

Innovative Production Technologies and applications in the field of Wood Cement Products

Eltomation BV – Holland

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Eltomation BV - Holland

- Supplier of turn-key wood-cement board production plants
- 62 years in business as family-owned company
- Leader in this field of technology
- Over 160 Wood-Cement Board projects executed in over 35 countries

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Overview of main Wood Cement Products:

- Wood Wool Cement Board – WWCB
- Large WWC Wall Elements
- Wood Strand Cement Board – WSCB/EltoBoard
- Wood Residue Cement Board - WRCB
- Cement Bonded Particle Board - CBPB

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Wood Wool Cement Board (WWCB)



Properties of Wood Wool Cement Boards:

- Excellent acoustic performance
- High thermal insulation (energy saving)
- Wet and dry rot resistance
- Fire resistance (in B1 and A2 class)
- Termite and fungi resistance
- High thermal storage capacity
- Light weight and easy to handle

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Eltomation Wood Wool Cement Board production plant



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Some figures:

- Board dimensions: 60 cm x 240-300 cm (or 2 ft x 8-10 ft)
- Thickness: 15 -100 mm
- Low density (350 - 550 kg/m³) (thermal and acoustic properties)
- Input ratio of wood – water - cement: 1:1:2 (plus 1-2% Waterglass)
- Plant capacity: up to 12.000 m² per day (3-shifts)

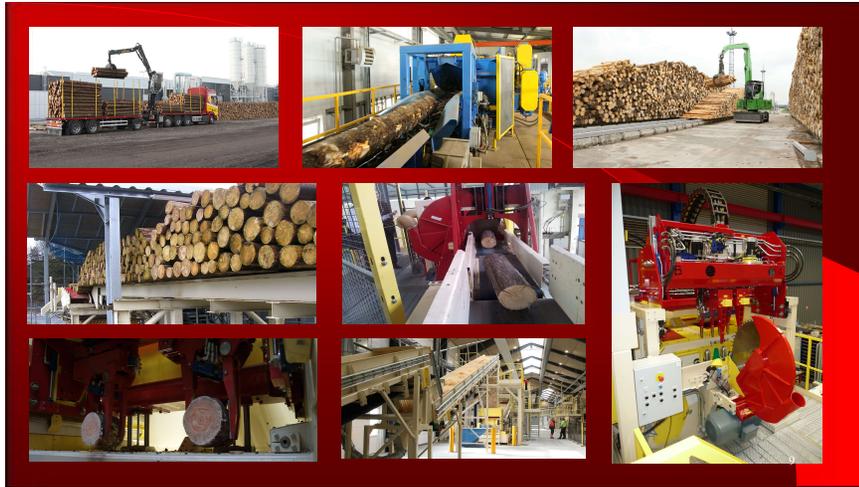
- Current market in Europe: 18-20 million m² per year
- Annual turn-over (in Europe): up to EUR 200 Million

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Wood types and consumption:

- Most common species: Pine, Spruce, Poplar, Aspen
- Small diameter logs from forest thinning (*fire prevention !*)
- Log diameter: 80 – 265 mm (3" – 11")
- Length: 2 – 5 m
- Consumption: approx. 3.000 kg/hr (20 ton per shift)
- Annual volume per each shift: 33.000 m³ stacked logs (11.000 ton)

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WWCB
Wood Wool Cement Board

Applications

WWCB

Wood Wool Cement Board
Applications

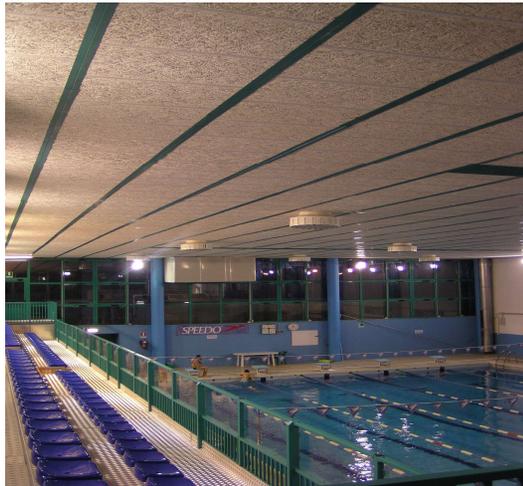
Ceilings,
Acoustic Absorption

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Acoustic ceiling at the IKEA stores; Holland

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Indoor swimming pool with
acoustic ceiling; Italy

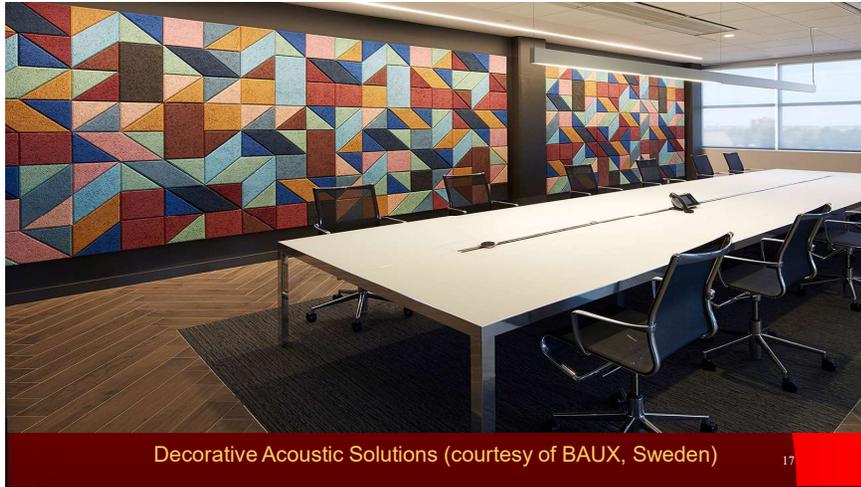
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WWCB

Wood Wool Cement Board
Applications

Decorative Acoustic Solutions
(designs by BAUX, Sweden)

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Decorative Acoustic Solutions (courtesy of BAUX, Sweden)



WWCB
Wood Wool Cement Board
Applications

**Ceilings,
Acoustic Absorption
at private homes**



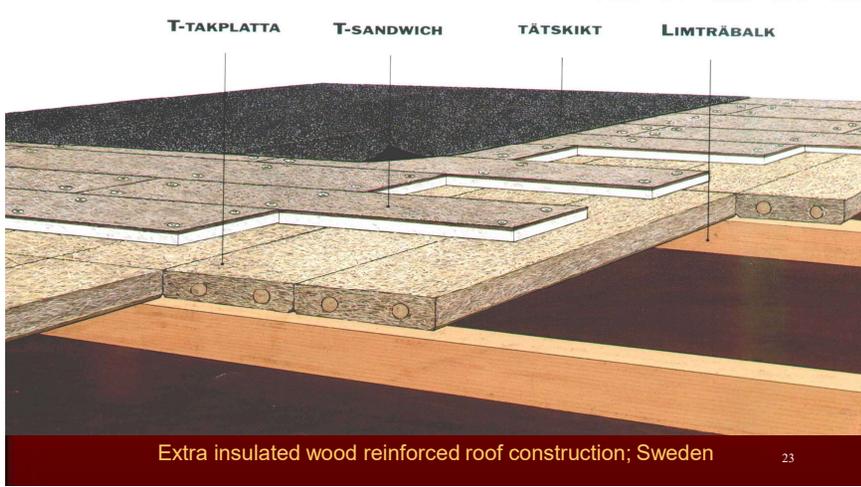
Picture courtesy of Troldtekt, Denmark



WWCB
Wood Wool Cement Board
Applications

Roofing

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WWCB
Wood Wool Cement Board
Applications

Renovation

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Renovation and insulation of outside walls; Austria

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Stucco being applied

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WWCB

Wood Wool Cement Board
Applications



Acoustic solutions in shooting ranges

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Large WWC Wall Elements

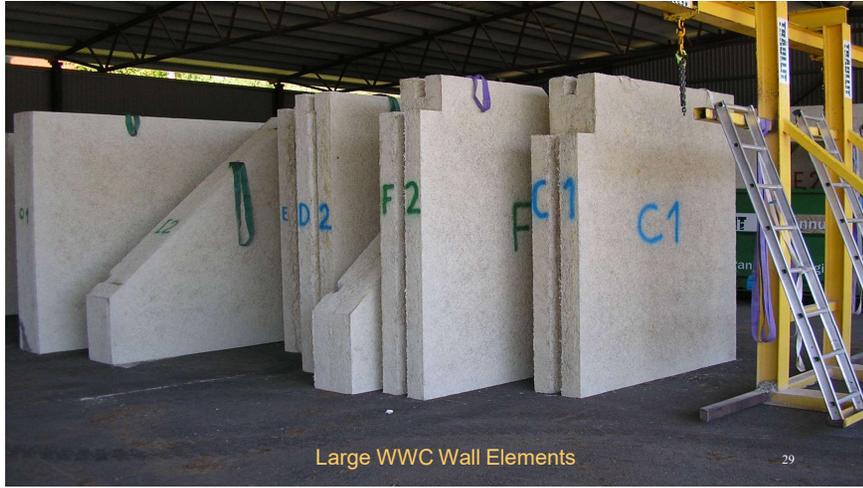
developed by

Träullit, Sweden

Main dimensions:

- Length: up to 6 m (20 ft)
- Height: 2,8 – 3,0 m (9 - 10 ft)
- Thickness: 300 – 500 mm (1' – 1'-8")

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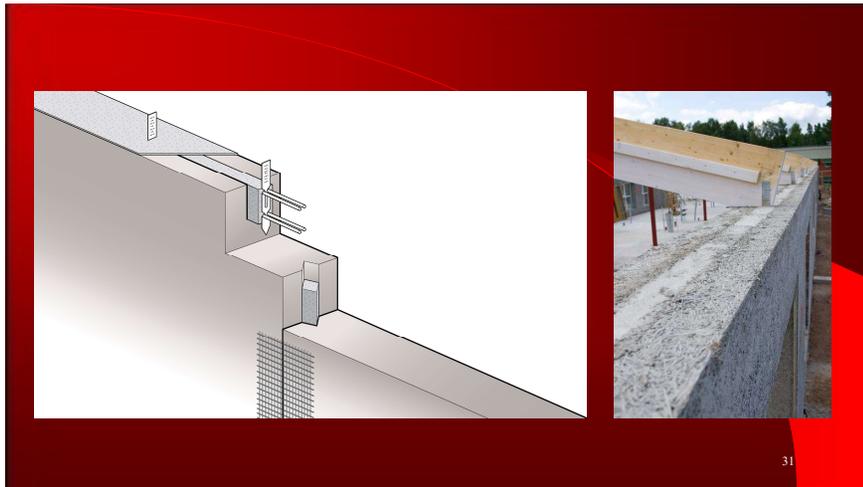


Large WWC Wall Elements

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Outer walls (LE) and reinforced roofing WWCB at school



Advantages and properties

- High Thermal Insulation ($U = 0,19 \text{ W/m}^2 \text{ } ^\circ\text{C}$)
- Excellent Heat Storage Capacity ($250 \text{ KJ W/m}^2 \text{ } ^\circ\text{C}$)
- Comfortable living space (moisture regulating)
- Homogeneous Construction (no EPS / PU core)
- Fire Proof (6-hour fire rating)
- Resistance to termites, mould, fungi & rot
- Prefab construction (no on-site waste)
- Low weight (340 kg / m^3) – few transports
- Very short construction time

WWCB & Large Elements

Additional Applications

Sound Barriers

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Impressions

Large WWC Element Production Plant



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Sustainable Affordable Prefab Housing



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Sustainability and Life Cycle Analysis:

- WWCB has a proven lifespan of 100+ years
- Usage of FSC-certified small diameter softwood
- Healthy Indoor Climate Certificate (no emissions)
- Cradle-to-Cradle Silver Certificate (Denmark)
- Fully recyclable (as composting and/or raw material for cement production)

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Environmental Product Declaration
According to ISO 14025

Wood Wool Boards
Heraklith.
Heraklith™ is a registered trademark of heraklith.com

Danish Indoor Climate Labelling
Certificate no. 025

Environmental Product Declaration

Troldekt **Troldekt acoustic wood wool-cement panels**
Natural acoustic solutions

CERTIFIED
cradletoCradle
SILVER

Cradle to Cradle
The Cradle to Cradle philosophy is based on three fundamental design principles: recycling, renewable energy and diversity. Industrial products are Cradle to Cradle certified in the metal, plastics and the construction (concrete, tiles, finished cement) based on their products, services and in separate patent classes.

PEFC
PEFC® stands for Programme for the Endorsement of Forest Certification and is an international non-profit NGO which aims to promote sustainable forestry around the world. The scheme assesses the environmental and forestry operations. Timber products are PEFC® certified.

FSC
FSC® stands for Forest Stewardship Council, an international non-profit leading authority based on 10 principles to responsible forest management. The certification guarantees, for example, that tropical forests do not become forest reserves and that birds and trees are protected. Finished panels are FSC® certified.

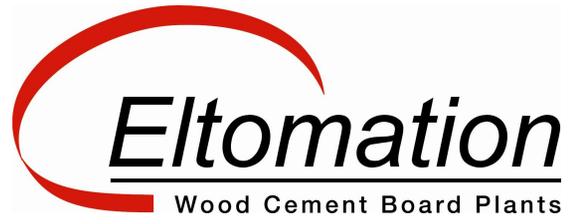
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- ## Further developments in R&D
- 5-year Research Program with TU/e on Sustainable Building Materials
 - Alternative (Agro-waste) Materials / Alternative Binders (to reduce or replace cement)
 - Further reduction of CO₂ footprint at production
 - Further improved Sustainability
 - We are open for cooperation in R&D on Wood-Cement Technologies
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Thank you for your attention

(and thanks to Martin for organising this Webinar Conference)

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