POTIUS™

BUILDING SYSTEMS LTD

Potius BSL welcomes ADNZ to the 'Space Age'

Presented by:

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Introduction

- Introduction
- Brief description of structural theory
- Description of stressed skin panels
- Benefits of Potius Panels
- Concrete composite floor system
- Product development
- Practicalities of design and construction
- Questions

Brief Description of Structural Theory

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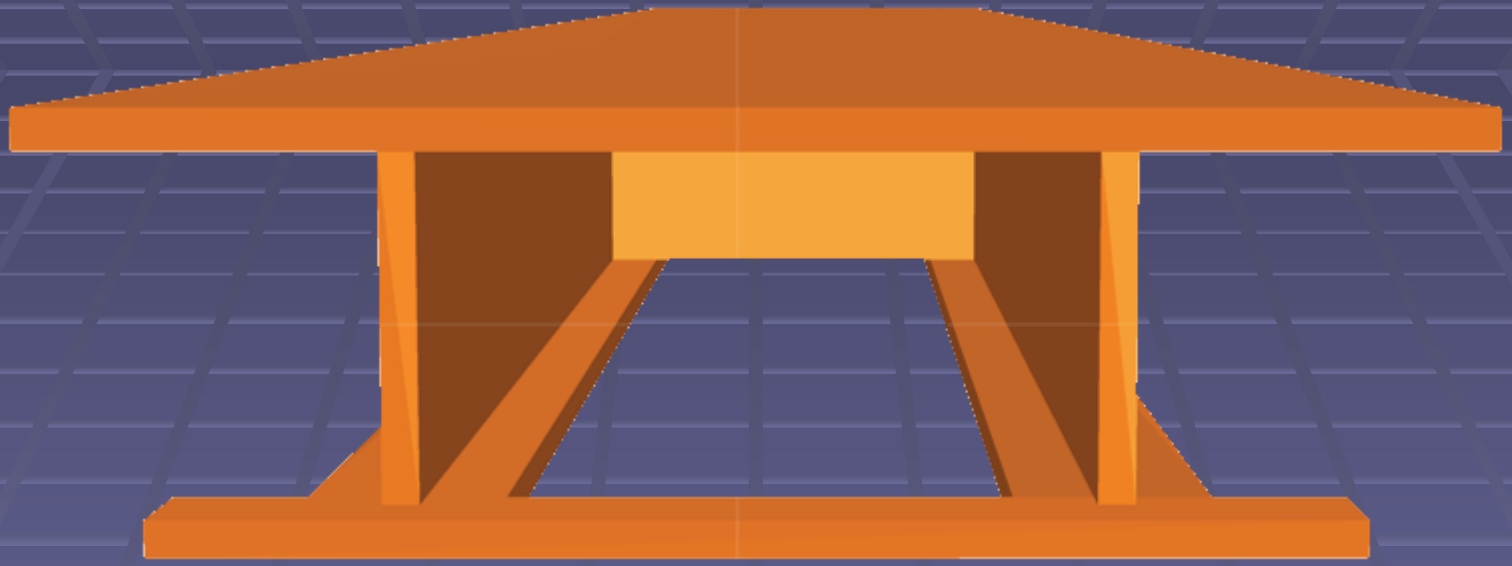
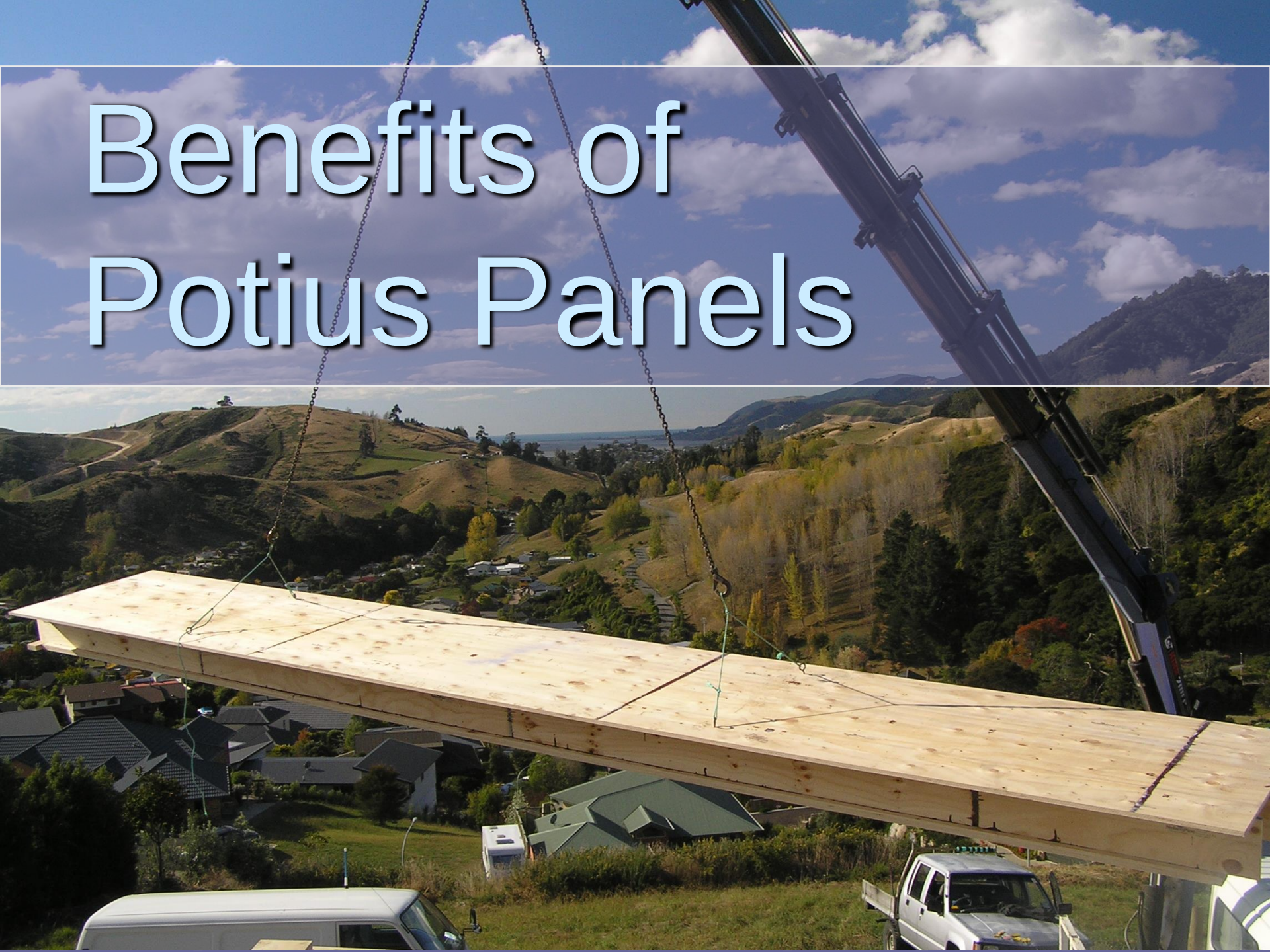
- Traditional rectangular joists are an inefficient use of material
- All the work is being done by the timber fibres at the top and bottom extremities of the joist
- Timber fibres in the centre of the member are only making small contribution to its strength and stiffness
- An ‘I’ section is a much more efficient use of materials, thus the steel Universal Beam profile and timber ‘I’ joists
- In conventional floor systems the joist, whatever profile it happens to be, supports the flooring (ply or particle board). The flooring contribution, structurally, is as a ‘beam’ spanning from joist to joist
- In a Potius floor panel, by making a structural connection between the flooring and the joist, the floor sheeting is also contributing to the strength and stiffness of the joist, effectively acting as the top flange the joist

Potius Stressed Skin Panels



- Potius stressed skin panels are an alternative to traditional flooring systems
- Sheet flooring is structurally connected to joists to form composite section with significantly greater strength and stiffness. There is also a bottom flange to further improve the performance of the panel.
- Panels are custom built to length with ‘specials’ to suit edge requirements.

Benefits of Potius Panels



Benefits of Potius Panels

- **Increased span**. Panels are able to span up to 8.0m supporting domestic floor loads. Design is governed with dynamic performance so panels are capable of supporting significantly higher loads.
- Panels are treated (H1.2) and used for **roof framing spanning up to 10.5m**
- **Rapid construction**. Panels arrive on site on a HIAB truck and lifted straight into position. A typical house installation can be done in about half a day. Once panels are in position they are simply strapped into position and wall framing can begin.
- **Environmentally Friendly .** Panels are made efficiently using renewable resources making them an environmentally friendly solution.
- **Cost effective.** Can provide large open plan living spaces without the need for expensive structural steel.

Concrete Composite Panels

- We have developed a system placing a concrete topping toping over the slightly modified panels creating a composite section
- This system will be supported on block, tilt-panel walls or a steel structure
- Additional benefits are: + Thermal mass + Dead weight reducing spring in floor + Reduction in sound transmission

Product Development

Load Test 1!

Load Test 2!!

Measuring Deflection

Taking to Failure…


Eventually.

Design/Construction in Practice

Things that need to be considered for design.

Foundation and wall loading – Larger floor spans mean greater loads on the foundations. This may make it difficult for 3604 type pile systems. Concrete strip footings will generally not be a problem.

Bracing typically you will end up with walls more than 6.0m apart which can be problematic for standard bracing calculations. The floor system will however act as a diaphragm so you can still use the normal methodology.

Holes for Stairs can be problematic if there are no load bearing walls around the staircase. This can be resolved by building trimmers into the floor panel.

Crane/truck access is required to the building site. This needs to be considered.

Questions….