

Common Myths

Myths and misunderstandings about environmental design and features have prospered. They exist as the architectural equivalent of 'old wives' tales'. This fact sheet aims to dispel some of the common myths.

PASSIVE DESIGN

[See: 4.0 Passive Design]

Myth: If you can't design the perfect sustainable house there's no point bothering at all.

Fact: House performance varies across a spectrum, from very good to very bad. Incorporating any element of sustainable building practice will make a difference. Simply specifying the optimal eave widths on a project home or renovation may prevent unwanted sunshine overheating your home in summer. This step on its own will improve your thermal comfort and reduce your energy bills. All home design includes compromises, but try to do what you can to incorporate good design features.

Myth: Sustainable design is just for 'Greenies'.

Fact: Everybody benefits from good home design. Occupants from all walks of life now enjoy lower energy bills and improved comfort thanks to good design features. Everybody on the planet will benefit from reduced greenhouse gas emissions and better use of limited resources.

Myth: Sustainable designs are 'weird looking'.

Fact: Any style of existing home can benefit from the application of sustainable design principles and practices. Changes to existing buildings may go unnoticed by the casual observer. Optimum efficiency building design must differ from accepted, inefficient building styles, but a well designed home is usually a good looking home.

Passive solar homes can look like any other.



Myth: Using a 'sustainable' design means that there's no need to do anything more.

Fact: Good design is not a license for bad behaviour. It cannot compensate for an energy and water intensive lifestyle.

COST

Myth: Good design costs more.

Fact: Good design in many cases can cost less than bad design. Good design is nothing new, extra or onerous. Good design is largely about the intelligent use of space and materials. The greatest gains are made in planning and orienting the home appropriately and working with the climate and existing landscape.

Myth: The up-front cost of efficient fittings is too high.

Fact: While efficient products sometimes cost more, most are comparable in cost with standard items of similar quality. They also have lower running costs. Most efficient products are also premium products in terms of features and warranty. In many instances, the most efficient products are not necessarily the most expensive. For example, efficient space heaters

which heat only the rooms in use are often a cheaper option than central heating which heats the whole house. An energy efficient house will similarly reduce the size of the heating and cooling systems required.

LIGHTS

[See: 6.3 Lighting]

Myth: Light quality and output from fluorescent lamps is poor.

Fact: Fluorescent lamps are a developing technology that has improved greatly in recent years. However, compared to incandescent lamps there is a much greater range in quality and performance. A range of colour temperatures and wattages are available, and it is important to select a lamp appropriate to the intended application.

The Australian Government is currently developing a Minimum Energy Performance Standard (MEPS) for performance and quality of CFLs. From October 2008 (proposed) all CFLs must meet this standard to be sold in Australia.

Myth: 'Low voltage' halogen lamps and downlights (12V dichroic) are energy efficient.

Fact: These lights are low voltage but not energy efficient. While low voltage lights provide more light than ordinary incandescent light globes for a given amount of electricity, fluorescent lights are far more efficient, delivering over four times more light than incandescent globes using the same amount of electricity. Downlights may also penetrate ceiling insulation, resulting in greater heat losses in winter. Mains voltage CFL Downlights are expected to become available in the near future.

Myth: Fluorescent lamps flicker.

Fact: Older magnetic ballast lamps may have a noticeable flicker. Modern, electronic ballasts operate at very high frequencies and usually have no noticeable flicker.

Myth: Turning fluorescent lights off and on uses more energy than leaving them on.

Fact: There is an 'inrush' current when fluorescent lamps are turned on that is higher than the current drawn during normal operation. As this additional current is only drawn for a fraction of a second, it is always more energy efficient to turn the lamp off when not needed.

Myth: Fluorescent lamps are bad for the environment because they contain mercury.

Fact: All fluorescent lamps contain some mercury but this is being reduced all the time. Maximum mercury content will be mandated as part of the MEPS. Far more mercury (and other pollutants) is released into the atmosphere from burning coal to provide the power for inefficient incandescent lamps.



Myth: Compact fluorescent lamps (CFLs) are heavy and bulky.

Fact: Some older magnetic ballast lamps were heavy and bulky but newer electronic ballast units are more compact and lightweight.

Myth: Compact fluorescent lamps are ugly.

Fact: Many of the early CFLs were not very attractive and were often put into the wrong type of fitting so the tube was visible. There is now a much greater range of shapes available, and they are being designed to look better. There is an even greater range of shapes and sizes of CFLs available overseas, including 'sub-miniature' types to replace small candle lamps – these are becoming available in Australia.

Growing demand for CFLs is increasing the range of choices available.

WINDOWS

[See: 4.10 Glazing]

Myth: Large north windows are always a great idea.

Fact: Poorly designed, inappropriately glazed or shaded north windows can lead to overheating. Moderately sized north windows are a good idea where winter sun is available to warm your home. Since windows and their shading and coverings can be expensive, reducing window area to an appropriate size can reduce the cost of your home.

Myth: Laminated glass is as effective as double-glazing in stopping heat transfer.

Fact: 10mm thick laminated glass is only marginally better than single glazing for reducing heat transfer. It is, however, as effective as double-glazing in reducing noise transfer. If you want to reduce noise and heat flow, double glazing is the best option.

INSULATION AND WEATHER PROOFING

[See: 4.7 Insulation]

Myth: Heavy materials such as brick and earth provide insulation.

Fact: Heavy materials are generally not good thermal insulators. They do not decrease heat flow like reflective or bulk insulation. Heavy materials do slow the passage of heat through the building fabric, and this can be beneficial in both winter and summer where there are large temperature differences between day and night.

Myth: Mudbrick and cavity brick walls don't need insulation.

Fact: Materials with high thermal mass such as earth and brick are generally not good insulators. In most climates these walls will benefit from installing insulation. Check with your designer or architect.

Myth: Bricks are weatherproof.

Fact: Most bricks allow moisture to pass through them. Cavity wall construction was devised to protect the inner wall from being damaged by moisture penetrating the outer brick skin. The outer brick skin is attached to the inner skin with cavity ties to provide strength. Water that penetrates the outer skin is shed via a drip groove. Brick is most useful on the inside where its thermal mass can help stabilise internal temperatures.

Myth: There's no point insulating walls, because all the heat just flows through the windows.

Fact: Adding insulation to one part of a home won't increase the heat losses through other parts. Although windows can be areas of great heat loss and gain, all insulation makes a difference by reducing heat flow. Insulated surfaces stay at a temperature closer to the indoor air temperature and therefore create a more comfortable environment.



Myth: Plastic pipes don't need insulation.

Fact: Many plumbers believe that plastic hot water pipes don't need insulation because plastic feels like an insulator. Although a better insulator than copper pipes, they still lose a lot of heat and need to be insulated.

Insulation is often the most cost effective way to reduce heating and cooling bills.

HEATING AND COOLING

[See: 6.2 Heating and Cooling]

Myth: A few draughts here and there don't make much difference.

Fact: Draught sealing around doors and windows can save up to 25 per cent of heat losses and gains in many climate zones.

Appropriate sizing of heating and cooling equipment can save on purchase and running costs.

Myth: Roof ventilators will keep your house significantly cooler.

Fact: Roof ventilators do not make an appreciable difference to house temperatures if the roof is insulated, particularly if reflective insulation is installed. If your ceiling is uninsulated a ventilator might make a small difference, but insulation is a better investment. There may, however, be other valid reasons for installing roof ventilators such as moisture removal.

Myth: It is much better to have an oversized heater or cooler because it's better to have them too big than too small.

An oversized air conditioner not only costs more to buy but cannot dehumidify air properly. It will only run for short periods and not have time to remove much moisture from the air. Consequently, the occupants feel sticky even when the air conditioner is running. Most air conditioners are less efficient when running at part load, and frequent cycling on and off may shorten their life. Oversized heating systems cost more, and will give bursts of heat, followed by long periods when no heating is occurring. Occupants are subjected to varying levels of heat and cold, especially when sitting near a window, where the temperature falls faster than it does near the thermostat.

Myth: A sustainable house's indoor temperature will be comfortable throughout the entire year without additional heating and cooling.

Comfort is very subjective and varies from person to person. At the height of summer or in a cold winter snap, indoor temperatures may become uncomfortable depending on an individual's tolerance. The sustainable home will be uncomfortable far less often than a standard home and require much less energy for heating and cooling if needed.

Myth: Air conditioning should be set at a constant temperature (eg. 22°C) all year round.

Human physiology enables us to adapt to seasonal and geographic changes in climate. Most people live in houses, drive in cars and spend time outside where the air is not constantly conditioned to 22°C. In winter 22°C may feel too hot and in summer it may feel too cold. People living in hot regions (eg. Darwin) will have a greater tolerance for heat and may find that a much higher temperature than 22°C feels right for them. In winter turn the thermostat down a few degrees, and in summer up a few degrees. Each degree can reduce energy consumption by up to ten per cent.

WATER

[See: 7.0 Water Use]

Myth: Water efficient shower roses don't give a good shower.

While many early models of water efficient shower roses performed poorly, new models with the 3 WELS Star efficiency rating have to meet minimum quality performance levels specified by Standards Australia. The 3 WELS rating is a guarantee that you will get a high quality comfortable shower while using up to 50 per cent less water.

LANDSCAPING

[See: 2.4 Sustainable Landscapes]

Myth: It is always better to plant native trees around the house rather than exotics.

Non invasive, exotic, deciduous trees can perform a vital valuable role in regulating the heating and cooling of a home. When planted to the north of a home they shade in summer and admit sunlight in winter. Try to choose varieties that will attract native wildlife to your garden.

Many people plant 'natives' that are neither indigenous to nor appropriate for their location. Some hardy Mediterranean and South African plants, for example, are often suitable or even preferable to inappropriate native species.



Mirvac Lend Lease Village Consortium

Good design is a design for life, a better quality of life that will directly or indirectly benefit everybody on the planet.

Principal author:
Geoff Milne