

For more information on the principles of sustainable residential design, please visit the City of Cockburn's online sustainable home at www.cockburn.com.au

For information on the City's sustainability initiatives please visit www.cockburn.wa.gov.au/sustainability

Information used in preparing the graphics is from the Government of Western Australia's Office of Energy www.clean.energy.wa.gov.au



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Governance *Environment* Society *Economy*

We look forward to receiving your house plans and are here to help where we can.

The City adopted its Sustainability Policy in 2006 and is committed to sustainable development. In line with this commitment, the City encourages you to use the principles outlined here in the design and construction of your home.

Rising greenhouse gas emissions, the cost of energy use, concerns about the impacts of climate change and global financial uncertainty means that we all need to make changes to the way we live.

To help you adjust, we're suggesting ways to create the most sustainable home possible. Sustainably designed homes use less energy and save you money by reducing the need for artificial heating, cooling and lighting.

A sustainable home also provides for more naturally comfortable living and there are aspects of sustainable design which don't need to be expensive.

Building a sustainable house in the City of Cockburn

A brochure to help inform the design of your house.

SITE PLANNING

Good house orientation combined with a well considered layout and design has the potential to substantially reduce both household energy consumption and cost while improving the comfort of your house.

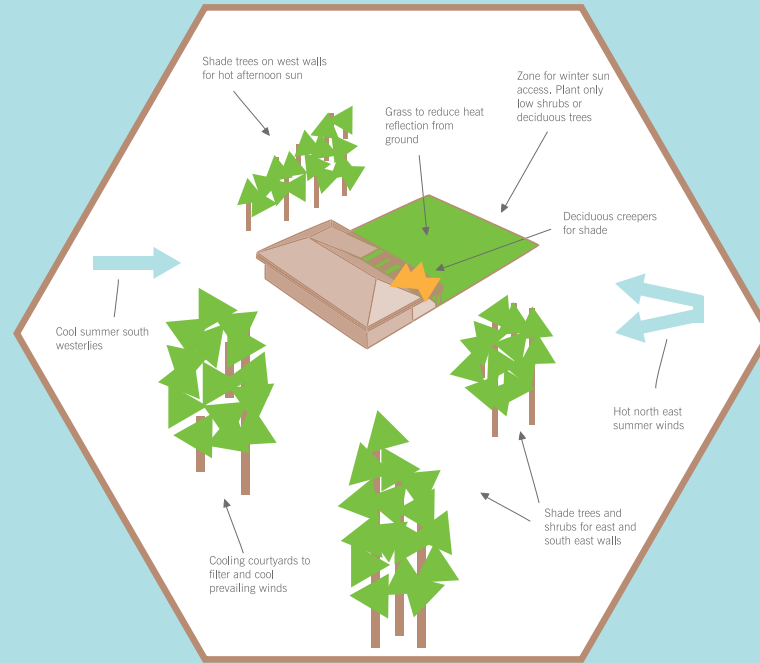
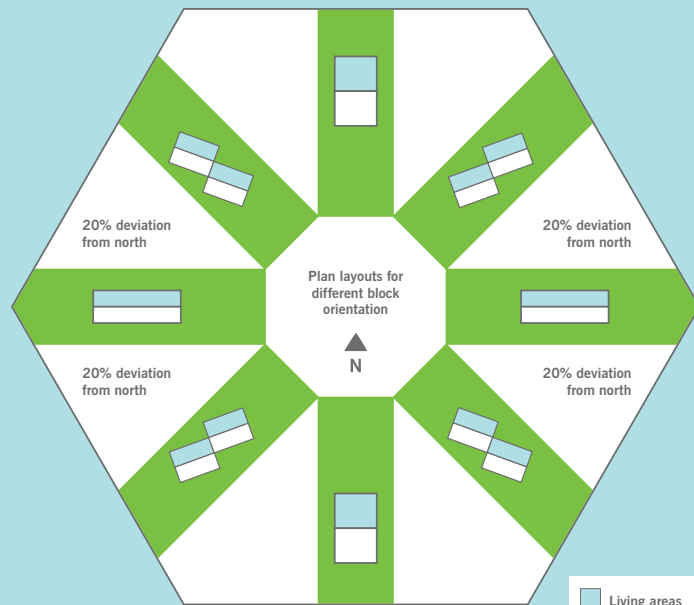
ORIENTATION

If your house has a longer north side orientation, greater opportunity exists to take advantage of winter sun for warmth and natural lighting.

While longer north side elevations are ideal for maximum energy efficiency, the diagram below shows how any house can be positioned to capture the benefits of passive solar design.

HOUSE LAYOUT

North facing rooms are ideal for living areas, such as family rooms, lounge rooms and kitchens. By grouping like rooms together you will find it easier to control the heating and cooling of different areas within your house. Similarly, grouping 'wet areas' (bathroom, toilet, laundry) together can reduce plumbing costs and hot water heat loss.



WINDOWS AND VENTILATION

Correctly placed windows and well planned natural ventilation can substantially reduce cooling and heating costs.

Minimise windows in east and west elevations to avoid excessive heat gain; these windows are exposed to morning and afternoon sun for longer periods of time. Eaves and verandahs on the east and west side of your house will also help protect against unnecessary heat gain.

When planning door and window locations for your house, consider which directions breezes come from and place openings in these areas. Locating windows opposite each other will allow air to flow more readily through your house.

Windows on the prevailing breeze side of the house should be lower if possible than those on the opposite side to assist natural air flow.

INSULATION

The Building Code of Australia (BCA) requires all new houses to have insulation in the roof space. Insulation is a good way to improve your house's energy efficiency. You may also consider insulating other parts of your house. Insulating walls (including the cavity in double brick walls) may add to initial costs, but will help prevent heat gain in summer and heat loss in winter.

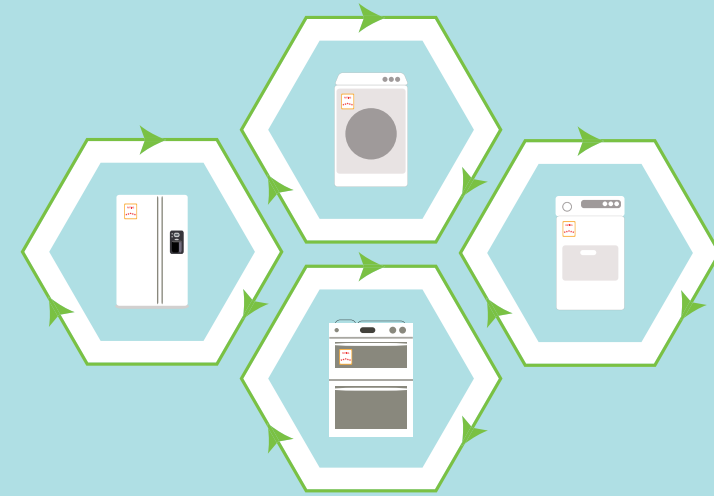
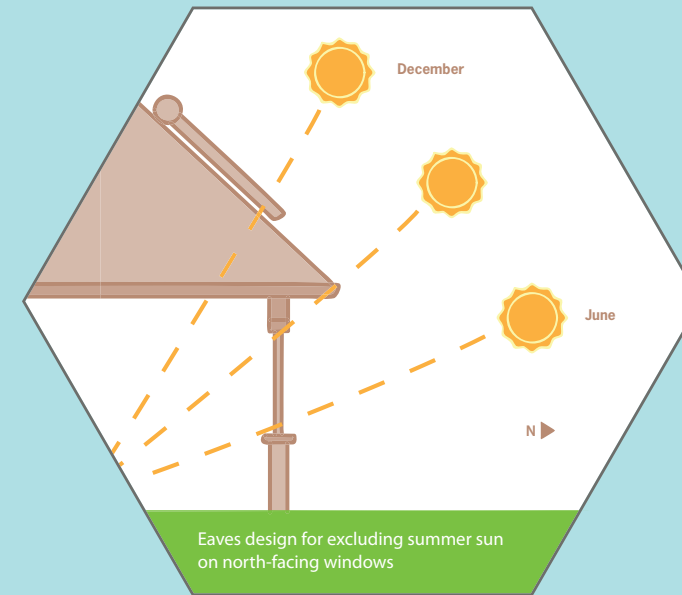
When selecting insulation, compare the 'R' values, which are a measure of resistance to heat transfer. The higher the 'R' value, the greater the resistance. An 'R' value of 5 is more efficient than an 'R' value of 1.

SEALING

External doors should be sealed to keep cool air in during summer and outside in winter. Window frames should also be well sealed, to minimise heat loss in winter, and heat gain in summer.

FLOORS

Concrete and tiles store heat longer than timber floors. They may be particularly useful in absorbing winter sun on the north side of a house when the sun's rays penetrate from a more northerly angle.



COLOUR AND EXTERIORS

Light colours reflect heat while dark colours absorb it. Combined with insulation, lighter roof and wall colours can significantly reduce the internal temperature of your house. This is particularly important in Perth's temperate climate.

SHADING AND LANDSCAPING

Trees that lose their leaves in winter will let the sun into your garden and house. Plant them on the north side to enable solar access in winter while providing shade in summer.

Use native species around the rest of the house to reduce heat gain. Plants that are common to your soil type and local area require much less water and nutrient. They also provide habitat for native fauna.

APPLIANCES

Enhance the sustainability of your house by using energy efficient appliances. All new homes must use shower heads with a minimum of 3 stars WELS (Water Efficiency Labelling and Standards Act 2005) rated. Toilets must be a minimum of 4 stars WELS rated and dual flush.

Gas-boosted solar hot water systems or heat pump systems will save hundreds of dollars off your energy bills annually, compared to standard electric systems. Consider star ratings when purchasing appliances.