

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 has a significant impact on the environment and your finances. Remember the real estate adage:

'It's location, location, 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 yields significant economic, lifestyle and environmental benefits.

The usual stages of site selection are:

- 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, which 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 (e.g. zoning, heritage conservation, and building restrictions such as setbacks and height limits).

The site choice checklist

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 or 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 to save money and help the environment? Is the site close to public transport (rail, ferry, tram and bus) or within walking or cycling distance of common destinations?

What is the true cost of the location? Cheaper housing on the city fringe is balanced by continuing higher transport costs (car price, fuel, maintenance, time). (see *Transport*)

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.

How big a site or house do you need? Do you need extra floor area to suit family needs? Are you overestimating how much space you really need (Australians are reported to have the biggest houses in the world)? Filling up the block with a large building footprint leaves less space for outside activities such as play areas for kids and gardening.

Is there potential to expand the home without impacting on neighbours?

Where block sizes are smaller, 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 *Buying and renovating an apartment*)

Before you begin

Choosing a site

Appropriate reuse of existing buildings saves energy, materials and money. Avoid demolition and refurbish wherever possible. (see the section *Materials*)

Work through the checklist starting at the preliminary stage of looking at your home options. A few weekends spent visiting other suburbs or travelling to other areas consolidates the process of decision making.

While you are looking, keep in mind that challenging sites may have hidden advantages (see *Challenging sites*) and older parts of cities that developed in the pre-car era exhibit many of the good qualities of urban villages.

Choosing a site

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

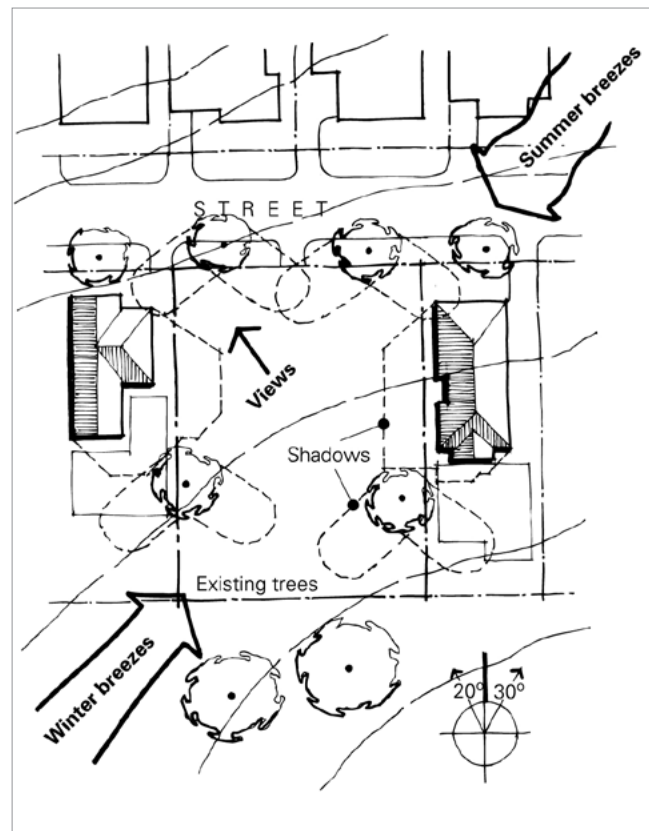
Site evaluation

- Planning controls can have a major influence over your design. Check with the local council for easements, setbacks and building restrictions.
- Decide which climatic features need to be taken into account, in order of priority, and 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? Consider the likely impacts of a changing climate (see *Adapting to climate change*).
- Note the size, orientation and slope of the site. Ensure that the opportunities for solar access are appropriate to the climate. (see *Orientation*; *Passive solar heating*; *Passive cooling*)



A good view often comes with challenging terrain.

- Assess the microclimate (e.g. seasonal temperatures, humidity levels, prevailing winds). 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 the appendix *Landscaping and garden design*)
- Identify rare or endangered plant and animal species associated with the site. Your local field naturalist society will be able to help.
- 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 runoff.



Evaluate the site for aspect, drainage, views and climate.

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 fewer 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, which allows more stormwater to be absorbed on site and generally reduces site impact. (see *Stormwater*; the appendix *Streetscape*)

Balance the building footprint with other impacts such as building height.

Building to the boundary (also known as zero lot line) improves efficiency by maximising the amount of usable 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 increases the amount of open space with a northerly aspect. (see *Orientation*; the appendix *Streetscape*)

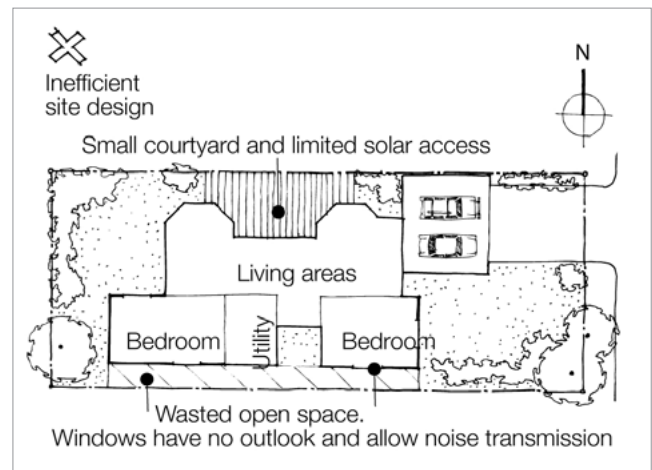
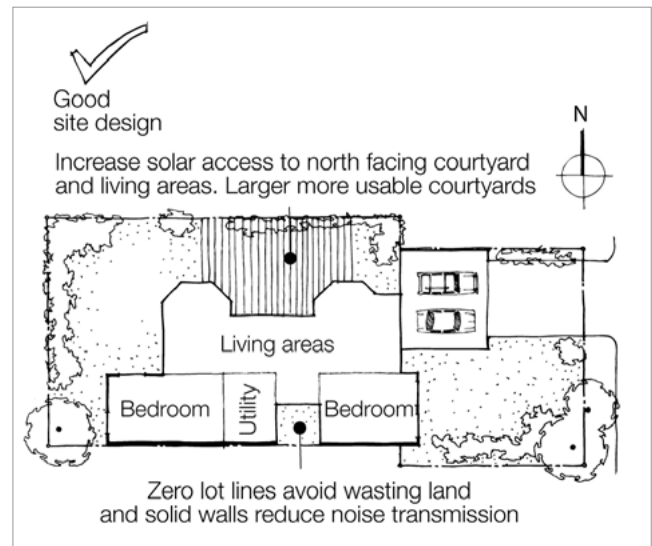
Good solar access is desirable in all but tropical climates, but the size, orientation and slope of the block affect it. Note existing sun and shade patterns in relation to vegetation and adjoining buildings. (see *Orientation*)

Ensure that a viable plan or housing density can be achieved with 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 *Challenging sites*)

Considerations for remote and rural sites

Protecting, enhancing and repairing the natural and built environment have higher relevance to remote and rural sites. Often the best place to build is a damaged or cleared site. Before you buy, consider service, access, fire and transport.

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



Is your site design good or inefficient?

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 can cost as much as the house itself and cause budget overruns 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 – with serious lifestyle and environmental consequences.

Before you begin

Choosing a site

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 reduce erosion and sedimentation, minimise maintenance costs and guarantee all-weather access. (see the appendix *Sediment control*)

Fire

Bushfire risk is always an important consideration. A reliable water supply is essential. It should not depend on grid electricity as this is usually the first thing to fail in a bushfire. 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.

Transport

Motor vehicle costs are often a major drain on the household budget for rural dwellers, and 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.

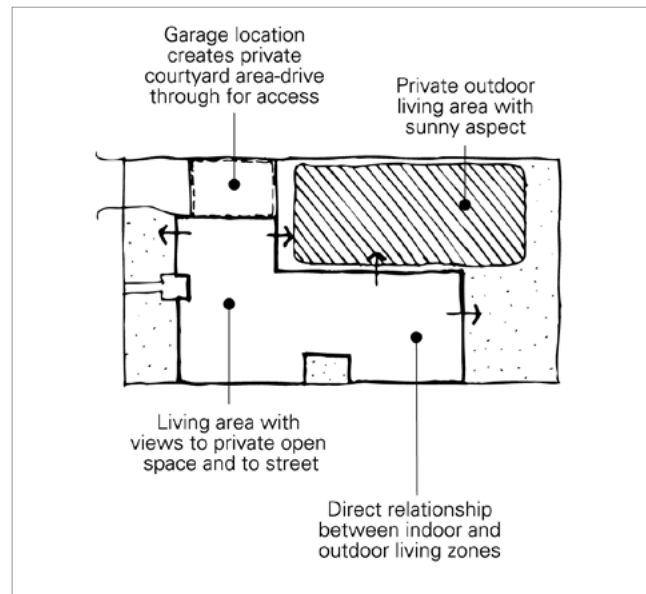
Consider how your plan interacts with the site. A house can be almost any shape provided the living spaces are orientated and designed to maximise the benefits of solar access, cooling breezes, summer shading and wind protection. (see *Orientation*)

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 directly facing those of your neighbours. (see the appendix *Streetscape*)

Size

Size matters. In fact, choosing an appropriate size for your home is the most important step in controlling its economic and environmental cost. Each square metre



Source: AMCORD

Make sure your plan takes the site into account.

may cost you \$1,200 or more to build and every year costs more to light and heat. It makes good sense to think carefully about the space you need:

- 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 really need?
- Do you need more than one bathroom? Would a well-designed two- or three-way bathroom suffice?
- How much garage space? Do you want to devote 20% of your house to your car?

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

Poorly designed spaces are often difficult to furnish due to door, window or heater locations and traffic paths. Poor (or no) design is often compensated for by allowing additional space, which costs far more than the services of a professional designer and lacks that professionally designed touch.

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

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

Build or buy your home for your needs — not for resale. 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.



Photo: Paul Downton

Does your house design suit your neighbourhood?

Sensitivity to neighbouring developments

Visual impact

Enhance the visual impact of your home and its fit with the context of your neighbourhood 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. And don't locate noisy areas (such as pools, driveways, service equipment) near the bedrooms or living areas of neighbours.

Consider how your home can contribute to the integrity and overall attractiveness of the streetscape. (see the appendices *Streetscape*; *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



Create visual privacy while being able to interact with your neighbours.

when you need to. Can you design outdoor areas as pleasant spaces from which to greet visitors or talk with neighbours without compromising the privacy of your house? (see the appendix *Streetscape*)

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. Minimise the use of excavation and fill to save energy, preserve natural drainage patterns and prevent soil erosion. Excessive excavation can damage the ecological integrity of the site and disturb groundwater zones.

Investigate the underlying geology as it influences 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 *Rainwater*; *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?

Before you begin

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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, with professional advice, to achieve passive heating or cooling.
- 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 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 but good choices can enhance or even repair a damaged site.

Well sited housing:

- retains habitat so that local flora and fauna flourish
- protects waterways from pollution including stormwater runoff
- reduces the threat of bushfire to the home
- maintains or improves soil and air quality
- protects any valuable natural features such as vistas and ecosystems
- preserves 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; and natural and cultural



What impact will your home have on local flora and fauna?

features. This need not add cost but simply requires forethought and careful choice of site.

Look for a site where your home has the lowest impact. Surprisingly, these sites are often under-used areas (e.g. infill development in backyards) or remediated industrial sites (e.g. 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.

Retain existing native plants and fauna habitat where possible. Extensive vegetation removal can result in soil erosion and a reduction in soil quality.

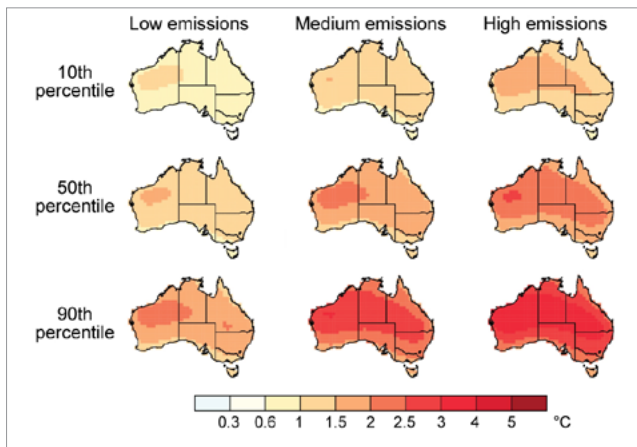
Native wild plant rescue services exist in many areas. These groups come to your site, remove any endangered plant species to a nursery and return them after construction is complete (or sell them to others). The Wildlife Information and Rescue Service (WIRES) in NSW, and similar organisations, relocate endangered fauna.

Flora and fauna impact studies are required by many local councils for larger developments. It's an environmentally smart choice to conduct one 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 shows that global warming has taken place over the last century, and that most of the warming over the last 50 years is attributable to human activities. An overall warming of the planet has different impacts in different parts of the world but the bottom line is much greater variability in the weather. During the life of your home the climate will most likely continue to change measurably.



Source: CSIRO, reproduced with permission from www.climatechangeinaustralia.gov.au/

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Anticipated annual temperature change by 2050.

Future changes are projected to include:

- more extreme weather events such as storms and cyclones
- temperature increases
- more frequent droughts and floods.

By the time today's children reach middle age the climate of Australia is likely to be appreciably different.

The homes we build today are our legacy for their future. 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 (see *Adapting to climate change*). General principles are to:

- build well above historic flood levels
- design stormwater controls for more intense rainfall

- choose garden plants that can survive longer dry periods
- generally design or choose homes appropriate for warmer and more extreme weather conditions.

Sea level rise will continue and the rate of rise will likely increase:

- Could sea level rise affect the property?
- Does the local council have any development controls relating to increased chance of flooding from more frequent and intense storm events combined with sea level rise?

There are economic consequences to any choice of site you make:

- Do these climate change influenced risks affect your insurance?

References and additional reading

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

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