

let the sun shine



Drawing their inspiration from local wineries and historical buildings, and using raw materials on their property, Central Otago residents Shona and Danny Rae have created a home that works in harmony with the natural environment.



Around five years ago, the Raes began building their first home; a single-level, rammed-earth house in Bannockburn, just south of Cromwell. An historical gold-mining district, where sluicing has left its mark on the land, the Cromwell/Bannockburn area is also known as ‘the fruit bowl of the south’ for its abundance of orchards and vineyards.

Sitting on a small knoll, elevated off the valley floor, the house is oriented to make the most of the climate, and the stunning views of Lake Dunstan and the surrounding mountain ranges.

“As farmers, we’re used to having a lot of space around us, so we just loved the outlook,” says Shona. “A lot of people comment on the relaxed feel of the house, and that’s exactly what we were trying to create.”

Having admired the architecture of local vineyards, such as the Springvale Estate in Alexandra – one of the first rammed-earth wineries in the area – Shona and Danny were keen to replicate this look and construction. Dunedin-based architectural designer Richard Wilden was commissioned to help them transform their ideas into a comfortable, sun-filled family home, bringing his experience in rammed-earth construction and vernacular architecture to the project.

Taking his cues from the local historical architecture – with its pitched roofs, lean-tos and earth construction – Richard worked with the Raes to develop the design. It incorporates a centrally located kitchen and dining room,

and a living area with a coved ceiling finished in tongue-and-groove macrocarpa. On one side of the living spaces is a guest wing and an office, with the master suite at the other end of the house.

When it came to sourcing the primary material for their house, the Raes didn’t have to look far. They dug the earth directly from their own property. With rammed-earth construction, cement is used to stabilise the earth and the walls cure over time, taking about two years to dry out. The sustainable macrocarpa timber used for framing and finishing was also sourced locally around Tapanui, from old wind belts. As well as macrocarpa ceilings, the house has deep macrocarpa reveals and windowsills that conceal the aluminium framing.

- Resene Honeymoon
- Resene Starbell





The Raes were always keen to incorporate elements of passive solar heating and cooling into their home, which worked well with the earth construction. A key design feature is the large window in the living area, which faces directly north and captures all-day sun. Inside, large-format, ceramic floor tiles absorb the heat, releasing it through the house as the temperature outside drops.

However, sun models showed that the intense summer sun would heat the room to extremes. Therefore, an additional overhang above the window and a series of louvres halfway down help shade the interior of the house.

Based on heat-loss calculations, Richard incorporated a number of insulating features into the design and construction. For example, the amount of insulation in the home is well above Building Code requirements and, as you'd expect in Central Otago, the windows are all double-glazed.

"Earth isn't a great insulator, but with the external walls being 450mm thick, it performs reasonably well," he says.

Many of the interior walls are made from concrete block,

which has the same thermal value as rammed earth.

"Rammed earth is a very technical way to build a house. While the materials are relatively inexpensive, there's a lot of labour involved, and the detailing and fixing is very complicated. We got a contractor from Hawea Flat who was experienced in this type of construction and did the great job."

While the site and context were big influencing factors in the design of the Raes' house, there was another vital consideration. Early on in the planning process, it became clear that their wonderful location would pose a major practical challenge.

Many of the interior walls are made from concrete block, which has the same thermal value as rammed earth.

"It's a rural subdivision and the local power authority was going to charge us a fortune – around \$30,000 – to get connected to the power supply," says Shona.

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Even though, in the end, it probably cost them around that amount to go it alone, Shona and Danny decided to make their own power.

“We like to do things a little differently,” says Shona. ‘And there was also the principle, too.”

Sheltered from coastal conditions by high mountain ranges, Central Otago enjoys a unique climate, similar to that of the Mediterranean, with hot, sunny summers, cold, snowy winters and minimal rainfall. And so the Raes drew on this abundance of sunshine and harnessed the wind coming in off the lake.

In order for the 16 roof-mounted solar-powered panels to produce the maximum amount of heat, they had to be pitched at 45 degrees. They feed through to a 16-battery converting from DC to 240V AC for use in the house. An additional eight-panel loop closed solar water heating system is used to heat water for showers, and is supplemented by a coal range, via a wet-back, connected to the hot water cylinder.

“You do have to keep an eye on the length of showers

and the amount of water people are using,” says Shona. “Anything that heats uses a lot of power, so we cook on a gas range and our radiators run off the hot-water cylinder. We do have the odd power cut, but it’s never for long.”

At the end of 2006, Shona and Danny put in a wind generator similar to those used on ocean-going boats. A diesel generator also provides backup in the middle of winter. All the mechanical systems required to keep the house running are housed in a central control room behind the range in the kitchen.

“Obviously, we’re very aware of power consumption. We always turn the appliances right off – having them on standby uses about 10% of your power,” says Shona. ‘We had to import our fridge and freezer from Denmark, because they were much more energy-efficient than anything we could find here.”

While the Raes’ home might be powered by the sun and wind, its décor is also inspired by nature, thanks to the input of interior designer Jocelyn Morrison from Creation Design Studio in Queenstown. She devised a

colour scheme based on the autumnal shades of Central Otago, and chose finishes and furnishings to complement the natural texture of the rammed earth. Decorating a house of this kind posed some challenges, though.

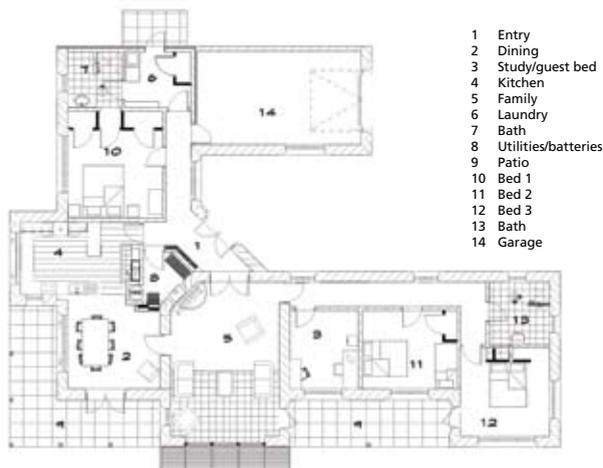
“You’re fairly limited with the design, because of the structure,” says Jocelyn. “We used pull-cords on the lights in the bedrooms, so we didn’t need to put as many switches in the walls. Hanging art on rammed-earth walls is a major exercise, so you have to be very certain about what you want to go where.”

And because the rammed earth cannot be painted, colour needs to be incorporated into other elements. For example, the floors are a nature-inspired combination of large-format brick-red ceramic tiles, timber and pale-green carpet. And based on an earth sample from the property, Resene in Alexandra mixed a special paint colour, named Resene Joc Mud, for Jocelyn. Used on the plastered-concrete internal walls, its browny/gold tones match the rammed earth walls.

“With so many of these earthy browns in the timber and walls, I wanted to get some colour and warmth into the scheme,” says Jocelyn.

Internal plastered feature walls sport strong colours such as Resene Jazz, used behind the wetback, and offset by kitchen cabinetry in Resene Tussock. And a feature wall in the master bedroom is painted in Resene Kenyan Copper.

“I’m a bit of a bold-colour person,” says Shona. “The Central Otago winters are quite long, so it’s nice to have some warm colours around you.” **H**

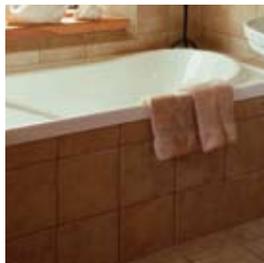


Architect/Designer:
Richard Wilden

Interior designer: Jocelyn Morrison from Creation Design Studio

Gas range: Westinghouse

Resene Jazz



Builder: “Moggy” from O’Callaghan and Walker Builders

Tiling: Antica Marrow, laid by Brent Smithies from Instyle Tiles

Resene Tussock

Flooring: Coburn Flooring

Plastering: Reid Plasters Cromwell Painting Kevin Waite

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Heating: Anderson’s Plumbing

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Resene Escapade



Resene Kenyan Copper

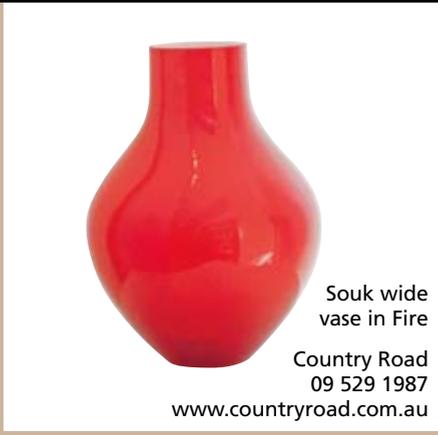
on the following pages, find two alternative style suggestions



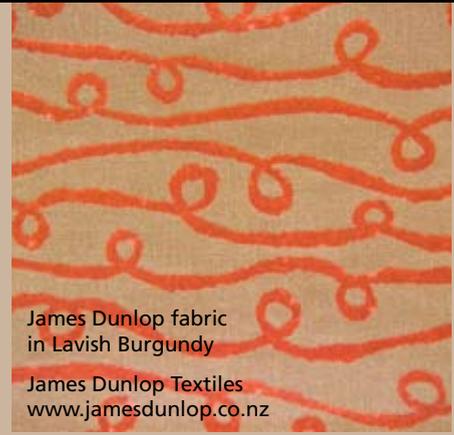
^ Strong shades and funky forms create a whole new feel.



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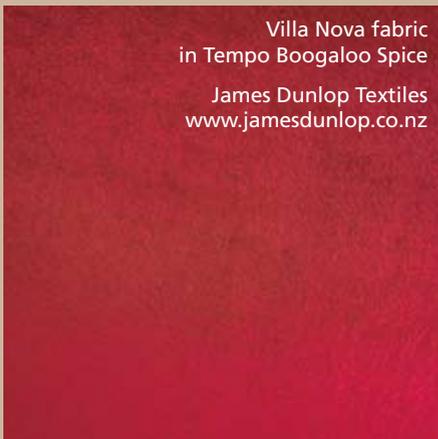


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Resene Warhol

Resene Jalapeno

Resene Urbane

Resene Caffeine



Mary Vink
from Mary Vink Interior Design
suggests this alternative solution:

A contemporary style is created through a modern palette of red, white and black. These colours are softened by warm neutrals, including dark brown and off-white, with Resene Urbane and the bolder Resene Caffeine used on the walls. A focal point of the design is the deep-red two-and-a-half-seater sofa, grouped with a dark-oak coffee table. The highly textured carpet adds visual interest and the removal of the mantelpiece lends a modern feel. Accessories are kept to a minimum, with a large red glass vase on the coffee table and cushions on the sofa. The scheme is designed to suit the country location and to complement the existing artwork.

Mary Vink

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^ Colour and texture are used to soften the room.



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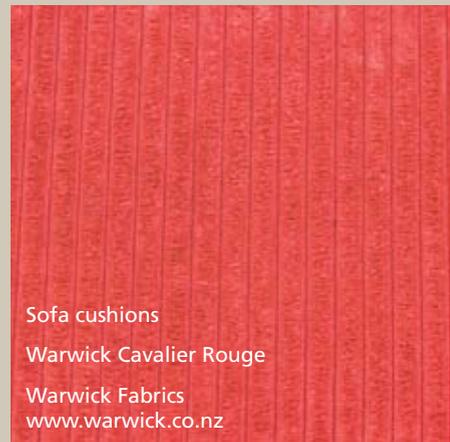


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Terry Lobb
from Terry Lobb Colour and Design
suggests this alternative scheme:

The gutsy masculine feel of this room has been softened and modernised through the selection of furniture, fabrics and accessories. A clean-lined four-seater sofa, covered in a striped fabric gives visual strength and texture, but is comfortable and soft to the touch – especially with its feather-filled cushions. A heavy water hyacinth armchair, with a dark finish and a natural-toned, modern fabric on the cushions, continues the casual masculine look. The fine-lined floor lamp, with its natural-weave lampshade, suits the simplicity of the room, while a large gilt mirror above the mantel provides a touch of formality. The natural textures and materials are complemented by an earthy colour scheme featuring Resene Perfect Taupe and Resene Wanderlust.

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