

energy-efficient homes



a practical guide to
building and renovating

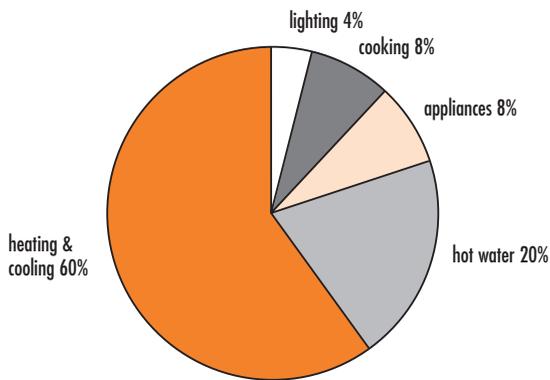


ACTEW
CORPORATION

the essentials of life

Making your home energy efficient saves you money, makes your lifestyle more comfortable and helps the environment. Incorporating energy-efficient design principles and appliances into your home is best done during construction. Many of these principles can also be used in making existing homes more efficient.

energy consumption in the average Canberra home



why save energy ?

Saving energy in the home is your choice. Savings can be achieved through

- energy-efficient design and construction
- installation of energy-efficient appliances
- responsible householder behaviour

energy star rating report

ACT Law requires a “energy star rating report” to be carried out prior to a residential property being sold in the ACT.

The star rating will be between 0 and 5, (0 being the least efficient) and reflects the energy efficiency of the home. It must be included in any advertisement for sale of the property. A copy of the rating must be available to the potential buyer before the exchange of a contract for the sale of the property.

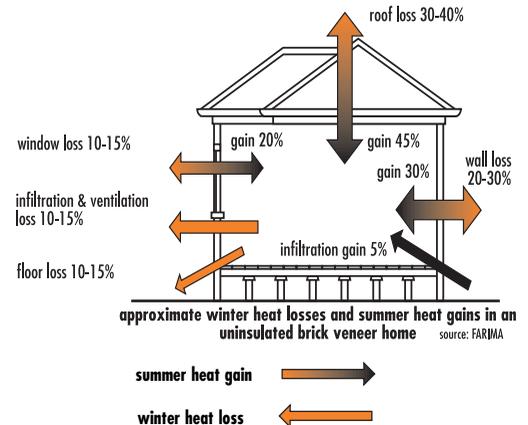
In the case of homes built prior to July 1995, the energy star rating is for buyer information only. There is no minimum rating.

Homes built after 1 July 1995 must be assessed under the ACT House Energy Rating Scheme (ACTHERS) and require a minimum four star rating.

To obtain a star rating report an independent ACTHERS Accredited Assessor must be engaged.

where energy is lost or gained

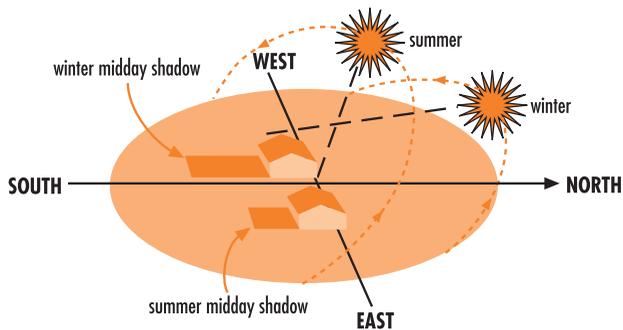
The process of heat loss in winter and gain in summer is known as heat transference. The extent of this transference in a typical uninsulated house is



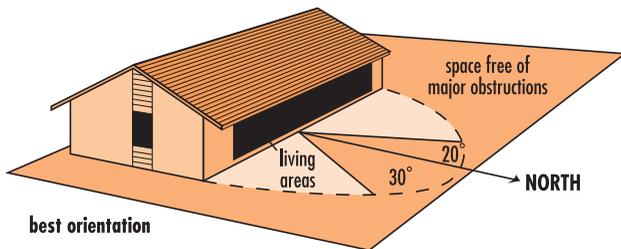
principles of energy-efficient design

Integrating correct siting on the block, house design and landscaping results in maximum energy efficiency for your home.

choosing a block

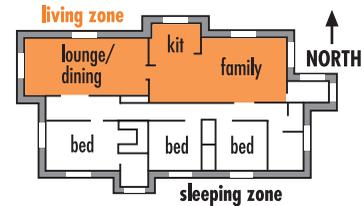


Build a north facing home to maximise free solar energy. Living areas should ideally be located to face 20° west of north to 30° east of north. Keep solar access free from existing or potential obstructions from the winter sun.



internal planning

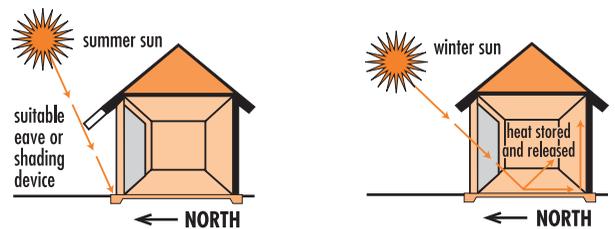
Locating rooms into zones ensures solar access is maximised. Living areas should ideally be grouped together facing north and bedrooms grouped facing south.



windows

Windows let substantial heat into and out of a home. Correctly designed and placed windows are essential to

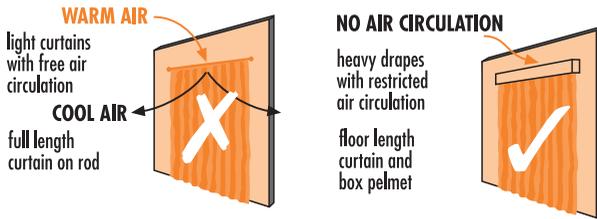
- allow winter sun into the house for free warmth
- allow air to move through the home to assist in summer cooling



North facing windows should be shaded in summer by eaves, sun-shades or curtains. Windows facing west also require shading, especially in summer, while east facing windows should be correctly sized to minimise summer heat gain. South facing windows receive no direct sunlight, but assist with air movement for ventilation.

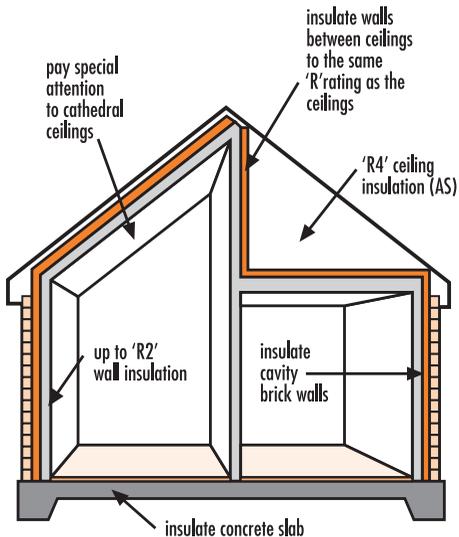
curtains

Curtains minimise heat gains in summer and losses in winter. They should be fitted close to the wall, extending beyond the window and to the floor. Insulation value will be improved if a box-pelmet is installed. Good insulating curtains should be made from closely woven material, with a lining between curtains and windows.



insulation

Insulation is a very effective method of preventing heat loss and gain within the home. Insulation materials are rated for their resistance to transference of heat ('R' value). The greater their value the better the insulating quality.



estimated 'R' values of uninsulated common wall construction types

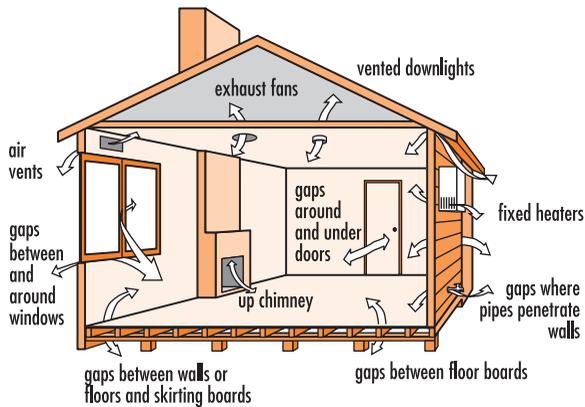
WALL CONSTRUCTION	OVERALL 'R' VALUE
weatherboard	0.55
brick veneer	0.51
double brick with cavity	0.53
solid brick (230mm thick)	0.44
solid concrete (100mm thick)	0.23
solid concrete (200mm thick)	0.30
aerated concrete (100mm block)	0.78
aerated concrete (200mm block)	1.54
mud brick (300mm block)	0.40

building materials

Using efficient building materials increases the insulation value of your home. Thick materials such as concrete and brick retain heat. This heat is trapped within the material and slowly released during the night. Interior brick walls and tiled floors retain high levels of heat, including heat from the sun entering a house. Correct design will stop summer heat gain, allowing these materials to absorb other heat gained, keeping the house cool.

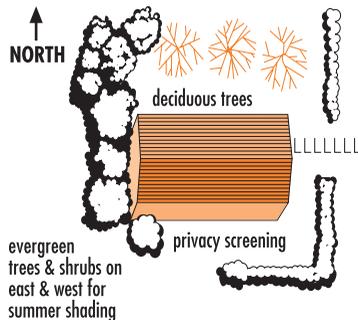
air leakage

Air movement into and out of a house contributes to heat transference. Sealing gaps around windows and doors will prevent heat losses and gains.



landscaping

Select and locate plants and lawn areas around the house carefully. Solar access to the winter sun can be achieved by



landscape development

planting deciduous trees on the north side of the house. This also provides shade in summer. Check trees do not shade your neighbours' northerly aspect. Don't pave areas immediately in front of north facing

windows. South facing courtyards make excellent ferneries that stay cool in summer. Consider planting a Xeriscape Garden (i.e. dry landscape)—a brochure is available from ACTEW.

major appliances

Choosing efficient household appliances for heating, cooling, cooking and hot water adds up to significant running cost savings.

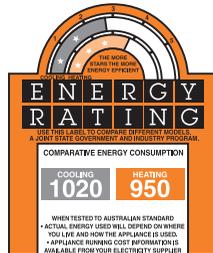
- ducted and split system 'air to air' heat pumps heat your home in winter and cool it in summer. Heat pumps transfer heat from one area to another so your energy output is up to three times your energy input
- geothermal heat pumps use the earth's natural heat to cool and heat your house. They have an efficiency of up to four and a half times the output to energy input
- in-slab floor heating is totally invisible, safe for children, the elderly and those with breathing difficulties such as asthma. Slab heating can operate on off-peak rates and heat rooms on an individual basis
- radiant heating warms quietly with individual room thermostats. This system has no routine maintenance requirements
- off-peak hot water is inexpensive to run and simple to install. On average it has a long cylinder life with low maintenance needs
- radiant, halogen and induction cooktops provide efficient and controllable cooking with easy to clean surfaces

appliance rating schemes

Many new major household appliances have an energy efficiency rating and many have a similar rating for water efficiency.

The energy rating scheme compares the amount of power an appliance uses against a set level of performance. The more stars, out of six, the greater the efficiency.

The water rating label compares the water used by an appliance to achieve a set performance level. The maximum rating is three shaded 'A's', the more shaded 'A's' the greater the efficiency compared to similar appliances.



consumer habits

Our habits as consumers are a major influence over how much energy we consume in and around our homes. Energy costs money so, as consumers, we pay for what we use. Incorporating energy efficient habits into our lifestyles will add up to significant savings. Remember to

- heat or cool only those areas of the house you are using
- keep curtains of north facing windows open during winter days, unless it is wet or overcast
- wear warm clothing instead of turning the heating up
- keep appliances clean and have them regularly serviced
- switch off lights and appliances that are not in use
- turn off hot water and heating when going on extended holidays
- eliminate draughts by fitting seals to doors and windows
- keep seals around your refrigerator and oven doors in good repair
- close dampers on chimneys when your fireplace is not in use
- use time switches to automatically turn your heater on just before you get up in the morning and just before you get home in the evening
- set thermostats at between 18 and 21 degrees Celsius during winter. Every degree will increase your energy bill by about 5% to 10%
- if you have high ceilings consider installing reversible ceiling fans. These help return warm air to the floor

**call our advisory service
for further information**

We can advise you if you are planning a new home, extending or renovating an existing home or require advice on appliances. Please call **02 6209 6899** for further information.



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