



**Benalla  
Sustainable  
Future  
Group**

[www.bsfg.org.au](http://www.bsfg.org.au)

# Planning Sustainable Housing

**Information for home owners**

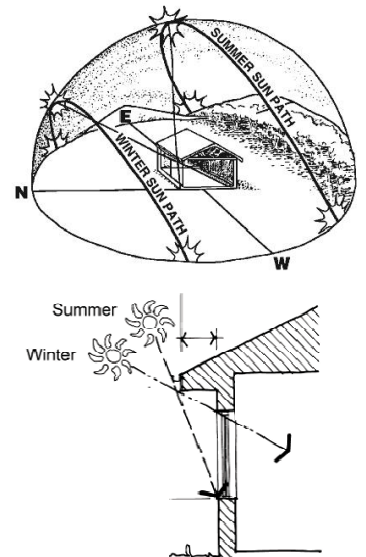
## What does Sustainable Housing mean?

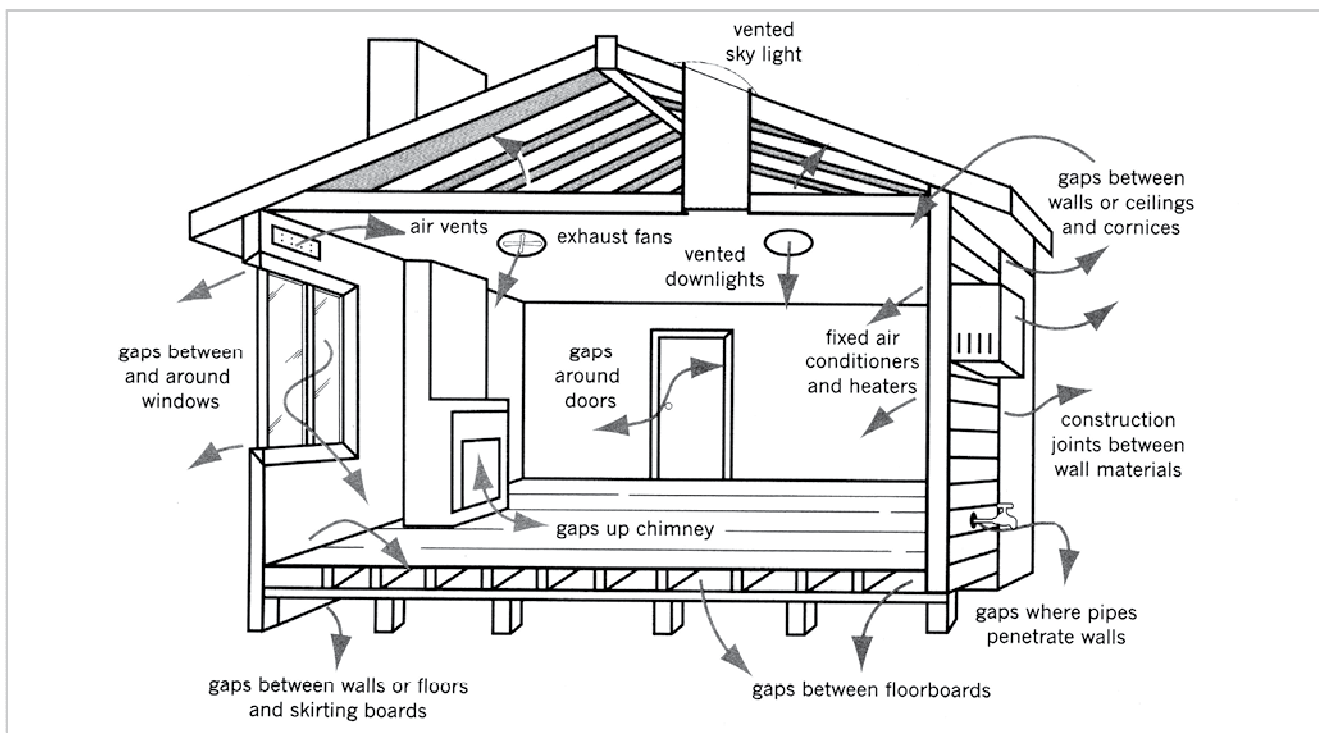
- Building to reduce your use of non-renewable resources – electricity and gas
- Building to reduce your on-going costs from the time you move in
- Building to reduce your water use
- Building to reduce your carbon footprint

**All the steps outlined below will reduce your cost of living**

## 1. Simple steps to greatly reduce your use of power (electricity and gas)

1. Small is beautiful! Don't make your house any larger than it needs to be. Make rooms multi-functional such as using a room as both an office and a guest room. Make your house as open plan as possible to avoid cool back rooms and wasted space in long corridors. However it is important to be able to close off areas e.g. guest area, to save on heating and cooling costs. Avoid very high ceilings.
2. The orientation of your house is very important. Site your house on the block so that the main rooms face north thus giving full access to the winter sun, and minimise the number and size of windows on the east and west. There are very few blocks which are unsuitable for this. Think about it - do you really need your house to face the street, where is the best place for the garage etc. This will not add to the cost
3. Use passive solar design. This means to design your house to take advantage of the winter sun to heat your house, but at the same time keep out the hot summer sun. This is easily done by having wide eaves on the north side. For example, 700mm for waist high windows, 1200mm for floor to ceiling windows. They shade the windows from the summer sun but let the sun into the house from the end of March right through the cooler months. If you were planning a house with no eaves, adding them will add a small percentage to the overall cost but you will not need outside blinds. Other features of passive solar design include cross-flow ventilation to enable natural cooling from cool breezes in the evening and thermal mass which helps to stabilize temperature swings.
4. Install the best insulation in ceiling, walls and under the floor. All these keep you warmer in winter and cooler in summer. Ask for a minimum of R3.5 for wall insulation and R5 in ceilings. Anything which you haven't factored into your costs will add to them but it is worth it!
5. Consider double glazing windows or using Comfort Plus/low E glass. These options will reduce heat loss during winter and lessen heat gain in summer as long as the direct sun does not hit the windows. See point 1 above. Double glazing will add approximately 1% to the total building cost, and can reduce energy loss through windows by 40% or more. See [www.wers.net](http://www.wers.net) - Window Energy Rating Scheme or [www.awa.org.au](http://www.awa.org.au) - Australian Windows Association
6. Install solar hot water with an electric booster or a heat pump hot water system and your water heating costs will be considerably reduced. Very little extra cost compared with gas or electricity water heaters
7. Consider the installation of sufficient solar PV panels to cover average day time electricity usage. This will considerably reduce your electricity charges. To further reduce carbon emissions buy accredited Green Energy.
8. Do you want to have a fireplace? Install an efficient slow combustion heater inside the house on a masonry wall instead of on an outside wall. The masonry wall will add thermal mass and act as a heat bank which will provide you with heat after the fire goes out. Consider installing a wetback on the heater to save on water heating costs during winter. (See note below on reverse-cycle air conditioning).
9. Make sure your house is tightly sealed by installing draught proofing materials on doors and windows. Also look for draughts through gaps where ceilings and wall join, and around skirting boards.





## 2. To further reduce your on-going costs, you also need to consider the inside

1. Ensure that all your lights use energy efficient LED globes. Do not consider anything else! You should never have to get up on a ladder again to replace a bulb.
2. Install ceiling fans in every room. These make for comfortable sleeping at night, and reduce the use of air conditioners by up to 80%. If you feel a breeze you feel cool. Ceiling fans are inexpensive to buy and run.
3. The most efficient way to heat and cool your house is with a reverse cycle air conditioner. Modern units are very efficient and much better than gas or wood heating. If you have installed solar PV panels you will significantly reduce running costs.
4. Ensure that you have floor to ceiling window coverings and pelmets above the windows. This reduces heat loss in winter and heat gain in summer.
5. Consider having paved floors in the rooms facing north to get full benefit from the winter sun. They will act as thermal mass and absorb the heat and warm the house during the day and also release heat later.
6. When choosing appliances, buy the most efficient - the more stars the better. Also get rid of the beer fridge out in the shed, or at least only turn it on when it is absolutely necessary. Refrigerators are one of the major users of energy in the house.

## 3. Building to reduce your consumption of mains water

1. Use aerator taps on all plumbing
2. Water efficient shower heads are now mandatory
3. Install water tank/s to harvest the run-off from your roof. Install the biggest one you can afford or have space for. You can even have bladders under the floor. Use this water for toilets, bathrooms and washing machine. Recycle the waste water from showers and washing machine for the garden
4. Encourage everyone in your household to have 3 minute showers
5. Plant a water-wise garden using low water demand plants including Australian natives and reduce your area of lawn.

## 4. Building to reduce your carbon footprint

If you have adopted all or most of the measures suggested above, you will be reducing your carbon footprint on a daily basis and helping to save the planet for future generations.

**For further information, visit the following government websites**

<http://www.awa.org.au> [www.yourhome.gov.au](http://www.yourhome.gov.au) [www.makeyourhomegreen.vic.gov.au](http://www.makeyourhomegreen.vic.gov.au)