

LIGHTING

FACTSHEET

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Lighting includes both natural and artificial light and the design of a lighting system will form an integral part of the overall sustainable design approach.

On average, lighting your home makes up 5-10% of your electricity bill, so increasing the energy efficiency of your lighting system will improve the overall energy efficiency of your home.

An efficient lighting system will:

- Make use of natural light, so living areas including kitchen and bedrooms don't require any artificial lighting during the day
- Provide a high level of visual comfort
- Allow the efficient performance of a visual task
- Provide the best light for the task (how bright is bright enough)
- Provide controls for flexibility to minimize the number of lights required in a space and the amount of time they are on through the use of motion detectors and timers, for instance
- Have low energy requirements by selection of energy efficient lights and lamps
- Create an atmosphere or ambience

DAYLIGHT

Sunlight is used (see passive solar design fact sheet) to provide both warmth to the interior of a house and light for daily tasks. Glazed windows, clerestory windows and skylights admit light to the internal spaces of buildings, and insulation in windows, walls, floor and roof provide the means to retain the warmth, whilst the position of windows and internal colour selection will assist in optimizing the use of daylight.

Glare arising from bright sunlight falling on work surfaces forms a distraction, reduces attention and causes fatigue

to the eye. Glare can be avoided by carefully positioned external fixed shading and/or adjustable shading devices such as operable louvres, blinds and awnings.

LIGHTING LAYOUT

Artificial lighting will provide lighting for those tasks where natural daylight is insufficient and at night. The layout of your lighting system will have a big impact on the comfort of the tasks and the energy consumption associated with them.

With the advent of low-wattage light fittings, such as CFLs (compact fluorescent lights) and LEDs (light emitting diodes), it is possible to design your lighting to minimize the number of lights turned on at any particular time and provide task lighting where, in the past, lighting of whole spaces was required to provide an adequate level of illumination for tasks and comfort.

This is not to be confused with 'low voltage' light fittings such as halogens, which provide more heat than light and contribute to excessive energy use.

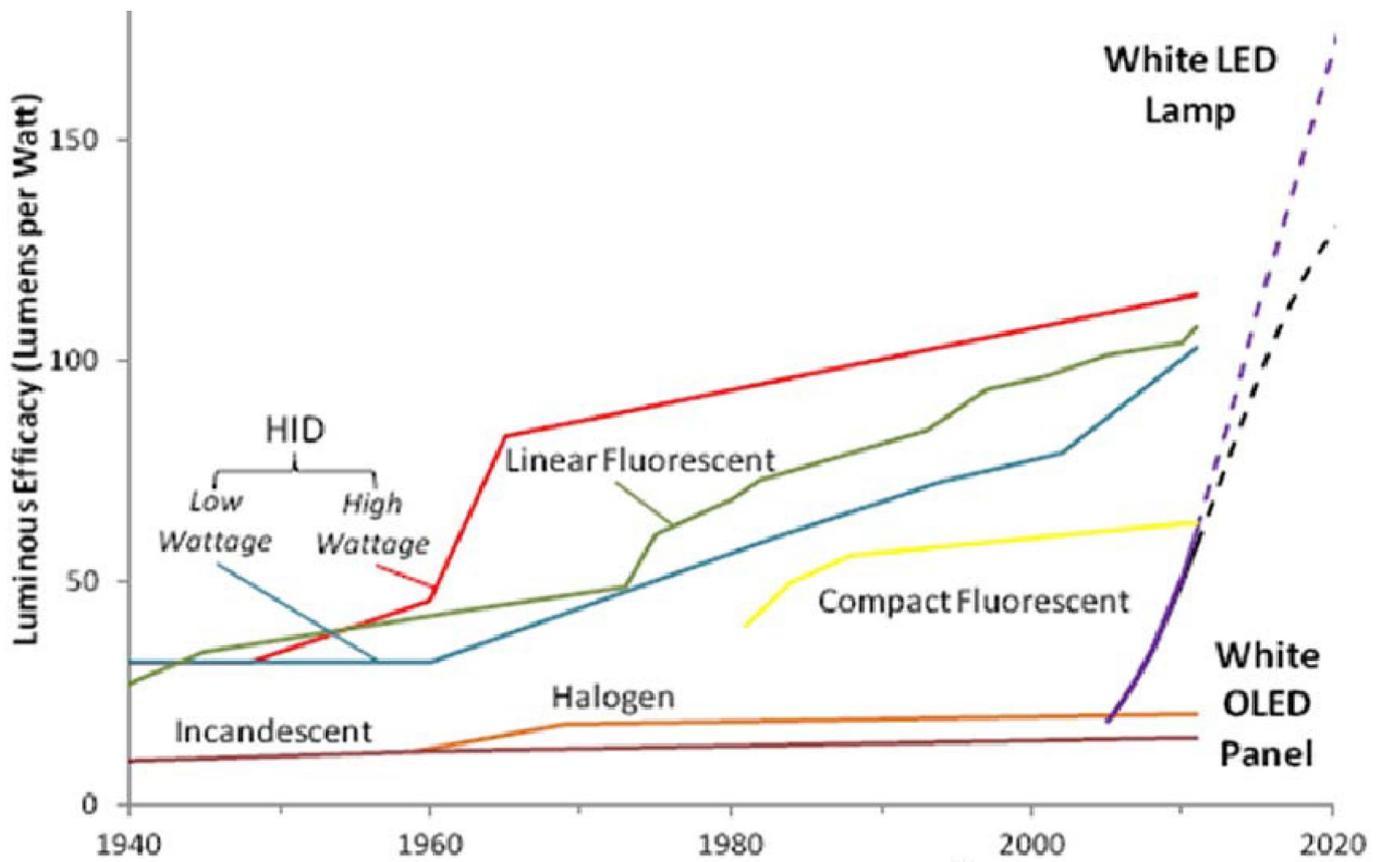
Allow for lights which are not used for long periods to be fitted with a sensor to detect movement and switch on for a short period and turn off automatically. Timers can also be used to activate lights as a security measure when you are away from the house for any length of time.

Install a 'Master Control Switch' over nominated lighting circuits to enable fittings on these circuits to be all switched off at once.

LIGHT FITTINGS

Incandescent fittings produce light by heating a metal filament, which causes a lot of heat to be lost in generating light, consequently this type of fitting is no longer legally manufactured for sale in Australia except for stock which was made before the legislation came into force.

Traditional halogen bulbs also create lots of heat, which means that ceiling insulation must stay clear of down lights



to avoid the risk of fire and this degrades the effectiveness of the insulation, which leads to significant heat loss through the roof space.

LED down lights however, produce almost no heat, and many types can be 'capped' – meaning you can run your ceiling insulation right over the top of them.