



**GREENFORM ENERGY**

Sustainable Building Consultants

*“Experts in compliance,  
advanced energy modeling and  
sustainable building design”*

# Home Living Guide

## How to Live ‘Efficiently’ in your Home

This is a practical guide on specifically ‘how’ to live ‘efficiently’ in your home. These simple measures can be implemented by any household and will help save money, materials and reduce environment impact.



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# CONTENTS

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CONTENTS .....	1
1. HOW TO LIVE 'EFFICIENTLY' .....	2
1.1 Heating / Cooling .....	2
1.2 Ventilation .....	2
1.3 Kitchen .....	3
1.4 Laundry .....	3
1.5 Bathroom .....	3
1.6 PV Solar Panel Systems .....	3
1.7 Hot Water System (HWS) .....	4
1.8 Electronics / Lighting .....	4
1.9 Landscaping .....	4
1.10 Rain Water Tanks .....	4



# 1. HOW TO LIVE 'EFFICIENTLY'

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## 1.1 Heating / Cooling

- Windows and doors; close all external openings when the air-conditioner is running. Also close off internal areas of the house that are not being occupied.
- Thermostat setting; set at a reasonable temperature. As a guide, summer between 24-27°C, and winter between 18-20°C. Bedrooms however should be cooler, and can be set between 13-18°C.
- Filters; clean air-conditioner filters regularly to keep units running efficiently.
- Clothes; dress appropriately- put a layer on or take a layer off, before resorting to air-conditioning.
- Fans; use ceiling or pedestal fans, before resorting to switching on the air-conditioner.
- Air-conditioner; switch on air-con only after exhausts fans are off, and doors/windows are shut. This may mean having a shower prior, to prevent all your precious conditioned air being exhausted straight back out of the house.
- Always turn off your air conditioner if the house is not occupied for an extended time.
- Portable heaters (plug-in); never use. Typically, they are rated at 1000-2400W and <100% efficient, compared to splits systems which can be >400% efficient. They use far too much power.
- Curtains/blinds; operate according to the weather. In summer, close blinds during the day to block excess heat, and open at night to allow night purging. In winter, open blinds during the day to let warmth in, and close at night to prevent the heat escaping.
- Pellets; these will further improve the above measure by reducing air movement against the glass, or for curtains, a cheaper alternative is to place a heavy blanket or towel on top of the curtain rod.
- External shading devices; operate according to the weather, more so for reducing heat gain.
- Thermal mass; utilise thermal mass (e.g. floor slabs, internal brick walls, etc) by allowing it to regulate the indoor air temperature. E.g. allow mass to absorb heat during a hot day- keeping the house cool, then open the windows at night to cool the slab back down again, ready to repeat the following day.
- Insulation; ensure it is all laying flat on the ceiling lining. It could have been moved by wind, rodents, trades doing renovations, and various other causes throughout the homes lifetime.

## 1.2 Ventilation

- Windows/doors; open windows that are opposite each other to rapidly increase ventilation rates.
- Flyscreens; install to windows/doors to allow operation in all conditions, e.g. to keep the fly's out!
- Mild weather; is the optimal time to ventilate the house, avoid this in extreme hot or cold weather.
- Exhaust fans; operate these ideally before turning on air-conditioning, to prevent conditioned air from being expelled back outside.
- Ducts, vents and grills; seal seasonally or permanently, all ducts, vents and grills not being used. Note- do not seal these if you have a flueless gas heater.
- Mechanical Heat Recovery Ventilator; where fitted, operate MHRV systems according to conditions. The MHRV system is to remain 'on', except when external windows/doors are open (e.g. in mild weather when the house is open) or when controlled infiltration vents are open for passive ventilation. The MHRV system may be activated (with all external openings and vents closed) for purposes of air quality control such as humidity, mould prevention, filtering pollen, smog, pollution, smoke, crop spraying chemicals, etc. This may help occupants with allergies and respiratory conditions as well as promoting improved health in general.



### 1.3 Kitchen

- Cooktops; turn off just before the meal is finished cooking- the retained heat in the pot/pan will keep the food cooking until done.
- Baking; do baking together or sequentially; e.g. roast dinner, cake, then biscuits to save power re-heating the oven.
- Meals; prepare hot meals on cold days, and cold meals on hot days.
- Toaster; utilise models with individually controlled pockets.
- Freezers; keep freezers as full as possible. Fill extra space with ice cubes or freeze water in empty drink containers, etc.
- Fridges; keep fridges about 2/3 full, because unlike freezers, fridges work best with room for plenty of air circulation. Open the door for a short time only. Avoid positioning food directly over air circulation vents.
- Defrost; put food from the freezer into the fridge for 'free' cooling.

### 1.4 Laundry

- Washing Machine; wash clothes in cold water as default. There is little performance difference in non-whites, however you will need to do a hot wash at intervals to clean the washing machine. Always wash a full load or alternatively use appropriate settings where available to reduce water level, run time, etc for smaller loads.
- Hot Water Connection; connect washing machines directly to your main hot water supply (especially if you have an efficient system HWS) to avoid the appliance 'self-heating' the water. If required, use a warm wash cleaning cycle, but finish with a cold rinse cycle- this is generally better for reducing creases too.
- Drying Clothes; dry clothes in open and well-ventilated areas (this can also provide evaporative cooling on hot days) and avoid drying clothes in small 'closed-up' rooms to prevent mould growth and bad air quality.

### 1.5 Bathroom

- Taps; turn taps off when not in use, e.g. whilst brushing teeth, shaving, etc.
- Shower Duration; showering for less time will save both a considerable amount of water and energy from water heating. Aim for 4-5 mins, you can keep track using an 'in-shower' timer.
- Shower Timing; shower prior to switching-on heating or cooling, this prevents all your freshly conditioned air being exhausted back outside! Alternatively, seal the door to the bathroom, and open an external window in the bathroom for ventilation.

### 1.6 PV Solar Panel Systems

- Appliances; use appliances (or any power-hungry devices) at separate times, rather than simultaneously. Solar panels and batteries can only supply a limited maximum current, and anything beyond this is drawn directly from the grid. In off-grid situations, doing this will also increase battery life and charge levels, as batteries work more efficiently the lower the rate of discharge.



- Timing; aim to schedule household power use to daylight hours when solar arrays are producing their peak output. This is influenced by occupancy, but can also be achieved with timers for appliances or by organising to do household tasks over the weekend.
- Clean; clean panels regularly to ensure they are running at peak efficiency and generating maximum yield.
- Maintenance; keep your system maintained, generally an inspection every 12-24 months by a solar electrician is recommended. This can add years to the service life of your system, and increase yield over its lifespan.

## 1.7 Hot Water System (HWS)

- Taps; keep tap handles in the full 'cold' position as default, this will substantially reduce hot water 'draw-off' (i.e. hot water going cold in the plumbing).
- Hot Water; use hot water directly from the tap to fill kettles, pots, etc, instead of heating water from cold using the appliance/cooktop only. Electric resistive appliances (e.g. kettles) are 100% efficient at best, however electric heat pump HWS's can be over 300% efficient.

## 1.8 Electronics / Lighting

- Standby Power; turn-off electronics (at the power point if necessary) to cut standby power consumption. (Not applicable to items requiring power intermittently e.g. fridges).
- Task Lighting; make use of task lighting, lamps (even opening blinds/curtains in the daytime) instead of turning on all the lights in the house/room being occupied.

## 1.9 Landscaping

- Landscaping; Maintain your garden so that it works with you in terms of energy efficiency. Examples include; letting larger trees grow to the west to protect from hot afternoon summer sun, pruning overgrown plants or removing evergreens to the north that are blocking winter sun access, and planting and maintaining deciduous vines to grow over seasonal eaves/awnings on the north.
- Electric Garden Equipment Use; plan to use equipment when battery power can be used most efficiently. E.g. mow lawns when dry, wet grass is extremely heavy and will drain batteries quickly.
- Electric Garden Equipment Charging; re-charge batteries during the day to utilise solar power.

## 1.10 Rain Water Tanks

- Roof and Gutters; ensure that gutters, first flush diverters and tank inlets/strainers are clean, free from debris and not holding stagnant water. This will increase both the quantity and quality of the rain water harvested.
- Filters; clean RWT's every 3-5 years, or as conditions require. Preventing debris build-up in the bottom of a tank reduces debris being filtered and thereby increases filter cartridge lifespan.

