# How to achieve the Triple Bottom Line: case studies.

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# Forest and Wood Products Australia (FWPA)

## Acknowledgement of Country

In the spirit of reconciliation, Forest & Wood Products Australia acknowledges the Traditional Custodians of Country throughout Australia, and we acknowledge their connection to the land and their custodianship of Country and forests. We pay our respect to Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples.

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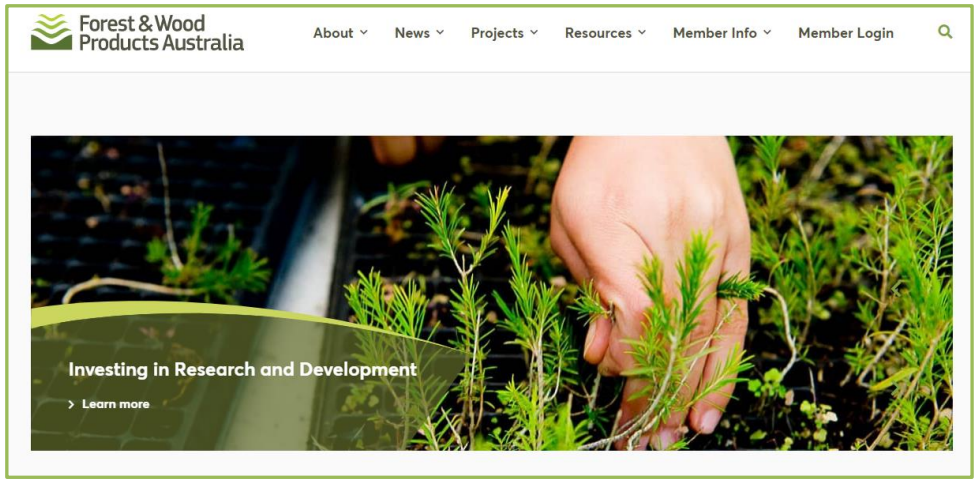
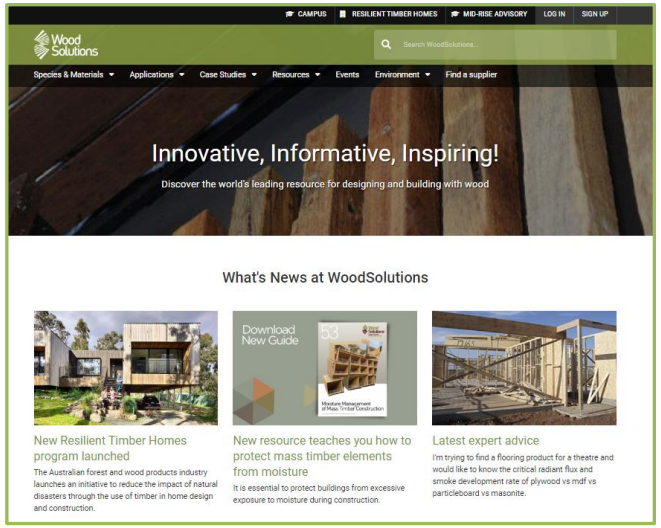
# Forest and Wood Products Australia (FWPA)

## WoodSolutions™

- A **not-for-profit** industry services company
- **Independent, non-commercial, evidence-based** information, training and R&D activities
- **Established collaborations** with the Australian Building Codes Board, other regulatory Bodies, Agencies and Associations

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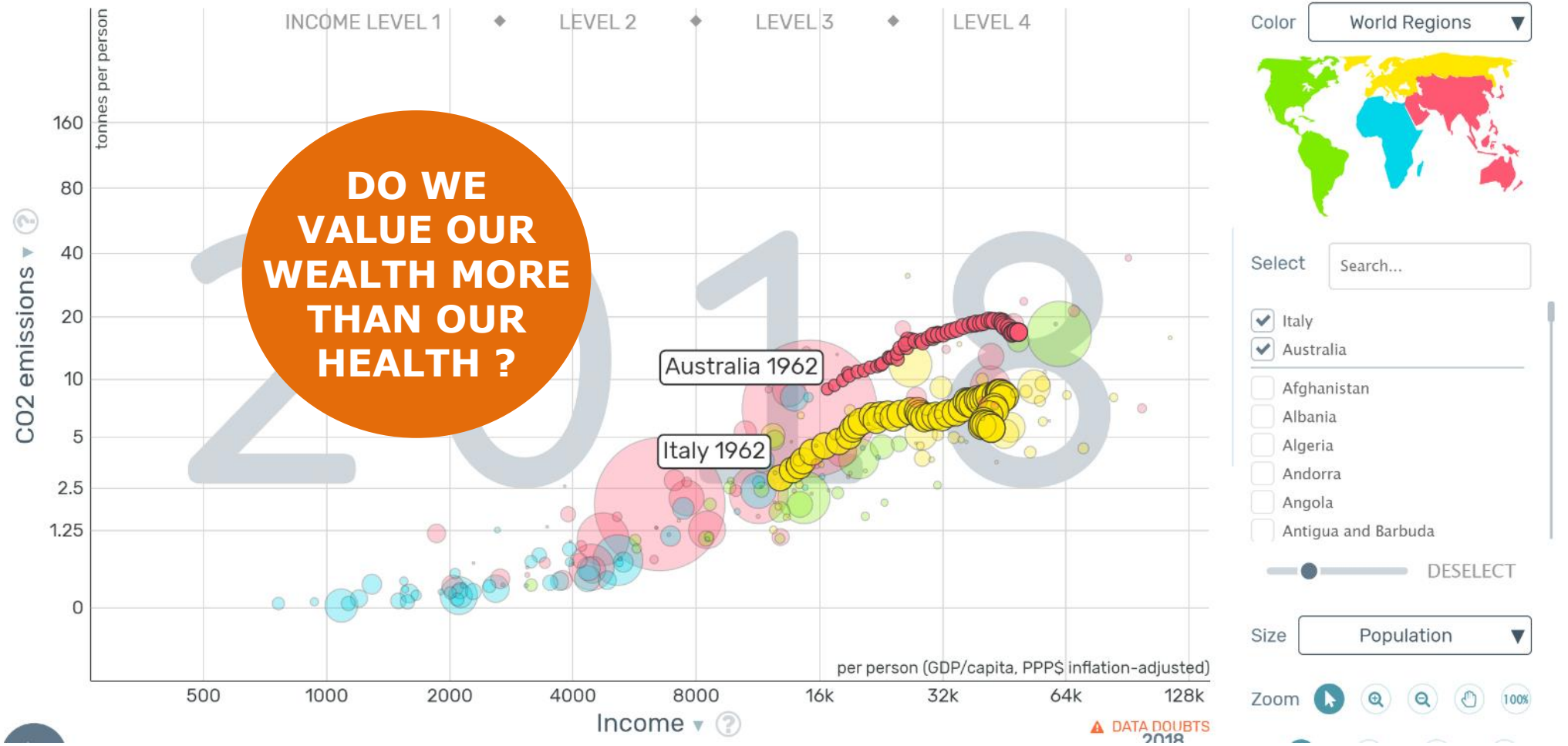
# Am I to blame? Apparently, yes…

## … even if I was born on Earth Day!

Pro capita $CO_2$ emissions and income (gapminder.org)

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# Outline

## The Triple Bottom Line with Engineered Wood Products

Case studies

Conclusions

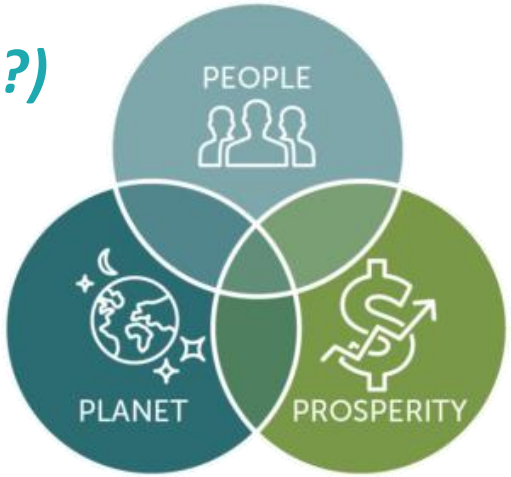
# The Triple Bottom Line for an ESG Accountant *(and for a Developer / Builder).*

**Is it BEARABLE?**

***(Is it FASTER?)***

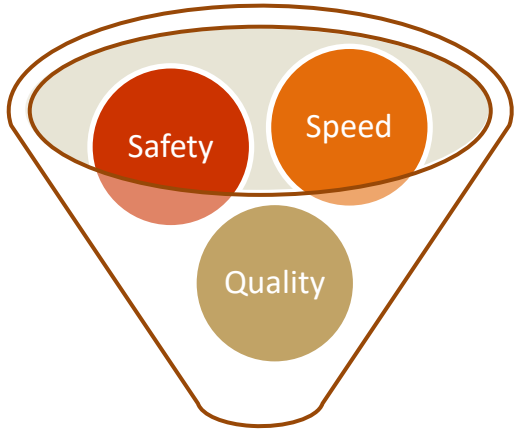
**Is it EQUITABLE?**

***(Is it SAFER?)***




**Is it VIABLE?**

***(Is it CHEAPER?)***




- **Safer workplaces** mean
- **Shorter programs**, with
- **Less variations.**

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# The Triple Bottom Line
## for a successful project.


**IT'S ABOUT FINDING THE SWEET SPOT (BALANCE)**

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# The Triple Bottom Line
# with Engineered Wood Products.

## PEOPLE

Australian forests and plantations provide **stable, long-term employment in rural towns**, with $23 billion/year of direct economic activity (Australian Bureau of Statistics, 2018), **improving the resilience of these communities.**


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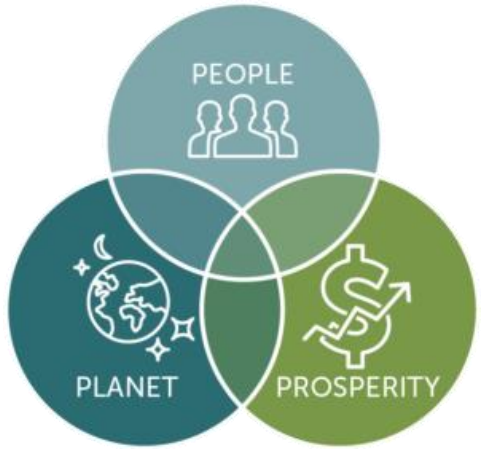
# The Triple Bottom Line
# with Engineered Wood Products.

## PLANET

Wood products currently **offset around 10% of the total greenhouse gases emitted in Australia** (Australian Government Department of Industry, Science, Energy and Resources, 2021), and are **the natural choice for a circular economy approach** where waste and pollution are designed out, products and materials are kept in use, and natural systems are regenerated.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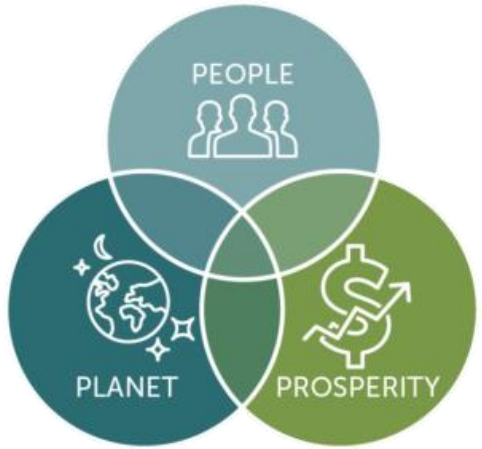
# The Triple Bottom Line
# with Engineered Wood Products.

## PROSPERITY

Australian developers and builders ***"do not have to choose between saving money and protecting the environment"*** (Clean Energy Finance Corporation, 2021), with timber building projects demonstrating excellent track records of **zero site accidents, shorter delivery times, and higher rents thanks to improved comfort and wellness.**



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# To quantify your Triple Bottom Line results, always use objective criteria and data.

**Environmental Product Declarations (EPDs)**:

- a **standardised and verified** way of quantifying the environmental impacts
- a **consistent set of rules** that make comparisons possible and objective
- **not only carbon**, but also consumption of raw materials and energy, waste, emissions to air, soil and water over the full life cycle
- **tracking the evolution over time** (i.e. for sawn softwood: 12% improvement from 2015 to 2020).

**INVESTORS NEED CLARITY, NOT GREEN-WASHING**

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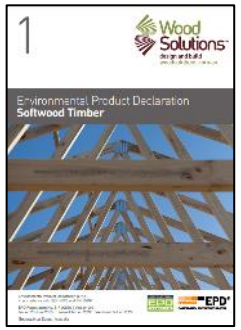
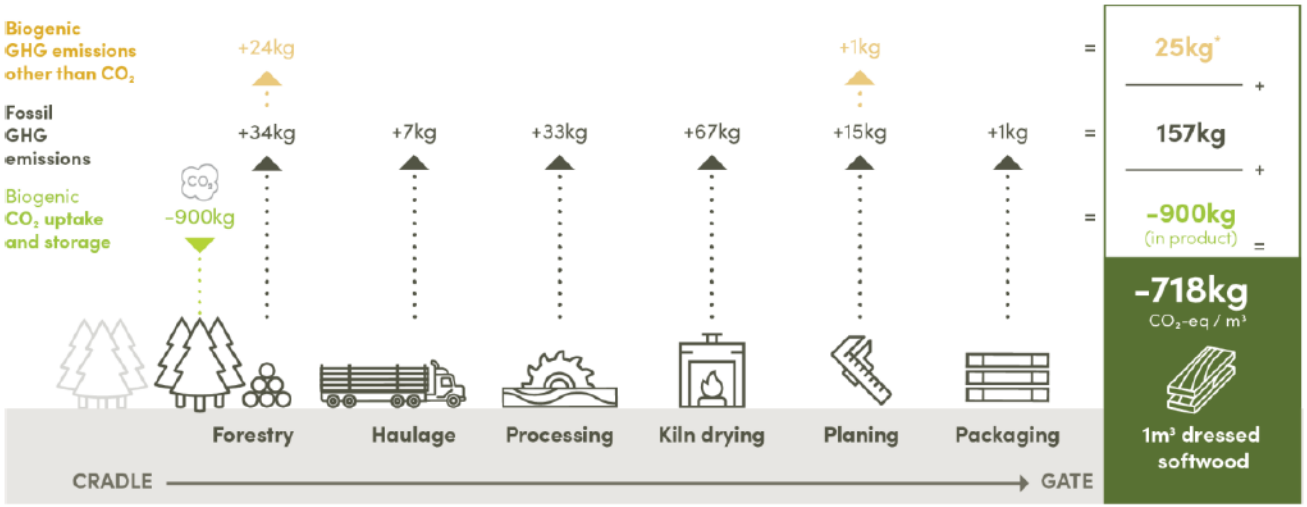
# Embodied Carbon:
## 2 types of EPDs.

**COMPANY-SPECIFIC EPDs**


| Material type | Embodied carbon (kg $CO_2$/t material) | Data source |
|---|---|---|
| CLT | 930 | XLAM EPD for CLT (2021) |
| CLT – with carbon storage | -610 | XLAM EPD for CLT (2021) |

**INDUSTRY-WIDE EPDs**




**Carbon footprint 1m3 of KD dressed softwood**
'Cradle to Gate' A1 - A3

*$CO_2$ biogenic emissions from production (e.g. from combustion and degradation of residues) are excluded as they are balanced by uptake during tree growth (i.e., balance to zero)

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# Wood-based products store carbon, even at their End-Of-Life.



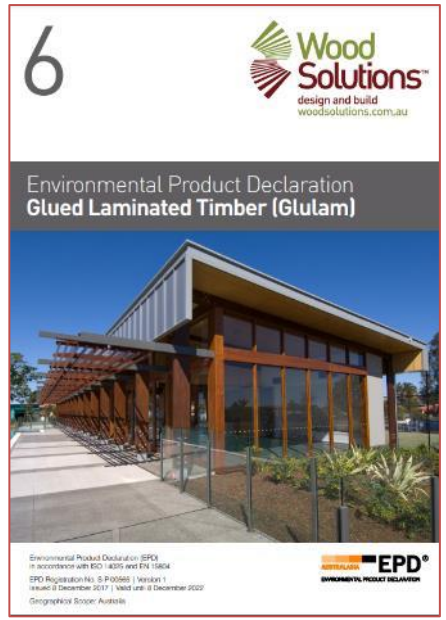


**Carbon is transferred to the next use**, with minimal energy requirements.

Carbon is transferred, **using much lower energy than for other materials.**

Emits $CO_2$ back **but substitutes an alternative fuel (often a fossil one)**. Impossible for non-combustible building materials.

Significant evidence that wood has **minor decay over 30-50 years**, therefore carbon sequestration still applies (at least as a %).

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# DfMA + R

## Designing for Reuse/Recycle is easy nowadays.

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# Outline

The Triple Bottom Line with Engineered Wood Products

**Case studies**

Conclusions

**DATA ARE FROM THE DESIGNERS, DEVELOPERS, BUILDERS**

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# 25 King street - Office
## Brisbane

Bates Smart
Aurecon
Lendlease

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# 25 King street - Office
## Brisbane

### BEARABLE

74% less e. carbon and 81% less waste in the landfill than an equivalent RC structure


### EQUITABLE

Zero site accidents

### VIABLE

20% faster than traditional construction

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# LaTrobe Uni - Student Accommodation
## Melbourne

JCBA
TTW
Multiplex

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# LaTrobe Uni - Student Accommodation
## Melbourne

### BEARABLE

**75% less embodied carbon than an equivalent RC structure**


### EQUITABLE

**Zero site accidents**

### VIABLE

**2.5 days/level faster cycles than for an equivalent RC structure**

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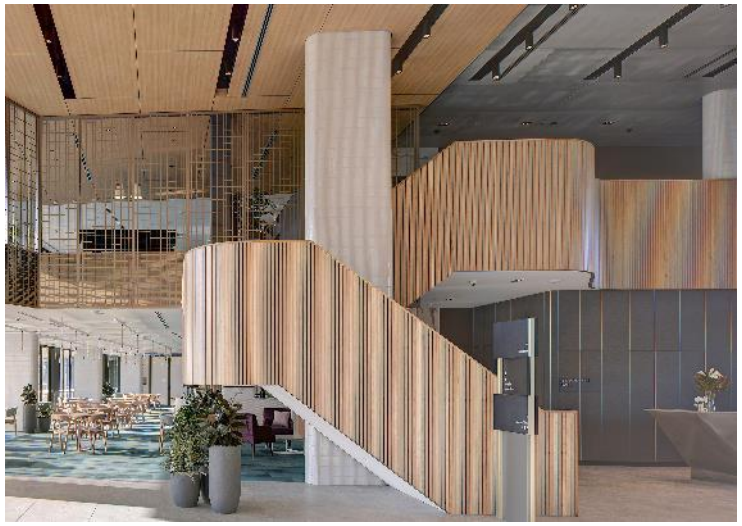
# AVEO Norwest - Aged Care

## Sydney



Jackson Teece
TTW
Strongbuild

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# AVEO Norwest - Aged Care

## Sydney

### BEARABLE

Reduced the embodied carbon by 2,700 tons of $CO_2$ compared to an equivalent volume of concrete


### EQUITABLE

Additional costs were offset by time–related savings

### VIABLE

Completed 13 weeks earlier than with a concrete-based construction program

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# Monterey - Apartments
## Brisbane

Hayes Anderson Lynch
Aurecon
Gardner Vaughan

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# Monterey - Apartments
## Brisbane

### BEARABLE

Replaces 1,170 cbm of concrete and blockwork with Australian timber, avoiding 3,744 tons of $CO_2$ emissions


### EQUITABLE

15 times better insulation than with masonry walls

### VIABLE

Built over a tunnel, possible only in timber for this building size and height

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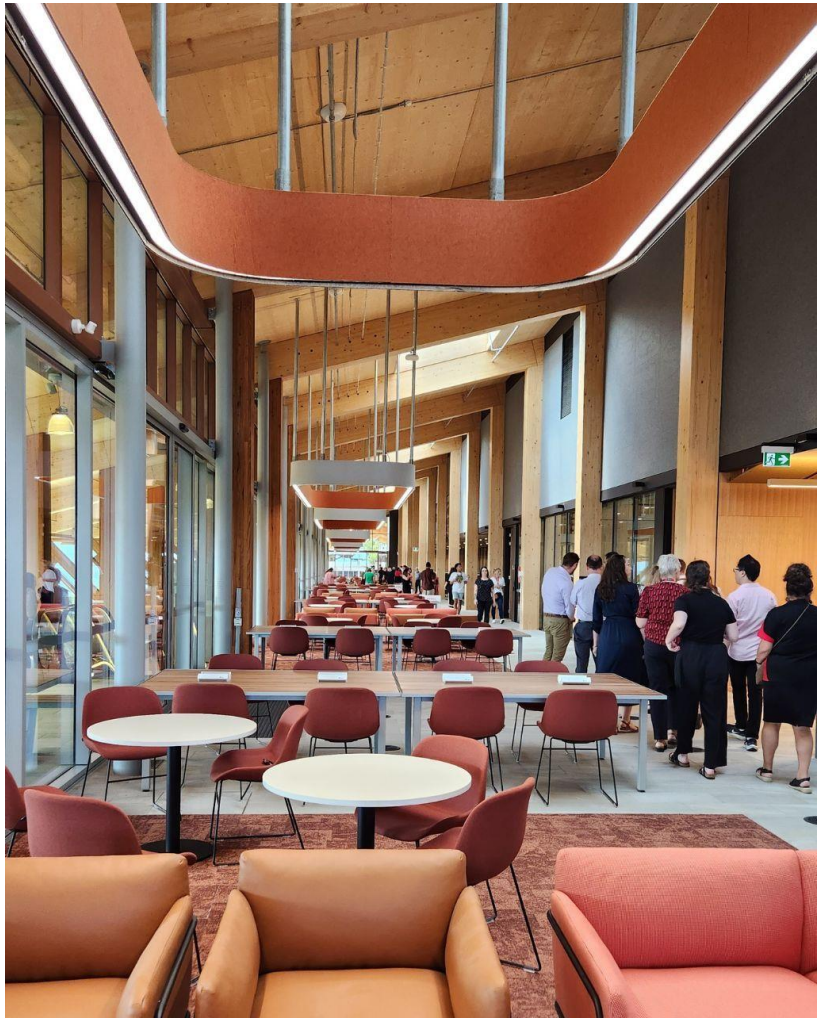
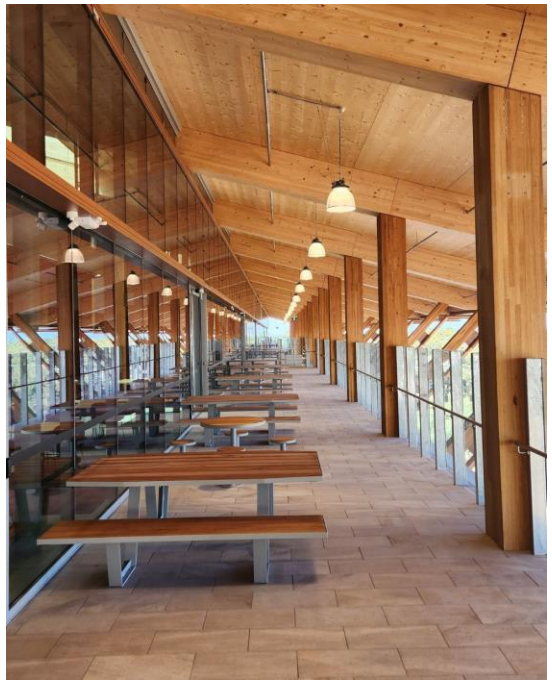
# Boola Katitjin - Learning Centre

## Perth



Lyons
Aurecon
Multiplex



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# Boola Katitjin - Learning Centre
## Perth

### BEARABLE

55% reduction in embodied carbon when compared to an equivalent concrete & steel structure


### EQUITABLE

Ethically sourced from renewable plantations in Australia and Europe

### VIABLE

Tested robotic assistance to installation, improving site efficiency and safety

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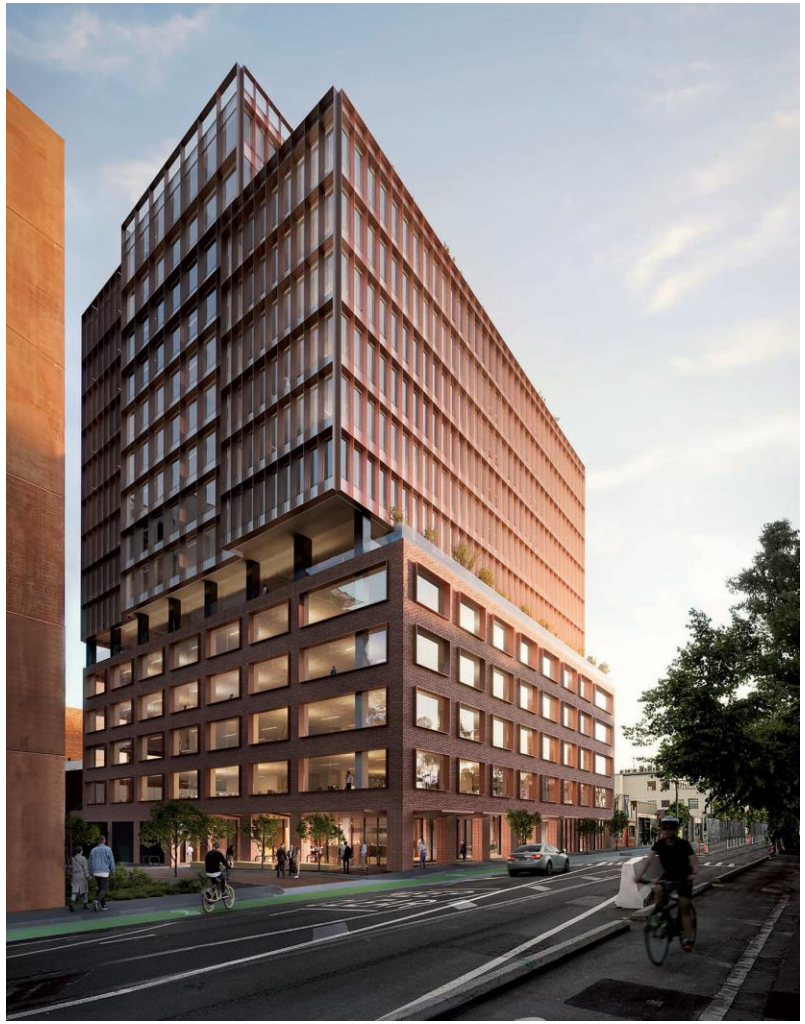
# 36 Wellington - Office
## Melbourne



JCBA
Aecom
Icon

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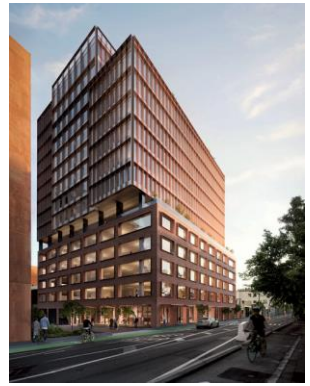
# 36 Wellington - Office
## Melbourne

### BEARABLE

Cuts embodied carbon by 40% during construction and targets Net Zero emissions once operational


### EQUITABLE

Ethically sourced from renewable Australian forests and plantations



### VIABLE

The first project co-financed by the CEFC's Timber Building Program

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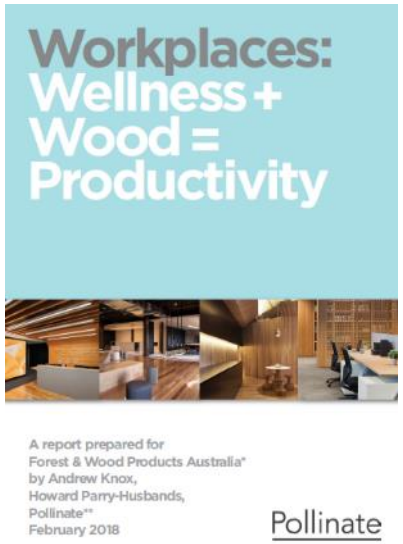
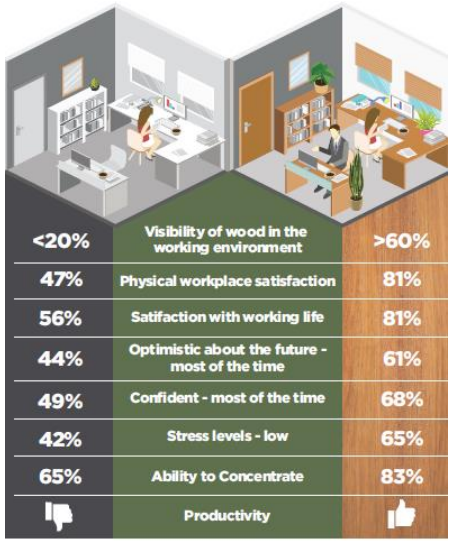
# Wellness, productivity, and…

## … higher rents.




**Key findings** of a non-biased and peer-reviewed survey (1,000 office workers):

- Higher levels of satisfaction and concentration
- Improved mood and productivity
- Less sick leave days

**HIGHER RENTS ARE BEING PAID FOR WOOD-BASED OFFICES**

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# Durability is high, even in warm climates, with good design and construction.

**BRISBANE**
**1913 & 2018**


**WHEN A BUILDING IS LOVED, ITS LIFESPAN IS LONGER**

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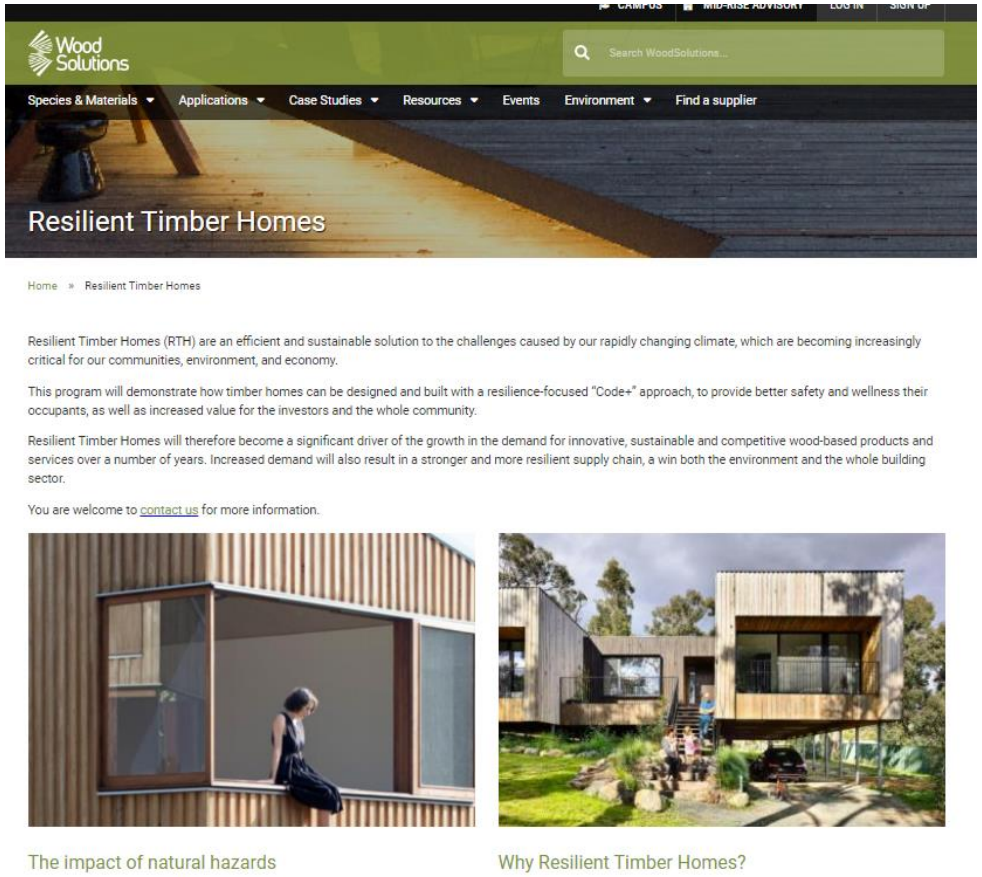
# Improving sustainability and resilience, with The Ultimate Renewable building material.

Adam Dovile introduces Wood. The Ultimate Renewable™ Replanting

*"In only 150 seconds, our plantations can re-grow the wood in an average home frame."*




WOOD The Ultimate Renewable

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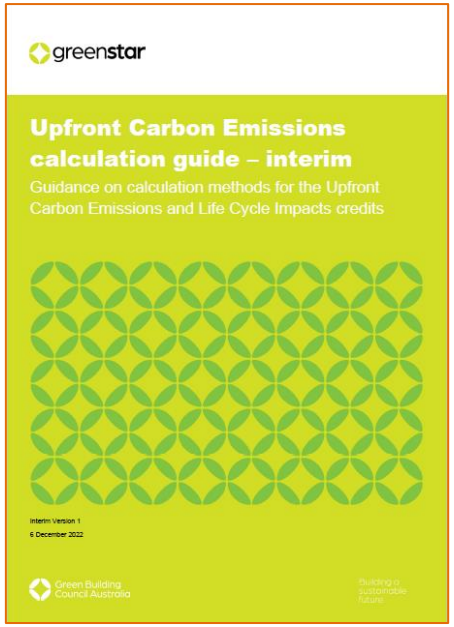
# Tackle the effects of climate change:
# let's make it happen!

**AUD 100K PRIZE MONEY, + BUILDING THE WINNER'S DESIGNS**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# Outline

The Triple Bottom Line with Engineered Wood Products

Case studies

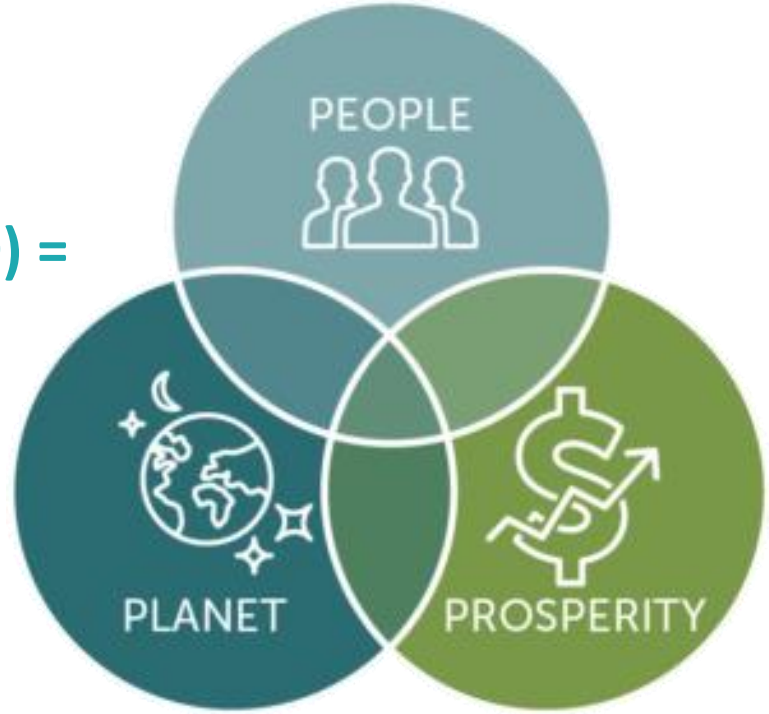
**Conclusions**

# The Triple Bottom Line with EWPs

## Key Takeaways

**BEARABLE**

**More demand (WOOD) =**
**More supply (TREES)**




**EQUITABLE**

**Growing the timber industry =**
**Growing stable employment**
**in rural Australia**

**VIABLE**

**Safer & faster construction =**
**Lower risk & Higher Return On Investment**

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# THANK YOU

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