

HABITAT

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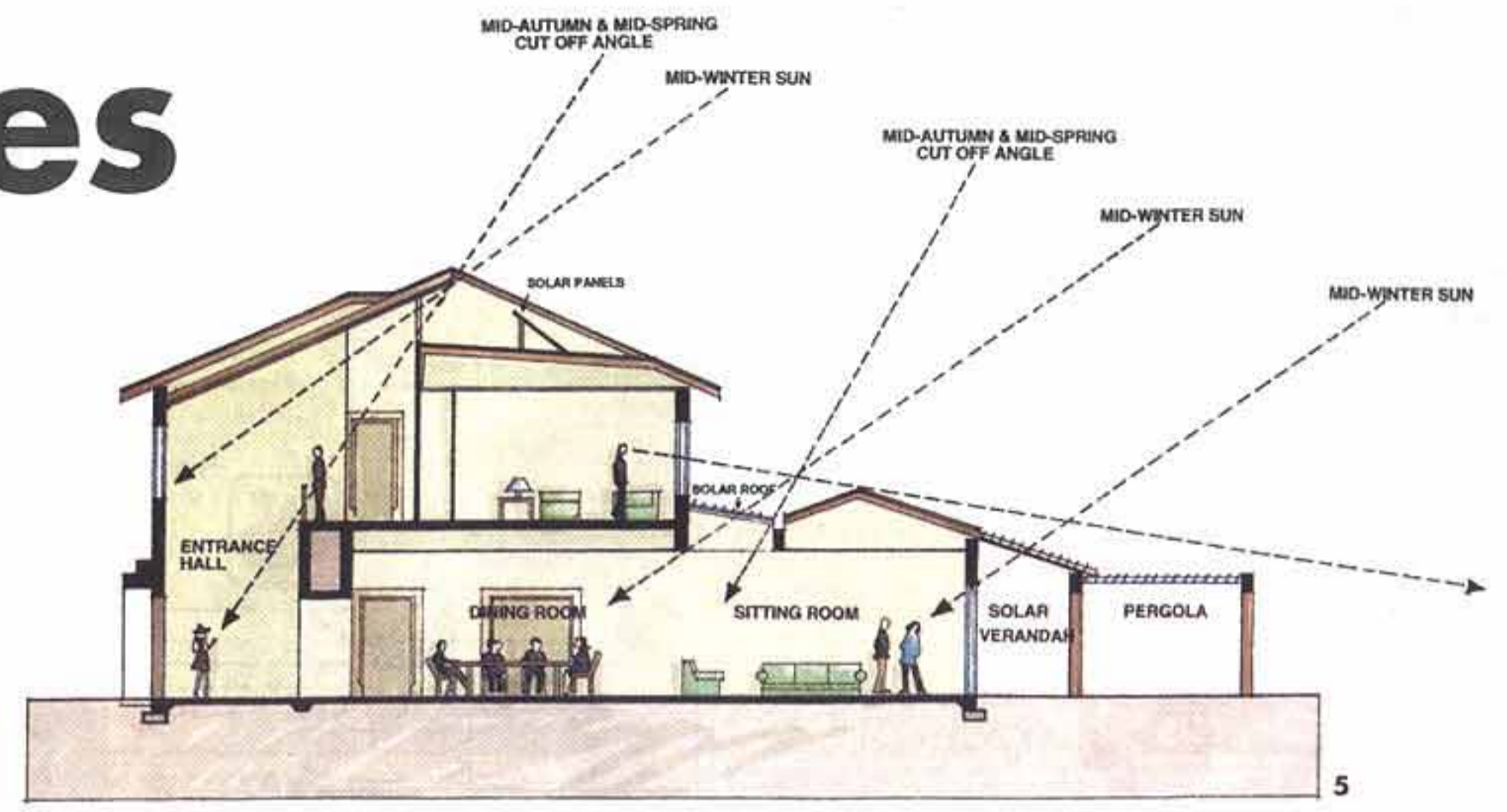
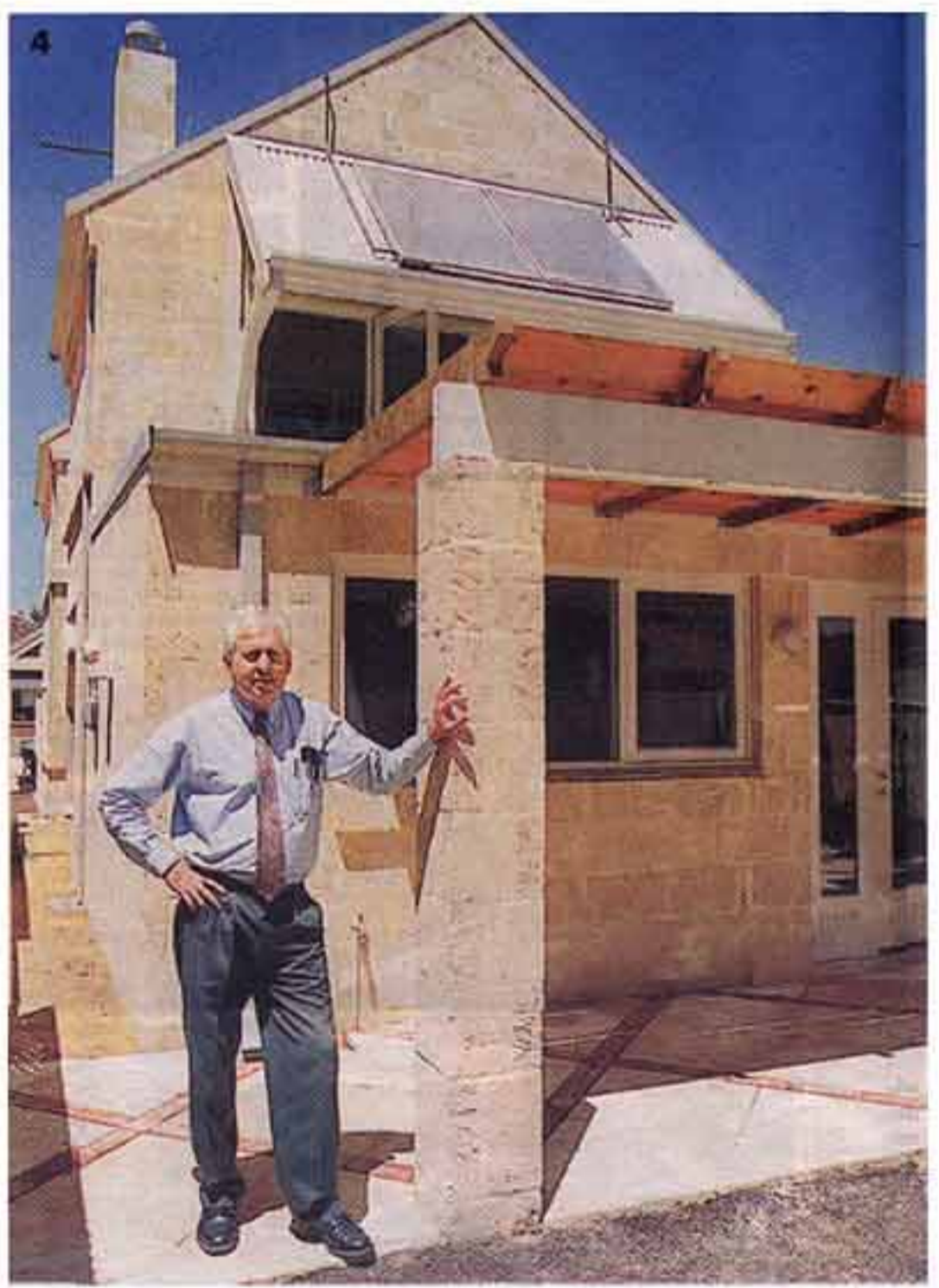
West Australian Homes & Gardens

Autonomous houses



Cheap climates

1, 2 and 3: Some of the solar houses Mr Baverstock has built for clients in the South West and in the metropolitan area. "There's nothing essentially different about these buildings visually," he says.
 4: Gary Baverstock with one of his environmentally friendly, solar homes.
 5: Cross section of one of Gary Baverstock's designs showing how energy is collected and controlled.
 6: The slatted pergola lets the householder control the level of light and sun coming into a home. This Cottesloe property won a Royal Australian Institute of Architects (WA) Energy Conservation Award in 1994.



Words: RITA CLARKE

Design: GARY BAVERSTOCK

BUILDING a house? For as little as \$3200 in architectural fees, you can save, in the long run, \$30,000 in power costs alone. But you'll have to choose an architect who thinks solar — someone like Gary Baverstock, for instance, who champions what he calls the autonomous house.

Owning an autonomous house means never having to say you're freezing — or boiling, for that matter. In a word, an autonomous house optimises its relation to the climate and needs neither air conditioning nor central heating.

The four cornerstones to remember when building are collection, storage, distribution and control of energy. You may think if you pay attention to such details you'll end up with a funny-looking house.

"But," says Mr Baverstock, "there's nothing essentially different about these houses visually. You can build a house out of bush poles, stones, timber and brickwork, as we did in Waroona, which works on two kilowatts (rather than the average house's six or seven kilowatts) of power; or in limestone, as we did in the French Provincial house in Cottesloe, which won the 1994 energy conservation award from the Institute of Architects." That house is cooled by an exhaust fan at night while everyone sleeps and in winter a conservatory collects warm air, the sun comes down through slanted solar verandas and the whole place is flooded with sunlight.

"It rarely gets below 18 degrees, quite often it's 25 degrees in the middle June and the energy bills are 60 to 69 per cent lower than a conventional house," Mr Baverstock says.

Such houses are actually cheaper right up front, he says, particularly for upmarket housing where air conditioning is being considered. Saving \$50,000 on air gives you a flying start — and you don't have the added expense of clipping on pergolas, blinds and packaged air conditioners later.



Baverstock says. "Basically, with the right area of glass and the right insulation, the house should stay between 18 and 28 degrees all year round without artificial heating. You can have a slow combustion stove if you want a bit more heat."

The house should have heavyweight materials inside — brickwork, earth, stonework and concrete to store energy. Mr Baverstock also promotes the idea of a reverse brick veneer facade, with the brick inside. But, he says, if you like the look of timber you can clad the mass walls with it.

All in all, even if your block faces south all is not lost. The rules can be changed as long as you look at shading and the angles of the sun. For instance, you can plan an autonomous courtyard living area which flows from front to back allowing you the choice of living at either end during the summer or the winter.

"It's a bit more difficult to plan and costs a bit more, but it can be done," Mr Baverstock says. And he should know, having built about 600 houses throughout the State.

To sum up, Mr Baverstock, who presented one of the top five papers in the world in building science at the 1989 Solar World Conference in Japan, lists the basic principles of autonomous house building as: orientate the house correctly, design the right shape, design the windows correctly, shade the windows 100 per cent in summer, have heavyweight materials inside — all of which sounds rather like the most naturally autonomous frame of them all come to think of it — the human body.

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ON A tight budget? There are plans available for five different solar houses costing between \$55,000 and \$65,000. All will save about 60 per cent on energy costs.

The site is an important component of autonomous housing. Mr Baverstock has been battling to get land developers to take this into account. At the moment, there is only one subdivision (at Mindarie Keys) where 80 per cent of blocks have been planned to face in the right direction.

The right direction?

When you stand with your back to the back of the house it should face north. Half of your windows should be on the north side with smaller windows in the south, little or no windows in the west and maybe a few corner windows and some glass to pick up the morning sun in the east.

As for the house, it should be no more than about two rooms deep so that you get good cross ventilation but also good distribution of natural

light. It should have a solar veranda covered by slats, slanted to allow the winter sun to come through but which become solid shade in the summer.

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