

## Buffalo Creek Passivhaus

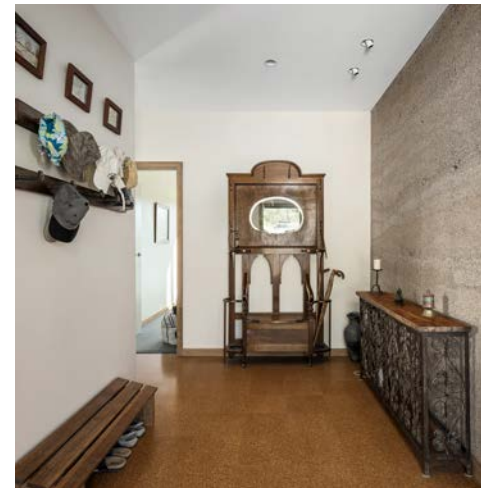


### The Vision

The Buffalo Creek Passive House, located near Myrtleford, VIC, is a remarkable example of sustainable living and energy-efficient construction. Designed by Eco:Logical Design and built by Ovens & King Builders Pty Ltd, this home exemplifies the principles of the Passivhaus standard, while embracing the client's passion for environmental consciousness. Completed in April 2023, this 373-square-meter dwelling is a model of high-performance design, sustainability, and comfort. The subsequent work done by the clients in landscaping and creating substantial vegetable gardens, orchard and shedding has enhanced the environmental credentials of the entire project.



# Buffalo Creek Passivhaus



## Project Details

- Location: 228D Buffalo Creek Road, Myrtleford, VIC 3737
- Builder: Ovens & King Builders Pty Ltd
- Designer: Eco:Logical Design
- Completion Date: 14/04/2023

## Design Features

This remarkable home incorporates cutting-edge sustainable materials and advanced construction techniques to achieve Passivhaus certification. Key features include:

- Internal Hempcrete Walls: Left unrendered to showcase their natural-coloured layering, Hempcrete walls are a sustainable building material that offers high thermal insulation and acoustic performance.
- Triple Glazed Windows: Logikhaus timber-aluminium composite frames with integrated external electric blinds for optimal thermal efficiency, low maintenance and beautiful internal finishes.
- Cork Flooring: A renewable material with natural thermal and acoustic insulating properties, cork adds warm tones to any room, along with a durable and functional finish.
- Energy Systems: A 15kW photovoltaic system effectively balances the low energy demands of the house.
- Efficient Hot Water generation The Sanden heat pump hot water service is highly efficient with the ability to convert 1 kW of electricity into 5 kW of energy. A small recirculating ring main is in place for reducing run off times at the outlets.
- Heat Recovery Ventilation System: Passive House-certified system, ensuring constant filtered fresh air with minimal energy loss.
- Timber Features: Extensive use of Australian timbers such as Yellow Stringybark and Blackbutt for cladding, ceilings, decking, and structural elements.

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## Sustainability Highlights

The Buffalo Creek Passivhaus achieves unparalleled energy efficiency and environmental sustainability:

- Thermal Performance: Airtight construction with Bradford insulation throughout walls, ceilings, and under the slab floor ensures minimal energy transfer.
- Renewable Energy Independence: The photovoltaic system reduces reliance on external energy sources. The house would be carbon neutral with the energy that is returned to the grid.
- Water Efficiency: A 25,000L rainwater tank connected to a Puretec UV light filtration system supports sustainable water usage.
- Low VOC Materials: Hempcrete walls and cork flooring contribute to improved indoor air quality.

## Cost Effectiveness

While the upfront cost per square meter is higher than conventional homes, the long-term benefits outweigh the initial investment:

1. Energy consumption is drastically reduced, lowering utility costs by over 90%.
2. Superior insulation eliminates the need for extensive heating or cooling systems.
3. Reduced environmental impact through minimized CO<sup>2</sup> emissions.



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## Benefits to End Users

The clients report exceptional comfort throughout all seasons due to the solar passive orientation and airtight construction. Key advantages include:

- Consistent indoor temperatures across all rooms.
- Fresh air circulation with reduced allergens and pollutants.
- Acoustic insulation from external noise due to triple-glazed windows.
- Long-term savings on energy bills alongside reduced environmental footprint.

## An Outstanding Green Home

The Buffalo Creek Passivhaus stands as a testament to Ovens & King Builders' commitment to delivering high-performance homes that are both environmentally sustainable and tailored to client lifestyles. This project not only showcases innovative design but also sets a benchmark for future sustainable housing developments in Victoria's North East region.