



This outside area was designed with both winter and summer sun in mind.



It may look like typical bricks and mortar from the outside, but this house was constructed entirely from modular timber panels or pods. The foundations are concrete, because of the deep clay soil.

It's all in the walls!

For superlative temperature control, build a house with a breathable wall system.

By Beatrice Moore-Nöthnagel • Photos: Francois Oberholster • Styling: Marilize Spies

The comfortable temperature comes as a pleasant surprise as you step into the latest modular timber home by mechanical engineer and designer Erwin van der Weerd and his company Perfect-Places. Despite the very chilly morning in the small town of Greyton in the Overberg, there is no air conditioning or heater in use. Not even the fireplace is lit.

'With a properly insulated and ventilated house you won't need to spend money on heating or cooling. This timber structure is seven times better insulated than a typical bricks and mortar house, thanks to the wall system – it dries air, ventilates and insulates,' explains Erwin. 'This is a system that is quite commonly used in Sweden, where the temperature often drops as low

as -20°C to -30°C. These modular wooden panels also use 85% less energy than bricks and mortar to manufacture and install, because of the materials we use. We need to get back to basics when we build – to start right from the beginning with the structure and materials, instead of retrofitting solar geysers and LED lighting later on, to green our homes and save on power costs.'



The wooden panels for the walls and roof are manufactured in a factory and constructed on-site within a few days.

The pods can be finished in various styles – from a wood finish to being plastered, painted or covered in cladding.



The walls and roof are up, with the wooden panels clearly visible.



Inside, the MGO boards are almost ready for plastering.

1 Breathing wall and roof panels

This house was constructed using pods (see box) manufactured by Erwin's company, Perfect-Places. These pods are designed as simple boxes, insulated and already kitted out with water and electric fittings, delivered Ikea-style, ready to install on-site. Each wall panel consists of three layers – outer board or wall cladding of your choice, inner imported magnesium oxide (MGO) board that has a lower carbon footprint than bricks even though it is imported, and the cavity in-between containing an insulation layer of 100mm and a breathing foil that allows moisture to escape but not come in. About 30% to 40% of the home's insulation occurs in the walls. There is no steel in the panels and this improves its fire rating, as steel loses its strength faster than these treated wooden beams.

The black corrugated-iron roof, done in accordance with Greyton aesthetic building regulations, is also insulated with MGO board and 100mm insulation made from recycled glass. 'The house is constantly breathing and ventilating. The ceiling was installed at a slight angle to create natural circulation and ensure that hot air does not get trapped,' explains Erwin.

Three pod options

You can order a pod as a DIY kit or you can have it constructed on-site. A typical pod consists of eight wall panels, floor modules and roof modules. Individual pods can be linked together to create a larger space. Prices range from R98 000 to R127 000 per pod. It comes with a single- or double-pitch roof, or a flat roof – ideal for extending your house as it can match any style. Every project is different, but it's relatively quick to put in the foundation to construct a pod.

- **Studio Pod** (18m² or 28m²) Entry-level unit with no internal walls.
- **Living Pod** (18m² or 28m²) Similar to the Studio Pod but with internal walls and doors to accommodate a bathroom and bedroom.
- **Office Pod** (18m² or 28m²) Open-plan space with a bathroom and kitchen.

2 Condensation and rainwater capturing

Thatch is also an option in Greyton, but corrugated iron was chosen for capturing condensation and rainwater. 'During summer nights, condensation forms on the inside of the iron sheeting, which ends up on the angled foil layer of the insulation and is then collected in a water tank. In Europe, water-saving legislation is becoming even stricter than energy-saving laws and I'm sure in future clean water will be our biggest concern. Depending on the size of your roof, you can collect 20 to 50 litres of condensation water per night with this simple and economical system,' says Erwin.

3 Windows and doors

To save on costs, safety glass that's 6.5mm thick was used instead of double glazing, also to demonstrate that even without double glazing, the house is comfortable to live in. Safety glass has a foil that separates its two layers of glass and provides better insulation than standard glass. All frames were painted in a charcoal from Midas to conform to Greyton aesthetic building regulations.

4 Orientation & overhang

'In winter you want the sun to stream in and warm the house. In summer you want to keep the sun out and the house cool. This overhanging insulated roof does both,' says Erwin. 'The temperature in the house is regulated by opening windows or doors on either side. This is where the design of the roof, in relation to where the sun rises and sets, is very important. Even the overhang is insulated to provide protection in summer.'



The mezzanine level serves as a studio. The exposed pine beams create strong focal points in the house.

Can we continue cutting down wood?

'Wood is without question one of our most sustainable materials, and the most renewable,' says Erwin. 'It's had centuries to prove itself as a comfortable, practical and naturally insulating building material. With proper forest and wood material management, wood can be a constant and readily available product. Wood is the only building material with a passive balance of carbon dioxide (CO₂). This means that over its entire life cycle a tree absorbs more CO₂ than it produces. South Africa could follow the example of the European Union, replanting two trees for every one that's cut down, to increase our wood supply in future and maintain our usable stock.'

Municipal approval and home loans

Timber structures such as these modular pods are no different from bricks and mortar homes in terms of having municipal plan approval or applying for a home loan – they are permanent structures and have a long lifespan.

The oak counter tops in the kitchen were 'washed' with white paint, which was then wiped off, before they were varnished with a low-gloss product. This gives them a natural look while the paint also protects the wood.



The facts and figures

All of Erwin's houses come with a green certificate issued by Bluepebble, an independent environmental agency based in Knysna. Visit bluepebble.biz.

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Visit homemag.co.za for our *Behind the scenes* blog.

The family bathroom with its built-in bath also features kiaat.



The *en suite* bathroom offers a break from the white in the rest of the house, with the dark leather look of its painted walls. Kiaat is a very durable wood that is resistant to both water and mould.

