The Super philosophy

This hillside property, designed by Bob Burnett Architecture and built by Dan Saunders Construction, proves that high performance and great design aren't mutually exclusive.

WORDS KATHY YOUNG **PHOTOGRAPHY** LIGHTFORGE PHOTOGRAPHY

This thermally modified timber, TMT Taxon, manufactured and supplied by JSC, is a premium, sustainable timber solution used in the cladding of this home. Its enhanced stability and performance make it ideal for exterior cladding, interior linings and battens.

Over the past decade there has been a growing movement of designers, builders and engineers committed to the concept of building high-performance homes that are healthy, resilient and future-proofed against climate-related adversities. The Superhome Movement is one such collective championing this philosophy, with Bob Burnett as its founder.

"With each project we undertake, our methods are getting better, and our choices of products and materials becoming more and more refined," says Bob.

At the heart of the Superhome philosophy is a shared purpose to help people live in better, healthier, more energy efficient and environmentally friendly homes.

This Redcliffs property, on a hillside section, not far from Christchurch, is Bob's most recent Superhome project.

"We first met the clients during the 2021 Superhome Tour," recalls Bob, who designed the home with partner Shizuka Yasui. "The homeowners' values and priorities immediately aligned with the Superhome philosophy of healthy, resilient and future-proof homes."

The homeowners had actually lived on the neighbouring property for 32 years, and while trying to make that home energy-efficient, they saw an opportunity on this site to demolish and start again to achieve a completely self-sufficient home.

"Friends had built a Superhome and we admired the work of builder Dan Saunders of Dan Saunders Construction, so that's how the journey started," says the homeowner. Visiting their friends' home many times led the homeowners to approach Dan, due to seeing his capable building work, and from there Dan arranged for the couple to meet Bob and Shizuka.

For Dan, the project represented the evolution of his own building practice.

"This was a special opportunity," says Dan. "The homeowners had lived beside this site for decades and knew exactly what they wanted for their forever home. We love helping people realise a vision like that. For us, it's about building homes that perform for generations, not just meeting the minimum building standards."

The design brief was ambitious, with the homeowners wanting earthquake resilience, sustainability, comfort, liveability and elegance. "In addition we wanted a home that maximised the views and at the same time had wall space to display our art collection," says the homeowner.

Adds Bob: "Another key part of the brief was to demonstrate that high performance and high design can co-exist, avoiding the trap of small windows or boxy forms sometimes seen in ultra-efficient homes." The 404sqm home also needed to accommodate flexible, multigenerational living. A two-in-one layout with a second kitchen and laundry was designed on the lower level, with drive-on access, a wheelchair-friendly shower and wide doors on the upper level.

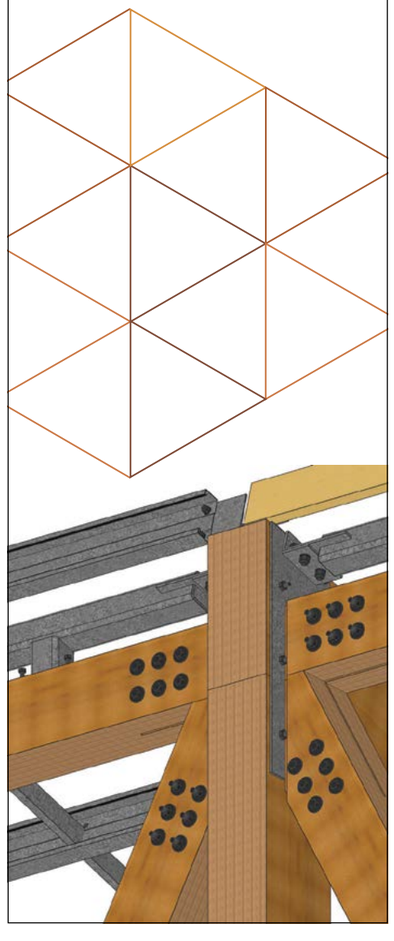
Dan explains the innovative Sealco WarmSEAL warm roof system: "The cross-laminated timber (CLT) roof panels are the structure and the finished ceiling in one step; a system that improves airtightness and reduces thermal bridging." These CLT panels – some as large as 3 x 6m – were lifted into place with the underside providing the finished timber ceiling. Layers of insulation were then shaped on top to create the roof pitch, topped with a membrane and solar panels mounted on a bracket system that doesn't penetrate the weathertight layer.

Koffman triple-glazed uPVC joinery with external blinds provides exceptional thermal performance. The windows themselves have an R-value equivalent to a code-minimum 90mm wall, and combined with two-metre roof overhangs and wide balconies, this means the home achieves effective solar control without sacrificing views or natural light.

The main feature wall in the home uses a Rockcote Artisan natural plaster finish from Resene Construction Systems, installed by Properly Plastered Ltd.

With the exception of the feature wall, the supply, fix and stop of the Gib interior plastering was carried out by Lance Ash Interiors.

Speedfloor provided structural design advice and arrangement for the areas of the suspended concrete floor, and then manufactured and delivered to site the Speedfloor steel joist and permanent components.



Warmth.nz provided the underfloor heating in the home using advanced hot water heat pump technology and concrete's natural heat-retaining principles.

"The expansive windows were essential for capturing the stunning views," says Bob, "but they had to perform thermally as well as aesthetically." The uPVC windows have a vinyl wrap on the inside, plus an aluminium clip-on on the outside. The homeowners went for a timber-looking vinyl, which was incredibly realistic. "Guests are surprised to learn that the window frames are not made of wood," says Dan.

The Speedfloor system provides seismic resilience while accommodating hydronic underfloor heating on the mid-floor. Mechanical heat recovery ventilation (MHRV) maintains healthy indoor air quality. Solar PV with battery storage has delivered remarkable results, with the low power bills (as low as $30 per month) for the homeowners, including EV charging. Rain water is harvested and then used to flush toilets and water the garden.

The 185mm EcoPanel walls are a complete prefabricated wall system, made in New Zealand using non-toxic, low-carbon materials. They provide structural strength, allow for thick insulation and help create a warmer, quieter and healthier home. Dan's team achieved an exceptional airtightness result of 0.56 ACH (air changes per hour), confirmed through blower door testing. For comparison, most new builds in New Zealand sit between 3 and 7 ACH. Low airtightness like this prevents heat loss, lets the insulation perform properly, and keeps the home consistently comfortable.

The complexity of integrating all these numerous smart systems, including concealed ventilation and active cooling, while maintaining a clean, minimalist aesthetic required exceptional coordination. Dan's solution was comprehensive digital modelling: "We built the house digitally before we built it on site. Every element was modelled in detail, from the architecture and engineering to ventilation, structural steel and the CLT panels. By resolving everything up front, we avoided surprises during construction."

The finished home blends modernist, Japandi and organic architectural influences. Split roofs with clerestory windows illuminate the internal living spaces. Varying ceiling heights and sculpted rooflines create calm, uplifting spaces – high and voluminous, yet cost-effective to heat and cool. And there is still plenty of wall space for art.

"Every room – even the laundry and scullery – enjoys exceptional views," Bob points out. Natural light, airflow and connection to nature are core themes, guided by biophilic design principles and the Japanese concept of shinrin-yoku (forest bathing), which promotes wellbeing through sensory engagement with the natural environment. Established landscaping and trees were retained wherever possible, enhancing this connection.

The homeowners are delighted with the result and mention the even temperature of the home as one of their highlights, along with the fact that the house is so quiet inside. "We also like the fact that there are many places around the home to enjoy peace and quiet when relaxing or reading a book, both indoors and out. The design and building of our home was a good experience and we felt that the designers, builders and tradespeople were talented, approachable and wanted this to be a home they would all be happy to be associated with."

"This is arguably the most advanced Superhome yet," Bob says. "It's become a blueprint for how New Zealanders can build better, smarter, and more sustainably in the years to come."

Offsite Design coordinated the various trades and digitally pre-built the project in virtual space, which allowed the client and the builder to gain certainty and tap into efficiencies before materials arrived on-site. The goal was to optimise the project early in order to then be fast during on-site assembly.

The Mountain Shale stone, in the colour Grey/Rust, supplied by Classic Stone, features on the exterior of the home and on the feature wall in the interior.

The warm-roof system by SealCo includes the WarmSEAL insulated membrane roof with EcoTUFF TPO, providing superior insulation, watertight integrity and outstanding resistance to the harsh coastal environment and New Zealand conditions.

Involved in this project

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