

# OPEN HOUSE

An old house gets recycled

By Fiona Negrin



The house boasts a 1.98kW grid interactive photovoltaic system and an evacuated tube solar collector for hot water. Evacuated tubes work in all seasons and are more efficient than solar panels. They aren't dependent on direct sunlight, which means they work in cloudy conditions. As the tubes are round they passively track the sun, providing stable heat output.

## “The challenge for the designers was that the house had only partial northern exposure”

When Jenny and Ken downsized to a tiny 1960s brick veneer cottage in leafy Hawthorn, Melbourne, they resolved to give it a sustainable renovation. “It’s been a long-term view of ours to live more responsibly,” says Jenny, “and as we get older, on a limited income, we wanted a design that uses modern sustainable technology and which doesn’t require high running costs.”

One of the key decisions they made was to retain elements of the old house, rather than to build from scratch. “It’s so much better to use what you’ve got, and it’s also nice seeing the old part of the house still in place,” says Jenny. “You’ve got some history within the building.”

The original concrete slab was kept because it was in excellent condition in spite of its age. Building designer Andreas Sederof of Sunpower Design explains, “A concrete slab provides up to four days of stable temperatures, regardless of external temperatures. Combined with double-glazed windows and insulation, thermal mass [such as a concrete slab] is at the core of good passive solar design.” Additionally, some of the masonry and 20 per cent of the roof frame was re-used in accordance with the owners’ wishes to recycle materials. “It’s the best use of the building. You save embodied energy compared to pulling down a building and starting again from scratch, and you save money on materials and resources.”

The challenge for the designers was that the house had only partial northern exposure. “The site position was not optimum for good passive solar design,” says Judy Sederof of Sunpower. To overcome this, Sunpower installed more windows in the northeast and northwest areas than “you might ideally want in terms of heat loss during winter” to open the house up to light and warmth. Adjustable external blinds and

sturdy canvas sails were added to all west and north-facing windows to limit the amount of summer sun entering the house, and to maximise winter warmth.

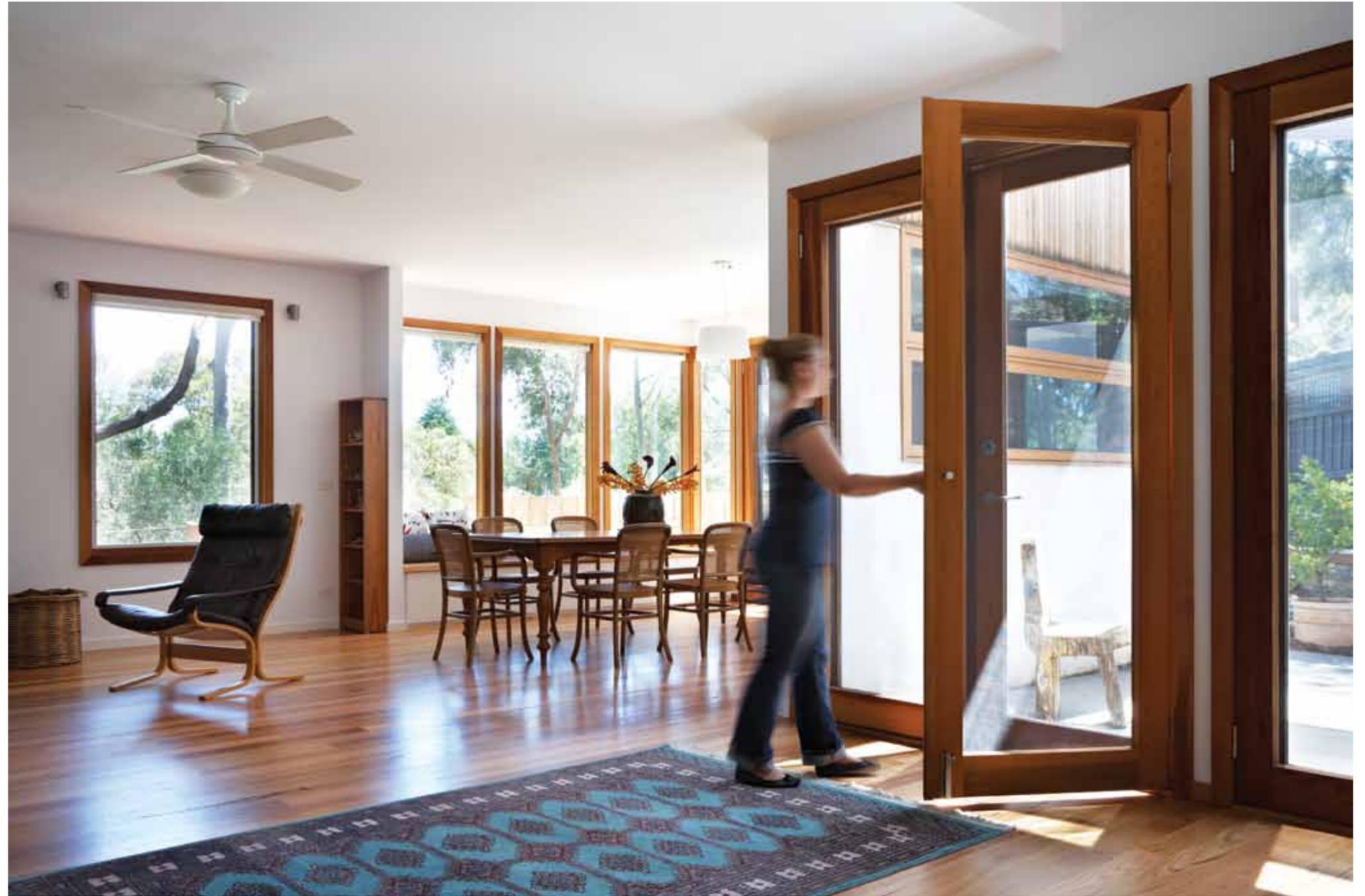
Home owner Jenny says the windows are among her favourite attributes of the renovation. “The big lovely windows frame the gums and wattles in the park next door. It feels like we’ve got picture windows all around the place! It’s very satisfying, and gives the house a feeling of openness.”

The house’s sun-friendly orientation combines with design features and modern technology (including solar hot water, rainwater collection, greywater recycling for use in the garden, double glazing on all windows and doors, and hydronic heating) to fulfil Jenny and Ken’s wish list of a sustainable house with low operating costs. “It makes an enormous difference when bills come in,” says Jenny. “The solar panels mean our electricity bills have dropped. Our water use has fallen off enormously thanks to our rainwater tanks. And hydronic heating is much more efficient. Our bills reflect the sustainability and modest upkeep of the whole place.”

Jenny is also delighted with the way her home blends with its surroundings. “The best thing about the renovation is we now live in a place that works with the environment, rather than separate from it,” she remarks. That’s partly thanks to the house’s generous allocation of windows, which “gives views of the seasonal foliage and keeps the focus on the wonderful view,” and also through its clever, and site-appropriate, external colour scheme.



These north-facing kitchen windows are well placed to protect the house from summer heat. They are double glazed, and protected by external retractable blinds as well as internal blinds.



“One of the key sustainable design decisions they made was to retain elements of the old house, rather than to build from scratch”

The home has been designed with two-layered external doors. A double-glazed door fronts the elements, while an internal lockable flyscreen door allows the glass doors to remain open throughout the night, maximising the ability of cooling breezes to penetrate the home effectively.

# Sustainable Features

## Hawthorn residence

**Designer** Sunpower Design  
(Andreas Sederof & Ryan Strating)  
**Website** [www.sunpowerdesign.com.au](http://www.sunpowerdesign.com.au)  
**Builder** James Shaw Renovations  
**Project type** Renovation  
**Location** Hawthorn, VIC  
**Photography** Rhiannon Slatter

### Hot water

- Apricus evacuated tube solar collector ([www.apricus.com.au](http://www.apricus.com.au))

### Renewable energy

- 1.98kW BP grid-interactive solar panel system
- SMA Sunny Boy grid interactive inverter feeds excess power into the main grid

### Water saving

- Three water tanks on the property provide 13,500L capacity
- Mains supply connection to provide back-up during dry spells
- Wattworks SmartPit greywater system redistributes greywater from showers and washing machine to the garden ([www.wattworks.com.au](http://www.wattworks.com.au))

### Passive heating & cooling

- Concrete slab for thermal mass
- Double-glazed windows and doors
- R4 polyester batt insulation
- Air-Cell Insulbreak 65 between battens and roofing
- Adjustable external shade blinds and sails for all glass surfaces facing west and north
- Effective cross flow ventilation supported by ceiling fans in summer

### Active heating & cooling

- Greenheat hydronic heating ([www.greenheat.com.au](http://www.greenheat.com.au))

### Building materials

- Recycled bricks
- Independent Cement's Ecoblend Cement ([www.independentcement.com.au](http://www.independentcement.com.au))
- Silvertop decking boards from Radial Timbers ([www.radialtimber.com](http://www.radialtimber.com))

### Windows & glazing

- Pickering Joinery double-glazed cedar windows and doors ([www.pickeringwindows.com.au](http://www.pickeringwindows.com.au))

### Lighting

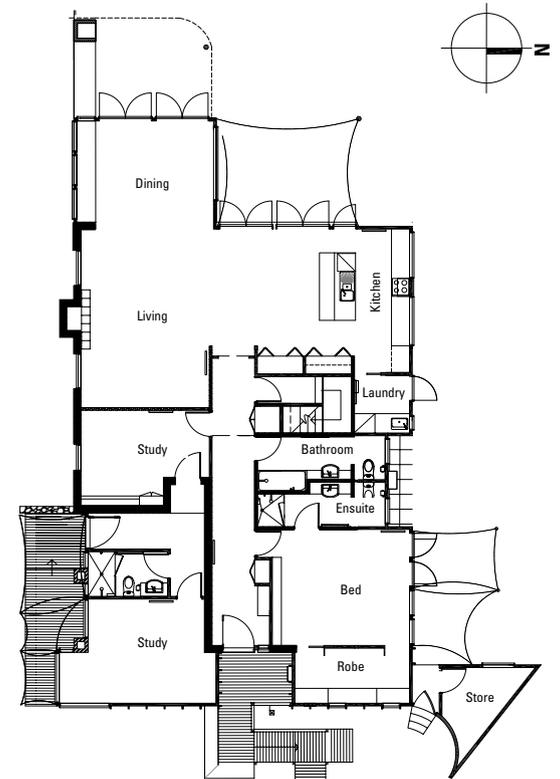
- CFL lamps

### Paints, finishes & floor coverings

- Wattyl ID environmental paint to all walls and ceilings
- Organ oil to internal timber finishes
- Timber Care matt tung oil sealer
- Recycled Vic ash floorboards

### Other ESD features

- Clothes drying rack that can be elevated to take advantage of warm air near the ceiling of the laundry. It's a great alternative to a conventional clothes dryer



Ground Floor Plan



Upper Floor Plan