

Case Study 3 Telstra House

Telstra House, centrally located on Pirie Street, Adelaide and built in 1987, is a 24 storey high rise building tenanted by Australia's largest telecommunications company, Telstra Corporation. Telstra House comprises general office accommodation, a call centre and executive office accommodation throughout the building.

The Project

At the time of this project Efficient Energy Systems had already successfully completed a number of high profile energy saving projects for Telstra. It was of no surprise when the Facility Manager, Coffey Environments, environmental consultants for the United Group Services, invited Efficient Energy Systems to participate in the open tender for the supply and installation of an energy efficient lighting solution. Efficient Energy Systems was ultimately successful in winning the tender with a lighting solution that promised exceptional energy savings.

The Challenge

The tender called for the lighting on 16 floors to be upgraded, representing a total floor area of 13,440 square metres. A total of 2,363 luminaires required upgrading. The existing luminaires were recessed troffers with return air slots and framed prismatic diffusers at 2.4 metres centres. The luminaires were fitted with 2 x 36W tri-phosphor tubes and low loss magnetic ballasts resulting in a total energy consumption of 84W and lighting power density of 14.6W/m². This arrangement resulted in over illumination of the office space, which caused headaches, complaints and loss of productivity by the building's occupants.

The challenge here was to reduce the overall energy consumption, as well as optimising light output, indoor environmental quality and reliability with the new lighting solution.

The Solution

In order to minimise disruption to the existing spatial separation of the light fittings, and reduce project costs, it was decided to upgrade the existing light fittings

by retrofitting these with high performance KW/2 specular reflectors. The KW/2 reflector was customised to fit the existing fitting with the lamp centrally placed at the focal point of the reflector producing 20 per cent more downward light than the previous design, while providing more useful light.

The 2 x 36W tri-phosphor tubes and low loss magnetic ballasts were replaced with a single 36W tri-phosphor lamp and high efficiency warm start electronic ballast. The result was energy consumption was reduced by more than 50 per cent to 35W per fitting with the lighting power density reduced to less than 6.5W/m². In the process the lighting levels were reduced, which stabilised the number of complaints and loss of productivity.

All the lamps were replaced to achieve an even light intensity and colour uniformity throughout the work space and to reduce future maintenance costs. In addition, lamps, ballasts and packaging removed from this project site were all separately recycled ensuing responsible environmental stewardship.

The installation and commissioning of the new lighting scheme was expertly undertaken by North East Electrical within budget and schedule.

The Cost Savings

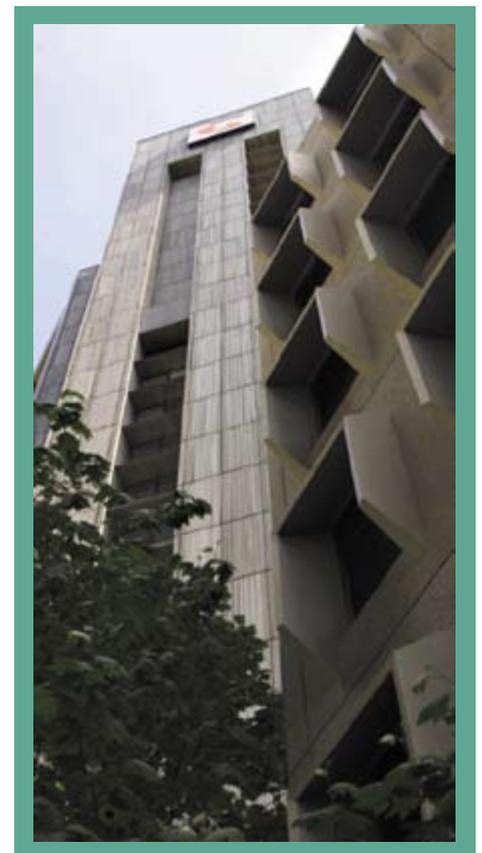
The energy saving as a result of the lighting upgrade was 433,000 kWh per annum, while greenhouse gas emissions reduced by 424 tonnes with an annual cost saving of \$39,000.

In addition to the energy savings, the lighting levels were uniform throughout which resulted in an improved indoor environment and operator comfort. Finally, the new

lighting scheme met with the requirements of AS/NZ1680 for lighting design and significantly exceed the BCA benchmarks.

The Facts

Annual energy savings	433,000 kWh
Annual greenhouse gas savings	424 tonnes
Annual energy cost savings	\$39,000



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