Industrialised house building
Innovation across limits

Stockholm, 26-27th of October 2011

Session: The building system as a strategic resource

Building systems with Cross Laminated Timber

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Luleå University of Technology - Timber Structures
What is CLT?

- Cross Laminated Timber is an engineered wood product
- Structure made of 3, 5, 7 or 9 layers
- Non visible or Visible quality
• Format of elements available up to 2.95 x 16 m and with thickness up to 0.3 m

• Production capacity in Europe estimated in 2010 \( \approx 340,000 \text{ m}^3 \)
Advantages of using CLT

• The crosswise layer orientations allows for:
  – Floor panels to span in two directions
  – Wall panels to both carry vertical loads and being used for the bracing of the building

• Possibility to cut-out openings (for doors, windows, shafts…) and make grooves (for electricity, joints…) in the CLT panels

• A European Standard for CLT is under development
Applications:

Multi-storey buildings


Applications:
Multi-storey buildings

Limnologen, Växjö, Sweden (2008)
The Finnish open building system development
*RunkoPES*

- Harmonisation of the products between timber elements manufacturers in Finland
- Standardised interfaces for building elements
- Specification for sealing joints at these interfaces
The Urban Multi Storey™ Building System by Stora Enso

Stora Enso Building Solutions

The Urban Multi Storey™ building system

Acquisition of Eridomic Oy in Finland

- Large roof elements
- Public buildings
- Residential multi-storey buildings

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The intermediate floor, a key component in the building system

- Cost effective solutions can also be found when combining CLT with other structural materials/components
The development of composite floor elements with CLT is of interest to fulfil requirements of multi-storey buildings.

**Timber-concrete solutions**

- Reinforcement
- PUR - grave board
- HBV - shear connector
- Concrete

**Timber-timber solutions**

- Reinforcement
- Insulation wall panel
- HBV - shear connector
- Grave board

© Figures: HBV-System

© Figure: Martinsons

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Thank you for your attention.

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