

# Old Sol pays for the power

THE State Energy Commission wouldn't want to retire on Rick and Mary Kornaus' power bill.

From now on electricity and gas bills should hardly make a dent in the lucky Kornaus family's budget.

They have just moved into one of the first fully solar-oriented houses in WA.

The brain-child of local architect Garry Baverstock, the home not only provides standard solar hot water heating; it is designed to use the natural position of the sun to remain cool in summer and warm in winter.

On the hot day the *Sunday Independent* visited, the home was several degrees cooler than the outside and Mary Kornaus maintains the inside temperature will not rise past 26 degrees on the very hottest summer day.

And in winter, the temperature should never dip below about 19 degrees.

What are the solar secrets in the house that allow such comfort?

## Iron roof

A major solar feature in the house is a corrugated iron roof, which has been used for its reflective quality — although iron tends to heat more than tiles, it cools more quickly.

And a cream render, which is currently being applied to the exterior walls, will provide a similar reflective surface.

The solar home faces north to avoid summer sun but when the sun shifts north in the sky in winter the house reaps the warming benefits of the winter sun.

A greenhouse, which Rick and Mary Kornaus intend building on to the northern front of the home, will complement the temperature stabilising design.

Mrs Kornaus explains: "Lots of green plants are warming in winter and cooling in summer."

In winter, when the temperature inside the greenhouse warms to a certain level, fans, placed in the wall between the greenhouse and inside of the home, will be automatically activated to draw the warm air through to the cool rooms in the house.

The reverse operates in summer.

A solar pergola will be added to the greenhouse using angled solar boards, which are slatted together facing north so that winter sun can enter through the gaps, but direct summer sun is blocked.

Designed around a huge country-style kitchen, the home is surrounded by plenty of full windows and glass doors (all of which can be covered with blinds to keep out summer heat).

Because the interior is an open-plan design, where the brick walls extend only three-quarters of the way to the pitched ceiling, there is plenty of air-flow through the home.

Running through the centre of the house is an attractive vertical skylight, which is positioned under a slight overhang in the roof. This blocks direct sunlight in summer, but allows it to enter in winter to heat walls and flooring.

Slate tiles will be laid on all the floor — a 'back-to-basics' move which is also temperature-conscious because slate retains heat well but is also cool in summer.

Tucked away above the kitchen is a low-pressure solar hot water system, which is attached to two unobtrusive solar collectors on the roof.

## Unique heater

This nifty little system is unique in WA — as well as a standard gas booster, the heater is attached to a wood stove which will generate enough hot water to provide showers for Rick and Mary and their four children.

The Kornaus family decided to build solar after their experiences with a solar hot water system when they first came on the market.

Garry Baverstock is active in promoting solar housing in WA and was a local contributor at last year's International Solar Energy Congress in Perth.

He sees a huge future for solar housing in WA, especially now solar homes are more precision built and fine tuned.

The Kornaus home was computer analysed throughout its construction to determine the most functional and economical solar features to use.

This innovative abode cost a surprisingly conservative amount considering its size and special design — around \$65,000.

But the family saved about \$20,000 by sub-contracting.

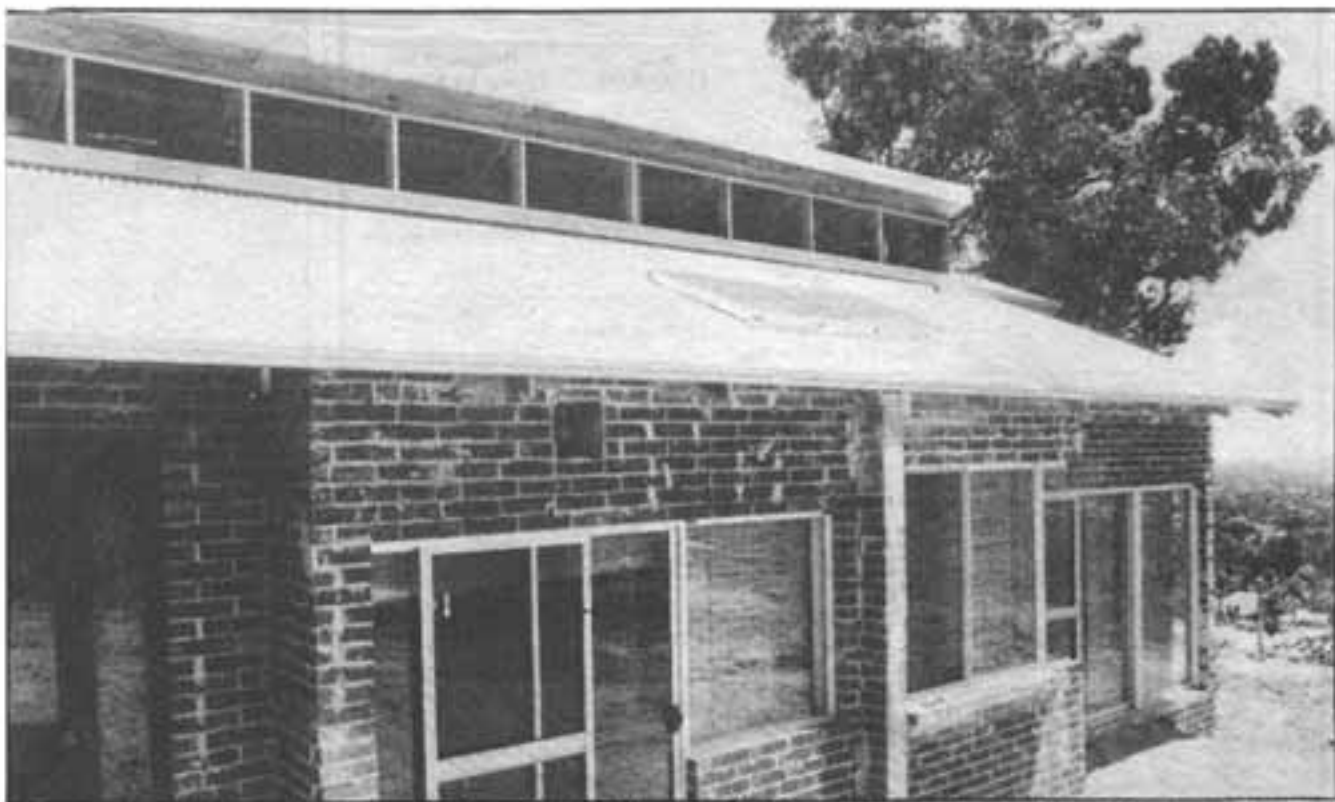
"We even did a lot of the labour — we're doing all the outside rendering and the kids had great fun putting the little polystyrene insulation balls in the wall cavities," Mary says.

The economic benefits of the solar home are already beginning to show, according to Mrs Kornaus.

"We only moved in a couple of weeks ago but we can already see the difference it has made to our power consumption," she says, "and we have all the real savings ahead of us."



The central area in the solar home is this large country kitchen. Large amounts of brickwork increase the home's thermal mass so that it retains heat more in the winter, while the open space between the walls and ceiling allows a free flow of air though the house.



A vertical skylight, which runs the length of the house, lets in winter sun but blocks direct rays in summer.