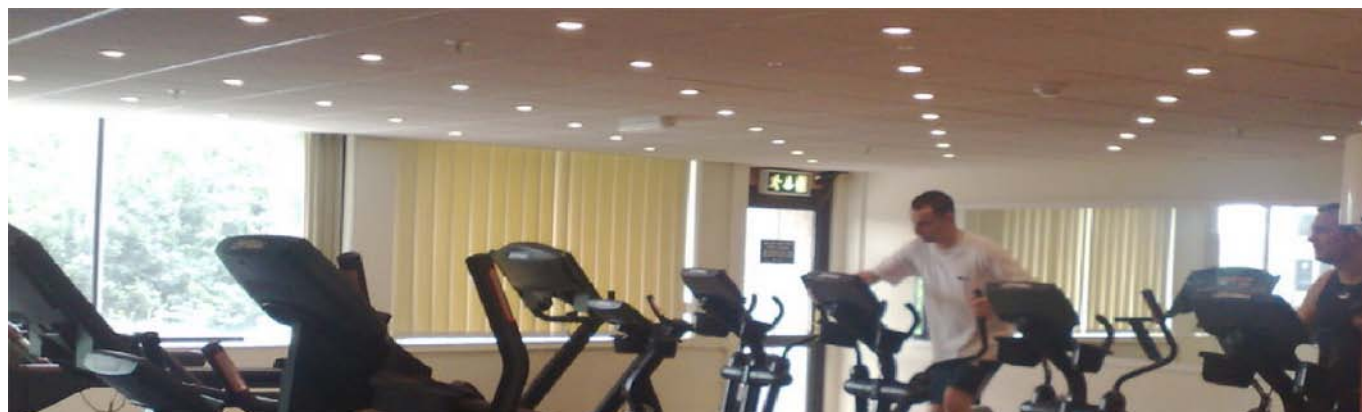


GREENLED - CASE STUDY



Saving energy through sustainable lighting

GYM - Bristol Marriott Hotel



Description:

With so many dichroics in the gym, the General Manager of the Marriott Hotel in Bristol asked his maintenance team how to stop his head getting so hot when he works out. Cameron MacNellie and Garry Cox had the answer. Replace the lamps with Greenled's "Antares" lamp, reduce the heat to nil and at the same time reduce energy consumption. It was a straightforward GU10 mains lamp change and 145 lamps took about an hour for Garry and his team to install. The lights in the gym are on from 6am until midnight.

Sustainability Criteria:

This exercise was designed to have both an economic and an environmental benefit.

Economic Benefits:

Products: 145 x 50W Halogen lamps replaced by 145 x 4W Greenled Antares lamps

Daily use: 18 hours every day

Price per kWh: 10p

Halogen energy consumption: 47,633 kWh pa

Greenled energy consumption: 3,811 kWh pa

£12 saved every single day / £ 30 per lamp saved every year

Air-con energy consumption: It takes approx 14W of energy in air- con to pull away the heat generated by a single 50W lamp. By changing to Greenled it is likely to save at least another 13,000 kWh every year in reduction to the air-conditioning load.



Maintenance Benefits:

Each halogen lamp lasts for 3,000 hours and costs 50p to buy plus £ 2.00* to install. As they are on for approx 6,000 hours per year they each need to be changed and reacquired twice per year. This amounts to £ 725 in maintenance costs which no longer needs to be spent now that they have been replaced with Greenled Antares.

Environmental Benefits:

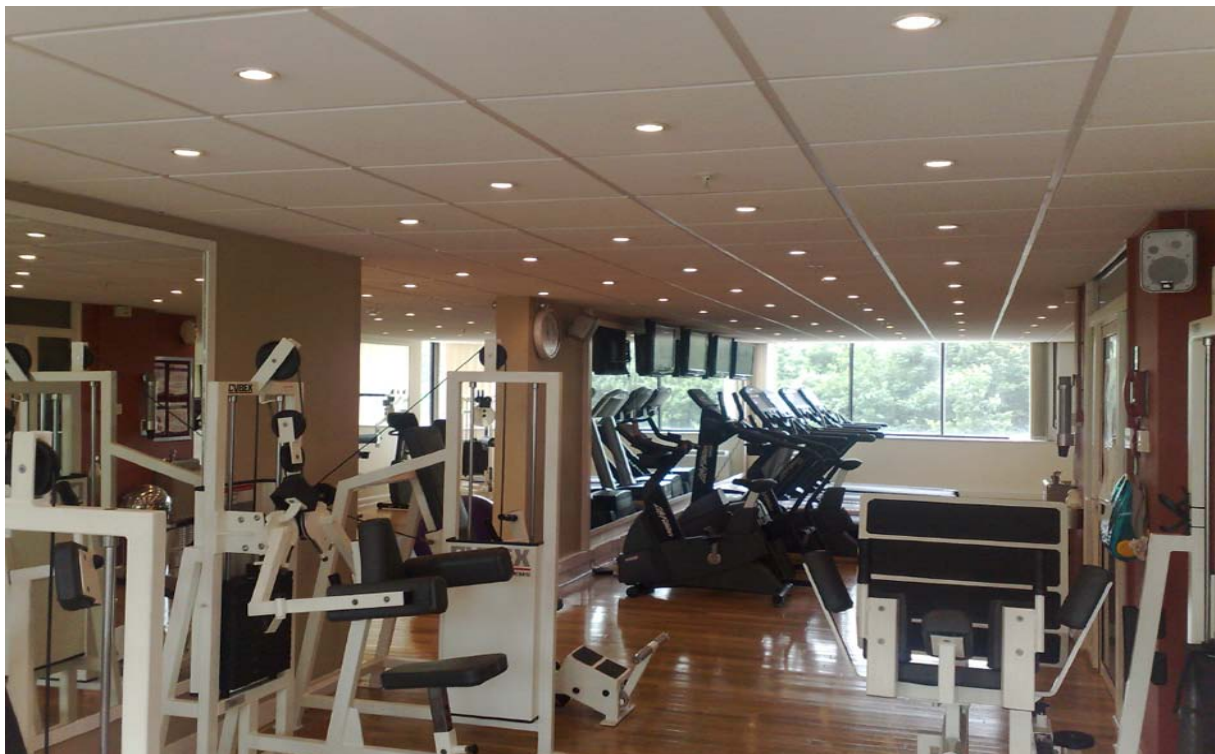
Lighting energy saving resulted in:

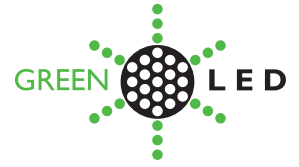
Energy: 43,822 kWh per year saved
CO2 tonnes: 23.53 tonnes of CO2 per year saved

Air-conditioning reduction adds another 13,000 kWh at least to this saving.

Social & Wider Benefits:

- **BIG SAVINGS:** Since the LED installation, measured savings have proved considerably higher than anticipated, thanks to the consequent reduction in air-con usage.
- **LESS HEAT:** No heat from the lighting has made the gym considerably more comfortable and the General Manager does enjoy the change !
- **NO MAINTENANCE:** The 50,000 hour lifespan negates the need to buy and change broken lamps.
- **CONSISTENCY:** Halogen dichroics rarely last more than 3,000 hours. With such a dense coverage of lighting there were always a few out and, although changed daily, this compromised the aesthetics. There is now a consistent light across the gym.

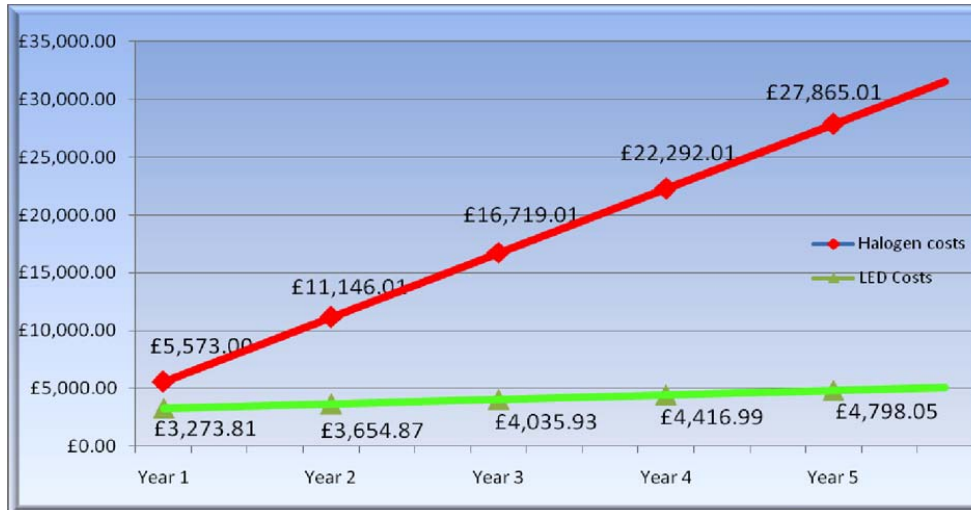




Business case:

Initial Cost: £2,892.75
Payback: Energy costs - 7 months

5 year savings:



Summary of Benefits achieved

The energy saving in this situation is astonishing. Including the air-conditioning and the lamp changing issues the total saving will be well **over £ 5,200 per year** in one single room.

The situation is unusual because the site was overlit to start with. 145 downlighters is too intense for a context like this, especially in such a naturally well lit room.

One lesson to be drawn is how worthwhile it is to review the lighting on one's premises as was done here. By addressing the areas where the lights were not right for the task and where the lights were on for a long time in the day, Marriott have saved well over £ 5,000 annually by simply swapping 145 lamps, proving the value of investing in such a survey.

This project has proven to the team at Marriott that LED technology offers a practical light which equates in colour temperature and light output to current halogen lighting.

Further opportunities at Marriott Bristol

Following the success of the gym project, Cameron and Garry's team are implementing a lamp change programme across all corridor and toilet areas from halogen to Greenled lighting.

Further opportunities across the Marriott chain

Marriott are ambitious in their objectives to reduce energy consumption. The success of this project as well as Greenled's work in various other Marriott sites has encouraged Marriott to work with Greenled in a number of sites across their UK estate.

