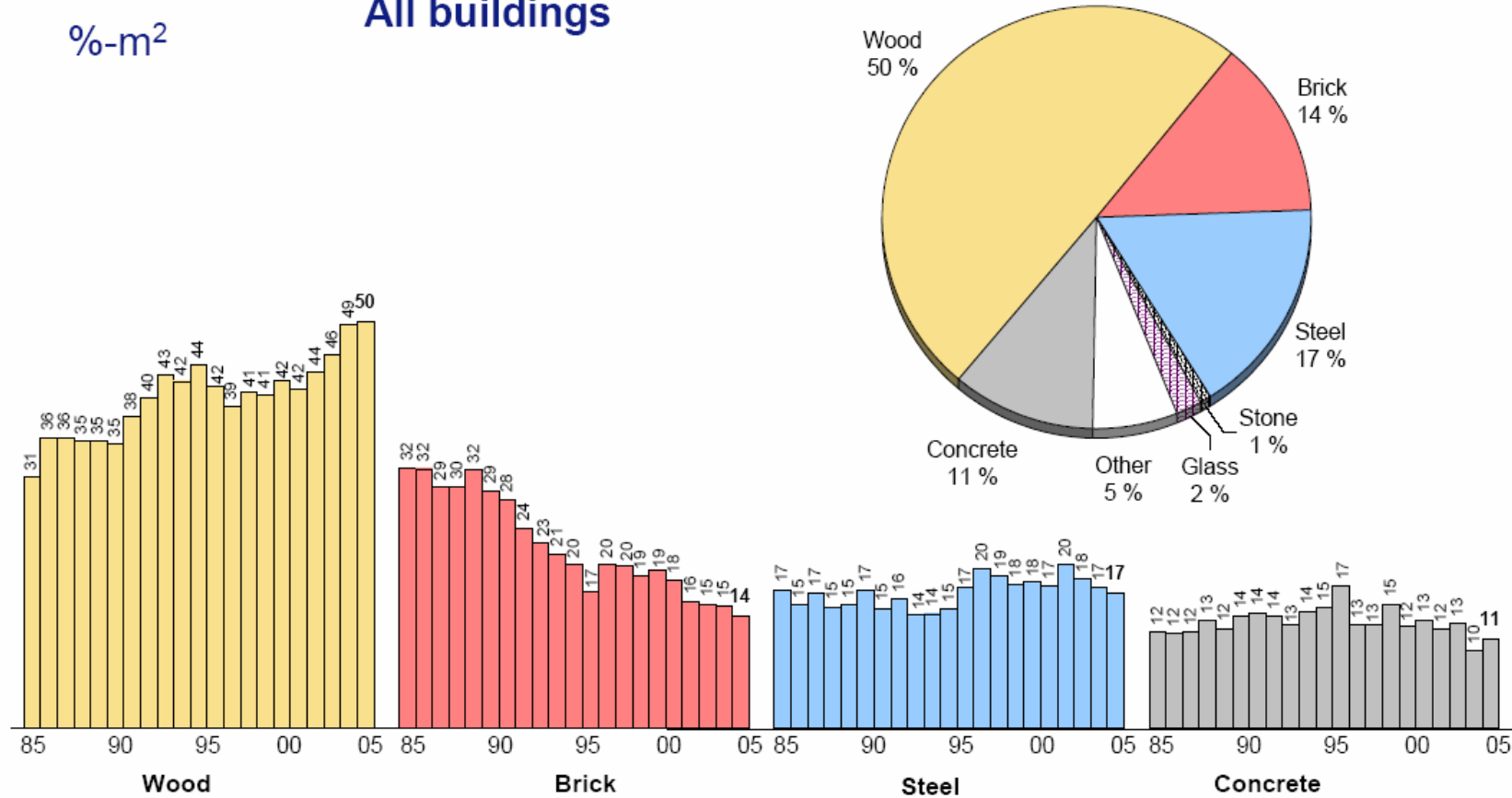
Source: Statistics Finland and VTT



Facade materials in new buildings in Finland

Market shares %-of facades
All buildings

%-m²



Source: Statistics Finland
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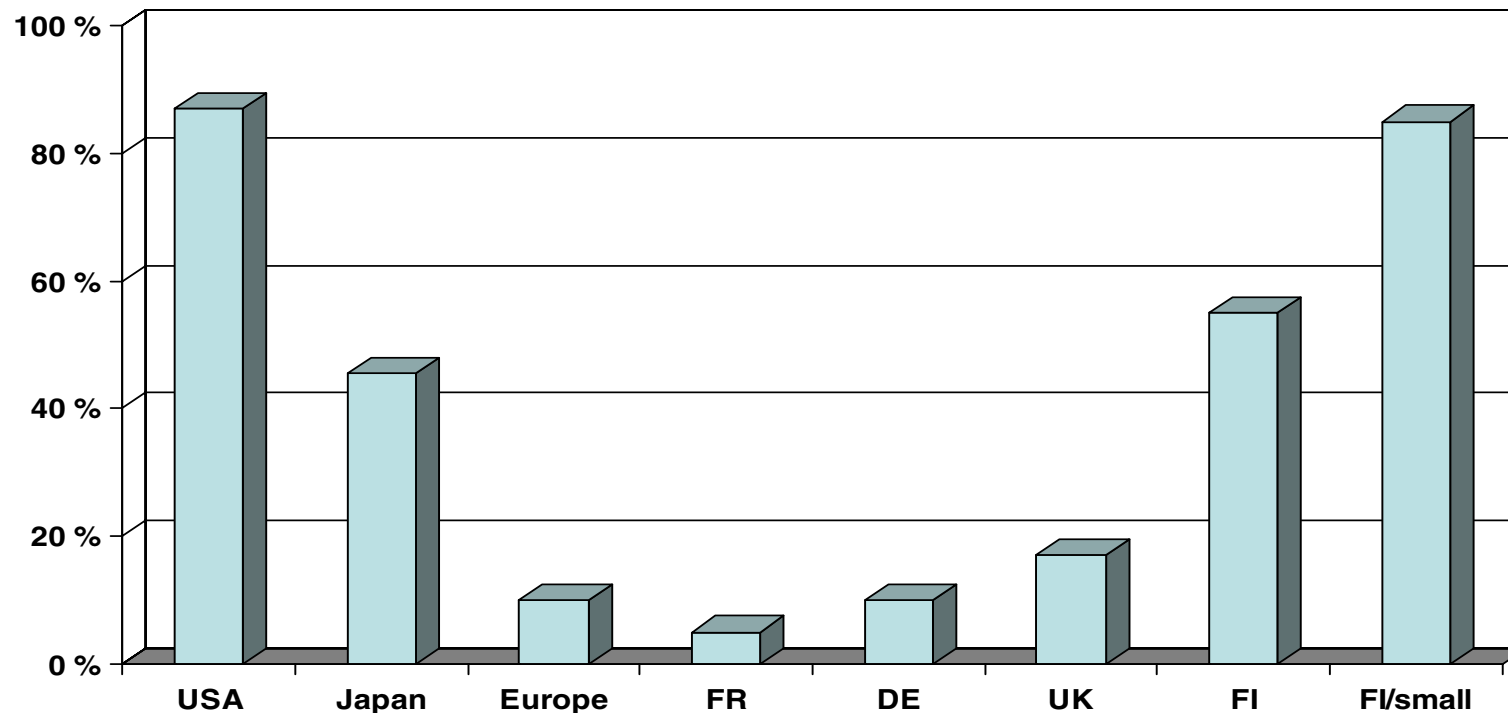
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Timber frame market shares in residential building



Sources: U.S. National Association of Home Builders, Japan Lumber Report, UNECE/FAO, UK Timber Frame Association, Statistics Centre, VTT, Finnforest.

Expected CO₂ Emissions

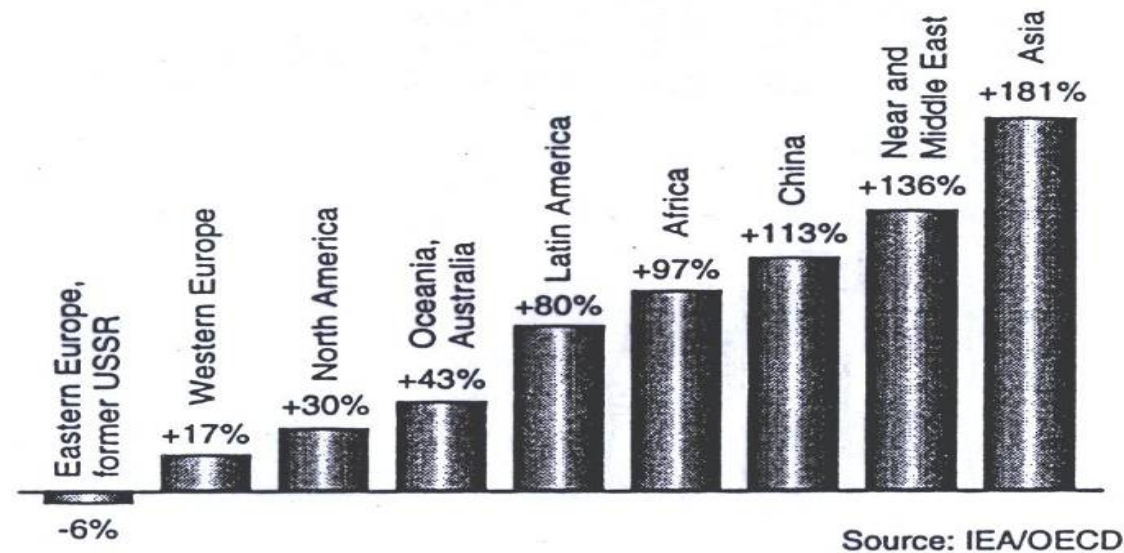
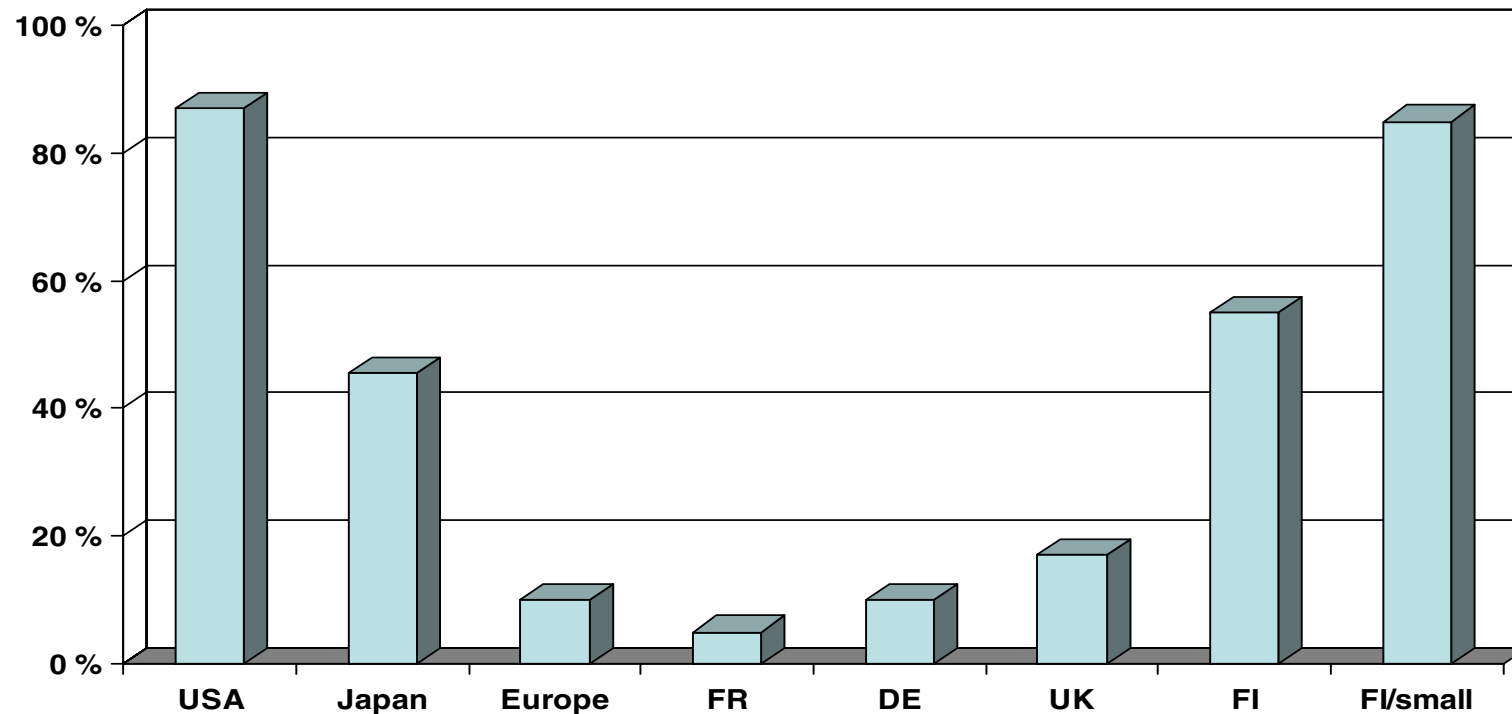


Fig. 3: Expected CO₂-emissions in different parts of the world in 2010 in relation to 1990

CO₂ Emissions

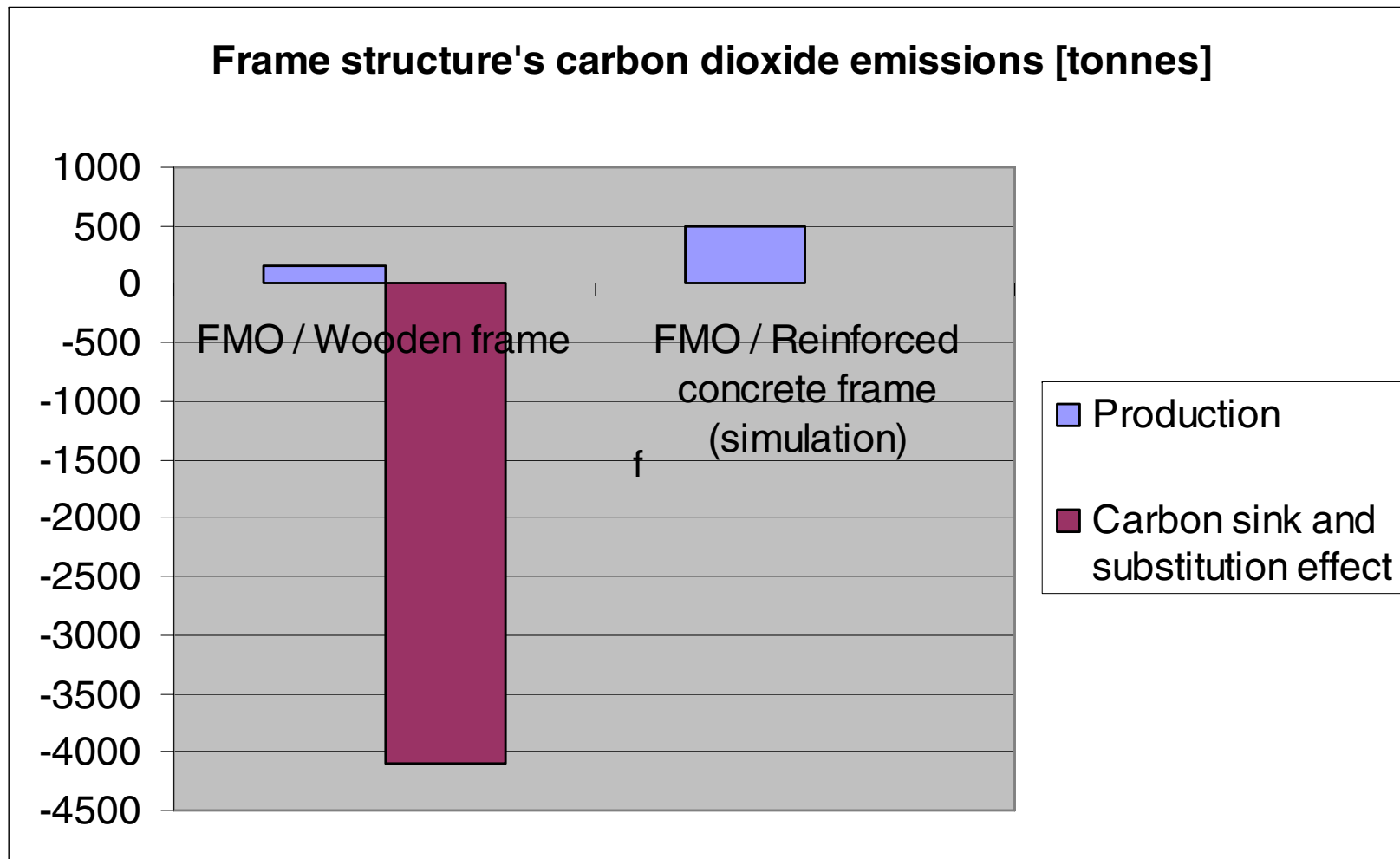
- The use of wood in building and construction stores carbon and substitutes carbon dioxide emissions of competing materials.
- Depending on reference material, one cubic metre of wood reduces carbon dioxide emissions by 3-5 tonnes compared to traditional building materials.
- Wood accounts for about 50% of building and construction material used in Finland (for 7% in Europe and for about 90% in residential construction in the US)
- According to VTT Technical Research Centre of Finland, carbon dioxide emissions would decrease by approx. 300 million tonnes a year, if the use of wood in building and construction were doubled in the EU (now at 100 million m³) (market share change from 7% to 14%),

Timber frame market shares in residential construction



If the use of wood in construction in Europe were doubled, the CO₂ emissions would decrease substantially.

Sources: U.S. National Association of Home Builders, Japan Lumber Report, UNECE/FAO, UK Timber Frame Association, Statistics Centre, VTT, Finnforest.



FMO Tapiola’s wooden frame stores and substitutes carbon dioxide emissions nearly 3,500 tonnes more than similar simulated reinforced concrete frame structure.