



## NATURE, ENTER ME

An eco-home in suburban Auckland is designed to ensure guilt-free warmth all year round.

Homeowner Ro (above, in the living room, and opposite page, in the kitchen with two of her three sons) says because their new house is so warm, the family members can spread out and do their own things rather than huddling around the heat source, as they used to in their old home.

The Ebode home in Westmere, Auckland, includes an extremely comprehensive insulation and heating system, based on careful use of the principles of passive solar design.

The brand-new house, designed by Niel de Jong, is built to maintain even temperatures with little or no need for heating

throughout most of the year, and so far seems to be doing just that. Ebode is using the house to demonstrate the effectiveness of passive solar design, so the firm has been monitoring the home's performance. There are sensors checking temperatures in the rooms and in the concrete slab of the thermal mass flooring, made from recycled aggregate and



installed using a RibRaft system with polystyrene pods. In the spring month prior to my visit, the temperature never dropped below 18.8°C and never got higher than 23.5°C. Niel de Jong says he is pretty confident things will stay this stable.

Niel says this performance has been achieved by meticulous 3D computer modelling of temperature and sunlight conditions, combined with close attention to quality and detail in the materials and techniques used. Large roof overhangs were designed to keep out summer sun but maximise its penetration



during winter. Underlying all this is a simple idea: insulation, insulation and more insulation, with double-layer Ecofleece wool insulation (to R6 value – for more information about R values and insulation regulations in your area, see the chart on p.132) in ceilings and the interior walls (the exterior walls are constructed from insulating Timbercrete blocks). All pipe work is insulated and sleeved to prevent heat loss.

The results have not been lost on the owners, Brian, Ro, and their three boys. At a recent open day Brian was heard to comment that he hadn't thought much about eco-houses before this, but "well, you can't argue with a warm house." That doesn't mean they've done away with heating

entirely. An energy-efficient, low-emission Pyroclassic wood burner produces a radiant heat (and also provides that wood-burning atmosphere in winter) that also heats the thermal mass chimney of the home. It is fitted with a small wetback unit that boosts the hot water supply and helps to offset the lower performance of the solar hot-water system in winter.

"The fuel for the fire is also a renewable resource," Niel says. The Pyroclassic has a small trivet top and can be used to cook on and with the help of a simple but ingenious lid can be transformed into a simple oven. "There's also a sense of romance to a fire," Niel says. "It's just not the same cuddling up by the heat pump now, is it?" •



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## WHOLE F HEAT



Heats a room of approximately 12m<sup>2</sup>.

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