

# Rethinking home energy efficiency

Is your house an oven in summer and a fridge in winter?

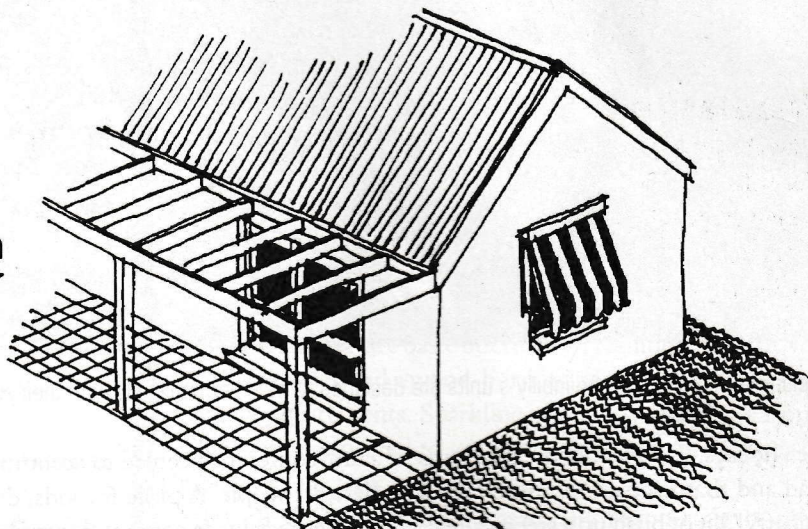
**TREVOR SCOTT** shows that it isn't necessary to build from scratch to have an energy-efficient home.

## Sun control

Eaves and pergolas are the best way to control hot summer sun to the north. If you have east and west openings they are best protected by vertical shutters or awnings.

Use shading devices such as screens and pergolas for control of the sun's rays.

These structures can easily be added on to existing facades and will complement the design of the house.



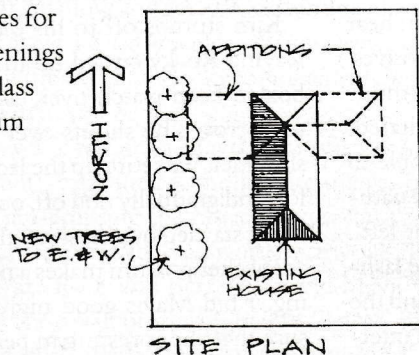
ADD PERGOLAS & AWNINGS

## Orientation

Consider the worst possible case where your house happens to be rectangular and has its long axis aligned north-south.

**Optimum shaping, siting and facing of the building in relation to north sun.**

The addition of wings to the east and/or west will increase the length of the north facing wall, giving you opportunities for creating openings and using glass for maximum solar gain.



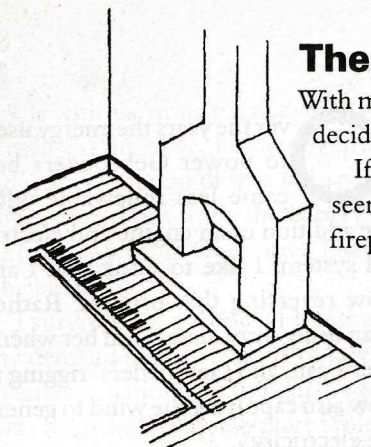
## Climate & landscape

Strategic planting of trees and placing of earth berms or banks can deflect or channel breezes for summer cooling or winter calming. If your house is on a bush block and suffers from lack of solar gain in winter it may be that there are large trees within six to nine metres of the house and some of these may need to be removed.

**Use earth berms, planting and landscaping in conjunction with the climate to provide additional shade, shelter and insulation.**

Remember that if deciduous trees and vines are planted near houses or on pergolas, they will admit all the sun's rays in the winter and provide much-needed leafy shade in the summer time.





## Thermal mass

With many existing houses it may not be so easy to add thermal mass, but if you decide to you will find it most cost effective.

If your weatherboard house is heated by a gas wall furnace and the heat seems to go nowhere, try removing it and building it into a brick or stone fireplace. *in its place*

**Use heavy materials such as brick or stone that can store heat.**

Not only will the brick or stone store excess heat for dissipation at night, but also the empty fireplace will slow the 'heating up' of your living room in the summer. For wood-burning heaters, don't forget you need to install a damper or closer to stop summer heat gain by

*admission of hot air.*  
ADD A BRICK OR STONE FIREPLACE & WALL

## Insulation

If you have large expanses of glass that you've put in especially for solar heat gain in the winter time, you do need to install heavy drapes and pelmets to prevent overnight heat losses.

Curtains are the simplest form of insulation and glass, which freely transmits heat and cold, needs it most of all.

**Insulate all building elements to minimise winter heat losses and summer heat gains.**

Many timber-framed houses built prior to 1960 did not have insulation in their ceilings or walls. Today, 'blown-in' bulk insulation in the ceiling space is relatively inexpensive and most effective in preventing heat losses and gains.

Because these houses usually only have one row of nogs (or horizontal legs) in their wall frames, it is not too difficult to blow in insulation to wall cavities. There is also a concertina type of foil sarking now available which can be fixed by staple gun to the underside of floor joists. This effectively seals off existing rooms. While we are talking of sealing off spaces, don't forget to close off gaps around windows and doors and remove or close off existing wall vents. All these things can greatly affect the thermal performance of your house.

## Glass

Glass is often one of the most obvious areas to tackle. If your house is overheating in summer and you're about to go out and buy that noisy evaporative cooler, stop! Before you do, check to see how much glass you have facing east or west. It may be much cheaper to remove windows and glazed doors from these walls and install them in the north wall.

**Use maximum glass on north walls.**

If you have a view to the west or the south, consider installing double glazing. It will allow you to experience the view night and day, without closing off the windows with heavy drapes.

## Planning & zoning

Often you will find that you own a house where the lounge has been designed to face the street, and its on the south side. 'It's OK in the summer', I hear you say, 'but it's like an icebox in the winter'. Well, it may not be too expensive to modify a bedroom on the north side and swap it for the lounge. In the same way you can regroup service areas such as bathrooms and laundries, and locate them to south, east or west. These service rooms make good buffers to intense east and west sun in summer.

**Group together all living areas and locate them on the north side.**

Don't forget that air locks in the form of entry halls can prevent winter heat losses and summer heat gains. Also if you enclose an existing stair well and your living areas are downstairs, you'll get a lot more benefit from your heater.

Finally, remember that solar hot water services, low energy light bulbs, and appliances with low-energy ratings all can be installed in or on your existing house. Although initially costing more to install than conventional alternatives, the energy savings eventually do overcome the high costs.

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