Wood Construction program in Sweden
Ingemar Ekdahl

Swedish Federation of Wood and Furniture Industry
Winner of "Best Photo 2006"
The big innovation:
A revolutionary material production process……
The timber house (at Bo01) compared with a “concrete house” (steel/concrete)

The timber house: Timber frame structure, Södra floor, timber cladding

”The concrete house”; Steel structure, hollow core concrete slabs, timber frame infill walls, rendering

”From cradle to grave” (except service life phase)
Energy, carbon dioxide etc
CO2 emissions difference = emissions from 27 years heating!

370 kg/sqm x 75 sqm = 28 000 kg

...or 130 000 km with a Volvo S80!
Volvo S80: 0.21 kg/km
History of Wood in Sweden

All cities of Hedemora built out of wood.
The city of Sundsvall had a major fire on June 25th 1888
The very same day – city of Umeå had a similar fire

June 25th 1888!
In 1905 Umeå was rebuilt
• In 1874 there were legislation in Sweden that forbidden to build multi storey houses in wood in the cities because of the risk of fire.

• This absurd law was actually first removed when Sweden became EU-member in 1995!
Working Class people lived in poor houses in wood.

This fact formed their political mind in many ways.
Wood houses became significant for poor Households.
These people had one thing in common; they were extremely poor.

Sorgenfri in Malmö
Olympic Stadion
– First introduction of concrete in Sweden…
Le Courbosié 1924: "Architecture or REVOLUTION!!! It is Your choice..."
Technological Development 1995 - 2008
Modern Wood Construction development did not start with visions…

Legislation from EU in 1989 has been important.

Function instead of Material..
In case of fire...Wood has certain qualities
In Nordic Wood-project there were efforts together from all Nordic countries
Purpose was to test low-cost-alternative...

When it started in Sweden technology came from North America.
Multi Storey Building LA - completed
Building Technology from USA....?

Standardized dimension of Wood – 2 by 4. Low-paid workers...
First Multi Storey Building in Wood in Sweden – based on “2 by 4” system

Kv. Orgelbänken, Linköping
Stomkostnaden blev 20-30% lägre än med stomme av betong, motsvarande 10 - 15% av den totala produktionskostnaden

Studentbostäder, Porsön Luleå
Skanska in 2000: Good result – but not cost-efficient enough to change from concrete to wood systems...
Swedish Wood program Initiative 2002 – 2005

• April 2002; a decision in Parliament by all political parties
• December 2002; a Government initiative – a special Investigator had 12 months to make a proposal.
• Januar 2004; The Investigator present a ”National Strategi to support Wood constructions in multifloor Buildings, large scale Bridges and Public Buildings.
• May 2005; The Government start a ”National Strategy to implement for instance education program in Wood Constructions.
”Now we don´t have any legislation against Wood constructions anymore. That means that we must have a position in Europe in Wood buildings to support especially larger and innovative constructions in wood.”

Minister of Forest Issues Ulrica Messing in april 2005
Maud Olofsson, Minister for Enterprise and Energy, Januar 2007:

”We must support development of Wood Construction in terms of education and research and development.”
What we are doing…

In cooperation with the Government in Sweden we form Wood Building industry activities.
We support projects in Wood Constructions

We give facts and information about modern Wood Constructions.

We form eduction system, mainly for architects, constructors ...

We support companies, both those who are into Wood Constructions and new companies of course
Our Web-site: www.trabyggnadskansliet.se

Examples for inspiration:

Multistorey buildings

Public Buildings

Examples from USA and Europe

Bridges in Wood Construction
Flervåningshus

Nedanstående objekt är alla goda exempel på vackra och spännande tillämpningar av större bostadshus i trä i Sverige. Klicka på det objekt du vill läsa mer om.

**Flervåningshusen i Vik**  

**Hansing.Danmark**  
Unika genom att de är konstruerade med en kombination av trästomme och trapphustorn av betong.

**Räven bestadssområde**  
Huset är fyra våningar högt, har tre trapphus, alla med hiss och med två lägenheter per trappplan.

**Wälludden**  
Projektet Wälludden är unikt genom att det ena huset är i fem våningar, vilket ökar kravet på stommens brandmotstånd till R 90.
Communication

Construction project support

Expertise (architects, constructors..)
"Kick off" – in December 2005
Wood Construction Event – ”Tour” in Sweden 2006 - 2008

- More than 3 000 architects, politicians
- ”Photo-show” with examples from Sweden and other countries

Stockholm 10 May

Åre 3 May
Complete Success!
In three Years we have educated more than 3,000 architects, politicians and other groups
"What you see is what you get"

Stockholm
Växjö
Sundsvall
Trondheim
What Politicians do…

A decision makes difference..

In Sundsvall local politician decided
New systems – Modular systems
Introduced in 1995 in Luleå. NOW –
Especially in Stockholm
Report from June 2006
"Development in industrial produced constructions system"
Fredrik Blom’s Catalogue from 1830’s
Off site building
Vetenskapsstaden, Stockholm 2002
Industrialized Building systems in 2006

- Finndomo
- Flexator
- Lindbäcks Bygg
- Moelven Byggmodul
- NCC Komplett
- Peab
- Skanska Moderna Hus
- Trälyftet (Setra Group)
- BoKlok

About 20% of multistorey buildings today
Finndomo
Flexator
Lindbäcks Bygg
Moelven Byggmodul
NCC Komplett
Peab
Skanska Moderna Hus
Trälyftet (Setra Group)
BoKlok

Wood based systems today – 95 %
Examples
1994-2008
Välludden, Växjö
Result for Skanska

- Building Schedule reduced by 35-40%
- Dry and low-weight Method
- No "Dry-out"-period
- Easier to build in weaker Ground

after 4 months

after 7 months
Wood construction is often cheaper.

Source: Skanska

- 15 %
Costs: - 40 per cent

Skellefteå

Örnsköldsvik
Multi-Storey Wood House
Haparanda 2007
Multi Storey House
Svedmyra, Stockholm
Commercia Center, Skellefteå
Library
Västerås
Office house
Umeå
Sami Parliament in Kiruna.

BADJANEAPNI - Murman Arkitechts
In Eslöv
Swedens highest house in
Wood construction
10 floors!
A system where sun, wind and rain produce the material for construction...
Here’s your new home...
Thank you for your attention!