Emerging Technologies in Residential Timber Construction

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Project Aims and Objectives

• Funded by Forest and Wood Products Australia (FWPA)
• Aim
  – Identify technologies suitable for expanding timber and wood usage in Australia
• Main Objectives
  – Review Emerging Technologies from a similar 2007 CSIRO study - remove or retain technologies as appropriate
  – Add new technologies identified in 2012
• Method
  – Use international network to identify new technologies
  – Expert Panel evaluation team
  – Present higher scoring technologies on FWPA web database
49 New Technologies Identified

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Construction Systems
Floor/Wall/Roof Systems - “Lignatur” spans up to 10.0m at 280 D

Floor/Wall/Roof System – “Keilsteg” spans up to 30 m at 1200mm D (L/300)
Fire, Sound, Thermal Insulation systems - “Sound Bar”

Products and Materials Technology
Engineered Composites – “Carbodur”

- Carbon fibre strips/sheets epoxy fixed to timber for structural reinforcement

Companion Materials – Mortarless Brick Veneer
Improved Wood – “Medite Tricoya” (MDF)

• Acetylation changes free hydroxyls (which absorb and release water in wood) into acetyl groups via acetic anhydride (from acetic acid).
• Acetylised wood changes chemical structure. Upgrades durability (similar to most durable hardwoods) and significantly reduces swelling and shrinking.

Connectors and Fitments – Sherpa Connectors
Integrated Design and Delivery

Building Information Modelling
Design for Manufacture – Chassis with furniture fitout

- The shell of the building is constructed and then the rest of the building is treated as flexible (or decoupled) infill.
- Mass customisation possible using ‘furniture’ or cabinetry fitout.
- Use of computerized numeric control (CNC) technologies.

Supply Chains - “Cut My Timber”

- Batch quantity of "one“, affordably.
- Opens up prefab options.
Close