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Case Study

Heathrow Airport

- Hillingdon, London.
- Upgrade of multiple systems
- 69% energy saving
- Reduction of maintenance costs

The Brief

Heathrow Airport set a target to reduce it's absolute CO2 emissions from fixed sources by 30% on 1990 levels by March 2020. A major upgrade of the lighting system was required, and the project incorporated a variety of key locations at the airport, such as terminals, control posts, car parks and more. Significant savings on maintenance costs was a requirement as maintenance can only be carried out during a few hours at night, making repairs expensive.

The Solution

Project 1: Car parks at Terminals 2, 3 and 4

In the terminal car parks most of the lighting was provided by traditional 5ft 2×58 Watt corrosion proof luminaires, using approximately 122 Watt each. The airport was aiming to reduce energy costs and maintenance cycles, while improving the experience for the passengers/users. Looking at the client's requirements and specifications for these types of areas, we looked at a one-for-one replacement using 4ft Glamox GPV2 LED running at 40 watt per fitting. This enabled us not only to meet the requirements, but also to use a third of the power consumption, showing massive energy savings.

In some circumstances 2ft GPV2 LED were used on the perimeters in place of single 5ft luminaires. Utilizing external light sensors and daylight switching, further reductions in the energy consumption were obtained. On the ground floor of the Terminal 3 car park we used the i80 at high level in place of discharge lights and incorporated occupancy sensors on alternate lights.

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The Solution

Project 2: Terminal 4 entrance canopy (Arrivals)

The old terminal entrance lighting was on 24/7. Here the airport was using 250 Watt metal halide high bay luminaires recessed into the ceiling, which is 8 metres high. These luminaires had started to fail and fall into disrepair. The airport was looking at reducing the energy consumption and improving maintenance. Access was a major issue. Mounting the i80 luminaire within the recess and supplying an external bezel contributed greatly to improved maintenance and energy consumption reduction. External daylight sensors would enable luminaires to be switched off during daylight hours, thus providing further energy savings.

Project 3: Passenger Subways linking Terminals 1, 2 and 3

The passenger subway linking the terminals at Heathrow were lit by a combination of linear fluorescent tubes and recessed and surface mounted CFL downlights. Subway transfers were not a particularly pleasant experience for passengers. It was important that we should be able to enhance the lighting in these areas.

In cooperation with lighting designers Studio Fractal and installer Crown House Technologies, it was decided to redesign the entire system's lighting scheme. We used the C50-SR LED RGB for the wall wash. This makes it possible to change the colour of the walls in order to make the lighting more exciting. All recessed and surface mounted downlights were substituted with LED models. As a result, the passenger tunnels are now well lit and have a much more pleasant ambience.

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Project 4: Security control posts

The vehicles security control posts are a particularly important part of an airport's security system. All vehicles entering the airport area are thoroughly checked in full light, 24/7. The old 250 Watt metal halide floodlights at some of the control posts were failing, diffusers were discoloured and maintenance was becoming an issue. An upgrade was made at a total of four security control posts. Changing to GPV2 LED luminaires gave good energy savings and reduced maintenance costs. We also suggested the use of i80 luminaires mounted on the columns using our turnable bracket. This again gave good energy savings and reduced maintenance costs. It also enhanced the lighting in these areas to a very high standard.

The Result

Heathrow Airport's investment in the latest energy efficient technology has contributed to improved passenger ambience, and at the same time has reduced the airport's energy and CO2 consumption. Energy consumption was reduced by as much as 69%, helping Heathrow towards their target of reducing it's absolute CO2 emissions from fixed sources by 30% on 1990 levels by March 2020. As a result of this, lighting upgrades were rolled out to other areas of the airport.