NATURAL HEATING AND COOLING FOR A COMFORTABLE HOME

Making small changes to your home can help get the most out of the natural energy from the sun to heat your home in the winter and the breeze to cool your home in summer. Be smart about the way you use heaters & air conditioners and you can have a more comfortable home and lower bills.

WHY?

A home that is set up for natural heating and cooling will be more comfortable and have lower bills. Energy use in a typical home costs the planet around 6,600 kilograms of greenhouse gas and the occupant $1,500 in bills each year. Around a quarter of the energy used in most WA households is for heating and cooling. Up to half of this energy is wasted, so switching to natural heating and cooling could cut these costs in half.

HOW?

The smart solutions for a more comfortable home are:

- Shading windows so as to reduce summer heat but still gain winter warmth
- Insulating to keep comfortable temperatures for longer
- Reducing draughts and managing cooling breezes
- Using ceiling fans to move warm air in winter and create your own breezes in summer
- Adjusting heater and air conditioning settings
- This guide shows you how to act on these smart solutions.

SHADE YOUR WINDOWS FROM THE SUMMER SUN

WHY?

The effect of the sun on windows can be the equivalent to a one bar electric heater for every square meter of window. An unshaded window can make a room degrees hotter for several hours. This is good in the winter, but a big problem in the summer. Closing curtains or blinds inside the house will help, but external shading is more than twice as effective – don't let the summer heat in at all.

HOW DO I DO IT?

Shading windows to the east or west

Windows to the east or west are often the biggest problem because the morning and evening sun is low and cannot be blocked out by the eaves of the house. Shading for east or west windows needs to be low over the window and removable in the winter (to let the heat in). Some shading options are:

- Install an awning blind – available from major hardware stores for between $100 and $400 (for DIY installation). These are lifted easily and cut out about 70% of the heat.

- Roller shutters can be professionally installed for between $600 and $900, providing insulation, noise control as well as shading – see 'Window Roller Shutters' in the Yellow Pages.
- Apply window tinting – this will cost around $200 per square meter of window and will cut the heat by 50%. But also reduces the natural light all year round.
- Grow a small tree, large shrub or a pergola with a vine outside the window. Deciduous varieties drop their leaves and let winter sun in. Planting can cut 60% of the summer heat from a window.
- Simply hanging shade cloth from the outside of the window frame or eaves is an effective and low cost solution.

Shading windows to the north

- Most houses have eaves to shade windows to the north from the high summer sun. The lower winter sun can come in under the eaves to warm the house. For north windows:
- Add fixed awnings where there are no eaves. Solar-passive homes often have solar pergolas to shade windows and outdoor areas to the north. These pergolas have angled slats to let in the winter sun.

Take extra action in summer:

Early on hot days, close windows, doors, curtains and pull down exterior blinds to block out the summer heat.

- When the temperature is cooler outside than inside open all windows to capture cooling breezes.

Use a fan – it will cool you a few degrees, and cost 95% less than running an air-conditioner.

Minimise your air-conditioner use and set it to 24oC-27oC degrees (every extra degree of cooling adds 10% to the cost).

Take extra actions in winter:

- Open blinds and curtains during the day to let the free heat of the sun in.
- Use an electric blanket or hot water bottle, to warm your bed before you go to sleep. This will save the use of a room heater.
- Use reversible ceiling fans and set heaters to 18o-21o degrees (saving 10% in heating for every degree).
- Seal the gaps around windows and doors (use a draught stopper for under doors, sealant around window frames and plastic/ foam weather strip inside door frames).
- Close internal doors so that you heat/cool only the rooms that you are going to use.
- Dress for the season (wear warmer clothes in winter and light clothes in summer).
- When buying heaters or coolers look for the right size and the most energy efficient model (see www.energyrating.gov.au or compare star rating stickers).
- Replace paving with a waterwise garden bed (paving located in the wrong place can create a heat trap that transfers or reflects heat into the house).

ROOF INSULATION

WHY?

- Most heat is lost or gained through the ceiling and roof of your home. By installing or upgrading insulation you can improve the comfort of your house. You can reduce your heating/ cooling costs and your unwanted heat loss/gain by up to 30% and save around $130 a year on energy bills.

How do I do it?

The main types of insulation are:

- Bulk insulation that traps small air pockets, slowing the rate of heat transfer.
- Reflective insulation that bounces heat preventing it from entering or leaving your home.

Some of the most important things to consider before buying your insulation are:

- The R-value measures the products resistance to heat flow - the higher the R-value the better the insulation.
- The environmental benefits of different products. Some polyester insulation contains recycled PET (the plastic commonly used in drink bottles). Some cellulose fiber contains recycled paper. Glass fibre insulation contains recycled glass.
- Before you insulate, it's very important to fix other sources of heat gain and loss from your home by shading windows from the summer sun and blocking draughts around windows and doors. Insulating a home with sources of unwanted heat can create an "oven" effect and increase cooling costs.

Where can I find an insulation supplier?

A list of insulation suppliers is available by using the Yellow Pages or see: www.yellowpages.com.au

What are the costs?

The cost of fully installed ceiling insulation, in a typical 150 square metre home, is around $1,200.