

# Retrofit Lighting

Achieving Great Outcomes

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Light Naturally



## Why do we light?

To provide an amenable visual environment for people while enabling them to carry out the tasks at hand.



## Secondary Issue

The creation of a lit space in the way which minimises its impact on the environment.



## The Function of Lighting

Can be categorised into

- Safety / security
- People movement and task oriented
- Visual interest
- Highlight / Attract attention



## Objectives of Lighting

To have sufficient lighting to achieve the function of the lighting

- When required
- As energy efficiently as possible, and
- In the most cost effective way



## Energy Savings

Need:

- Efficient Products (inc controls)
- Efficient Design
- Efficient Use

## Assessing “Fitness” of Building

Like a person taking a medical

- |   |   |
|---|---|
| <ul style="list-style-type: none"><li>□ Visit a GP</li><li>□ Provide information on your general lifestyle, basic tests</li><li>□ Report prioritises “bad” elements</li><li>□ Refer to specialist</li></ul> | <ul style="list-style-type: none"><li>□ Energy audit/assessment</li><li>□ Provide information on your usage patterns &amp; needs, basic tests</li><li>□ Report prioritises “bad” elements</li><li>□ Refer to specialist</li></ul> |
|---|---|

## Achieving Energy Savings

Hierarchical process

- Understanding of usage and requirements of the space (this comes from the building stakeholder: you)
- Conveying your knowledge to lighting design professional
- Assess opportunities and deliver appropriate design with efficient products

## Engaging with “Specialist”

Determine your priorities in terms of:

- Occupants well-being
- Flexibility of lighting
- Access for maintenance
- Perception of lighting upgrade
- Projected savings for associated investment

## Retrofitting Lighting Tips

- High capital cost barrier – Gov funding programs are great assistance
- Gain confidence from experiences of other buildings – case studies
  
- There are recommended and enforced lighting standards (compliance responsibility shifts with retrofit)
- There are building code limits for installed lighting power

## What LED lamp power is approx equivalent to an existing lamp ?

Approx equivalence of light output (like for like)

- LED Watts =
  - 1/5 x Halogen Watts
  - 1/2 x CFL Watts
  - 1 x Linear Fluoro Watts (some are higher than 1)
  - 1/2 x MV Watts
  
- These are rules-of-thumb and vary between manufacturers (the devil is in the detail)

## Upcoming Seminar Series

- Lighting in context - how much energy does it use?
- Lighting basics - lamps, fittings, and control systems
- What separates efficient lighting from inefficient lighting?
- Benchmarking - does your building have efficient lighting?
- What makes lighting efficient?
- Impacts on HVAC loads
- Where to turn for advice

## Upcoming Seminar Series

- Best practice efficient lighting
- Enhancing Indoor Environmental Quality (IEQ) and productivity
- Good and bad lighting design
- LED lighting
- Interactive demonstration of lighting efficiency
- Economics of efficient lighting
- Building a business case
- Case studies
- Government programs and regulation
- Tools and resources
- Step-by-step guide to improving lighting efficiency

## Be Empowered - Free Resources

[www.iesanz.org/resources/best-practices-in-lighting](http://www.iesanz.org/resources/best-practices-in-lighting)

- LED Light Sources
- Lighting: The Way of the Future
- Quality and Sustainability
- Properties and Rating Systems for Glazings, Windows and Skylights
- Electric Lighting - Design Techniques
- Lamps and their Control Systems
- Operating and Building for the next 20 Years
- Lighting at the AGO offices, Canberra
- Understanding how to get good lighting solutions within the framework of the BCA
- Developments in the Human factors of Lighting



## You will need help!

- Seek a professionally qualified lighting designer.
- A Member of the Illuminating Engineering Society of Australia and New Zealand

- [www.iesanz.org/resources/services-products-directory/](http://www.iesanz.org/resources/services-products-directory/)

