

HIA GreenSmart house checklist

GREENSMART MINIMUM REQUIREMENTS

(TICK)

PASSIVE DESIGN	ORIENTATION	Living areas are north-facing or within 15oWest – 20oEast of true North.
	Are north-facing areas maximised? (See reverse for more information)	Ideally the long axis of the house runs east to west; OR large north-facing openings have been included to maximise exposure to natural light, take advantage of winter sun and minimise summer sun.
	NATURAL VENTILATION	External & internal openings take advantage of prevailing breezes.
	Which direction do breezes come from & can air flow freely throughout? (See reverse for more information)	Louvers or operable windows located opposite each other to allow air to flow through the rooms/house. Well-ventilated roof space eg. roof & eave vents. Extractor fans to be sealed in bathroom, laundry and toilet areas and externally flued in kitchen areas. Clothesline. Draft seals to be placed around windows and doors.
	AIR CIRCULATION	Ceiling fans in at least bedrooms & living room to assist air circulation.
	SHADING	Northern windows are shaded from entry of summer sun. East & west facing windows are minimised.
	Is it sheltered from the sun? (See reverse for more information)	Eastern and western windows protected from sun by eaves or awnings: OR Trees and landscaping; OR windows are tinted. Well-sized eaves & window awnings on north and south facades to provide shade in summer and allow sun in during winter.
	INSULATION	Ceiling insulation appropriate to climatic region (see overleaf).
	Cool in summer & warm in winter? (See reverse for more information)	Reflective foil (sisilation/sarking) in roof & walls. For rooms with air-conditioning &/or heating, wall insulation min. R1.5.
	MATERIALS What is it made of? (See reverse for more information)	Lightweight materials and/or thermal mass materials have been used appropriately to respond to climatic conditions. (relevant to the climate zone).
ENERGY	BUILDING STRUCTURE	Exceeds building regulation in your state for energy efficiency.
	LIGHTING	Energy efficient lighting is utilised in at least 50% of light fixtures (includes indoor & outdoor) such as compact fluorescents, fluorescent tubes, LEDs etc.
	INTERIOR SURFACES	Light-coloured coatings on interior surfaces to reduce dark areas (optional).
	NATURAL LIGHTING	North-facing openings (windows &/or glazed doors). Skylights (preferably double glazed & vented) &/or light-tubes in dark/shaded rooms (if applicable).
	HOT WATER HEATING	Installed an energy efficient hot water service within 1 star of the maximum energy rating as a heat pump or gas system.
WATER	(See reverse for more information)	All hot water plumbing pipes to be insulated where appropriate to your climatic conditions. NB Choose a gas boosted SHW service as a better option.
	AIR-CONDITIONING & DRAFT SEALS	Appropriately designed rooms to keep cool air in with draft seals around doors and windows. Seals to roof space openings.
	CO-LOCATED SERVICES	Hot water system & wet areas (bathroom, toilet, laundry, & kitchen) grouped to minimise plumbing.
	TAPWARE	Min. 4 star-rated tapware (or are fitted with pressure/flow reduction valves). (NB: installed in accordance with AS3500).
MATERIALS	TOILETS	4star rated dual flush systems.
	SHOWERHEADS	3star rated (NB: minimum 7.5 litre/minute and maximum 9 litre/minute).
	LANDSCAPING	Waterwise gardens/landscaping eg. mulches/compost, natives/drought tolerant plants, controlled irrigation, timers etc.
	ALTERNATE WATER SUPPLY	Alternate water supply systems for garden watering (where legislation allows).
	HEALTHY HOMES	Use low volatile organic compound emitting surface coatings. All gas heating & cooking appliances are externally flued (if applicable).

GREENSMART BETTER PRACTICE OPTIONS

(TICK)

PASSIVE DESIGN	WINDOWS	Thermally improved window frames. Installed thermally efficient window coverings.
	FIXTURES AND FINISHES	Lighter colours used for external surfaces to reflect heat (roof &/or walls).
	Does it reflect heat?	
ENERGY	ENTRY LOCK	Include sealed entry foyer in the design to control heat movement.
	WHITEGOODS & APPLIANCES	Where installed electrical appliances are to be within 1 star of the maximum energy rating. e.g. fridge, dishwasher, washing machine & clothes dryer.
	(See reverse for more information)	Where installed heating and cooling systems should be appropriately sized and within 1 star of the maximum energy rating. Install a heat recovery ventilation system where appropriate to your climate.
	CENTRAL LIGHTING	Single switch pad installed to control multiple lights.
	SENSOR LIGHTING	Install sensor lighting to infrequently used areas eg. pathways, outdoors.
WATER	PHOTOVOLTAIC OR RENEWABLE ENERGY	Photovoltaic (PV) system installed to supplement energy supply. Select the provision of green energy from your energy provider.
	(See reverse for more information)	Install an energy usage meter.
	WHITEGOODS & APPLIANCES	Min. 4 stars WELS-rated for washing machine & dishwasher. Greywater system utilised for toilet & landscaping Install hot water reticulation system.
	TOILETS	Installation of waterless urinals or composting toilets.
MATERIALS	LANDSCAPING	Timers fitted to external taps.
	ALTERNATE WATER SUPPLY	Plumb alternate water supply to toilets, laundry or hot water services (where legislation allows). Install greywater diversion system or rainwater tanks. Install treated greywater system (where legislation allows). Where a pool exists fill the pool with alternative water supply (where legislation allows).
	HEALTHY HOMES	Low emission surfaces and materials for cabinetry, floors, walls, doors, architraves and skirting boards. Use low emission products. Include passive ventilation through manually or automated systems. Use surface coatings with low volatile organic compounds emissions. Gas heating and cooking appliances should be externally flued.
	ENVIRONMENTALLY-FRIENDLY MATERIALS	Environmentally friendly building materials such as recycled timber (floors, doors, window frames) & glazing; bamboo, cork or linoleum flooring used (not including materials that are recyclable). Use building materials that are highly durable and require limited maintenance.

definitions + design benefits

NORTH ORIENTATED LIVING AREAS WITH NO OVERSHADOWING FROM NEIGHBOURS

In a well designed house there should be no need to turn on the lights in the living areas during the day. To achieve this living areas should be north facing with appropriately sized windows that allow in plenty of natural light. In conjunction with appropriately designed shading (eaves and awnings) this provides the added benefit of allowing warm winter sun to enter the house on those cool winter days. Could you read a book in the living areas without having to turn on a light?

CROSS FLOW VENTILATION

Good airflow through a house is vital during the summer months to ensure the house remains as cool as possible without relying on air conditioning. This will be achieved in a well designed house by the windows being located on the walls with best exposure to breezes and by placing windows directly opposite each other with minimal obstructions in between to encourage the movement of air through the house. Ceiling fans will also assist air circulation. A good test of the house design and the potential for air movement is if you can see another window from any window in the house.

EAST AND WEST WINDOW PROTECTION

Providing shade to east and west facing windows will ensure your house stays cooler particularly in summer months. Unshaded windows on the eastern and western walls of a house are the biggest potential source for heat to enter the home.

INSULATION

Insulation acts as a barrier to heat flow both into and out of the home and is essential to keep your home cool in summer and warm in winter therefore cutting heating and cooling bills. The efficiency of insulation is expressed as an R-value which measures the resistance to heat flow, the higher the

R-value the more efficient. Don't be afraid to ask the sales person about insulation and the R-value N.B. Refer to Zoning map (below left) for climatic zones and table (below right) for suggested insulation levels.

LIGHTWEIGHT AND MASONRY MATERIALS

The speed at which a material absorbs, stores and re-releases heat is often described as thermal mass. A lot of heat energy is required to change the temperature of high density materials such as concrete, bricks and tiles (high thermal mass). Lightweight materials such as timber and tin which heat up and cool down quickly have low thermal mass. The use and placement of materials in a house can therefore impact on how much the temperature varies inside the home. While both types of material can be used to advantage most important is that the materials are used appropriately. In hot climates high thermal mass materials need to be protected from direct sun. Low thermal mass materials should always be used in conjunction with insulation.

LIGHTING

Incandescent lamps (standard light bulb), including low voltage halogen lights are the least energy efficient type of lighting regularly used in the home. Fluorescent lights and compact fluorescent lights are up to 80% more efficient than incandescent and halogen lights. One low voltage halogen down light uses the same amount of energy as a 60 watt bulb, count how many are in the house. Use energy efficient lights in high use areas and only use incandescent lights where lighting is required for short periods.

APPLIANCES

Over half the energy used in the home can be attributed to appliances. Energy efficient appliances cost less to run and have less environmental impact than similar appliances with lower energy efficiency. Look for the Energy Rating Label that shows the star rating and other useful information about energy consumption. Also think about the best position and layout for all your appliances to maximise efficiency. For example, refrigerators and freezers should be located away from direct sunlight and other sources of heat and appliances that require hot water should be located as close as possible to the hot water heater to reduce heat loss in pipes.

further references

DESIGN, CONSTRUCTION & PRODUCTS

HIA GreenSmart:

www.greensmart.com.au

Your Home: www.yourhome.gov.au

Water Efficient Labelling and Standards Scheme (WELS):

www.waterrating.gov.au

Energy Label Rating Scheme:

www.energyrating.gov.au

Ecospecifier: www.ecospecifier.org

Window Energy Rating Scheme:

www.wers.net

Climate type and example locations	Recommended insulation levels (Material or system R values)	
	Roof/Ceiling	Wall

COOL TEMPERATE & ALPINE

Melbourne, Vic	3.0	1.5
Canberra, ACT	3.5	1.5 - 2.0
Hobart, Tas	3.5	1.5 - 2.0
Mt Gambier, SA	3.0	1.5 - 2.0
Ballarat, Vic	3.5	1.5 - 2.0
Thredbo, NSW	4.0	1.5 - 2.0

HOT HUMID & HOT DRY

Darwin, NT	0* - 4	0* - 2
Cairns, Qld	0* - 3.5	0* - 1.5
Broome, WA	0* - 4	0* - 2
Marble Bar, WA	0* - 4	0* - 2
Mt Isa, QLD	0* - 4	0* - 2
Tennant Creek, NT	0* - 4	0* - 2
Townsville, QLD	0* - 3.5	0* - 1.5

TEMPERATE & WARM HUMID

Brisbane, QLD	1.5 - 2.5	1.0
Perth, WA	1.5 - 3.0	1.5
Alice Springs, NT	1.5 - 4.0	1.5 - 2.0
Bourke, NSW	1.5 - 4.0	1.5 - 2.0
Sydney, NSW	1.5 - 3.0	1.5
Adelaide, SA	2.0 - 3.0	1.5
Katoomba, NSW	4.0	1.5 - 2.0

Source: Your Home Manual Technical Guide



■ Hot humid
 ■ Warm humid
 ■ Hot dry, warm Winter
■ Hot dry, cold Winter
 ■ Temperate
 ■ Cool temperate