Wood construction strategy

Adopted by the municipal council of Skellefteå 2014
Introduction

Building sustainable cities, living environments and societies is a global challenge. Skellefteå contributes to the cause of sustainability by building in wood, in accordance with our guidelines for sustainable construction. Every year, the equivalent of 32,000 truckloads of wood grows in Skellefteå municipality. The forest is one of our most important natural resources and increasing the use of wood in construction is an important strand of our strategy to become carbon neutral.

Skellefteå municipality has a long tradition of building in wood. For this reason, it has long supported the development of forestry and wood research. Consequently, the forestry industry, and associated research, in Skellefteå now has a global reputation. New knowledge and technologies developed by our research institutions and companies have already helped other towns. Our forests create jobs in the wood industry and provide us with exports of high-quality wood products and services.

Since the early 1990s, Skellefteå has built bridges, multi-storey buildings and halls in wood. In terms of modern wood construction, it is now one of Sweden’s leading municipalities. We continue to develop and test different concepts in urban renewal and construction that contribute to sustainable development - financial, social and ecological. The industry helps create living environments, new globally-leading companies in several areas of sustainable construction, well-developed industrial processes, world-leading applied research and completely new service companies. The strategic value of building in wood is clear: the continued development of our society and leading the world on the journey towards climate-neutral towns and cities.

Municipal Executive Board, October 2014
Municipal Council, October 2014

Lorentz Burman
Chair of Municipal Executive Board

Ann-Christin Westerlund
Chair of Municipal Council
The living environment we use, we also return.

The green we use, we also return.

What our buildings use, we also return.
Skellefteå is Europe’s leading sustainable municipality and the centre for modern wood construction. Our stewardship of resources, environment and people has resulted in a beneficial social habitat that others are trying to emulate.

The collaboration between municipality, industry and academia in Skellefteå has stimulated an increased use of the region’s renewable natural resources. This has accelerated the development of companies in the sustainable construction value chain and boosted the generation of climate-smart services and products.

Wood construction in Skellefteå is pushing the boundaries. We have the highest wooden houses and the longest wooden bridges in the world! Wood is becoming the first choice for an increasing number of applications in construction. Innovative industrial methods make the use of wooden structures economically viable in more and more applications. Naturally, wood is used in all the municipality group’s construction projects where it is technically feasible.

Private organizations are also choosing to build sustainable structures in wood, following the example shown by Skellefteå municipality. Our technical visits (study visits aimed at professional actors) have made us into an attraction for wood constructors and curious parties from all around the world.

Vision for wood construction
WOOD FOR A SUSTAINABLE SOCIETY
Why do we build in wood?

**Climate**

A sense of responsibility for the climate and the environment in production and product.

- The EU and the Swedish government are working towards a society without any net emissions of CO₂ by 2050.
- The Swedish construction industry emits the same amount of CO₂ as private cars. A large proportion of this CO₂ comes during the construction phase, where the selection of materials affects emission levels.
- Wood is a renewable material which can act as a CO₂ reducer in buildings.
- Wooden buildings generally have lower carbon dioxide emissions and lower primary energy use than steel and concrete buildings.
- Wooden houses in the production phase consume less energy and have lower carbon dioxide emissions than traditionally-built houses.
- In the utilisation phase, the energy needs of wooden houses are equivalent to those that use traditional building materials.
- In the demolition phase, wood has the advantage over traditional building materials.
- Buildings in wood meet high requirements in terms of sound and fire safety.
- Repairs in wooden houses cause less noise disturbance for users.
Strategies for climate-smart construction

• In Skellefteå, we select building materials with low carbon dioxide emissions which meet many environmental objectives.

• The climate impact is also taken into consideration in Skellefteå’s economic calculations when life-cycle analyses are made of different materials.

• In Skellefteå we use wood and other renewable building materials that are technically and economically sustainable.

• In Skellefteå innovations in clean construction technologies are encouraged.

• In Skellefteå we use environmentally friendly alternatives to wood preservatives.

• In Skellefteå we even want our demolition methods and results to be environmentally sound and sustainable.
Why do we build in wood?

**Business**

To take the economy into account in the long term.

- Skellefteå municipality is in a region where forests are an important natural resource. The forest and wood industry is an important sector of the economy that has development potential.

- Improving the wood industry’s conditions and strengthening its skills and competitiveness provide opportunities for growth, improve the quality of products and services and stimulate new enterprise and start-ups.

- Applied wood-related research aimed at promoting the development of trade and industry is carried out at universities and research institutions supported by Skellefteå. Different resources her produce information about trade and industry issues related to wood in our society.

- High environmental demands drive innovation and growth.
Strategies for business development

• In Skellefteå we promote regional development by ordering goods and services that are locally sourced.

• In Skellefteå we promote the development of wood construction by using buildings ordered as laboratory environments, where new uses of wood can be evaluated to create new knowledge for future construction.

• The municipality works with industry and research to strengthen and market local skills.

• In Skellefteå we collaborate with academia to create more knowledge about:
  - Wood and other renewable materials for construction
  - Efficient processes in wood construction and manufacture
  - The development of innovation in clean technologies in construction

• In Skellefteå we place challenging demands on our suppliers and project organizations and we work in dialogue with new actors.
Why do we build in wood?

Society
A good environment where people can live, work and spend their leisure time.

• Wood use in buildings is an important part of creating a sustainable society.
• Wood in buildings appeals to many people and contributes to Skellefteå’s attractiveness. The attractiveness of towns and cities is important for sustainable urban development.
• Wood in living environments stimulates, calms and makes for healthier people.
• Wood is a light material that can be used for building on top of existing buildings. This makes possible new, exciting environments and accommodation for more people without requiring new land use.
• Wood is a natural material that ages with patina.
• Wood is a good choice for non-toxic living environments.
Strategies for the development of society

• By our use of wood construction, Skellefteå municipality tries to provide a good example for others and to inspire developers and contractors. We are bold clients and purchasers with a pioneering spirit that drives innovation.

• Our municipal wood constructions increase Skellefteå’s attractiveness. The buildings have good architectural qualities and express the many possibilities that wood offers. Skellefteå municipality will continue to be at the vanguard of the use of modern wood architecture at national and international level.

• We are seeking active cooperation with consultants and architects who work innovatively with wood. Architectural competitions and partnerships at the local and national level will provide Skellefteå with more high-class reference buildings.

• Wooden buildings are used to increase the density of the town.

• Wooden buildings have low levels of toxicity, which reduces our citizens’ exposure to toxic elements.
Skellefteå municipality’s promise

To promote sustainable development, we are increasing the amount of wood used in our construction process. This includes wood that is exposed and wood in the frame. We also refer questions related to building in wood to academia, which finds answers that are then applied by the growing wood construction industry. In their various activities, the municipality and relevant companies commit to adhere to the pledges below, as well as all the above strategies for climate, industry and society.

• In Skellefteå, the option of wood will always be explored in all the municipality group’s construction and civil engineering projects. Wood or other renewable materials will be given priority when technically and financially justifiable.

• If investigations show that it is not possible to build with wood, the reasons are reported, and research is undertaken to assess the possibility of using wood the next time similar circumstances prevail.

• Planning, ground instructions and development contracts will be used as an opportunity for dialogue with developers who want to expand the use of wooden structures. We ensure that the benefits of wood from a durability and life cycle perspective are clearly explained to developers and contractors.

• The potential for the use of wood in construction developments is always explored in the physical planning process. When relevant, the final plan will detail the process by which the use of wood was found to be feasible.

• The strategy of building with wood is part of the work with municipal guidelines for sustainable construction, climate and energy strategies, Science City programmes and so on.
Did you know that...?

• The world's oldest clonal tree, a Fir at Fulufjället, Jämtland, is 9,500 years old.

• Norway's oldest wooden church, the Urne stave church, was built in 1130 using parts from an older church from 1060-1070. It is still there.

• Wooden façades require different maintenance, but not more expensive. More regularly but with less effort.

• The warehouse in Eslöv, built in 1918, is still Sweden's highest residential building of wood with its ten storeys and 31 metres.

• Noise used to be a major problem in wooden houses. There are several solutions to this nowadays.

• The Lejonström bridge over the Skellefteälven river is Sweden's oldest wooden bridge. We tried to destroy it in 1809 when the Russians attacked, but failed.

• It takes more than two hours for a bonded wooden beam to burn through. By then a steel beam would already have softened and broken.

• Skellefteå's only earthquake-proof building is the student union building, built with Japanese Big Frame technology.
What is a wooden building?

In Skellefteå, we think that a wooden building should consist of a large proportion of wood. It may be in the façade or the interior, but it is the bearing structure which makes up a large part of the material used.

In a wooden building, wood is exposed to make the building material obvious to the users.

In a wooden building, wood can be combined with other materials in hybrid constructions.

Modern wooden buildings are produced with efficient building method.
Wood-building strategy

This strategy is applied to the whole of Skellefteå municipality, to everything that is built, and wherever Skellefteå municipality - directly or through companies - builds. The strategy is also applied to the private development of municipal land. It applies to all boards, administration services and companies with predominantly municipal ownership. All buildings above refer to new buildings and reconstruction projects whose total cost exceeds 200 base amounts.

If it is decided not to build in wood, this must be justified in writing with a description of why wood is not an option in the case in question (e.g. cultural environment, financial reasons, technology), methods used to obtain knowledge about the option of wood, and how the project fulfils sustainability goals

Responsibility

**Municipal executive board:** Responsible for establishing goals and directives linked to the strategy and being the main ambassadors of Skellefteå as a wood town.

**Planning manager:** Coordinating the municipality group’s work with wood building issues.

**Municipal architect:** Responsible for architecture and planning issues linked to building in wood.

**Land and development manager:** Responsible for the marketing of wooden buildings to external property developers and contractors.

**Property director and technical director:** Responsible for compliance with the wooden building strategy in municipal construction.

**CEO of municipal companies:** Responsible for compliance with the wooden building strategy by municipal group companies.

**Marketing director:** Responsible for marketing Skellefteå as a wood town, among other things.

**Trade and industry director:** Responsible for trade and industry development related to building in wood, including technical visits (study visits aimed at professional actors).

**Chief controller:** Responsible for follow-up of the wooden building strategy related to the municipality’s control process.

**Purchasing manager:** Responsible for the wooden building strategy being considered in the procurement of the municipality group’s construction and civil engineering projects.

**Industry and academia:** Responsible for highlighting Skellefteå as the town of wood and taking part in study visits, exhibitions and conferences.