

Weekend new homes

Comfort assured in solar design

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A PASSIVE solar house which has demonstrated its ability to totally eliminate space heating costs in winter is for sale.

Tests showed that even during winter extremes the temperature indoors did not drop below a comfortable 18C.

That was without the benefit of body warmth from people living in it (each person is a 300-watt radiator) and without the residual warmth from cooking and lighting. There was no need to light the log fireplace.

Built a year ago in Le Souef Drive, Kardinya, its cold weather efficiency comes from a special solarium which collects heat by day and distributes it right through the house, boosting the level of comfort.

Designed by architect Garry Baverstock, of Tectoprojects, the innovative solar concept took out the 1985 Design for Climate award in the Homes of the Year competition. It was built for Bristle Ltd and Whittakers Limited for display purposes.

Its efficiency in summer was also put to the test. Rarely did indoor temperatures reach the high 20s, usually hovering around a comfortable 25C in the heat of the day.

Calculation

The secret of the hot weather comfort was in the computer calculation of window areas on all elevations and having them 100 per cent in shade in summer. Another feature was the veranda to the south shading recessed windows and creating traps to direct the cool sou-wester indoors.

The architect recognised that the summer heat load of walls to the south virtually matched those to the north. The sun was almost directly overhead at noon and shone on the south wall early morning and late afternoon.

"The project is unique for a Perth display home in that it uses local materials in a conventional structure for an efficient passive solar design," said Mr Bob Forward, market research manager of Bristle.

"It has heightened the awareness of the public to the big savings in energy costs and to the aesthetic appeal of such bright indoor spaces. Visitors in winter have been amazed at the warmth and have asked to see the heaters.

"We have had pleasure in pointing to the solarium which has an input of up to 50kw hours of warmth in July, our bleakest month. This is up to \$4 a day in free heat."

There is also additional winter warmth in the central mass, including the terracotta tile floors and solid brick walls. These get the winter sun and radiate it back into the house at night... even at 11 o'clock at night you can still walk around bare-foot on the tiles.



ABOVE: The kitchen relates to the solarium, a year-round living space that boosts warmth indoors in winter.

BELOW: The front veranda channels cooling air to the bedrooms in summer.



YEAR-ROUND COMFORT...

The sun actually penetrates more than 2m into living spaces in winter and also streams down the central walls and into bedrooms from the clerestory lighting at the roof ridge.

The architect is featuring the house in a working manual for his own profession and for builders which is to be distributed Australia wide.

"We have been pleased with the response of project builders to the Kardinya Home and they are asking for designs. The public is getting over its old idea that a warm house in winter has to be stinking hot in summer."

When the house is reopened for sale this weekend the obvious things that people will see include the solar pergola at the rear, the louvres at a special angle to let only the winter sunshine indoors.

The solarium has the same shading system with toughened glass underneath, as a solar air collector. The warm air is directed indoors through open windows.

Unseen design features contributing to year-round comfort include R3 ceiling insulation and polystyrene insulation in wall cavities. Ceilings are higher than usual at 2.7m minimum which helps with cooling in summer

Gas booster

Of course, it has a solar hot-water system but this was the first with a gas booster rather than electricity.

The house has a quality finish throughout, much being made of jarrah and faced rustic brickwork. The open planning contributes to the overall comfort but still with a good deal of privacy to the different zones.

The kitchen is lavishly fitted with bench and wall cupboards, pantry and special appliance area and the trimming is jarrah to facias and grab rails.

Through French doors is the master suite, lit from glass bricks to the east (they let in ample light but minimum heat). The ensuite, related to a private court, features a six-jet spa big enough for two and a long vanity cupboard.

The second bathroom is referred to as a "mudroom" — one that children can go to directly from the carport when returning from football training, or from the beach.

The house has a total area of about 190 square metres, plus front veranda and double carport. It is priced at \$115,000 which is below today's replacement costs.

It will be opened from this weekend by the sole agents, Olifent Real Estate