



## Panelok New Technology - Flat Pack Building

The Panelok™ Building System is an internationally patented flat pack building system, including patents granted in New Zealand and throughout the United States of America. The Panelok Building System is fully engineered to meet the standards of the **Australian National Construction Code** and the **Building Code of Australia** and approved for construction in all states of Australia.

The core of the Panelok building system is in the design and engineering of its patented wall system manufactured at Panelok's factory at Yatala in Queensland. Whilst based in Yatala, Panelok has delivered projects in other states including Victoria, N.S.W, Western Australia and most recently Northern Territory. Opening Panelok factories across all states will save significant transport costs and make Panelok even more economical nationwide

The Panelok building system is designed to construct high quality, multi-story homes, town houses and buildings in approximately **half the time of conventional construction**; resulting in **opportunities for:-**

- Builders to complete projects, increase cashflows and realise profits in half the time of conventional construction using fewer skilled trades.
- Developers can complete projects, reduce costs and realise profits in half the time; and
- Home buyers can purchase or build and move into a better quality home, much faster; Panelok is the greener more energy efficient solution, providing a safer and healthier living environment and provides protection from natural disasters.

There have been many modular or prefabricated building systems taken to market over the years as builders try and build better or faster and reduce costs. Unfortunately, these building systems typically have various issues in their general appearance as 'kit' homes or in regard to their design limitations in dimensions, materials used, or strength etc.

Panelok's Flat-Pack building system does not have these limitations; an architect has broad options as to the appearance of the building and upon completion a Panelok home will look like any other traditionally built home in the street.

Panelok commenced R&D on the Panelok building system in 2015 with the objective to deliver a superior alternative to traditional building methods, with focus on improvement in key areas of construction, such as: –

- **Speed** of construction – we can now build in half the time of conventional construction
- **Design** versatility – create designs to themes such as Hamptons, Mediterranean, Colonial and more
- **Strength** with steel – Panelok is a steel framed building system using BlueScope TrueCore steel
- **Environmentally friendly** – Panelok uses sustainable and energy efficient building materials.

- **Energy efficiency** – Panelok homes typically achieve 8–10-star energy certificates.
- **Acoustics** – all internal and external walls are fully insulated – promoting quiet and peaceful living environment.
- **Quality** of finish – high end finishes to all internal and external surfaces
- **Robust** Finish – includes 10mm high impact wall claddings (internal & external) to significantly reduce potential damage and maintenance - ideal for rental properties. Our wall cladding is certified to AS1530.1 as non-combustible.
- **Healthier and safer** living environment – Panelok is engineered for use in the highest cyclonic wind areas of Australia (C4) and is also designed to protect from natural hazards such as:-
  - Fire,
  - Cyclones,
  - Earthquakes
  - Floods
  - Termites; and
  - Mould
- **Space** – all Panelok homes and town houses come with 2700mm ceiling heights as standard. Traditional brick veneer construction includes an external wall of typical 230mm / 250mm thickness. Panelok external walls are only 100mm thick and even in a town house this additional 130mm – 150mm of space adds as much as 5 to 7 sq meters of additional living space; adding significant additional value to a townhouse.

**Australian made;** we have not found a prefabricated building system to match Panelok anywhere in the world.

## Most Significant Issues for Residential Builders in 2022

Builders across Australia find themselves in significant demand as the residential construction market continues to perform well in 2023 however, they face various ongoing issues including that:-

- Finding skilled subcontract trades is difficult as they are in high demand – including that the demand has increased subcontract costs.
- Finding experienced general labour is also difficult due to demand and no doubt overseas labour returning home due to covid has compounded the issue.
- Supply chain issues mean that building materials such as pre-nailed frames and trusses, roof, windows etc have significant delays due to :-
  - Availability of base materials required by manufacturers.
  - The significant order to delivery times.
- The significant time it takes to deliver homes and town house projects due to the above and other issues often resulting in significantly long build times; nine months and longer for a two-storey home is not uncommon.

The Panelok building system, and our business model and supply chain, mitigates many risks and resolves many of these issues providing opportunity to complete projects in half the time for traditional construction methods and materials

## Panelok Building System – Inclusions

The Panelok Building System is used for construction of homes / townhouses on: -

- a. Slab on Ground – where the home is built on a concrete slab; and
- b. Platform floors – where the land is sloping, and the house is built on a Platform Floor (a floor typically constructed above ground with bears joists above founded on posts)

A Panelok Flat Pack includes the following documents and materials: -

1. **Documents for Building Application** – Panelok provides the:-
  - Engineers design and drawings for the building application on: -
    - Concrete slab; or
    - Panelok's patented steel platform floor system
  - Construction drawings,
  - Energy Certificate
2. **Flat Pack Materials**
  - Panelok Steel Platform floor system
  - Panelok insulated wall system to all internal and external walls of the building
  - Engineered floors system for each floor above ground level of multi-level buildings (bearers, joists, hardware);
  - Roof Trusses
  - Roof battens, safety battens and ceiling battens.
  - Hardware to install all the above
    - Note – Panelok has its own window design previously manufactured overseas but covid interrupted supply.
3. **Finishing Materials** – Once the Panelok wall panels are in place, roof on and lock up achieved the walls are ready for painting internally and for render or other cladding externally; all that is required is for taping and setting of panel joints much the same as gyprock joints are taped and set in traditional construction, Panelok has developed finishing materials specific for its product for the setting of internal and external wall panel joints. These products are included in our pricing and are:-
  - **Panelok Impreg Sealer** – a simple spray application to all wall surfaces prior to painting. This product penetrates deep into the wall cladding increasing the cohesive strength of the cladding as well as completely sealing it and providing an extraordinary bond for paint and render finishes applied over it.
  - **Panelok Ultra-Flex** – is a very flexible compound applied by plaster box, as first coat, to seal all walls panel joints.
  - **Panelok Base Coat and Top Coat** – these are applied to all internal and external panel joints by traditional plaster tools and methods prior to painting or rendering.

## Panelok – A Fully Engineered Steel Framed Building

Much of the speed in construction is achieved by the Panelok wall system. The walls of a Panelok building are made up of structural insulated panels (SIPs). SIPs have been used by builders trying to save time and cost for decades.

Panelok manufactures its wall panels in only four (4) **standard** widths being 300mm, 600mm, 900mm and 1100mm widths.

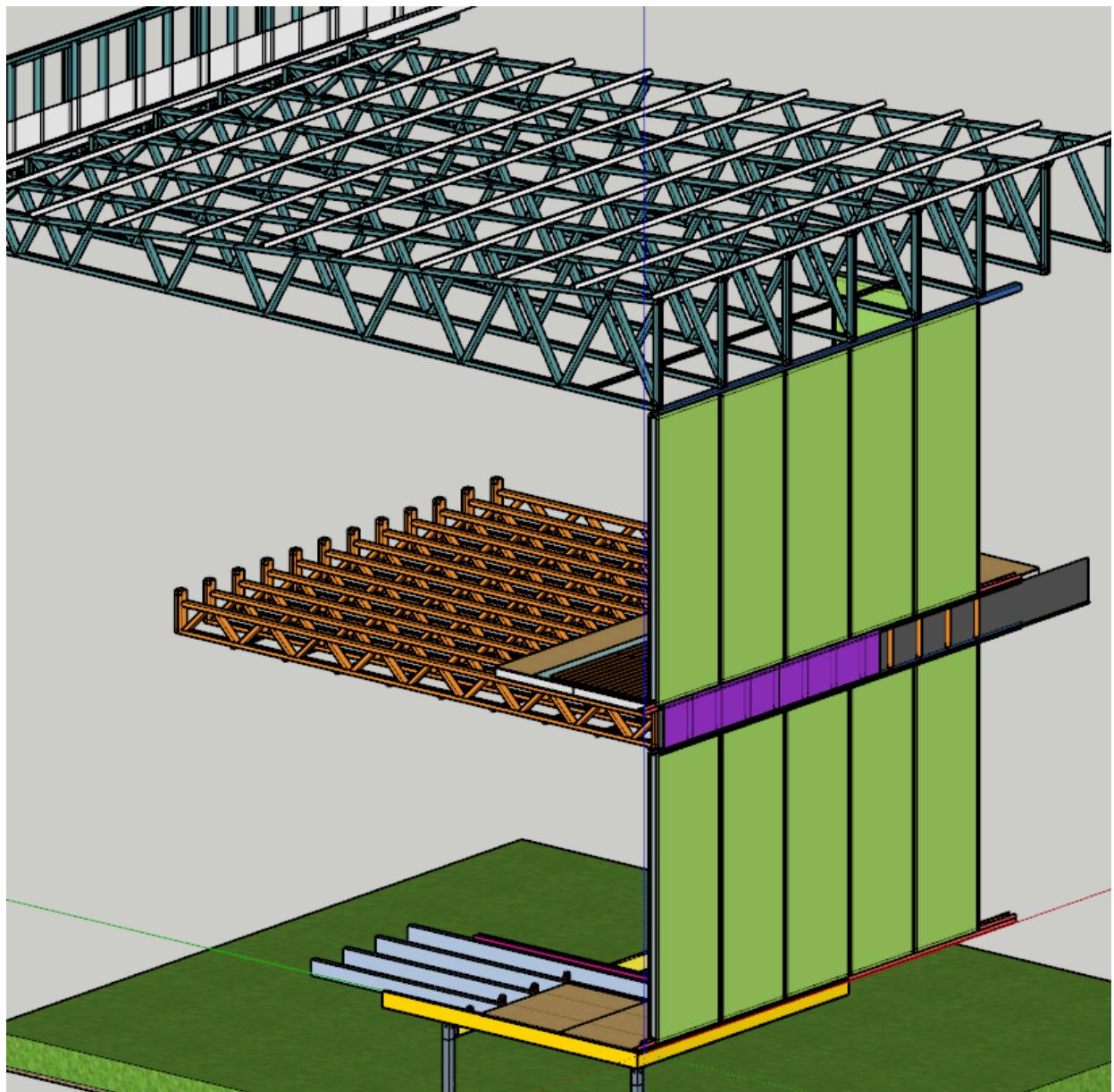
Each wall panel has an expandable polystyrene fire resistant core which then has a BlueScope TrueCore steel frame placed around its perimeter and a high impact 10mm thick wall cladding laminated to each face of the panel; and these wall panels are all connected together with steel posts at each panel joint.

Typically, we find that regardless of the home design, over 95% of all the wall panels are automatically our standard widths - with only a few “non-standard” widths panels sometimes required for some projects; for more convenience these non-standard panels can be completely eliminated by making adjustments of 10mm to 50mm of some wall dimensions.

During construction all the builder needs to do is install the Panelok wall panels as per the drawings / 3D model. The wall panels are easily and quickly installed using a screw gun – no cutting of panels is required on site.

Because the Panelok wall panels have the internal and external cladding already fixed in place; once the panels are installed the roof goes on and the windows are fitted very quickly, and the building is at Lockup stage and ready for painting inside and render or other architectural features outside.

Panelok home is a steel framed building – when the Panels are being installed this steel frame is coming together at the same time. The image below shows Panelok Platform Steel Floor to the ground floor, Panelok Steel Floor Joist to second level, Panelok's 100mm Panel Floor over these joists, and steel trusses to the roof – with Panelok's Wall Panel system to each level tying the building together.



## Panelok Benefits Summary

### Builders Benefit

Panelok's new and superior building process delivers luxury projects via a **fast and simple** on-site construction process; with the added benefit of :-

- **Reduced** admin cost,
- **Easier supply chain** – one supplier for the complete structure of the building
- **Faster cashflows** to faster profits – lock up lowest homes in 9 to 12 days from slab. For the first time, builders can be cash positive on projects, hit milestone payments faster and realise their profits in half the time.
- **Reduced Finance cost** – large residential home and townhouse projects completed in half the time, reduce finance and holding cost accordingly
- **Reduced Site costs** - including reduced:-
  - Site supervision
  - Waste – many less skip bins
  - Temp fence and toilet hire
  - **Scaffold hire** – an expensive component - much reduced time requirement

### Developers Benefit

Panelok - increases market appeal of the project, increases profits and reducing stress with:-

- **Marketing** - A better, greener, safer, quality offering to potential project buyers
- **More speed**, finishing a project in half the time means: –
  - Reduced finance and holding costs
  - Early ROI - sell or rent stock in half the time = less **risk**
  - Opportunity benefit - Developer gets to next project faster
  - Less maintenance due to robust construction = cheaper life cost of dwelling better ROI

### Homeowner Benefit

- Receives a quality product including - green & energy efficient home, stronger, safer and healthier living spaces, architectural versatility, great prices, move in faster,

### Patents – Intellectual Property rights

Panelok now holds multiple patents and intellectual property rights in its building system and ancillary products which are registered internationally; and in particular in **Australia, New Zealand, and the United States of America**

### Innovation

Panelok's building system surpasses traditional building systems in so many ways due to our founding efforts toward excellence through innovation and constant improvement.

Notwithstanding that Panelok is already, in our view, the leading building technology in the world, our core objective remains to make the construction process faster, simpler, and more profitable for the builder and developer; and a stronger, greener, safer, and healthier living environment for families.

## Panel Floor System – Eliminate Noise & Squeaky Floors

Panelok has developed an insulated panel floor system for use over Panelok's Platform Floor system or for use between the different levels, of multi-level homes and townhouses

Town houses are typically multi-level construction and with new land releases being smaller, more homes are also being built over two or three levels.

A major issue or concern reported by homeowners on various online forums is noise transfer between the different levels of multi-level homes and town houses— kids running around upstairs disturbing those in a living space downstairs – late night TV viewing or entertaining disturbing those sleeping above - or simply squeaky floors making noise in the night as a person moves around.

Panelok's insulated Panel Floor system is the solution to eliminate all these problems; and more.

There are several components to the Panelok Floor, but the key component is the floor panel design – it is a fully laminated 100mm thick floor panel, sheeted on both sides, with an insulated core.

On one side of the panel, we use our 10mm thick PFC sheet which is tested to AS1530.1 and designated a non-combustible material; and on the other side we use 15 mm structural ply/19mm PFC sheet; creating a robust fully laminated 100mm thick floor panel.

The quality difference, or benefit of the Panelok Panel Floor system, over typical construction using particle board floor sheets is enormous much like having a suspended concrete slab but at a fraction of the cost for the benefits, which include:

- A very robust feeling underfoot – not unlike a suspended concrete slab
- Each panel can be laid PFC sheet OR ply side facing Up – this ensures the best surface for fixing various floor coverings. For example, if laying tiles then lay the floor panels in the tiled area “PFC side up” AND if laying a secret nailed natural timber floor in another area, then place the floor panels in that area “ply side up” so fixing the timber floor into the ply surface.
- Significantly reduced noise transfer between living spaces / levels as the decibel rating of the floor panel is superior to typical floor sheeting materials.
- Insulation between floor levels increasing energy efficiency – save money
- No more squeaky floors – eliminating the disturbance of others who may be sleeping in households where shift work is the norm.



## Panelok™ Building Systems

MODERN LUXURY FLAT PACKED HOMES

### INTERIOR FINISHING EXAMPLES



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### PANELOK CONCEPTS



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### PANELOK CONCEPTS

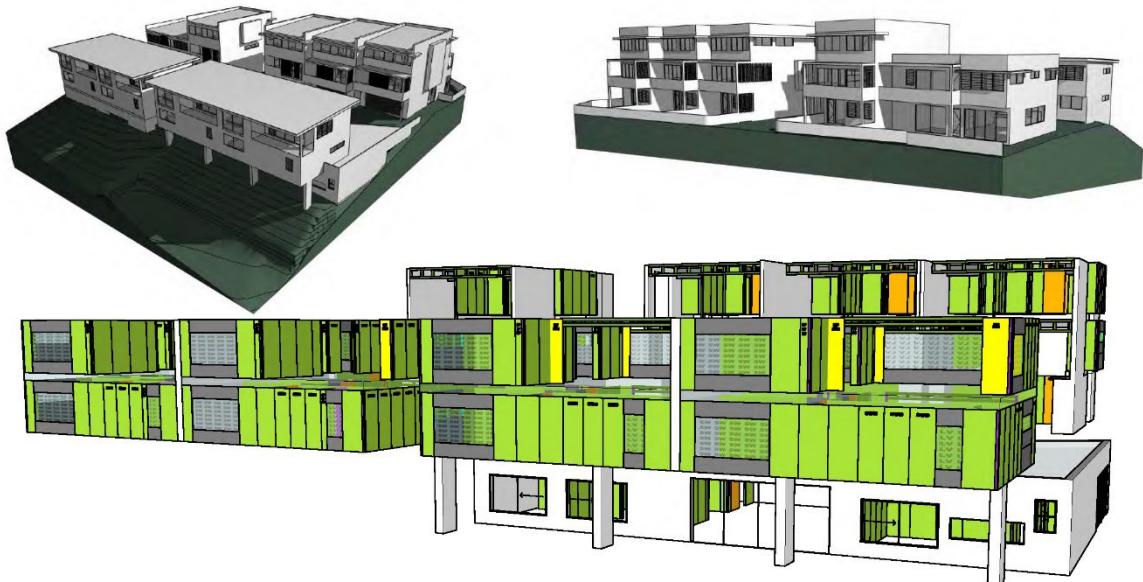


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