Right Large double-glazed windows on the northern side of the house welcome in the sun's warming rays.

locking in the eco look

Iconic design and build company Lockwood now has an exciting eco-friendly house series added to its portfolio.

Ask any New Zealander for a word that's synonymous with solid timber homes and chances are they'll say Lockwood. So it was a natural progression for the iconic building company to launch a new range of EcoSmart homes earlier this year to address increasing concerns about climate change, and the impact building and construction has on the environment.

The first prototype in the range, the Gullwing EcoSmart show house, is on display in Rotorua. It is designed by architect Dave Strachan, who has more than 30 years experience in the field, a portfolio of unique and contemporary homes and a commitment to sustainable architecture.

As predicted by Lockwood Group CEO Bryce Heard, the launch of the EcoSmart home was timely, with around 700 people visiting the home each week in the couple of months after it opened: "There has been an incredible response, showing that there has been a latent appetite for this sort of product. People love the light airy feel of it, the good indoor-outdoor flow to the north and the fact that they can shut off parts of the house to retain heat."

The three-bathroom, two-bathroom Gullwing has a roof reminiscent of a soaring seabird, with the wings designed for optimal placement of solar panels, for hot water and electricity generation. The outdoor rooms act as natural climate control zones that enable rooms to be opened or closed off according to the weather. The Gullwing also has extra thermal mass with concrete and tiles to capture the sun and release its warmth at night.

There are four other designs in the current EcoSmart range, including two versions of the four-bedroom Breezeway design, and three versions of the Little Wing – a perfect bach design which includes two bedrooms plus a bunk room.

Of course, placing the house correctly on the site to face north is key to the design, so any EcoSmart house sold is checked over by Dave Strachan for its suitability to the site. He has already devised a number of scenarios that allow for different entry points and driveways and because the design is modular, it can be manipulated to suit different orientations, he says.

"In a country where just 5-7% of the buildings are designed by architects, it's a chance for us to reach a wider segment of the population and show what good design can do."

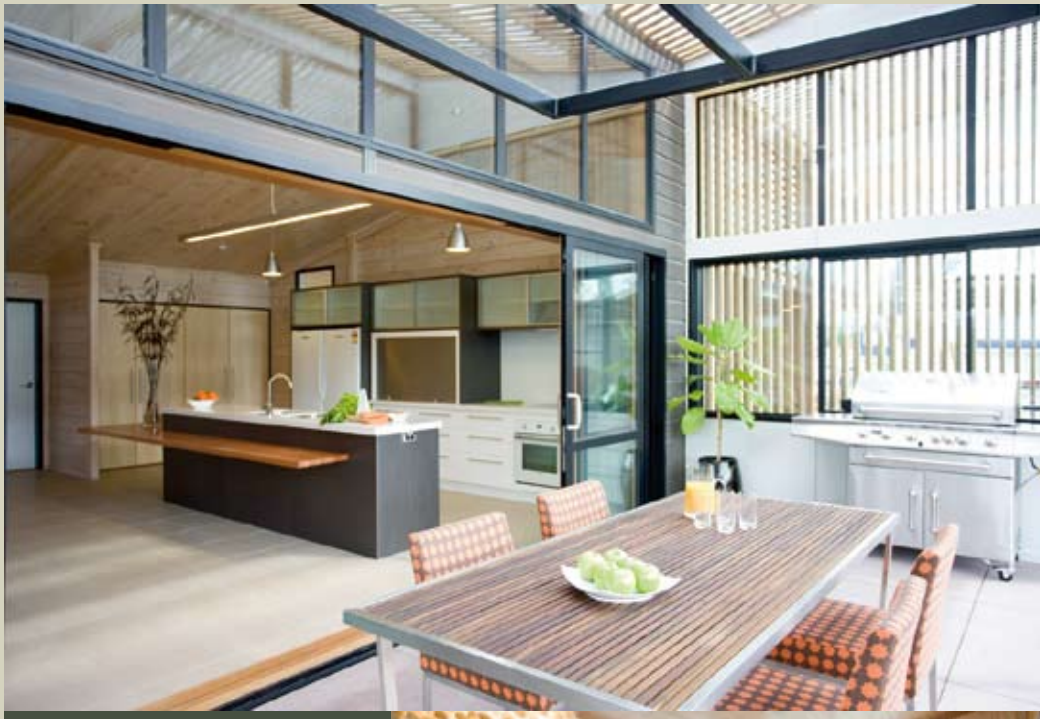
The EcoSmart homes do cost more to buy but "you are paying up front for the energy savings gained in years to come," says Bryce.

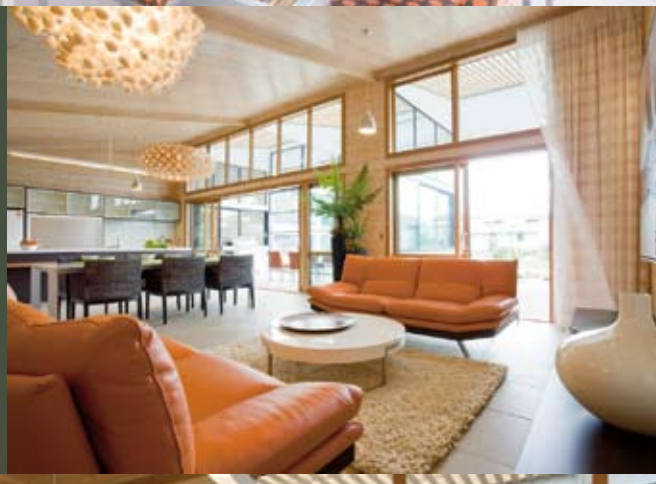
"There has been a latent appetite for this sort of product"

Lockwood homes are already built using timber from fast-growing plantation trees which absorb more carbon than slower growing indigenous forests, says Bryce. "Harvesting plantations for solid wood, and replanting provides the best environmental outcome. Solid plantation timber is a sustainable renewable building material. People give a lot of thought to operational energy but not to capital energy. To produce wood takes a fraction of the energy footprint compared to smelted products like steel," says Bryce.

Not only does wood take less energy to produce, but also releases less CO2 than other building materials, such as steel and concrete, during manufacture, according to Lockwood literature. Wood based homes can save around four tons of carbon dioxide, equal to the emissions of driving 22,000km, says the company.

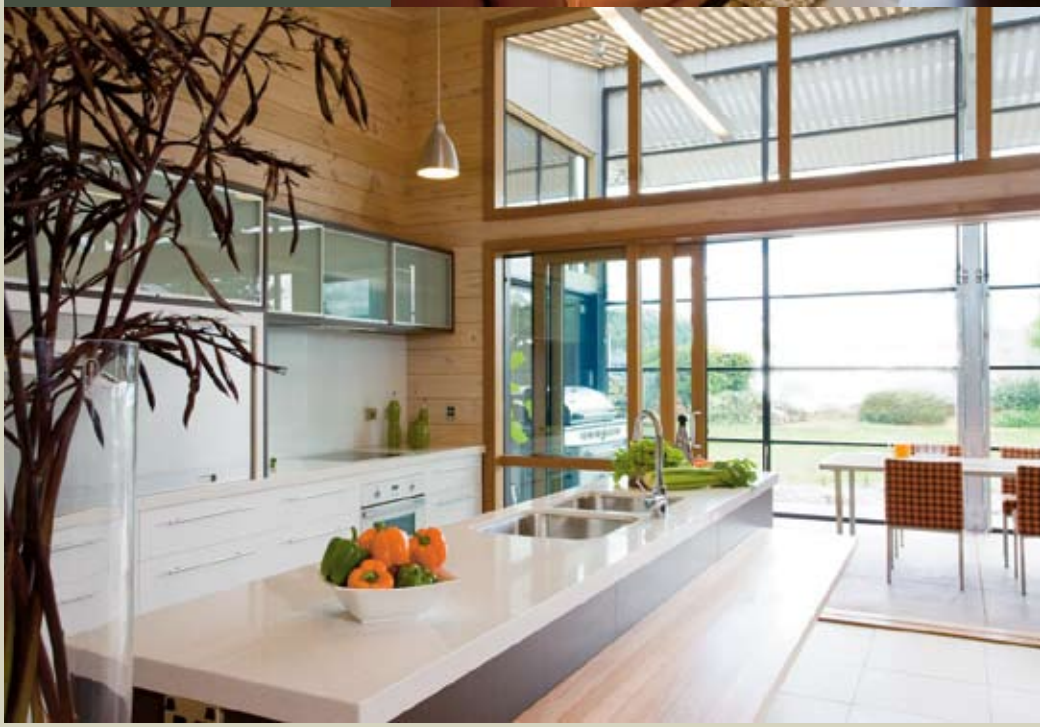
Lockwood began in 1951 when Jo La Grouw Snr created the innovative Lockwood Building System, in which the building walls are locked together, not nailed. An engineered aluminium profile design slots into the machined corners of solid laminated pine, locking the wood into position. >





Above and below The outdoor room sits beside the kitchen and responds to how we like to live today, and can be closed off on cooler days.

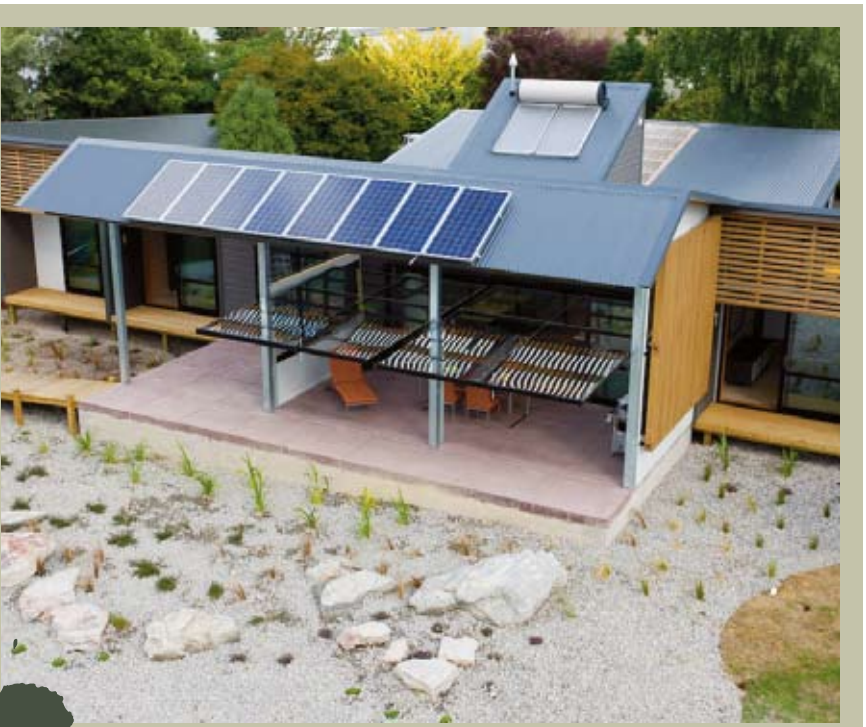
Right The open-plan living area stretches along the sunny northern face of the house while service rooms are on the cooler southern side.



The EcoSmart show home is finished with waterborne Environmental Choice approved Resene paint, including the heat reflective Resene Cool Colours technology for the exterior. Low-energy appliances and lighting are used throughout the home while water collection is via water tanks.

"This first home is a prototype and we are committed to developing and refining the EcoSmart series. A number of the features from the EcoSmart series can be incorporated into traditional Lockwood Classic homes, and as with any of our designs, plans can be modified to suit individual needs."

Companies involved in supplying products for the EcoSmart series include Resene, Reid Technologies solar systems, Alpwood joinery, Nature's Flame wood pellet fires, Viridian Energy double glazing, Interface recyclable carpet tiles, PSP's Plexiglas sheets, Parbury Building Products quartz surfaces, The Cable Guy, Hills Home Hub and PBS Distributors XpressClad cavity system. H



Above The house's distinctive roofline gives it its 'gullwing' tag.

Features of the Lockwood EcoSmart home:

A high performance thermal envelope living area with natural cross ventilation. The house faces north to capture and store the sun's heat during the day, which is then released into the house at night. The south side of the house is designed to keep cold air out, hence the envelope effect.

Roof overhangs and slatted screens prevent summer overheating but allow low altitude winter sun to penetrate deep into the building.

The walls, under-floor and roof, are all heavily insulated and all window and door joinery is double glazed.

Renewable New Zealand radiata pine is used for all walls, floor and roof framing, and ceilings.

The weatherboards are a new patented Lockwood quarter-sawn laminated radiata pine product which gives stability, durability and a low environmental footprint.

Timber joinery is Tasmanian oak from sustainable plantation forests with a minimal outer skin of anodised aluminium for durability and stability.

A north-facing, 30-degree sloping, solar tower provides optimum positioning for solar water heating. A wetback Nature's Flame space heater uses recycled fuel pellets.

Similarly the north-facing 'beak' allows for solar photovoltaic cells for electricity generation.

Resene Aspiring

Resene Crescendo

Resene Middle Earth

top tip

Resene Cool Colours are designed to reflect much more of the sun's energy than a standard colour reducing heat buildup in the coating and substrate and minimising heat transference inside reducing the need for air conditioning.