

Choosing a Site

Where you buy or build your home has a profound influence over your ability to meet your existing and future needs. Where you choose to live will have a significant impact on the environment and your finances. Remember the real estate adage:

‘It’s location, location and location’.

Choosing an appropriate site for a new house or choosing an existing home and developing it to make the most of its natural attributes will yield significant economic, lifestyle and environmental benefits.

The following information has been divided into three sections corresponding to the usual stages of choosing a site.

> Choosing a locality and housing type.

> Choosing a site, existing home or block.

> Choosing, designing or altering a plan to fit your block.

CHOOSING A LOCALITY AND HOUSING TYPE

Analyse your lifestyle – current and future

The decision to buy or build a new home is often driven by inadequacies in our existing home. These often relate directly to lifestyle. A new home offers many opportunities to alter or change lifestyle. Maximise this opportunity by analysing your existing lifestyle and future needs.

As you start to focus on a particular suburb or locality, visit the local council to investigate the planning controls governing the site (eg. zoning, heritage conservation, and building restrictions such as setbacks and height limits).

The site choice checklist

The following checklist is intended to guide your choice of site. Answer the following questions:

- > How does the location suit your lifestyle? Can it continue to accommodate changes over time associated with your employment, financial position, health, recreational focus, family (new and empty nest), retirement and old age?
- > Where will the occupants of your home go to work, school, exercise, shop, socialise or get health care? Proximity to these services minimises car trips saving time, money and the environment.
- > Can you eliminate the need for a car or second car? This will save you money and help the environment. Access to public transport (rail, ferry, tram and bus) or siting your house within walking or cycling distance of common destinations can eliminate the need for a second car.
- > What is the true cost of a location? Cheaper housing on the city fringe is balanced by continuing higher transport costs (car price, fuel, maintenance, time).
- > What type of home do you need? Apartments, villas and detached houses offer vastly different prices, lifestyle options and access to facilities. A big garden and four bedrooms may no longer be appropriate.

Remember that a low maintenance, less expensive alternative to a large yard may be a safe park, body corporate gym, pool or tennis court. Shared facilities reduce environmental impact. Smaller yards mean higher housing densities which are usually more energy-efficient because facilities and infrastructure are better utilised. In many areas, vacant land for new homes is scarce. [See: 4.13 Apartments and Multi-unit Housing]

Appropriate re-use of existing buildings will result in energy and materials savings. Avoid demolition and refurbish wherever possible. Save money and the environment.

[See: 5.1 Materials Use Introduction]

Work through the above and start the preliminary stages of looking at your home options. A few weekends spent visiting other suburbs or travelling to other areas will consolidate the process of decision making.

CHOOSING A SITE

A site can be where an existing house or apartment is located or where you design or build a new one.

Site evaluation

Planning controls can have a major influence over your design. Check with your local council for easements, setbacks and building restrictions.

Decide which climatic features need to be taken into account in order of priority. Assess the impact these features will have on your planning.

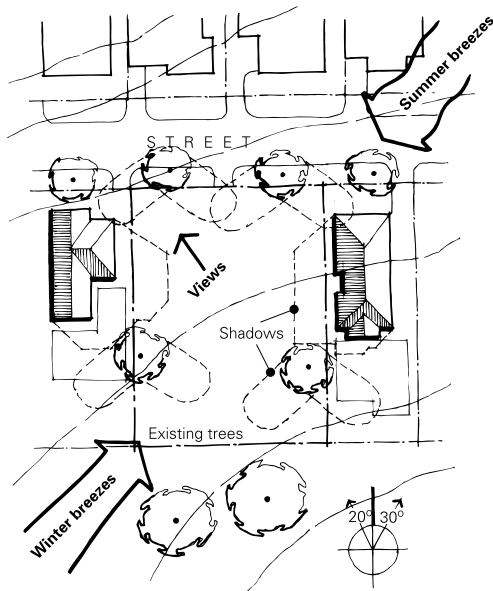
Determine which climatic features to enhance and which to mitigate in order to increase comfort and decrease energy use. Decide whether solar access or access to cooling breezes takes priority. Is one or the other more important in your climate?

Note the size, orientation and slope of the site. Ensure that the opportunities for solar access are appropriate to the climate.

[See: 4.3 Orientation; 4.5 Passive Solar Heating; 4.6 Passive Cooling]



Assess the microclimate (seasonal temperatures, humidity levels, prevailing winds, etc). Observe how the site terrain and vegetation modify air movement and solar access.



Observe the potential for overshadowing, loss of privacy and noise from neighbouring areas. Shadow impact is influenced by latitude, height and spread of trees and may affect the way the house is sited.

Identify vegetation that can be incorporated into open space, used for wind protection or used as part of the site drainage system. Make it a priority to retain native vegetation where possible. [See: 2.5 Biodiversity On-site]

Identify rare or endangered plant and animal species associated with the site. Your local field naturalist society will be able to help with this.

Investigate the geology and topography of the site. Is there a threat of landslide, soil slip or creep?

Assess potential natural hazards such as bushfire risk and flooding.

Identify any natural site drainage patterns and determine how they can be maintained. Steeper sites usually generate more stormwater run-off.

Efficient land use

Efficient planning and land use reduces embodied and operational energy costs for you and the entire community.

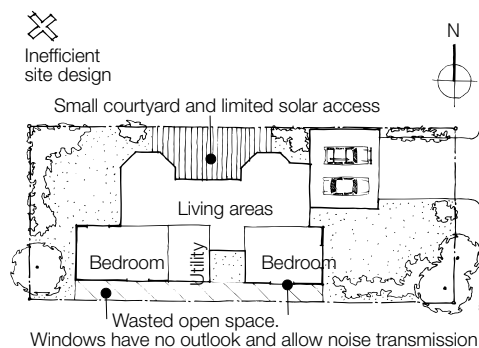
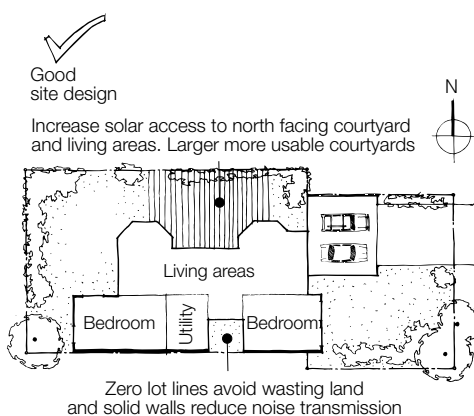
Rectangular lots usually permit the most efficient land use, particularly small lots (less than 300m²).

Compact housing forms are more energy efficient in cool and temperate climates because there are less exposed external surfaces for heat to escape through.

Longer, narrower housing forms are preferable in high humid climates as they facilitate passive cooling.

Site coverage (building footprint) should be optimised to increase the area available for landscaping. This allows more stormwater to be absorbed on site and generally reduces site impact. [See: 2.3 Streetscape; 7.5 Stormwater]

Building footprint should be balanced with other impacts such as building height.



Building to the boundary (also known as zero lot line) improves efficiency by maximising the amount of useable outdoor space. Wasted space in the form of a narrow side passage can be traded for greater space on the other side of the house. This is particularly beneficial if the house is built on the south boundary as it will increase the amount of open space with a northerly aspect. [See: 2.3 Streetscape; 4.3 Orientation]

Good solar access is desirable in all but tropical climates, but the size, orientation and slope of the block will affect it. Note existing sun and shade patterns in relation to vegetation and adjoining buildings. [See: 4.3 Orientation]

Ensure that a viable plan or housing density can be achieved within the size, shape and topography of the lot. Steep sites often require extensive and expensive excavation and fill. On these sites, pole homes are usually much more environmentally friendly. [See: 2.9 Challenging Sites]

CONSIDERATIONS FOR REMOTE AND RURAL SITES

Protecting, enhancing and repairing the natural and built environment is highly relevant to remote and rural sites. Often the best place to build is a damaged or cleared site.

As you build your garden and home environment, you can 'heal' the landscape.

Before you buy, there are a number of other important considerations:

Services

The cost and availability of power, gas, phone, water supply, wastewater treatment and garbage disposal are often overlooked when buying a rural or remote site. These services often cost as much as the house itself and can cause budget over runs or project cancellation. In such instances, renewable energy based systems for power supply, rainwater harvesting, eco-friendly wastewater treatment and waterless toilets become extremely cost-effective solutions. Failure to allow an adequate budget for services often leads to shortcuts with water supply, wastewater treatment and energy supply. These have serious lifestyle and environmental consequences.

Access

The construction of access roads onto rural subdivisions can be extremely expensive if wet ground, steep slopes or watercourses are encountered. Maintenance of driveways can also be a considerable and ongoing financial burden.

Good road or driveway design and construction will reduce erosion and sedimentation, minimise maintenance costs and guarantee all weather access. [See: 2.8 Sediment Control]

Fire

Bushfire risk is always an important consideration. A reliable water supply is essential. It should not be dependent on grid electricity as this is usually the first thing to fail in a bush fire. A large, permanently filled tank on high ground (for gravity feed) is the best solution. Petrol fuelled water pumps are less reliable and may fail at the critical moment.

[See: 3.5 Bushfires]

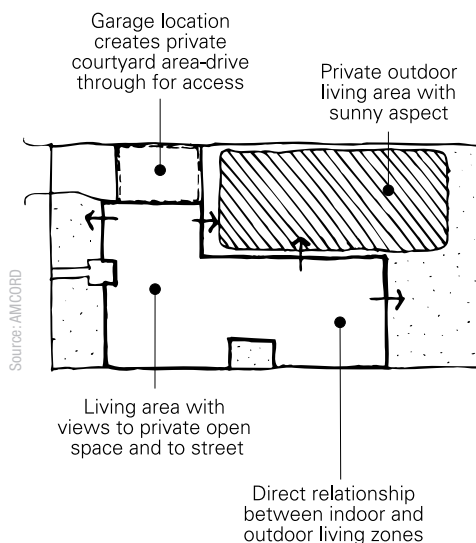
Transport

Motor vehicle costs are often a major drain on household budget for rural dwellers. They also have a major environmental impact.

CHOOSING, DESIGNING OR ALTERING A PLAN

Make a checklist of not negotiable and priority items and do not compromise. Make the real estate agents and sales people aware of your requirements.

Consider how your plan interacts with the site. Orient the home to maximise the benefits of solar access, cooling breezes, summer shading and wind protection. [See: 4.3 Orientation]



A home designed to respond to site conditions can optimise lifestyle, improve energy efficiency and protect the quality of the natural environment.

Carefully consider the relationship between the floor plan and the site, whether building or buying. Good indoor/outdoor relationships are a desirable aspect of lifestyle in all Australian climates.

Where possible, avoid having your windows and outdoor living areas facing those of your neighbours.

SIZE MATTERS

Choosing an appropriate size for your home is the most important step in controlling its economic and environmental cost. Each square metre may cost you \$1,200 or more to build and every year will cost more to light and heat. It makes good sense to think carefully about the space you need. Some points to consider are:

- > Do you need that extra bedroom?
- > Could you add it later if you do?
- > Can you design for multi-functional spaces?
- > How many living areas do you need?
- > Do you need more than one bathroom? Would a well designed three way bathroom suffice?
- > How much garage space? Do you want to devote 20 per cent of your house to your car?

Well designed rooms with clever storage and carefully considered furnishing patterns can often allow a reduction in size of up to 30 per cent without loss of amenity.

Poorly designed spaces are often difficult to furnish due to door, window, heater locations and traffic paths. Poor (or no) design is often compensated for by allowing additional space. This costs far more than the services of a professional designer without the added benefits of a professionally designed home.

Ask your designer to consider how your furniture (existing or planned) will fit into each room. Do a scale drawing and experiment with your furniture placements before buying.

Consider combining smaller separate living spaces into one larger multi-purpose space with nooks and crannies for individual activities. This can give a greater feeling of space while reducing floor area.

Build or buy your home for your needs. Avoid the mistake of building for re-sale. Be confident that the home you like will be very saleable to people like you, if and when you sell it.

Be innovative and adventurous but remain sympathetic to the character of the neighbourhood.



SENSITIVITY TO NEIGHBOURING DEVELOPMENTS

Visual impact

Minimise your home's visual impact by choosing:

- > Appropriate materials.
- > A form sympathetic to the precinct.
- > Appropriate bulk, height and style.
- > Non reflective/low glare materials and finishes.
- > External colours most sympathetic to the surroundings.

Consider the effect your house will have on your neighbours' solar access, visual and acoustic privacy and views.

Avoid housing designs that significantly overshadow or overlook the main living areas or garden space of neighbours.

Avoid locating noisy areas (such as pools, driveways, service equipment) near the bedrooms or living areas of neighbours.

[See: 2.3 Streetscape; 2.7 Noise Control]



Social impact

A safe home, in a Neighbourhood Watch area, overlooking a well lit street or park can help discourage crime.

Consider how you can achieve visual privacy when you want it while being able to interact with neighbours when you need to.

Though sometimes desirable for noise reduction, building a fortress can cut you off from your community.

Topography

Design or choose your house to respond to the natural topography of the site and minimise the use of excavation and fill. This saves energy, preserves natural drainage patterns and prevents soil erosion.

Excessive excavation can damage the ecological integrity of the site and disturb groundwater zones.

Investigate the underlying geology as it will influence construction costs and energy used in excavation.

A geotechnical report is often requested by your local council or your engineer. If in doubt, obtain one.

Stormwater, particularly overland flows, can create severe problems. Check that the site is not affected by stormwater entering from neighbours' gardens or downpipes before buying. [See: 7.3 Rainwater; 7.5 Stormwater]

SPECIFIC CONSIDERATIONS

Buying a project home

- > What is the best plan for your needs on your site?
- > How can you alter standard plans to better suit your needs?
- > Is the plan oriented on the block in the best way?
- > Will flipping or mirroring the plan improve it?
- > How can you correct any shortcomings?
- > How much will this cost?

Buying an existing home

- > Does the plan suit your needs?
- > Can it be altered to accommodate your needs? How much will this cost? (Seek professional advice).
- > Does it have solar access and access to cooling breezes?
- > Can you prune or remove existing vegetation blocking breezes and sun?
- > Are outdoor living areas private? Consider adding a courtyard wall and new doors to link internal and external living areas. Consider new planting for visual privacy.
- > Consider renovating to achieve passive heating or cooling. (Get professional advice).
- > Where will your garbage and wastewater go? Check that the local council has good treatment systems.
- > Where will your water and energy come from? Consider adding a rainwater tank or adding a solar hot water service.
- > Check that good public transport is available and footpaths are installed and well maintained.

PROTECTING THE NATURAL ENVIRONMENT

Your home can change the nature of a site. Poor siting choices can be destructive. Good choices can enhance or even repair a damaged site.

Well sited housing will:

- > Retain habitat so that local flora and fauna flourish.
- > Protect waterways from pollution including stormwater run-off.
- > Reduce the threat of bushfire to the home.
- > Maintain or improve soil and air quality.
- > Protect any valuable natural features (vistas, ecosystems etc.).
- > Preserve existing culturally significant streetscapes and buildings.



When choosing a place to live, we sometimes visit a place of immense natural beauty, fall in love with it and decide to live there, often with little thought of how this action may alter or even destroy the very features that attracted us.

Consider how your desires and choices influence market forces and planning decisions. Support and guide your planning authorities by participating in development processes.

Minimise the impact of your home on the natural environment by considering its impact on local flora and fauna, water, soil and air quality, natural and cultural features. This need not add cost but simply requires forethought and careful choice of site.

Look for a site where your home will have the lowest impact. Surprisingly, these sites are often under-utilised areas (eg. infill development in backyards) or remediated industrial sites (eg. Newington Olympic Village).

Medium and high density developments are often best suited to sites requiring major remedial work. Higher density means that the cost of remedial work is shared between more owners.

High-impact sites include sensitive bushland areas, flood-prone land, areas with poor social and physical infrastructure, and historic conservation areas.

Choose alternative sites or develop carefully to minimise your impact. Design or choose a plan or construction system that suits the slope and minimises excavation.



Avoid choosing a site where substantial clearing, earthworks or alteration of natural watercourses is required.

Existing native plants and fauna habitat should be retained where possible. Extensive removal of vegetation can result in soil erosion and reduction in soil quality.

Native wild plant rescue services exist in many areas. These groups will come to your site, remove any endangered plant species to a nursery and return them after construction is complete (or sell them to others).

The Wildlife Information and Rescue Service (WIRES) in NSW, and similar organisations, will relocate endangered fauna.

Flora Fauna impact studies are required by many local councils for larger developments. These should be conducted at a reduced scale for smaller projects, especially in areas with high natural heritage values or threatened species and ecosystems.

DESIGN FOR CLIMATE CHANGE

Climate change is caused by an increase in greenhouse gas emissions into the atmosphere.

Scientific evidence has shown that global warming has taken place over the last century, and the most of the warming over the last 50 years is attributable to human activities.

Future changes are projected to include:

- > More extreme weather events such as storms and cyclones.
- > Temperature increases.
- > More frequent droughts and floods.

As homes are designed with a 50 year life expectancy (the best ones last for hundreds), it makes sense to choose and design homes that make allowance for climate change.

General principles include:

- > Build well above historic flood levels.
- > Design stormwater controls for more intense rainfall.
- > Plant gardens that will survive longer dry periods.
- > Generally design or choose homes appropriate for warmer and more extreme weather conditions.

ADDITIONAL READING

Contact your local council for further information on choosing a site.
www.gov.au

BEDP *Environment Design Guide*
GEN 1 RAI Environment Policy (see supplementary document).
DES8 Residential Sites – Analysis for Sustainability.
DES9 Residential Sites – Sustainable Developments.

Commonwealth of Australia, *Australian Model Code for Residential Development* (AMCORD) (1995), AGPS Canberra.

Hollo, N. (1997), *Warm House Cool House: Inspirational designs for low-energy housing*, Choice Books, Australia.

King, S., Rudder, D., Prasad, D., and Ballinger, J. (1996), *Site Planning in Australia, Strategies for energy efficient residential planning*, AGPS Canberra.

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