



Section 7



Be climate wise



Canberra is famous for its four seasons. We have cold winters (often with overnight frosty conditions) and hot, dry summers. We also have low humidity with big shifts between day and night temperatures.

Designing and building a home for our unique climate is good for your wallet. It's also better for the environment. By designing your home to let in the sun during winter — and keep your house shaded in summer — you'll increase your comfort levels too.

In the ACT, all new homes must meet a minimum 6 Star Energy Efficiency Rating (EER). The EER is based on how much heating and cooling you'll need for a comfortable home all year round. So be sure to consider both heating and cooling as you design your home, and strive to get an even higher EER.

You should also select energy efficient lighting, appliances and heating and cooling systems. For example, consider ceiling fans over an air conditioning system which uses a lot more energy.

Our climate is Zone 7: a cool temperate region. For more information about designing homes for climate Zone 7 areas visit yourhome.gov.au.



Visit Actsmart at actsmart.act.gov.au for advice on how to save energy and water, reduce waste and cut greenhouse gas emissions. They also hold free workshops on a range of energy efficiency topics.

Insulation, draughts and ventilation

Controlling how air flows in and out of your home is crucial for keeping it warm in winter and cool in summer. This means ensuring you don't have gaps around your floors, ceilings, doors and windows that let draughts of air in or out. By keeping your house well-sealed, you are in control of the air flow.

A good first step is to install insulation in your walls and ceilings. Insulation reduces heat flow and is essential for keeping your home warm in

winter and cool in summer. Quality insulation for slab edges, suspended floors, walls and ceilings could halve your heating and cooling costs. It will also reduce your greenhouse gas emissions.

A good way to check if your home is well-sealed is to get an air leakage test by an energy efficiency professional. Air leakage testing involves using a fan to remove air from the building to lower the pressure and then measuring the resulting air flow rate.

You can also ask for a thermal imaging test, which uses a thermal camera to identify any air leakages in your home. Remember, by doing these tests at the right stage of your build, issues may be easier (and cheaper) to fix. You'll also save on your energy bills. Search online for services in your area.

If your home is well-sealed, you may also consider installing ventilation systems to help remove moisture.

When air can't escape, neither can moisture in the air, like the steam produced from a hot shower or cooking. This can create condensation on the inside of windows and walls, which can lead to problems such as mould or damp inside your house. For more details visit yourhome.gov.au.

Doors, windows and glazing

When designing your home, you should position windows and doors to allow for cross-ventilation. This means a natural breeze can flow between your open windows and doors. Be sure to consider flyscreens and screen doors too. They help increase security and prevent insects from entering your home.

Windows and glass doors let in plenty of natural light. Unfortunately, they can also let in unwanted hot air in summer and let out warmth in winter. The type of frames and glazing chosen for your doors and windows can have a huge impact on your comfort levels.



Did you know?

Did you know all new homes in the ACT must meet a minimum 6 Star Energy Efficiency Rating (EER)? For further information on the EER system visit nathers.gov.au.

Go to **yourhome.gov.au** for more information about selecting doors, windows and glazing. You can then work with your builder to choose the best options for your home, which may include double glazing.

Roof and walls

When designing your home, it's important to consider the colour of your external materials, in particular the roof. It can make a huge difference to your energy use and comfort levels.

Darker colours absorb more heat which will affect the rest of the house. Consider using lighter coloured materials, which will help keep your walls, roof space and home cooler on a hot day.

Consider using materials rated as light (less than 0.475) or medium (between 0.475 and 0.7). This is a rating known as solar absorptance. When choosing lighter coloured materials, you should also ask about products that reduce glare for your neighbours.

The design of your roof is also important for the installation of solar panels. Try to keep the roof design simple, so there is plenty of space for panels. The direction and angle of your roof should also be designed with solar panel installation in mind.

Your roof drainage system also needs to be considered, and your roof should provide adequate shading for your windows in summer.

Being water wise

When designing your home, make sure you have enough space to include a rainwater tank. In new suburbs in the ACT, rainwater tanks are required in new homes.

You should also install water efficient fixtures, fittings and appliances. This includes low-water showerheads and water efficient washing machines and dishwashers.



You should connect your rainwater tank to your laundry, toilet and outdoor taps. Learn more about rainwater tanks with Access Canberra at accesscanberra.act.gov.au or phone 13 22 81.

Using renewable energy sources

Fossil fuels such as gas are having an impact on our changing climate. You can reduce the use of energy from these sources by turning to renewable sources such as solar energy. The ACT is on track for all its electricity supply to come from renewable energy sources by 2020.

Solid Fuel Heating Systems (Wood Fires)

These are traditional heaters that use wood as a fuel source (such as fireplaces). Blocks of land have restrictions about installing or using solid fuel heating systems. This is because wood smoke has pollutants which can be harmful to the environment and your health.

Design your home so it is heated as much as possible by the sun. Consider more efficient and environmentally friendly options for heating, such as hydronic heating, and make your home as thermally efficient as possible by addressing draughts and insulation. For more details visit yourhome.gov.au

Generating electricity with solar panels

Generate your own electricity by harnessing the power of the sun. A solar photovoltaic (PV) system consists of flat panels that capture sunlight and convert the energy into electricity.

A solar PV system is not the same as a solar hot water heater. A solar hot water system converts sunlight into heat for water heating. A solar PV system generates electricity for use throughout your home. It can be used either straight away or be put back into the network. It can also be stored in batteries for later use.

How big should your system be? It depends on how much energy you use. It's also influenced by your budget, the roof area and the amount of suitable unshaded space. It's common to install a smaller solar PV system that meets only part of the total electricity demand of your home.



Before installing a solar PV system, you'll need to ensure the panels will be in a sunny area. They should also slope at an appropriate angle and face the right direction. Solar panels work best if installed facing north at 30 degrees from horizontal. If you install the panels with the wrong slope or direction it will reduce the amount of power generated.

There are also new technologies to make the panels less obtrusive. Talk to your solar panel provider about the options available.



Visit the Clean Energy Council website [solaraccreditation.com.au](https://www.solaraccreditation.com.au) to find an accredited installer for solar PV systems and battery storage. They'll help find the most appropriate system for your needs.

Battery storage

It is becoming more common to install batteries that store the electricity generated by a solar PV system. These batteries store excess solar production (captured during the day) for use at night or when the electricity tariff rates are higher.

If you're installing a solar PV system, you may wish to provide the space and wiring for a future battery storage system.

Rebates and subsidies to improve energy efficiency are offered to eligible households as part of ACT

Government supported programs. For details visit actsmart.act.gov.au

Energy demand management system

You can also install an energy demand management system in your home. This system will help you keep track of your energy usage. Many systems can also connect to your solar panels or battery storage systems.

It's easy to put one in during construction. The system can be installed by a licensed electrician at the same time as your home's electrical system.

Preparing for electric vehicles

While our communities support walking, cycling and public transport, electric vehicles are becoming more common.

To future-proof your home, you may want to include an option for electric vehicle charging. This is easy to do during construction. Simply have the right wiring installed by a licensed electrician at the same time as you install the rest of your home's electrical system.

You can search for licensed electricians on the Access Canberra website at accesscanberra.act.gov.au or phone 13 22 81.