



Box Modern Passive Solar House

THE CASE STUDY

PROJECT DETAILS

Location
Napier, Hawke's Bay

Project Type
Family home

Architectural designer
Dean Baldock, The Architecture People,
for eHaus

Builder
Welch Builders & Construction

FEATURED PRODUCTS

- Oblique™ Weatherboard
- Hardie™ Groove Lining

This hillside Napier residence demonstrates how passive house principles and strategic material selection can deliver a high-performance home with striking good looks.

PROJECT OVERVIEW

With their three daughters grown and living away from home, Jee and Peng had been considering downsizing when they discovered an exceptional north-facing site with commanding views across Napier's landscape.

"Out of curiosity, we went to visit the piece of land the following weekend, and were besotted by the magnificent views. We immediately decided to pay a deposit on a north-facing site," says Jee.

The couple assembled a team specialising

in sustainable, high-performance design. They were keen to work with eHaus, specialists in passive house design and construction, and use innovative techniques and sustainable materials to create a high-performance energy-efficient home. The eHaus approach prioritises airtight construction, superior insulation, controlled ventilation and solar orientation to minimise energy consumption while maximising comfort – a methodology gaining significant traction among New Zealand designers seeking to future-proof homes against rising energy costs and climate concerns.

Architectural designer Dean Baldock, an eHaus partner, designed Jee and Peng's 250m² two-level, three-bedroom house. With distinctive floor-to-ceiling picture windows positioned to capture views and optimise passive solar gain, the home's reflects the Box Modern aesthetic, which is characterised by clean geometric forms, flat or low-pitch roofs, and strong horizontal and vertical lines.

For the exterior cladding, Dean specified Oblique™ Weatherboard by James Hardie across much of the upper level. The fibre

OBLIQUE™ WEATHERBOARD

Available in 200mm and 300mm widths, Oblique™ Weatherboard features a distinctive shiplap profile with splayed edge. Its versatility in both horizontal and vertical installations allows architects to explore creative design possibilities without compromising on performance or longevity in demanding climates.



“When combined with the right paint system, Oblique™ Weatherboard can be used with a darker finish and that helps create a modern look. With the ability to install vertically, it also supports modern aesthetics and versatility, whilst remaining durable against our dynamic climate.”

cement product's ability to be installed both horizontally and vertically offered crucial design flexibility, allowing him to emphasise the building's geometric forms and create visual interest through directional changes.

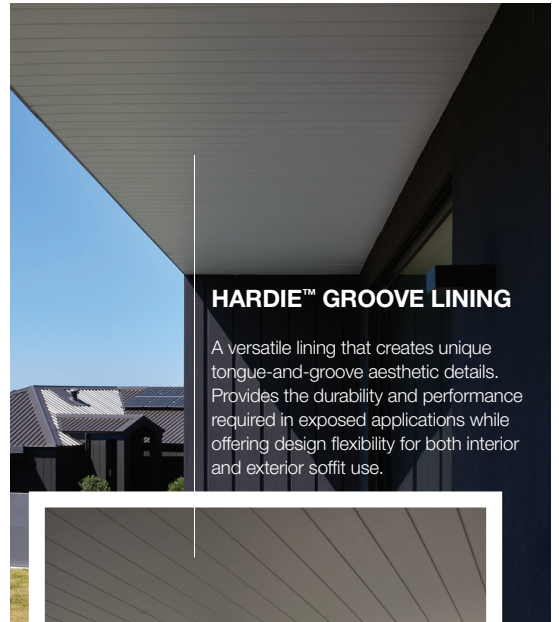
“When combined with the right paint system, Oblique™ Weatherboard can be used with a darker finish and that helps create a modern look. With the ability to install vertically, it also supports modern aesthetics and versatility, whilst remaining durable against our dynamic climate.”

This finish colour flexibility addresses an increasing challenge for designers pursuing contemporary aesthetics. Dark cladding colours have become a defining trend in New Zealand architecture, helping homes recede into landscapes or create dramatic contrast. However, darker tones absorb significantly more heat, causing traditional timber weatherboards to warp, cup and deteriorate prematurely. Hardie™ Fibre cement's dimensional stability means designers can specify dark palettes without compromising envelope performance, which is particularly important in passive house construction where maintaining airtightness and thermal efficiency is critical.

The interior layout reflects both current lifestyle needs and future adaptability. The upper level includes the main bedroom and a second living area with a kitchenette to provide independence and privacy when guests are staying. Downstairs, an open-plan living and dining space opens to a covered patio with heating for year-round use. The ventilated “closed kitchen” is another distinctive design feature.

HARDIE™ GROOVE LINING

A versatile lining that creates unique tongue-and-groove aesthetic details. Provides the durability and performance required in exposed applications while offering design flexibility for both interior and exterior soffit use.



“It's like an enlarged scullery. We call it the chef's kitchen and it has a sliding door to close it off. It is made for Chinese cooking which usually has strong aromas. We can stop them from wafting through the house as much as possible,” says Jee.

Nothing has been left to chance. The home is pre-wired for an internal lift, should it be needed in the future. It also has solar panels on the roof and a 5000-litre water tank to provide self-sufficiency in an emergency. Hardie™ Groove Lining features on the soffits, its vertical lines echoing the double post design of the sheltered outdoor living areas and tying in visually with the overall aesthetic. The Hardie™ fibre cement material ensures these exposed horizontal surfaces maintain their integrity in Hawke's Bay's variable climate without the maintenance demands of timber alternatives.

For architects and designers pursuing passive house certification or simply seeking to deliver high-performance homes, material selection directly impacts long-term building performance. The durability and low maintenance requirements of James Hardie fibre cement cladding align with passive house principles by ensuring the building envelope maintains its integrity over decades, not just years.

Jee and Peng couldn't be happier with their new home. “We love the views, the warmth and the functionality.” When asked if they would do anything differently if they were to build again, their answer was simply: “No.”