

SUSTAINABLE CONSTRUCTION REPORT

1/81 GARDENVALE ROAD, GARDENVALE

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GYPCO





B-Alternative

Be the change. Be alternative.

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B-Alternative wishes to acknowledge the traditional custodians of the lands on which our team members work and live, predominantly lands belonging to the Wadawurrung, Woiworung and Boonwurrung people of the Kulin nation.

We wish to pay our respects now and always to Elders past, present and future, and acknowledge that sovereignty was never ceded.

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ABOUT US



B-Alternative is a grassroots, environmental solutions group shaking things up at festivals, markets, schools and any event where the focus is shifting to a more sustainable, planet-positive future! We are based in Australia and are part of a global community of conservationists, environmentalists and change-makers.

We provide practical, eco-friendly solutions to everyday living by sourcing and supplying truly compostable products and packaging, raising awareness through facilitated environmentally focused conversation for schools and social events, and providing sustainable festival/event waste reduction services.

Our core pillars are **education**, **waste reduction**, and **Earth-friendly products**.

" NEVER BEFORE HAVE WE HAD SUCH AN AWARENESS OF WHAT WE ARE DOING TO THE PLANET, AND NEVER BEFORE HAVE WE HAD THE POWER TO DO SOMETHING ABOUT THAT "

- SIR DAVID ATTENBOROUGH





BACKGROUND

The current rate of depletion of natural resources is unprecedented. Forests and agricultural land are disappearing at a rate which will eliminate them entirely in a few generations. Major deteriorations in the planetary environment are threatened by greenhouse gas (GHG) emissions. Reserves of many non-renewable resources are estimated to be depleted within 'decades' at current extraction rates. Understanding the impacts of the construction industry allows us to then recognise how we can move forward in a more sustainable fashion, substantially reducing environmental impacts. One would argue that an essential requirement for sustainable development is that the world's stock of 'capital', both natural and man-made, should not diminish over time. Put simply, we need to focus on resources that are **renewable** in order to achieve longevity in a construction industry with a significantly lower environmental impact.

Below are some essential factors to achieve a sustainable development strategy:

- Control the rate of forest/agricultural land conversion that supports development of human settlement and urbanization
- Increased widespread use of sustainable forest management
- Increased use of construction, mineral and agricultural waste in building materials
- Enhancements in total life cycle energy efficiency of buildings
- Substituting non-renewable energy sources for renewable ones
- Increased control over pollution, both atmospheric and water
- Focus on building for longer lifespans and eventually reusing/recycling

Implementing these strategies will drastically reduce environmental impacts and become a significant method of increasing the longevity of our natural environment.

BY BUILDING WITH GYPCO, 1/81 GARDENVALE ROAD REVEALS THEIR COMMITMENT TO A
BETTER ENVIRONMENT, BOTH FOR THE CONSTRUCTION INDUSTRY AND FOR THE NATURAL

WORLD

MATERIALS

Table 1. Upcycled and recycled materials used and their accompanying embodied carbon values. The total embodied carbon of the materials used is also calculated.

Material	Weight (Kg)	Embodied Carbon KgCo2e-/Kg Material	Total Embodied Carbon of Job Materials KgCo2e-/Kg Material
Upcycled			
Glass	64.8	1.63	105.624
Mixed Metals	8	2.5	20
Pine Studs	672	0.263	176.736
Roof Tiles	6000	0.78	4680
Structural Timber Beams	51	0.263	13.413
Truss timber	576	0.263	151.488
Recycled			
10mm Plasterboard	2387.2	0.39	931.008
Mixed metals	50	2.5	125
Total	9809		6203.269

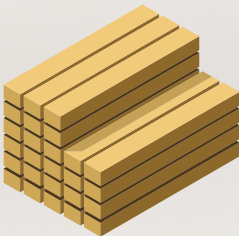
RESULTS

A total of **9809kg** of construction materials were **upcycled** and **recycled** upon completion of the 1/81 Gardenvale Road build. All materials used had a total embodied carbon of 9809kg carbon dioxide equivalent (CO2e-). Considering these materials were upcycled, the processes that create the embodied carbon in those materials become negligible. Additionally, by recycling materials, the emissions from materials breaking down in landfill are avoided. We can therefore be confident in stating that in this project, approximately **9809kg of CO2e- was saved** from being released into the atmosphere, which would have occurred in typical cases, i.e. when clients and building companies aren't eco-conscious and choose to use virgin materials, and discard unusable materials to landfill. Additionally, the majority of materials by weight were recycled, meaning if they had have been landfilled as in the majority of renovations, this would have released GHGs into the atmosphere as the materials degraded over time.

On-site recycling

The GYPCO team managed to **recycle 2387.2kg plasterboard, and 50kg of mixed metals**, which otherwise would have been landfilled. This would have produced GHG emissions in the form of transportation. Additionally, if the plasterboard were to breakdown in landfill, methane would have been released over time, a greenhouse gas roughly 25x more potent that carbon dioxide. Mixed metals do not release GHG's when degrading in landfill, however their transportation does. Furthermore, the materials have been given a second life to be used again, which has a lower carbon footprint than manufacturing the products from virgin materials.

9809kg
upcycled and recycled



What does this all mean?

By making the simple decision to choose upcycled materials and recycle unusable materials you have saved GHGs from entering the atmosphere, and further contribute to climate change which is already occurring at an unprecedented rate. To draw a comparison, you have chosen to **not drive around Australia 3 and half times, or fly a boeing 747 plane for 39 hours.**

This calculation is conservative, and fair to say the positive impact has been even greater!



SUSTAINABLE INITIATIVES

Tree Planting

To help offset the small carbon footprint the GYPCO staff created, **115 trees** were planted in the Daintree. These trees will draw down ~10,005kg CO₂e- over 100 years. This is the same as drawing down the emissions created from driving a medium sized vehicle **40,024km**. This tree planting will more than comfortably offset the carbon footprint of the behaviours of the GYPCO staff over the course of the project, ultimately making the project **carbon neutral** in terms of staff behaviours.

CONCLUSION

By upcycling and recycling materials, in combination with sustainable on-site behaviours and tree planting, we can be confident in saying this GYPCO carpentry group project for the 1/81 Gardenvale Road build was **carbon neutral**. From first glance, it appears the project was net carbon *negative* due to the additional tree planting - actually drawing down more carbon than what is being released into the atmosphere. We cannot confirm this with certainty, as calculations are based on best estimates from the current data available. A rigorous detailed analysis of all processes and procedures involved would need to be undertaken in order to confirm carbon negative status, however our best estimate reveals that the job is at minimum carbon *neutral*. All clients should follow the inspiring lead of those at EPOCH and construction groups should strive to achieve carbon negative builds, so we can help reverse current detrimental planetary impacts. Congratulations 1/81 Gardenvale Road!

CONGRATULATIONS 1/81 GARDENVALE ROAD ON RECOGNISING THE ECONOMIC
AND ENVIRONMENTAL POWER AND BENEFITS OF ETHICAL BUILD CHOICES



B alternative