



# Low-down on downlights

While they may seem attractive, halogen downlights have a definite dark side

Over the past decade there has been a dramatic increase in the installation of halogen downlights in new homes. They were first designed to spotlight wall paintings but are now used to light up hallways, kitchens and every kind of room to create a modern look. But halogen downlights are not only an environmental hazard but can also pose a fire risk if not installed properly.

## Energy efficiency

Halogen downlights are a type of incandescent lamp, which work by heating a small piece of metal to white heat to produce light. More than 90 per cent of the energy that goes into common halogen lights turns into heat; as a result, the lights use more electricity than needed making them very inefficient.

While halogen downlights are good for direct task lighting, as they provide bright pools of light rather than general illumination, their popularity has exceeded their purpose as they are now being used to light entire rooms. This is achieved by installing a number of lights instead of just one central light source.

Halogen downlights also use additional energy as they require the use of a transformer that is usually located in the ceiling above each light fitting. The transformers can use an additional 10 to 30 per cent of the bulb's energy, reducing the overall efficiency of the light fitting even further. The transformers also produce heat, so if they are installed in the roof cavity they may pose a fire risk. This decreases the effectiveness of the insulation in your roof.

## Fire danger

In New South Wales, halogen downlights have been linked to 75 house fires in the past five years. In Victoria there have been 57 house fires caused by halogen downlights in the last eighteen months. The fire begins in the roof as the insulation is ignited by the 300 degrees celsius temperatures produced by the light fitting. As the fire is in the roof it often goes undetected by smoke alarms, and residents can be unaware of the fire until the roof crashes in.

'Blow-in' insulation can create dust in the attic space that can act as a fuel if it comes into contact with high temperature light fittings.

Light fittings that are located too close to timber beams or roof space litter can also start fires.

The wiring rules have changed in response to the number of domestic house fires caused by halogen downlights. New rules require insulation of combustible materials to be kept 200mm from lights and their associated transformers. The distance has increased from 50mm. The new edition of the wiring rules will be published in late 2007. Standards Australia say the new rules should reduce the number of house fires. However, this also reduces the effectiveness of insulation in your roof.

## Fixing the problem

There are many alternatives to downlights that are more energy efficient and do not pose a fire risk.

The obvious alternative is to remove some of the bulbs. Downlights are often over installed with many in the one room. Removing downlights is an easy way to significantly cut your energy bill and reduce installation costs.

Another alternative is to replace lamps with wider angle dispersion patterns, as often downlights have a narrow angle that only lights

up spots on the floor rather than an entire room. A light with a 60 degree angle will help to efficiently light a room.

You can also replace lamps with those of a lower wattage. Most downlights are fitted with 50 watt lamps; these can be replaced by 20 to 35 watt lamps. However, buying the cheapest option is not the best solution, as the cheapest lamps are usually the least efficient and the shortest lasting. A more expensive lamp can produce more light for the same energy use and will generally last a lot longer.

A complete change of lamps is an option which may require some time and money in the short term, but in the long term will largely reduce lighting costs by increasing energy efficiency. An emerging technology is LED downlights which cost between \$30 and \$100 but last 50,000 hours. Also, mini compact fluorescent downlight fittings could be used as an alternative to halogen downlights or compact fluorescent downlights and fittings.

Use downlight fittings that don't need a transformer. The GU10 type fittings let you use other types of lamps if desired, including GU10 fluoros (available from hardware stores and many environmental products stores) and LED GU10 bulbs.

A more flexible option is to install incandescent downlight fittings, which can take any screw based bulb. You can then use spiral or reflector type compact fluorescent lamps in them for greatly reduced energy use while getting more usable light.

## For more information:

**Your Home**  
[www.yourhome.gov.au](http://www.yourhome.gov.au)



## Halogen downlight tips

- Halogen downlights are good for task lighting not general room lighting
- Reduce the amount of lights in the room to reduce energy use
- Replace 50 watt lamps with those of a lower wattage
- Replace the downlight fittings with a compact florescent alternative
- Replace the downlight lamps with a LED alternative