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“The FMO Tapiola building – the Finnish environmental pilot building”

Finnforest Modular Office (FMO)

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Document in English

“The FMO Tapiola building – the Finnish environmental pilot building”

Finnforest is a core business of the Metsäliitto Group

- More than 130,000 private forest owners
- 5.2 million hectares of forest
- 48% of Finnish private forests



• 2004 figures

Finnforest leads in Europe

- Leading wood products industry corporation in Europe.
- Employs about 8,000 people in 28 countries.
- Turnover about €2 billion
- Majority of Finnforest products and services used in building sector
- Strategic business areas: building and construction, trade and distribution, and industry

- Finnforest Production
- Moelven Production
- Sales and Service Units



Finnforest Product Portfolio

Structural Products

I-joint, glulam, Kerto LVL, CLS timber, plywood, components, OSB, particle board

Building Systems & Solutions

Roof, floor and wall systems, construction and decoration solutions, modular homes, projects



Decking, fencing, ThermoWood, garden sheds, impregnated products, components, DIY kits

Decorative panels, cladding, flooring, furniture components, doors, windows, edge-glued panels, mouldings, blockboard, fibreboards

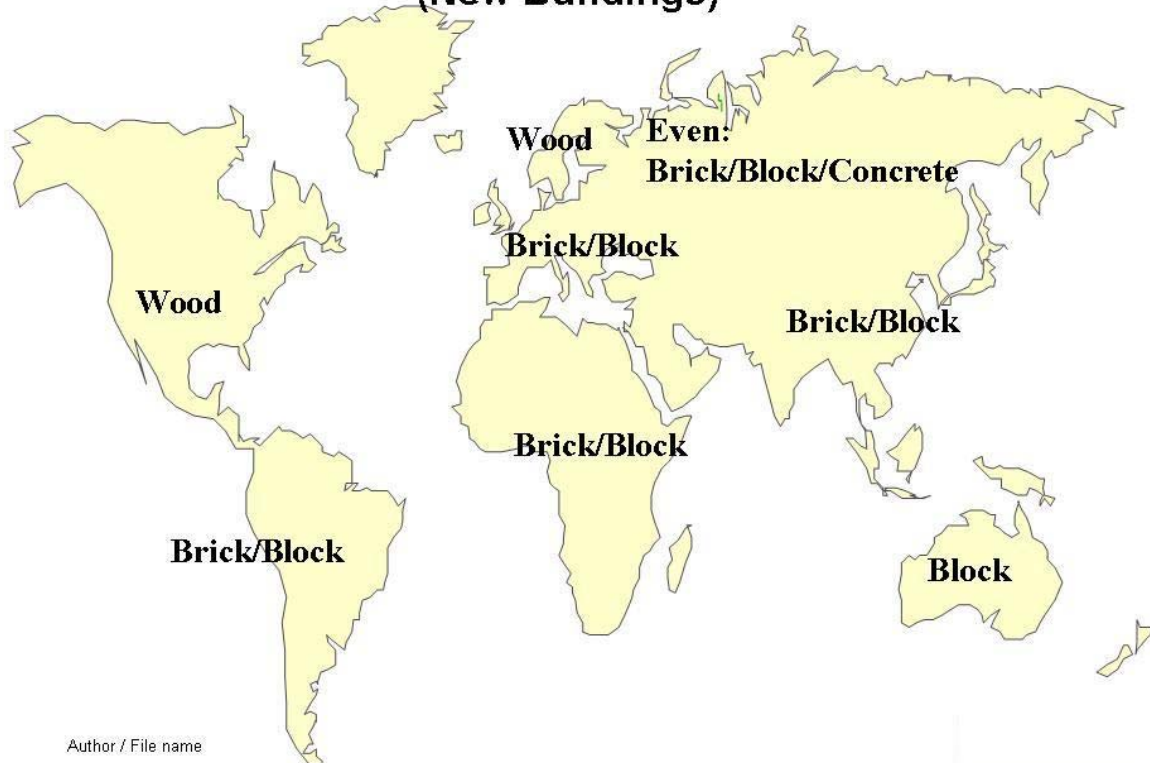
Garden Range

Fixtures & Fittings

World construction keeps on and changing!

- Customer orientation, globalization and industrialization of the building process are the "traditional" trends in the industrial countries.
- "New" trend: The environmental performance of buildings must be considered because nearly one half
 - ◆ of the global prime energy is used for buildings
 - ◆ of all waste – particularly carbon – produced by the buildings
 - ◆ of all natural resources is used for building and construction

The Most Common Frame Materials in Residential Building (New Buildings)



How to benefit out of the better environmental performance of buildings

- Society **can consider the impact of better environmental performance of any buildings** over a much longer lifespan than private investors.
- **Society can manage** environmental performance through legislation and policy actions – not the private investors.
- **How** could the society do that? The answer is very simple: **through urban planning!**



FMO Tapiola - Key Figures

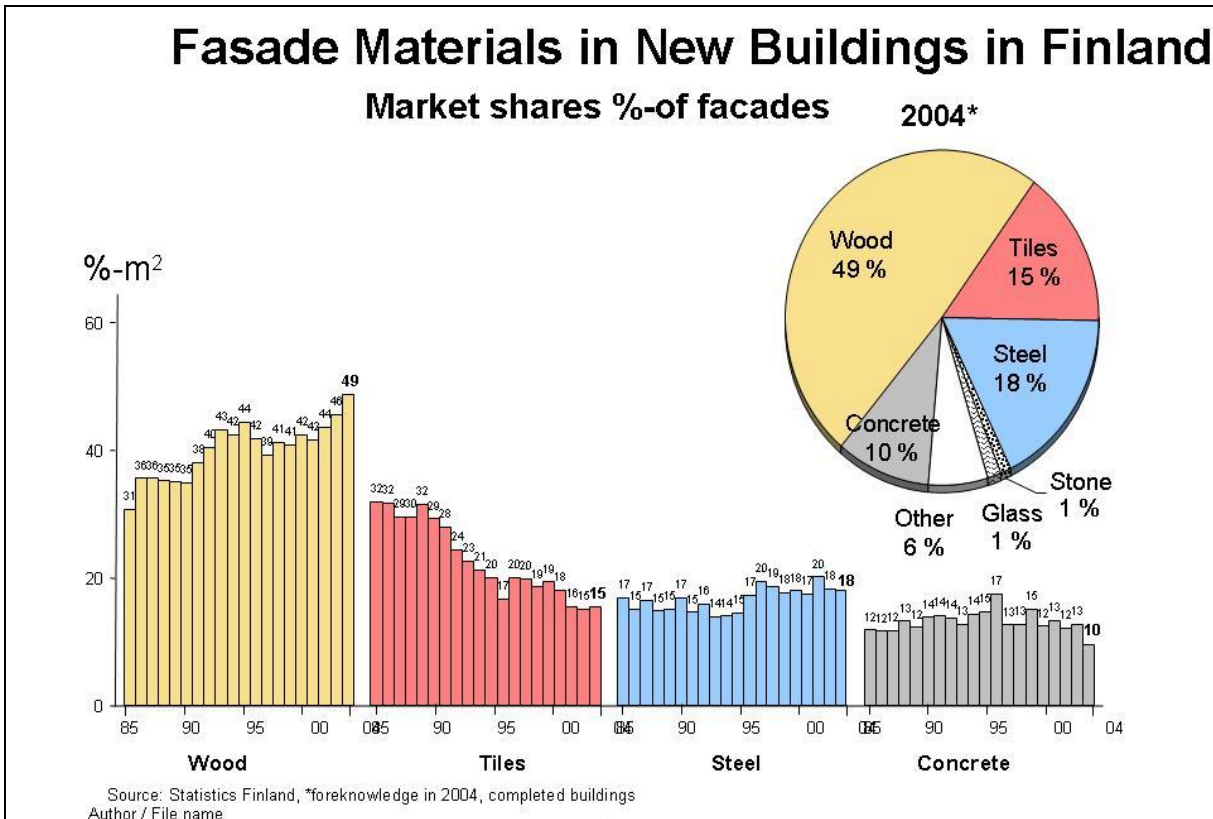
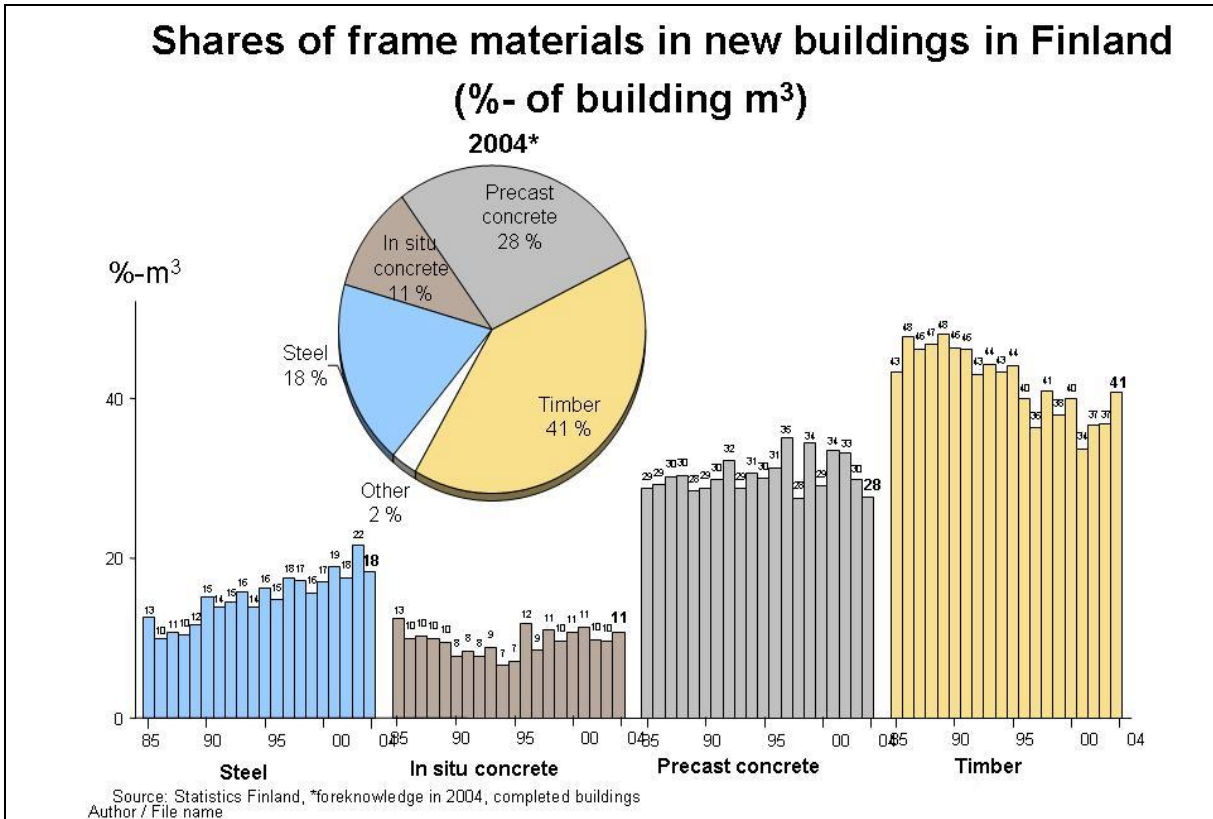
- Volume of the building 50.000 m³
- Gross area 13.000 m²
- Office area 8.000 m²
- Estimated budget 25 Million Euros (excl. land and the official levies & fees ca. 20 Million Euros) – competitive!
- Construction began 6/2004, inauguration will be on 5.9.2005 (15 months) - competitive!
- Installation of wooden structures began 11/2004, and was ready 4/2005 - competitive!

Why FMO Tapiola is built?

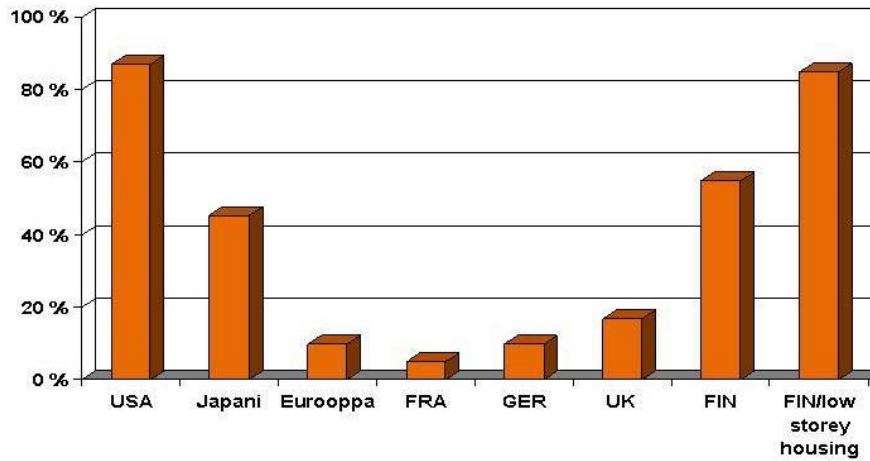
- To demonstrate the competitiveness of wood in building construction.
- To display the great variety of wood products, systems and solutions available at Finnforest.
- To provide the Finnforest staff (and the other tenants) a modern, cosy and flexible working environment.

Competitiveness of wood as building material

- The share of any building material in the total of building costs is always small but the turnover of European wood working industries is more than 100 bn euros.
- The present market share of wood is due to traditional competitiveness.
- In non-residential, the market share of wood is low.
- In medium-rise building, the wood suppliers have not been competitive against eg. steel and concrete suppliers.



Wood in residential building

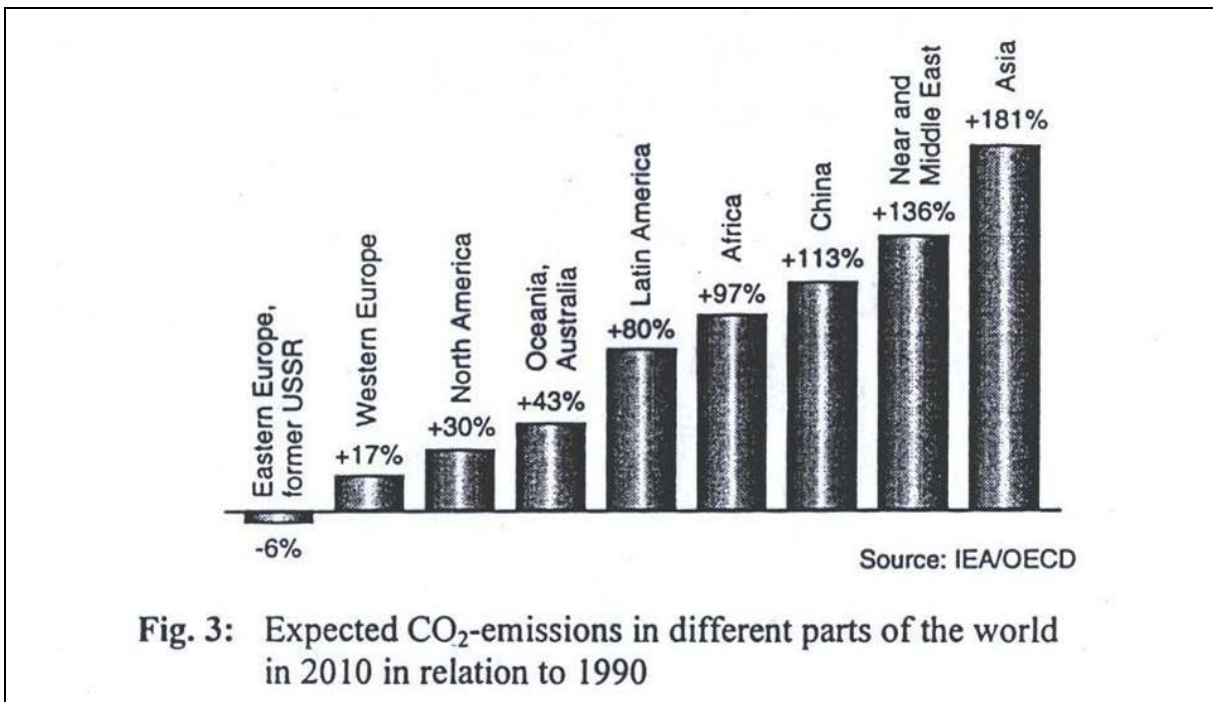
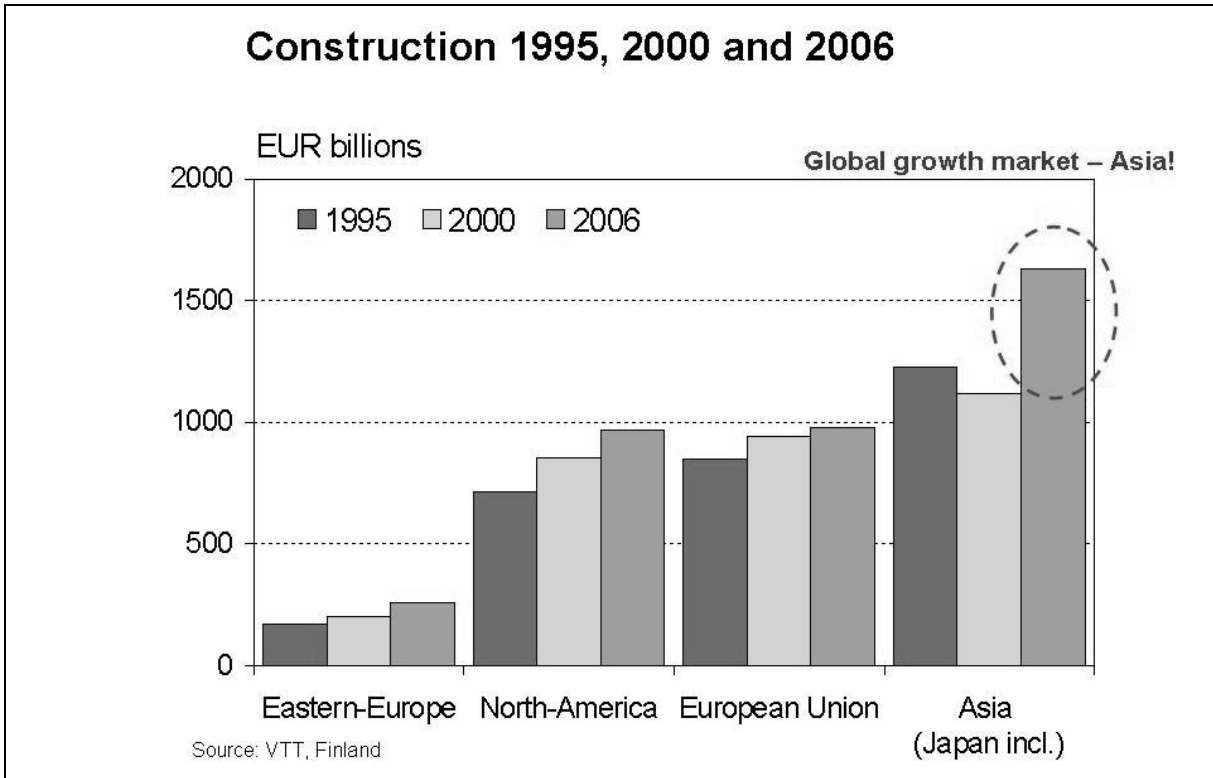


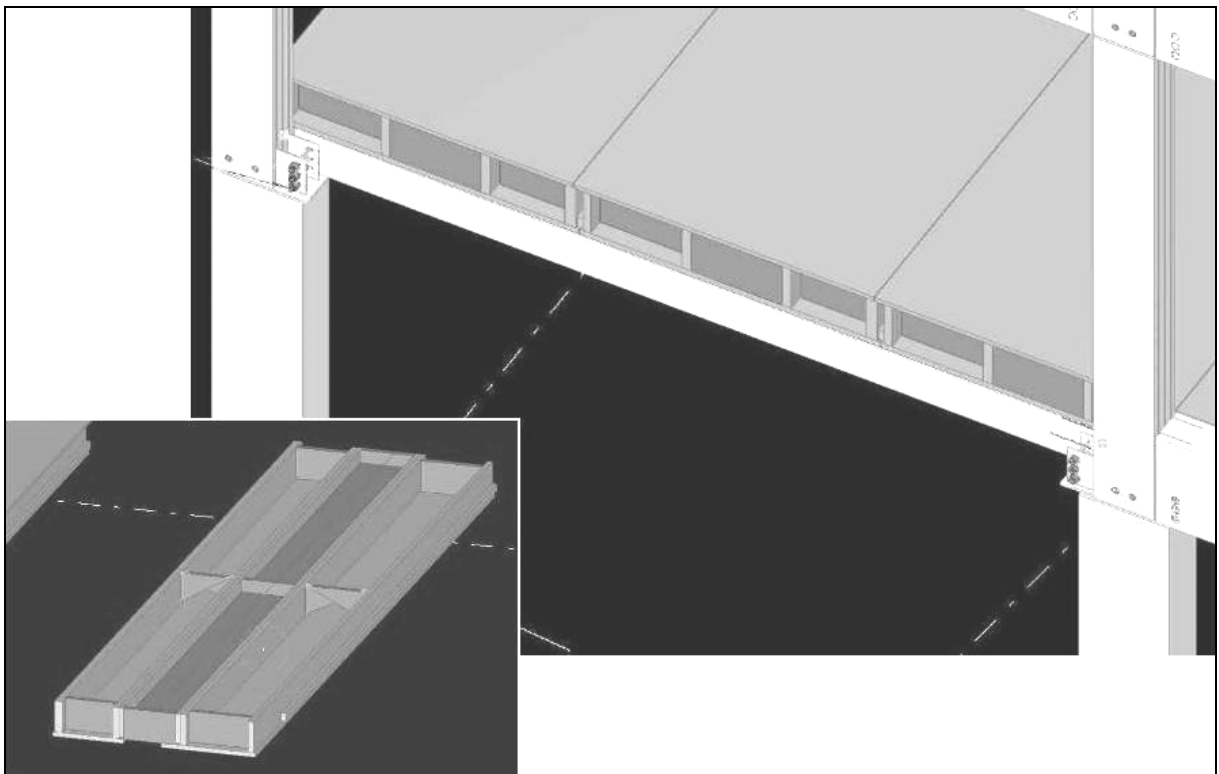
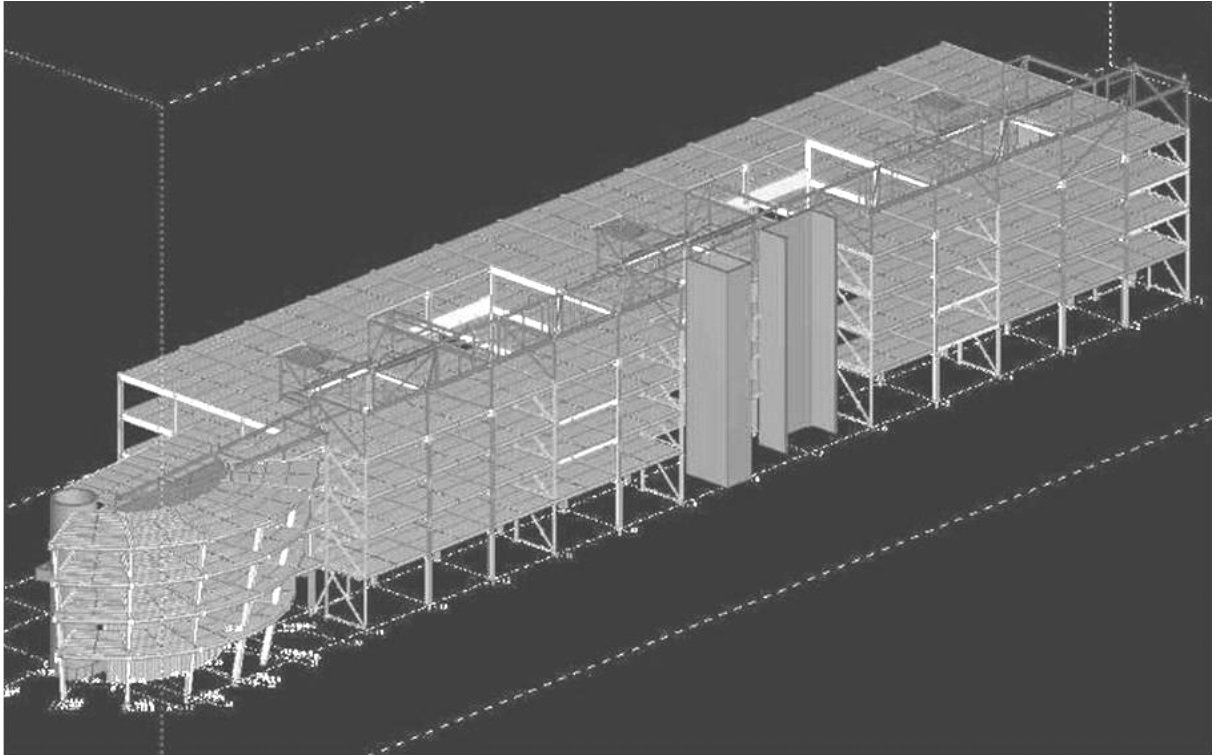
Lähteet: U.S. National Association of Home Builders, Japan Lumber Report, UNECE/FAO, Finnforest, VTT, UK Timber Frame Association, Tilastokeskus. Markkinaosuus viittaa puurunkoisten asuntojen osuuteen; Suomessa rakennuskuutioiden ja muissa asuntojen lukumäärän perusteella laskettuna.

European new non-residential building market

Building type	Finland	Germany	UK	France	Europe
Education € mn	520	1 180	10 517	2 935	21 806
Health € mn	200	1 728	5 904	3 298	15 866
Industrial € mn	815	5 705	4 090	5 339	42 367
Office € mn	325	4 741	10 873	4 549	36 181
Commercial € mn	1 000	4 258	14 612	3 027	38 358
Agriculture € mn	430	3 222	424	1 838	14 785
Other € mn	1 370	9 959	6 716	4 170	14 785
Total non-residential € mn	4 660	30 793	53 136	25 156	212 825
Market share of wood-frame	25%	6%	3%	2%	n.a.

Sources: total market Euroconstruct, wood-frame market shares Finnforest, VTT, Statistics Finland. Market share refers to share of wood-framed buildings; in Finland and Germany based on building volumes (m³) and elsewhere based on external wall area.



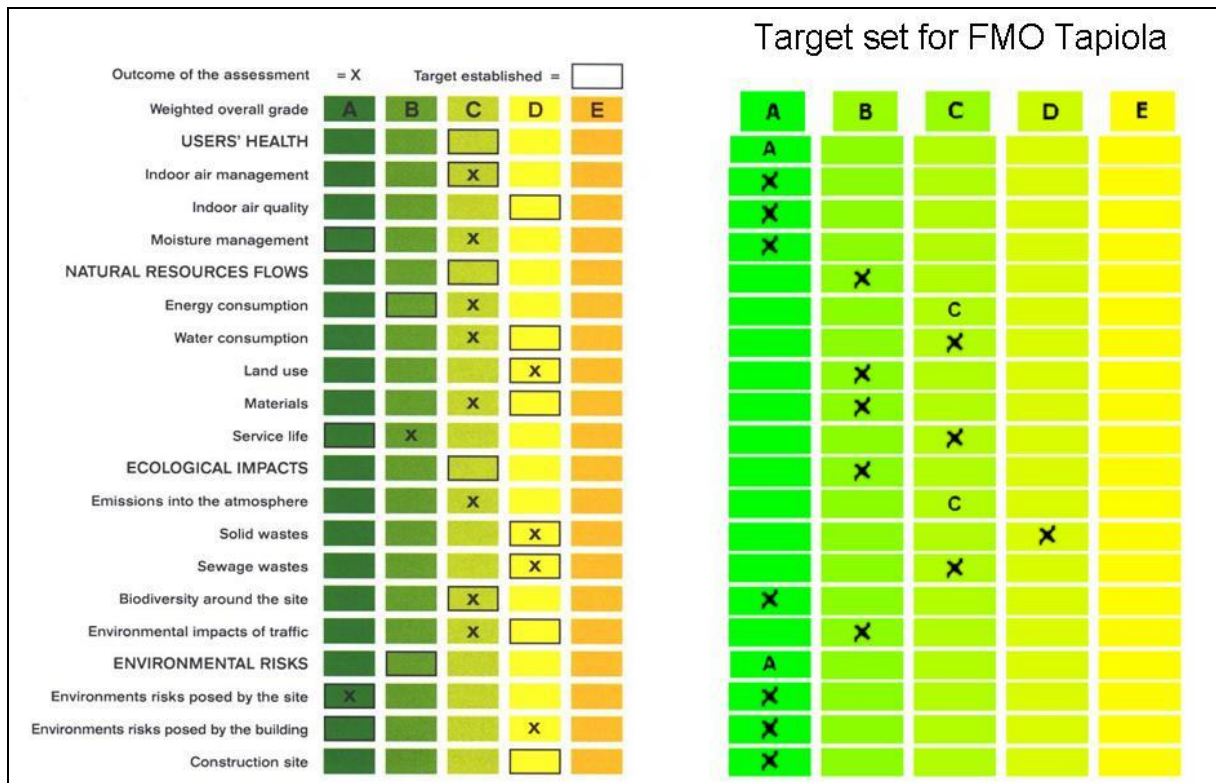
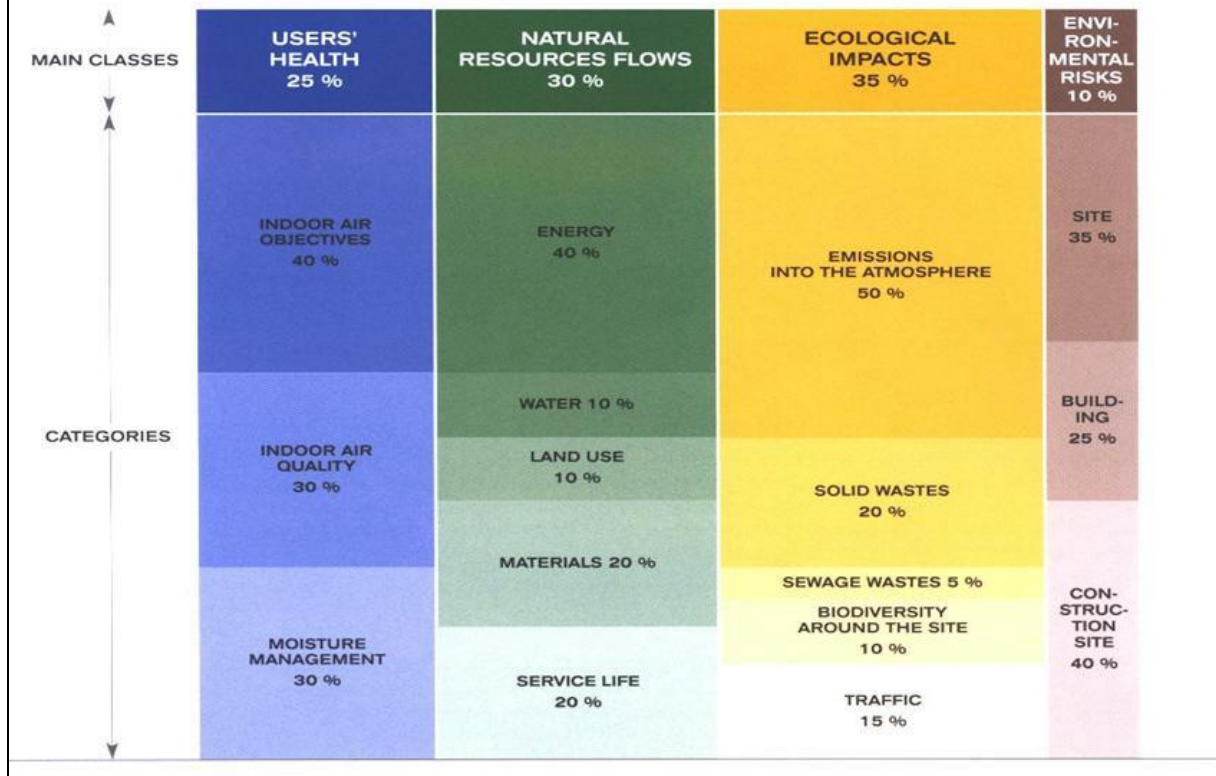




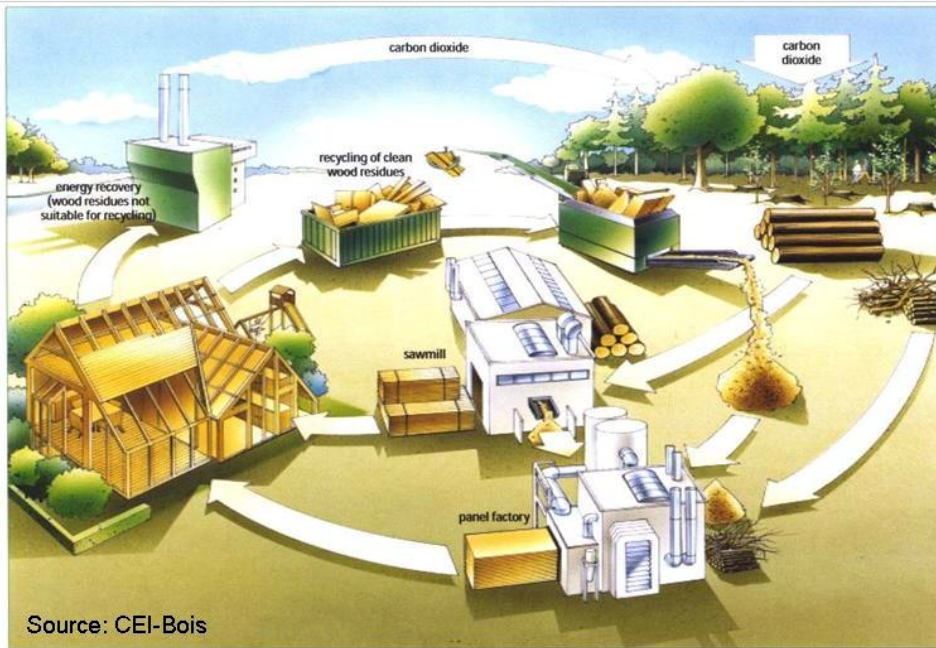
On the tools to assess the environmental performance

- The use of the tools proved to be quite simple at the design stage.
- There are approx. 15 different assessment methods around the world – easily “harmonizable”.
- Auditing - “Was it built as designed?” – is going on and indicates no major deviations.

Environmental classification of buildings

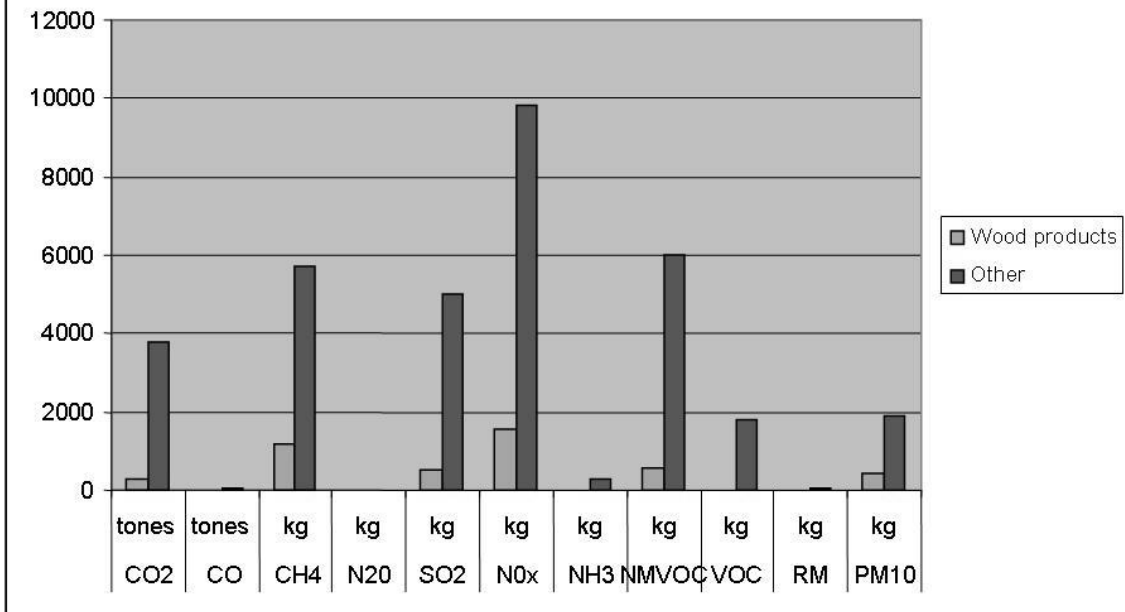


Wood Products as Carbon Stores

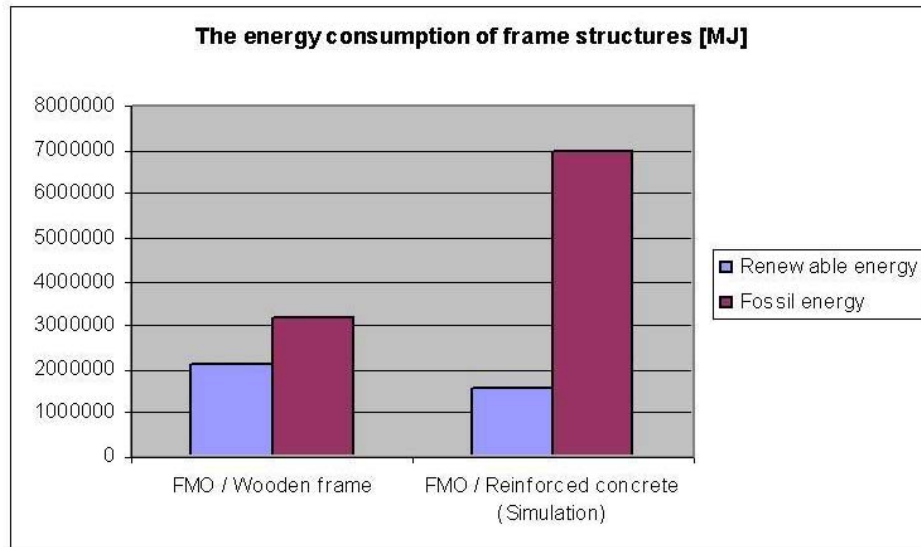


Sonja Martikainen

The environmental effect of FMO Tapiola's construction materials



The share of wood products environmental impact to building project's environmental effect is very low.



The production of FMO Tapiola’s simulated reinforced concrete frame structure would consume more than double fossil energy as the wooden frame.

Conclusions – how to be competitive as a big “pan-european” building product company

- Understand manage the value chain of building construction.
- Be local on the markets.
- Have large production capacities for synergies, incl. R & D.
- Exploit management synergies out of different cultures, staff and market signals.
- Invest on R & D.
- Have a solid management!