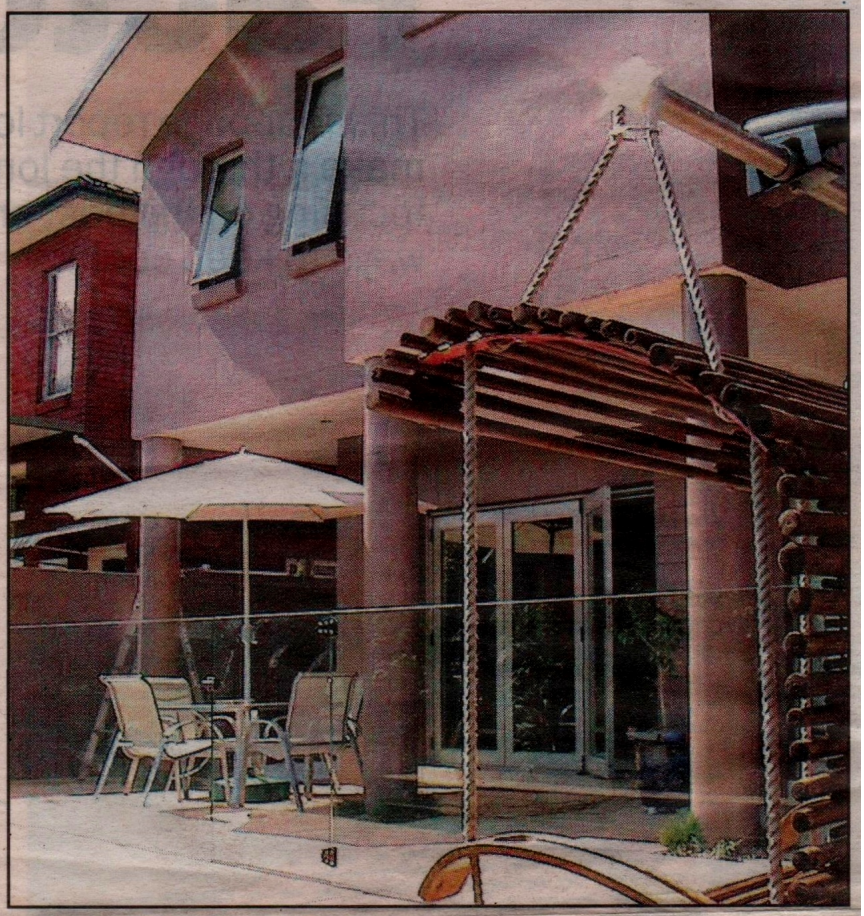
a special advertising report KEEPING COOL

Holistic help can ease the big heat

AFTER the past few weeks of temperatures rising high into the 30s, many Sydneysiders would say they couldn't live without their airconditioner.

Architect Adrian Zenere, director of Archizen holistic architecture firm, strongly disagrees: "Sydney has a really temperate climate. When there's continual heat in the 40s, it's difficult to keep a house cool, but on about 90 to 95 per cent of days, it is possible."

According to Mr Zenere, orientation, cross-ventilation, insulation and thermal mass are among the key sustainable design features which, when used correctly, can quickly send the mercury southward.



Archizen home: Sustainable design features can make a big difference

CROSS-VENTILATION

ONE of Mr Zenere's recent projects involved transforming a 1950s waterfront hot box at Brighton Le-Sands, into a cool and breezy oasis.

The first step was adding louvered windows on the south wall to invite the breeze while blocking out the sun.

"In Sydney, we're fortunate to have the southerly come through most summer nights," he says.

"When people go to bed is usually the time when it's most important for them to feel cool. Opening up the house to get that cross flow ventilation can really cool a house down and let out the heat which comes through during the day."

Ceiling fans, with their relatively low level of energy consumption, are experiencing a renaissance as an alternative or supplement to airconditioning.

"They're an easy way to introduce ventilation and there's lots of choice with more companies making ceiling fans these days," Mr Zenere says.

INSULATION

AS most heat enters a building through the walls, windows and roof, these are the key areas to target when looking at insulation.

Raising the roof was among the cooling strategies Mr Zenere used in the Brighton Le-Sands home renovation. "The roof cavity protects a house to a certain extent, especially if it's insulated," he says. "Also, hot air rises, so if you have openings in the actual roof and you have a breeze coming through the windows or doors on the south, it will drive heat up and out."

Wall insulation was another key element, with Mr Zenere estimating that around one third of the home's heat came through the walls.

With regard to windows, blinds and drapes are common methods of blocking out the heat they transmit into the house. However, blocking it from the outside is a more effective method.

"It's best to stop it getting through in the first place with external shutters or eaves," Mr Zenere says. "By adjusting the size of your eaves, the same approach can work to increase the sunlight in winter. The size and orientation of windows has a large influence. Particularly if you've got western facing windows, your house will be a hot box."

THERMAL MASS

DENSE building materials such as concrete, brick, rammed earth and stone have the ability to absorb and store heat. According to Victoria's Sustainable Energy Authority, the use of heavyweight construction materials with high thermal mass, such as a concrete slab floor and insulated brick cavity walls, can reduce a home's total heating and cooling energy requirements by up to 25 per cent compared to a home built of lightweight construction materials with a low thermal mass, such as brick veneer and timber flooring.

Developers of last year's HIA Greensmart Building of the Year, the Living Laboratory in Queensland's Eco Village, used thermal mass, combined with other passive solar design elements, to eliminated the need for airconditioning. Under floor concrete water tanks served the purpose in the home, while others in the development used suspended concrete slabs or rammed earth walls.

One even has a seven-tonne rock, nicknamed "Rodriguez", in the middle of the lounge room which serves as the thermal mass.

According to Mr Zenere, a concrete slab can be significantly more effective in keeping a house cool than an elevated lightweight floor.

"An elevated floor lets the cool breezes in under the house, but it can also let the hot air in," he says. "Thermal mass, combined with ventilation and insulation can make a big difference in the temperature of a home."