



Application

The communal areas of hotels are often required to be lit 18 to 24 hours per day. As a very high use area, efficiency and performance is equally as important as style, meeting branding requirements for the hotel.

In this example, a high use corridor was previously lit by 100 35W MR16 halogen downlights. Each unit consuming 22W/m² to achieve an average 78lx at floor level. The brief for refurbishment included an 80% efficiency improvement, reduction in failed lamps, and styling to fit with a nautical theme.

The incidence of failed halogen lamps had resulted in complaints to the hotel. Accessibility issues in replacing the lamps were both a health and safety concern and the sight of ladders in public areas was not conducive to the quality brand image.

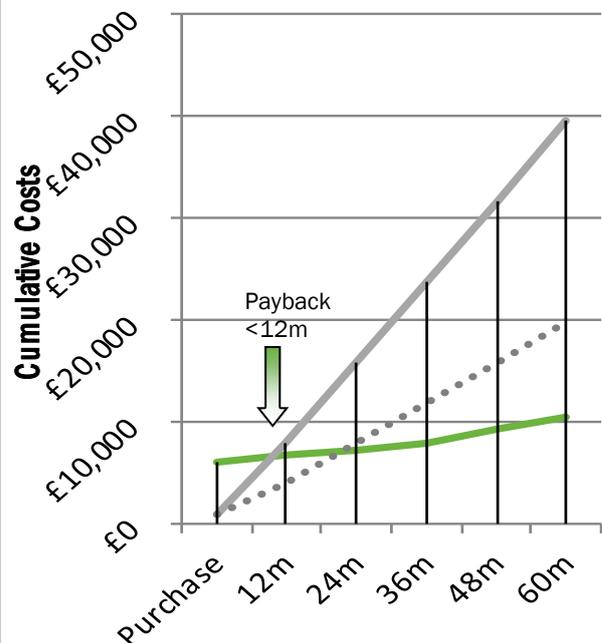
Key Features

- 80,000hr maintenance free lifetime
- LED solution achieves 6 W/m²/100lx at floor level compared to halogen at 29 W/m²/100lx
- 80% more efficient than previous halogen fitting.
- Integrated low cost NiMh emergency pack will run multiple fittings
- Simple installation with cutout size the same as standard MR16 fitting.
- Payback less than 12 months

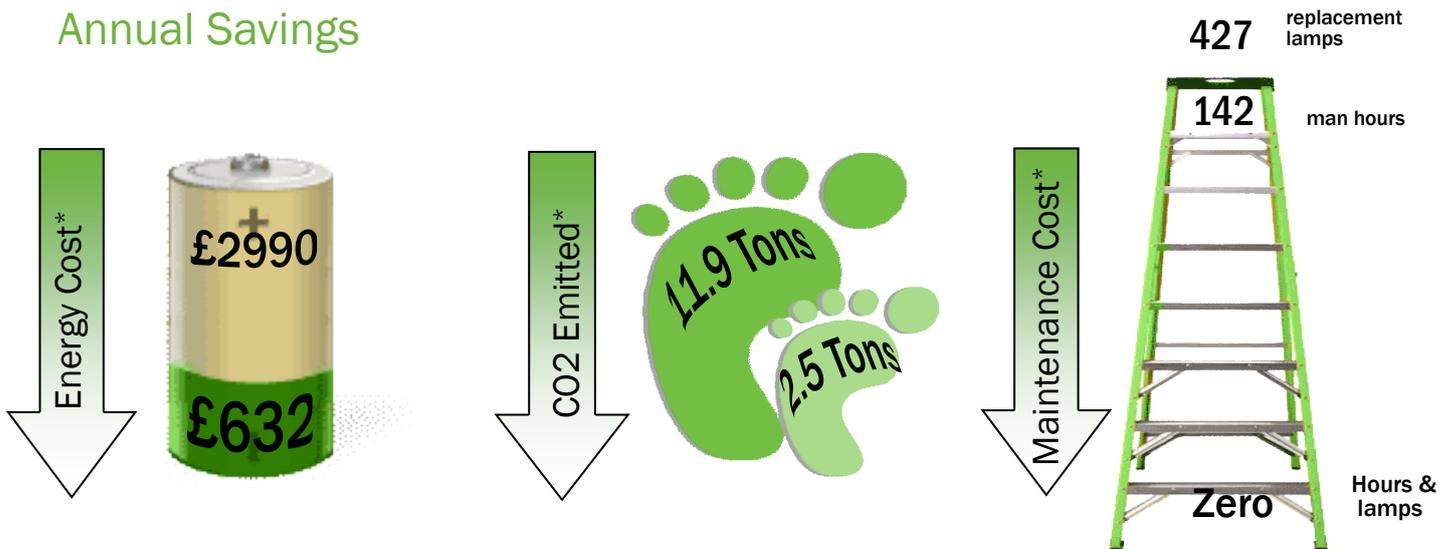


Payback

- PhotonStar EcoStar 500+ (all costs)
- MR16s (all costs inc. Maintenance)
- MR16s (energy costs only)



Annual Savings



*Based on energy cost of 0.10 per kWh , 0.4Kg CO2/kWh, savings over 1 year based on 24 hours use per day operational lifetime.

Solution

PhotonStar™ supplied a solution utilising 100 EcoStar 500+ 7W downlights – requiring only 4.6W/m² to achieve a 20% increased lux level to 102lx, offering an 80% reduction in power consumption. The 80,000 hour (L70) lifetime of the EcoStar 500+ resulted in the incidence of failed lamps (bulbs) being eliminated. There are no lamps to change for approximately 12 years in this 18 hour per day application. The added benefit of eliminating lamp failure was all part of the quality brand that the hotel represents. A further benefit is dramatically reduced maintenance costs.

Replacing the 100 35W MR16 halogens, operating for 18 hours a day 7 days a week upgraded to the PhotonStar™ EcoStar 500+ operating at 7W, reduced electricity usage from 27,000kWh per year to just 6,400kWh per year – without sacrificing the quality and amount of light. Efficacy was dramatically improved to 3.5 W/m²/100lx. Total savings over the project lifetime are £21,600 in electricity, £26,000 in labour and £32,000 in replacement bulbs. The expected saving per individual fitting over it's lifetime is £796 (216 electricity, 40 lamp changes including 20 mins labour and cost of 1 lamp) Utilising the “instant on” feature of the EcoStar 500+, installing occupancy sensors would result in further savings and extended life.

The area required a number of emergency lights. Taking further advantage of the ultra low power requirements of the EcoStar 500+, integrated emergency packs were installed, maintaining the design concept and providing a fully illuminated emergency solution eliminating the need for bulky plastic emergency fittings. As the 100% recyclable EcoStar 500+ requires so little power, safe NiMH batteries were able to be used in preference to highly toxic NiCad as an environmental decision.