MODERN GREEN HOMES

# Sanctuary

INSIDE ISSUE 31 115+ green products and design tips; Integrated house & garden design; Living buildings; Choosing carpets; Perth's sustainable tech pioneer

## MODULAR & PREFAB SPECIAL

+

Tiny homes
Design on a budget
Salvaged for second life

ISSUE 31 • WINTER 2015
AUD$11.95 • NZ$12.95
SANCTUARYMAGAZINE.ORG.AU
ISSN 1833-1416

**WIN**

A $5000 managed fund from Australian Ethical

Offer open to Australian and New Zealand residents only.


The north-facing productive conservatory blocks and filters the harsh summer sun and captures the winter sun, drawing its warmth back into the house. Cross-flow ventilation is aided with in-ground cool tubes that bring cool air in from the floor in the south side of the house and high clerestory windows to the north that help purge hot air. Images by Tom Ross.

# Carbon+ living

## ArchiBlox

**DESIGN & BUILD**
ArchiBlox

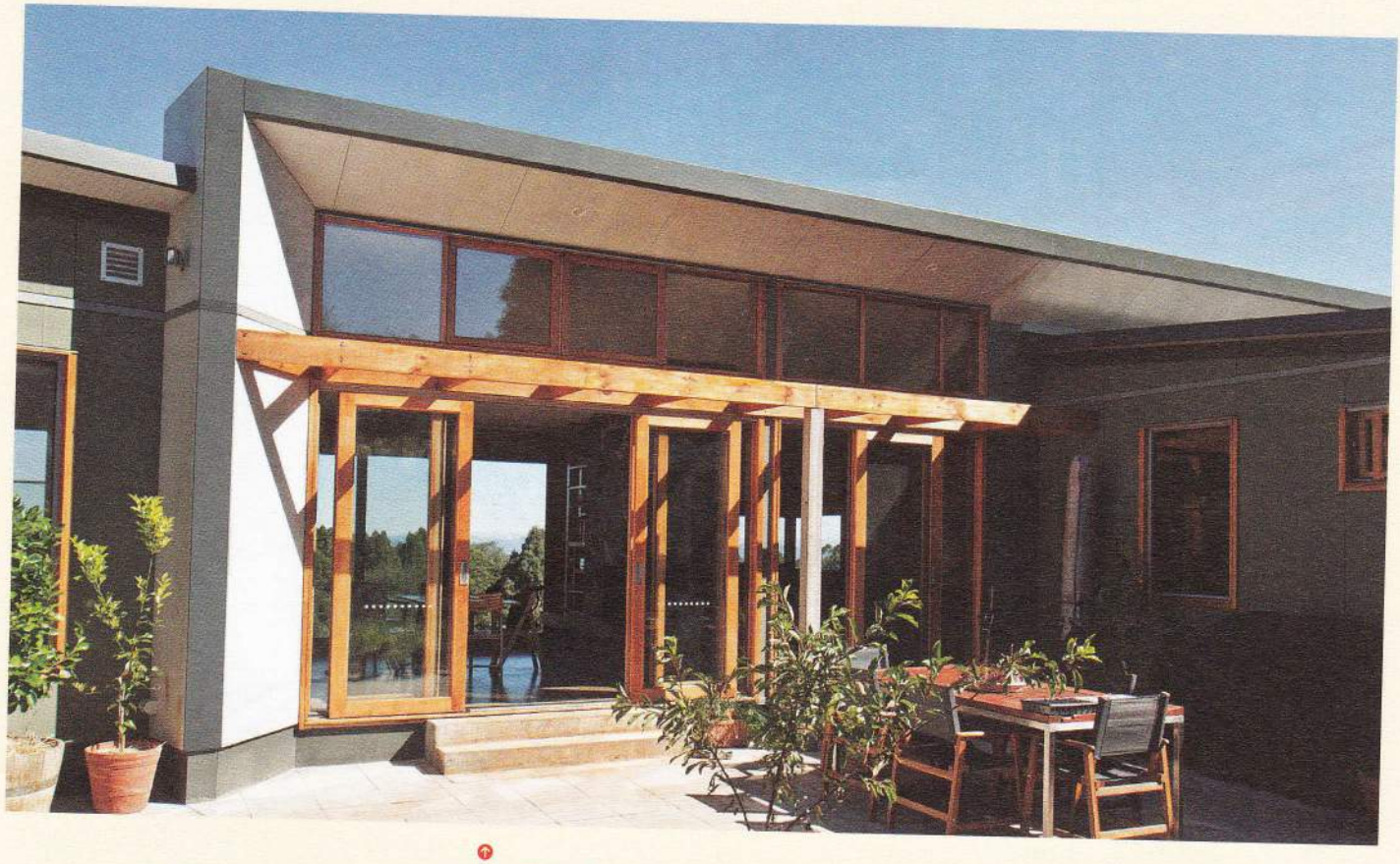
**LOCATION**
Shown at City Square Melbourne, now at Cape Paterson, VIC

**ARCHIBLOX'S COMPACT ONE-**bedroom passive solar modular design made headlines earlier this year when it set up shop as Australia's first carbon-positive modular house in City Square, Melbourne, for the Sustainable Living Festival. The eye-catching prototype now has a permanent address at the Cape Paterson Ecovillage on Victoria's south coast. Here its south side is nestled into the earth, with earth-tube cooling fed into living spaces.

A life cycle assessment which considered the carbon emissions of the building materials from source to site, building maintenance and operations, found the house would be carbon positive, that is, producing more energy than it consumes.

Floor-to-ceiling double-glazed sliding doors allow full winter sun access, with openings blocked off with sliding edible garden walls in the summer. The green walls connect to the green roof, which works as another effective layer of insulation. The roof also houses a 5kW solar system and a solar hot water system.

ArchiBlox's Paperbark House in Inverloch, Victoria also features on our cover.



The Alpine house was carefully designed to make the most of views to the south while allowing maximum solar access from the north. Image by Ryan King.

# Made to order

## Habitech

**DESIGN**
Habitech Systems

**BUILDER**
Mat Kirley

**LOCATION**
Tolmie, VIC

**MELBOURNE-BASED MODULAR DESIGN** and build company Habitech Systems, uses SIPs (Structural Insulated Panels) made from expanded polystyrene (EPS) sandwiched between plantation-grown Australian plywood and magnesium oxide (MgO) board cladding. MgO board is made from 50 per cent recycled timber and sawdust, its magnesium oxide content providing strength, durability and fire, water, UV and mildew resistance.

Applying the system in Mansfield's sub-alpine climate meant that the thermal performance of the building envelope was key. Habitech's SIPs have tested R values of 4.1 (walls) and 5.3 (roof), and importantly, the pre-constructed panel system allows for close to airtight installation that ensures these values are achieved. "The fine tolerances of factory manufacture allow us to produce panellised insulation with minimal gaps," says Habitech's Chris Barnett, "maximising the effective insulation to far greater levels than traditional batts and blankets."

Self-sufficient for electricity, water and wastewater treatment, the Alpine House was designed to rate 7.9 Stars, but in fact, has done better. A Melbourne University study found it had achieved 8.2 Stars.