



AS SEEN ON  
**GRAND**   
**DESIGNS**  
NEW ZEALAND

# The Suspended Glasshouse

Reminiscent of iconic modernist designs like Mies van der Rohe's Farnsworth House and Philip Johnson's Glass House, New Zealand's own suspended glass house that featured on Grand Designs, is in excellent company!

Omega Windows + Doors was approached by our customer **Derek Little of Custom Home Products (CHP) Dunedin** to assist him with an unusual project. He had been asked to provide a ribbon of high performance glass and framing to wrap around a suspended steel home, essentially a bridge over a small creek. We are incredibly proud to have been part of this challenging and rewarding project featured on Grand Designs NZ.

*"Your product is performing beautifully! I have no hesitation in endorsing Omega products or the stellar service and workmanship from Custom Home Products."*

Harlem Irwin - Home Owner

## Initial Situation

Clients, Nicola and Harlem had a vision for a modernist inspired glass house, built across a steep gully, surrounded by native bush with a stream running directly below. With so many design constraints to consider in this one-off residence, the obstacles provided a great opportunity for a creative solution.

## The Design

The bridge-like steel structure is deliberately expressed as a design element, while the exposed concrete slab acts as thermal mass to store solar from the expansive glazing elements, providing passive heating. The floor to ceiling windows provide transparency to the surrounding bush and enhance the bridge-like structure, reducing its scale and augmenting the light touch the building has to the land.

A challenging and rewarding project, with a deliberate response to the site, made possible by the skillset of the design team.

## Omega's Thermally-Broken Glazing Solution

Omega Windows + Doors was approached early in the planning stages by our customer Derek Little of Custom Home Products (CHP) Dunedin to assist him with an unusual project.

Derek and his team had been asked to provide a ribbon of high performance glass and framing to wrap around a suspended steel home, essentially a bridge over a small creek.

Over the following months designs were thrown back and forth, peer reviewed by CHP and then adjusted again until

finally Omega were ready to cut new extrusions (metal designs) for this one off home.

The brief was to provide high-performance thermally-broken joinery to provide a seamless solution for glazing to wrap around the house. The glazing was specified as the highest performance 'Low-E' glass available and had to be partnered with framing solutions up to the task.

The thermal insulation properties of the completed windows had to exceed the 6 star criteria of the Window Energy Rating System (WEERS), the highest level of performance. The home had to be warm and comfortable to live in despite its vast glass content.

Omega Windows + Doors designer Matt Cochran, has achieved everything the client desired from their brief, an incredible solution that has continuity with the design, advanced thermal properties that work with extreme temperature fluctuations and seamless integration with the interior construction.

To achieve the requirements of installation and continuity of appearance, thermally-broken sliding door frames would be used. A method of frame coupling was designed to allow the modular installation of the separate sliding door frames. Further to that, a thermally broken sill tray was designed to receive the sliding door at floor level as there was to be no floor coverings or visible fixings. Finally a large boxed

mullion was designed to complement the sliding door frame and a new front was developed for the thermally-broken sliding door frame so that we could nest the sliding door frame into the sill tray.

In total, four specifically designed shapes were created to meet the requirements of this particular contract. This is testimony to the dedication of the team at Omega Windows + Doors to provide quality solutions for the projects that we are involved in. Consideration had to be given to the thermal expansion of such large areas of black aluminium and glass.

At over 22 metres of facade the joinery could grow in excess of 40 millimetres, so design had to be carried out to allow for thermal expansion and contraction when it got hot or respectively cold, it is Dunedin after all.

## The Design Team

- Client and Builder *Harlem Irwin*
- Architectural Designer *Nathan Taylor (Tailored Spaces Ltd)*
- Structural Engineer *Stephen Macknight (Stephen Macknight Ltd)*
- Steel Fabricator *Simon Monson (Southern Steel Fabrication Ltd)*
- Roof Panels *Jullian Roy (Bondor NZ Ltd)*
- Aluminium Joinery *Derek Little (Custom Home Products)*

We are incredibly proud to have been asked to partner in a project like this and seeing it come to fruition is serious kudos for an innovation company like us. A unique design, executed to the highest standard, which pays homage to some outstanding historical homes.



When your next project requires high-performance thermally broken aluminium joinery visit [www.omegawindows.co.nz](http://www.omegawindows.co.nz)

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