

# Groups troop in to learn how to cut energy costs

WEST Australians are taking a long time waking up to their biggest asset — the sun.

Bernard and Philippa Catchpole, in their comfort zone home with a two-month \$25 electricity bill, are speeding the process.

The Catchpoles promote energy-efficient design and house management.

Twice a year, groups organised by the Solar Energy Information Centre go to their home past Midland to see how the solar house works.

Mr Catchpole's wife got him interested in solar efficiency before he retired as a professor five years ago.

After he read the book *The Wise House*, Mr Catchpole attended a university extension course on the subject, then they engaged architect Garry Baverstock to design their retirement home.

Mr Baverstock specialises in environmentally-appropriate buildings.

The Catchpoles' looks conventional enough outside but is full of energy-saving devices.

A "sola-pergola" slatted with boards at the critical angle of 30deg runs along the north-facing front wall. It lets the warming winter sun slant deep into the house but keeps the summer sun out.

Similar slatting controls sunlight entry through a large central skylight.

A solar heater backed in winter by a slow-combustion stove provides all the hot water.

An internal wall in the main bedroom absorbs the sloping dawn rays of the winter sun — but the sun is kept out in summer.

Both the roof and the ceiling are insulated, and polystyrene foam fills the wall cavities.

The house is roofed with non-coloured zinc-alume, for maximum reflection of heat.

The floor is tiled and has few carpets, enabling maximum use of the constant sub-surface ground temperature.

When the *Reporter* called on a boiling hot day, the house inside was pleasantly cool.

"The comfort temperatures are said to be between 18 and 28 degrees," Mr Catchpole said.

"We very rarely go above 28."

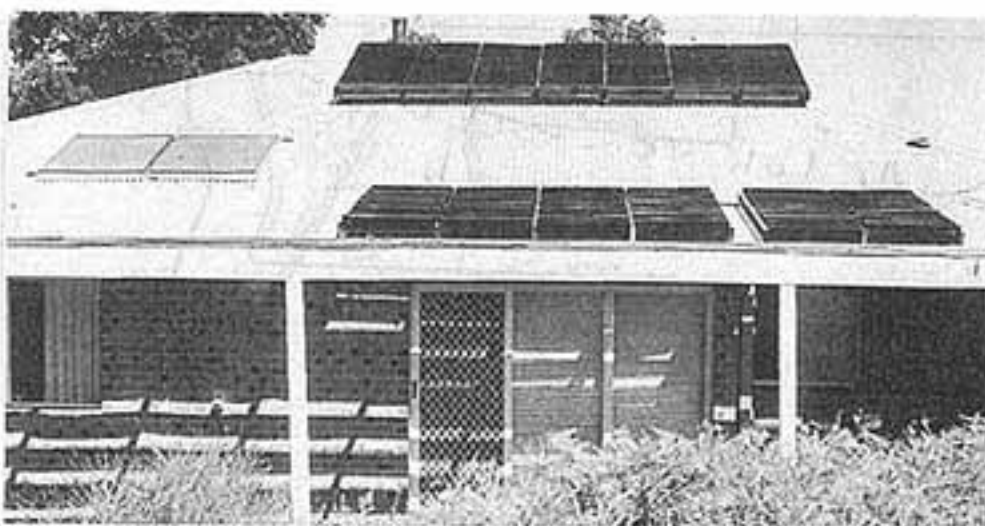
Neither are they likely to fall below 18.

Mr Catchpole produced a chart showing outside maximum and minimum zig-zagging between 40 degrees and near freezing point.

Between the summer and winter extremes, the indoor readings maintained a steady comfort-zone course, summer and winter.

On many days in winter, the indoor minimum exceeded the outdoor maximum.

The Catchpoles are full of facts from the Solar Energy Information



● The solar heater and wooden slats control light and heat on the roof.

Centre — a place they urge all homebuilders and house improvers to visit.

It's at 95 Canning Highway, South Perth.

Their house, like all Perth buildings designed for maximum energy efficiency, faces north.

Mr Catchpole drew sketches showing how, in summer, the sun rises at the back of the house and arcs high overhead before setting towards the back of the house.

In mid-winter the sun rises and sets facing the front of the house — and can slant deep inside through windows and skylights even at noon.

Why so few carpets?

"Ground temperature six feet down is about 17 degrees Centigrade summer and winter," Mr Catchpole said. "A solar floor brings this temperature up to the surface."

"In winter, if you want to capture the heat

of the sun the best thing is to capture it on the walls and the floor without being insulated by carpets."

The energy-conscious householder explained that, to keep the hot summer rays off, the east and west walls had a minimum of windows.

"The idea generally is to let the winter sun in and not lose the warmth of it, and to keep the summer sun out," he said.

This principle involved a routine practice that will stand any householder in good stead.

Every morning in hot weather the Catchpoles close all their security doors and windows before it gets hotter outside.

Every night they open all the breezeways up again as the outside temperature falls lower than the inside.

"The breezes through the night take the heat out of the walls and floor

— cooling what they call the thermal mass," Mr Catchpole said.

Windows being the main through-way for temperature transfer, the Catchpoles have theirs fitted with close-fitting blinds, for insulation purposes.

The windows on the wall which gets coldest, the south wall, are double-glazed.

The Catchpoles have no air conditioning.

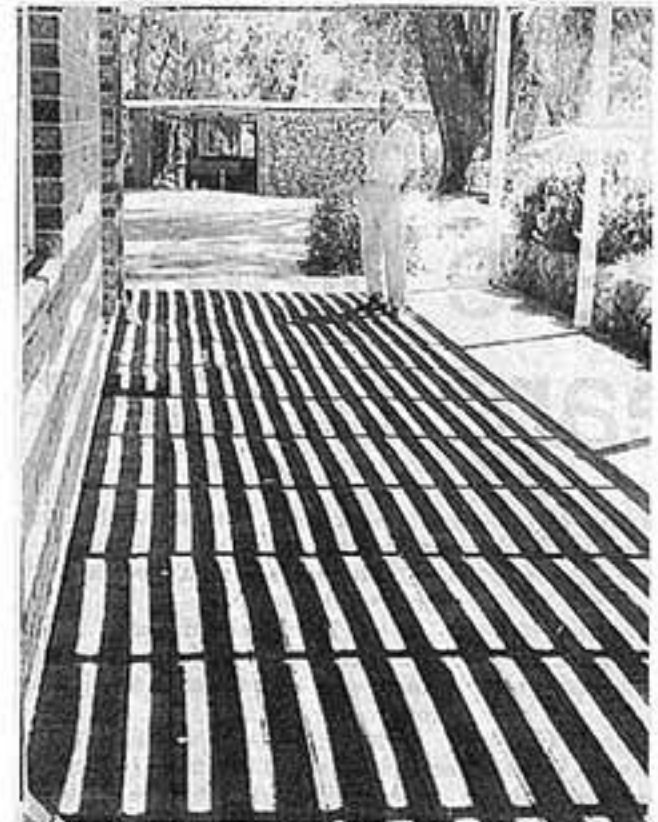
They say domestic architecture and practices can be applied or modified to maintain pleasant conditions, with boosting if necessary from heaters in winter.

"I entirely disagree with those advertisements that suggest that most houses should have air conditioning," Mr Catchpole said.

"We've got ceiling fans, but we really don't need them. We've only had them on two or three times."



● Philippa Catchpole sits in the dining area.



● Patterns on the verandah from the wooden slats.