

Lighting



Office lighting

Office lighting accounts for up to 40 percent of energy costs in commercial buildings. Lighting is designed to maintain the average lighting level recommended by the Australian Standard AS1680.2.0. However, significant energy savings can be gained by applying some simple initiatives.

Install an energy-efficient lighting system

The benefits of installing an energy-efficient lighting system into commercial buildings are:

- a comfortable working environment,

contributing to improved staff performance and morale

- reduced energy costs for air-conditioning because of more efficient lamps that emit less heat
- reduced maintenance costs due to longer life lamps.

Improvements to light the way

1. If your office lighting incorporates two standard fluorescent lamps, consider changing to a single triphosphor T8 and specular 'mirror type' reflector. This has a 20 percent greater output than a standard T8 lamp of the same wattage and will result in fewer lamps required, thus lowering replacement costs and

energy consumption. However, it is important to maintain light levels required by Australian Standard AS1680.2.0.

2. Combine energy-efficient lamps with electronic ballasts, which control the voltage in fluorescent lamps. Electronic ballasts are 20 percent more efficient than the more common magnetic ballast.
3. Install a reduced voltage system to reduce the start-up voltage to a lower level. The drop in current will result in energy savings without a significant difference in lighting levels.

Industrial lighting

Lighting accounts for up to seven percent of industrial electricity use. Getting access to high fittings to replace lamps and carry out maintenance can be a costly exercise, which is why more industries are switching to long life and low maintenance technologies.

High Intensity Discharge (HID) lamps

There are four variations of HID lighting with differing efficiency levels.

1. Mercury Vapour (MV) lamps are the standard form of HID lighting, but are the least energy-efficient. MV lamps have low initial costs, and a long lamp life, but over their lifespan the light produced decreases significantly to around 60 percent.
2. Metal Halide (MH) lamps are a more efficient lighting option, producing 60 percent more light than a MV lamp of the same wattage. MH lamps are suitable when colour identification is a priority. They are appropriate for indoor applications, retail display lighting, facade lighting and outdoor security. MH lamps are also useful for lighting sports fields where broadcast standard television is required.
3. High Pressure Sodium (HPS) lamps are also efficient, producing more than twice as much light as MV lamps of the same wattage, with light of a yellow tint. HPS lamps are more economical where colour identification is not important, and are most suited to outdoor lighting (e.g. car parks) as shifts in colour may occur throughout the life of the lamp. HPS lamps are also suitable for storage areas and amateur sporting fields.
4. Low Pressure Sodium (LPS) lamps are the most efficient lighting option. LPS lighting is appropriate for highway and security lighting and where colour identification is not important, as the lamps broadcast a noticeably yellow beam.



Tips to reduce the cost of lighting

- Use timer controls to automatically switch lights on and off over set periods. Timers are a relatively low cost method for saving energy and are simple to install. They can be used in areas that only require lighting at specific, regular times during the day or night.
- Make effective use of the sun for natural light. Install translucent roof panels to reduce the need for artificial lighting. Install control systems to turn lights off when there is sufficient daylight.

For more information

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