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SUSTAINABLE HOUSING – THE WAY IS WOOD



SWEDISH
WOOD
BUILDING
COUNCIL

SUSTAINABLE HOUSING – THE WAY IS WOOD

There is set to be as much building over the coming 40 years as has taken place over the whole of human history. That translates into 14,000 apartments per day! If the world is to keep up this pace of building, a switch to new materials and new construction processes will be needed. Wood is going to be part of the solution.

WOOD, NATURE'S OWN BUILDING MATERIAL

A sustainable approach is critical for future building, and wood is a renewable resource that can be industrially engineered using extremely energy efficient processes compared with concrete. Wood is part of nature's own ecocycle, the material stores carbon dioxide and the growing forest produces oxygen and cleans the air. There is also a good supply of the raw material – in Sweden alone the forest is producing enough growth for a five-storey building every 30 seconds.



Askims Torg, Göteborg. Moelven



The outer material, the facade can be made out of different material such as wood, bricks or be rendered.

RENEWABLE MATERIAL, LOW-ENERGY CONSTRUCTION PROCESS AND ECO-FRIENDLY MATERIAL PRODUCTION

Today's environmental certification of buildings focuses on energy performance and the use of the building once constructed. However, the majority of the carbon emissions occur during the construction phase and in the production of the materials. Global concrete production generates twice the carbon dioxide emissions of global air traffic. Wood, on the other hand, is a renewable building material that stores carbon dioxide. In addition, growing forest also produces oxygen and cleans the air. Building a wooden house takes very little energy. And with a structure made of wood instead of traditional materials, the building's carbon dioxide emissions show a significant drop. The finished building will also continue storing carbon dioxide for its entire lifetime.

RESPONSIBLY MANAGED FOREST

Sustainable forestry is about preserving forests for future generations. About taking responsibility for biodiversity, ecosystems and their species, as well as for the people and communities that depend on the forest. In other words, it is about maintaining a healthy balance

between economic interests, employment and respect for our invaluable nature.

Around 100 years ago, Sweden introduced new forest legislation that has helped to ensure sustainable forestry over the long term. For every tree that is felled, at least two new ones must be planted. Forest resources have doubled since the legislation was introduced.

INDUSTRIAL SYSTEMS

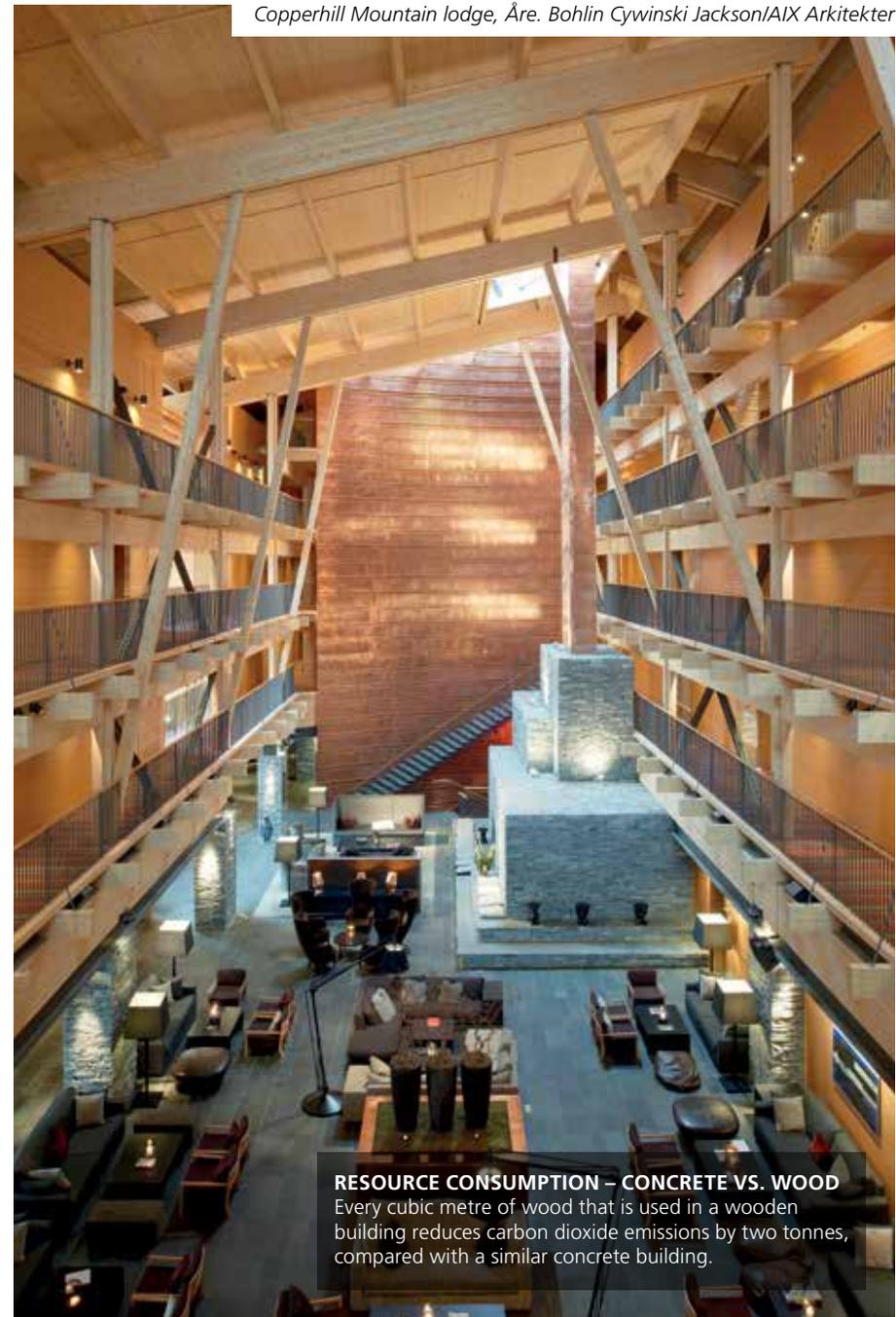
Wood is light, strong and easy to work with. No other building material can be prefabricated to such a degree, which makes wood perfect for industrial construction. The industrial processes mean that the majority of a building can be produced in a factory and then assembled on site. Sweden currently uses three different building systems for modern construction in wood: the post and beam system, load-bearing walls with lightweight or solid wood elements, and a modular technique that employs volumetric units.

INDUSTRIAL PRODUCTION INCREASES BUILDING

Modern industrial construction in wood saves time and money, and creates good conditions for increased building. Industrialised processes and prefabricated units provide control over quality, costs, logistics and the working environment.

GROWING CITIES

Growing cities challenges the need of linking existing buildings with infills and new ones. Thanks to the properties of the material, wood building techniques are exceptionally good for vertical extensions and supplementary development in dense urban environments. Not only that, the shorter time at the construction site also leads to less disruption for the neighbours.



RESOURCE CONSUMPTION – CONCRETE VS. WOOD

Every cubic metre of wood that is used in a wooden building reduces carbon dioxide emissions by two tonnes, compared with a similar concrete building.

Facts: In Europe and North America, large buildings made of wood are no longer a unique phenomenon in the construction and property market. The area has seen substantial growth and development in recent years, and building in wood accounts for a steadily rising share of the market. Halved construction times, major environmental benefits, new collaborative forms, advanced technology and attractive wooden architecture are just a few of the reasons behind the successes. New research combined with long-standing experience has, for example, led to a growing number of open construction systems that in turn are further improving productivity. Interest in modern wood construction is growing all the time with more high-rise buildings, sports halls and road bridges. Today high-rise buildings with a wooden structural frame account for around 10 % of total construction in Sweden.



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Lindö Park golf hotell. Moelven

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About the Swedish Wood Building Council: The council works to promote use of modern wood construction techniques in the Swedish construction market. We lead communication work on wood construction developments and offer information, expert help and project support for all initiatives across the country. The work takes place within the collaborative framework established by Swedish Wood (part of the Swedish Forest Industries Federation) and the Swedish Federation of Wood and Furniture Industry (TMF).