

Building Concepts – eine Guideline für serielles Bauen am Beispiel des neuen Headquarters von Stora Enso in Helsinki

Dipl.-Ing. Bernd Troppmann
Stora Enso Wood Products
Ybbs, Österreich



Building Concepts – eine Guideline für serielles Bauen am Beispiel des neuen Headquarters von Stora Enso in Helsinki

1. Building concepts by Stora Enso

1.1. Office buildings – why develop and build an office with wood

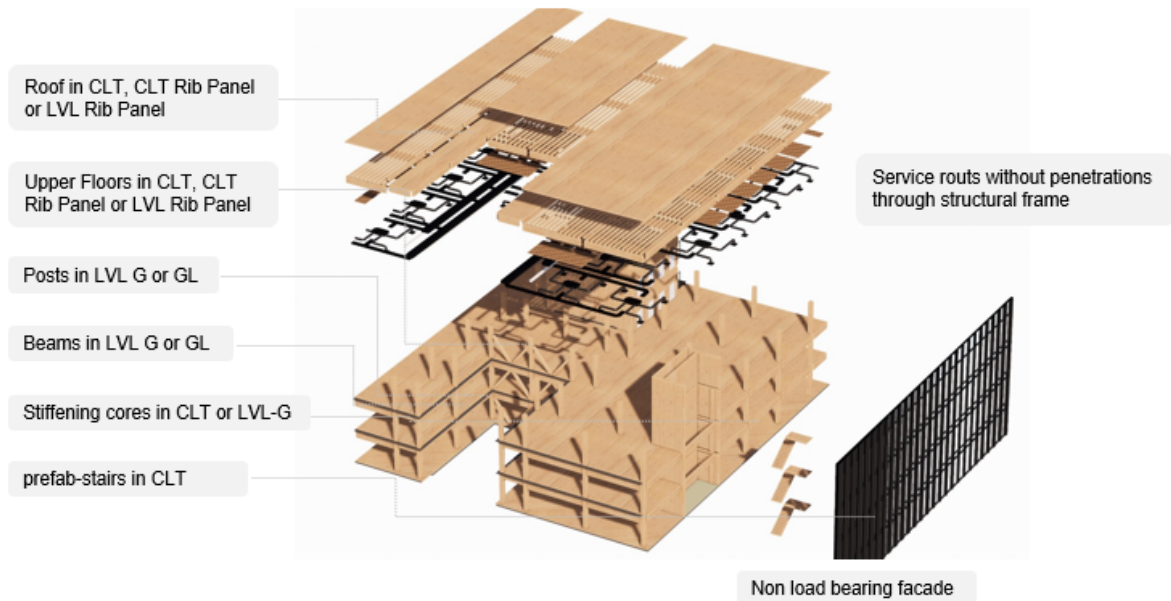
This concept will show you how you can design and develop office buildings with our building products and applications, to achieve:

- A **sustainable** building, based on renewable materials, responsibly sourced, with low embodied energy, and storing carbon.
- **Healthy** spaces for working, which will increase well being and productivity.
- High level of **industrialization** in the construction process, leading to shorter and predictable sites.
- **Cost effective** projects by advanced DfMA and industrial production.

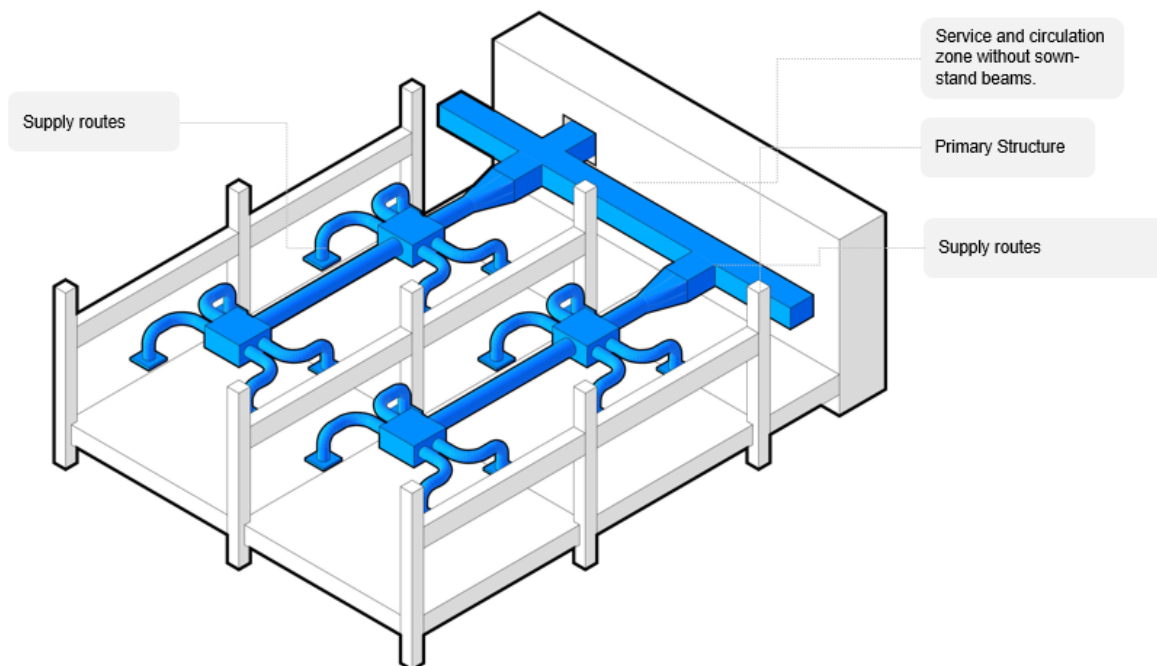


Stora Enso Design Manual | Study 2 | Scott Brownrigg

1.2. Combining timber building components for best value office space

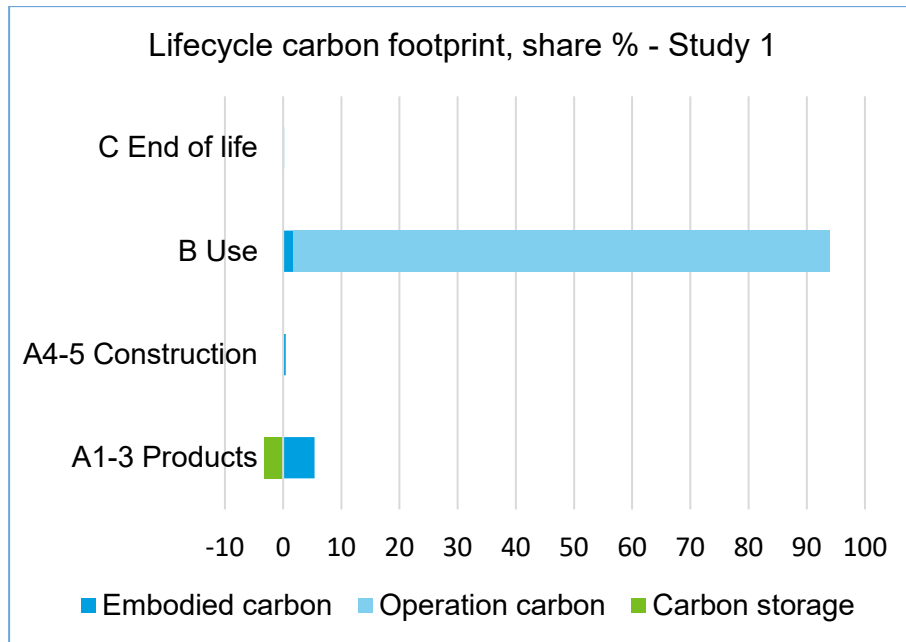


1.3. planning principles



1.4. Case study / Life Cycle Analysis (LCA) main findings

- The **embodied carbon** impact of the building is **7 kg CO₂e/m²/a**. With wooden structures embodied carbon emissions can be reduced compared to other building materials **even by 50%**.
- This case study **stores 400 tons of carbon** over the life cycle, which implies **1460 tons CO₂** away from the atmosphere, and thereby **offsets 43%** of the total embodied carbon of the building.
- Due to the low embodied energy of the building, app. **92% of its environmental impact comes from operational energy use**. Operational energy use can be tackled with energy efficiency measures.



Sustainability Case Study | Stora Enso Building Concepts | Study 1

2. New head office Stora Enso

2.1. Based on Stora Enso Office building concept



Photo credit: Varma

- Floor area: 17 000 m²
- Height of the building: 22 m
- Structural system with 6,3 m span
 - CLT floors and internal CLT walls
 - LVL G columns and beams
 - CLT elevator shafts and CLT stairs

