

1200 Buildings

CASE STUDIES

Legacy House

293

Swanston St, Melbourne

The Legacy House lighting retrofit is a perfect example of how a well-executed lighting design and installation can deliver operational savings and greater amenity resulting in enhanced employee productivity and retention of tenants.



Built

1937, last refurbishment 2006

NLA

Office 1600 m² approx

Tenancy

Office

Building Owner

Legacy Melbourne

Property Manager

Legacy Melbourne

Project Time Line

2013

Project Team

Project Manager: Peter Samers (Legacy House)

Lighting Consultants: D2 LED Lighting & Design

Product

D2 LED

Building issues

- Inconsistent uniformity of light distribution (Some areas over or under lit)
- Lighting represents a significant operational cost for owner and tenants

Retrofit Features

- Lighting layout redesign
- Installation of LED Lighting

Estimated Electricity Annual Saving

\$6 500

Actual Electricity Annual Saving

\$8 500

Reduction in kWh Consumption

7 241 kWh (or 64 per cent)

Project Costs

\$47 000

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OUTCOMES

Energy

Legacy House achieved:

- a 64 per cent reduction in electricity consumption
- lower operating costs
- compliance with AS1680
- a reduction in the total number of lights by 84 units (or 16 per cent)

First quarter analysis confirmed:

- a total reduction of electricity consumption of 7 241 kWh over the first 72 days
- the achievement of forecasted savings of \$8 500 per year

Environmental

Legacy House will achieve a projected:

- reduction in carbon emission of 57 tonnes per year
- reduction in landfill waste of 5 250 lights over 12+ years

Employee productivity

The reaction from employees has been positive with consistent reports of increased productivity due to reduced levels of eye strain by the replacement of flickering fluorescent lights with better performing LEDs. Staff also enjoy the brighter ambience and more comfortable lighting conditions.

For the business

Tenants of Legacy House are pleased with the lighting retrofit as it has provided them with better working conditions which supports improved staff productivity. More efficient lighting fixtures combined with a reduced number of luminaires has improved operating cash flow through reduced electricity costs. This has greatly enhanced the tenant/landlord relationship.

The savings achieved through this lighting retrofit can now be used to support widows and families of Australia's armed servicemen and women!

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BACKGROUND

Heritage listed Legacy House was constructed in 1937. Work to upgrade the building's interior, which had become run down and tired commenced in 2006. In 2013 a major lighting retrofit was completed and has refreshed the look and improved amenity for building users.

Motivation to retrofit included:

- reducing energy bills due to escalating electricity and maintenance costs
- reducing the excessive number of overhead lights in some areas to save costs
- improving lighting levels in under lit hallways and bathrooms
- better showcasing the Legacy memorabilia in the main entrance
- illuminating street canopy.

Project objectives included:

- maximising tenant retention
- improving lighting uniformity and compliance
- reducing energy bills
- reducing operating cash flow
- improving amenity and saving money while achieving a commercially viable return on investment.

Baseline costs and energy consumption

- Cost - \$837 per month electricity for lighting
- Lighting Consumption - 5 640 kWh per year
- CO₂-e - 89 tonnes per year
- 608 - luminaires.

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IMPLEMENTATION

Legacy Melbourne commissioned lighting consultants, D2 LED Lighting & Design to undertake a 3-stage approach to the lighting retrofit:

1. Lighting assessment

A lighting assessment was conducted to benchmark existing lighting levels and performance and to inform optimal internal lighting design requirements. In addition to the visual assessment, existing plans/drawings helped to identify current issues and challenges.

2. Lighting Design

Dialux modeling and 3-dimensional renders were used to develop the Reflected Ceiling Retrofit Plan. The Plan sets out the optimal layout for compliance with Australian Standard AS1680. The Plan maximises potential operational savings while simultaneously improving building performance.

The new lighting design identified that the existing number of lighting fixtures could be reduced by 17 per cent. This would simultaneously improve lighting levels and amenity while reducing energy consumption by more than 60 per cent.

3. Installation

Using the revised Reflected Ceiling Retrofit Plan, the lighting was upgraded out of operating hours to minimise disruption to building users.