

Sunday's the day

WHY shelter in summer and shiver through winter when correct design principles can give you a house that retains a pleasant indoor temperature all year round?

The use of passive solar techniques can give you a house that is comfortable to live in and does not require air conditioning or expensive heating devices.

Awareness of energy efficient design is slowly growing in importance.

However, many homebuyers are more concerned with how a house looks than whether it is designed to avoid the rigors of summer heat.

A wealth of passive solar energy ideas can be gleaned from a fascinating display home in Le Souef Dve, Kardinya.

Showcase

The Bristle-Whittakers display home has been especially designed to incorporate a number of passive solar principles that make it comfortable to live in through the four seasons.

Students from Murdoch University are monitoring the performance of the home for one year to compile an accurate record of its energy-saving potential.

Built firstly as a showcase for Bristle, Metro Brick and Whittakers Building products — the home has since aroused considerable attention for its use of passive solar energy design techniques.

"The house is so energy efficient that in winter we find visitors going from room to room searching for the heater," said Mr Robert Forward, the market research manager for Bristle Ltd.

"The warmth of the house is due to its design and not the use of any heating device."

Designed by architect, Mr Garry Baverstock, the house has a wealth of energy-saving ideas which range from special drapes, pergolas with angled blades, a skylight, correct placement of windows, insulation, verandahs and special floor coverings.

A block which faces north-south lends itself to the easiest planning but the layout of any home on any block may be designed for north-south comfort.

The house in Le Souef Dve has front windows which trap the south-west sea breeze, yet block out the sun.

The windows are recessed which helps to trap the breeze and drive it inside the house.

The placement of windows in an energy efficient house is all-important. The size and direction they face is critical.

There should be as few as possible east and west with lots facing north. Sometimes windows may need to be recessed to exclude sun or capture breezes.

Light colored brick has been selected for the construction of the Bristle-Whittaker house because of its ability to reflect summer heat.

The home's double carport acts as a trap for sea breezes. It acts as a "giant fan" driving cool breezes inside the house via an internal door which can be left open.

An eye-catching feature of the central living area of the house is an attractive raised skylight with clerestory windows. This serves a very practical purpose.

The angle of the skylight blocks out summer sun and traps the lower trajectory winter sun.

Clever use of a facing brick wall means that the winter sun which floods through the skylight is stored in the solid mass of brickwork.

An attractive ducted fireplace which forms a feature of the living and dining areas provides a good source of heat. The mass of brickwork around the fireplace has good heat storage capacity.

The house features ceiling and wall insulation to R3 specifications.

At the rear of the house, facing north is an unusual games room. The room has been designed to allow as much winter sun as possible and only 20 per cent of the summer sun.

The room features a glass slat ceiling and glass rear windows for maximum penetration of the winter sun.

The large areas of glass lose heat rapidly as soon as the sun goes down. This causes the room to cool down and suck in warm air from the rest of the house — the action is that of an air conditioner.

The use of Clay floor tiles through much of the house has a cooling effect during the hot summer months.

This is because the tiles are in contact with the cement slab under the house which reflects the stable temperature of the ground.

There are a wealth of other passive solar techniques employed in this attractive three bedroom home.