



Lighting that doesn't cost the earth

# Illuminex lighting up Bristol Airport

## Bristol Airport committed to saving energy on lighting



savings. These lighting upgrades illustrate how committed the airport is to the conservation of energy. Bristol airport is consciously working to offset its carbon footprint.

In May 2010, expansion plans for Bristol Airport were approved, which will enable it to handle 10 million passengers per annum by 2020. As part of this major expansion project, the Western Apron Walkway was approved and it was decided that the airport offset the electrical load (175kW) of this new walkway through lighting solution savings. Bristol Airport selected Illuminex as the best solution provider to assist them. Illuminex was tasked to achieve energy and financial savings through an

overhaul of the existing lighting in designated areas at the airport. This was done with a mixture of refurbishment of existing fittings and new technology lighting solutions, in addition to redesigning areas that were substantially under lit and improving the effectiveness of the existing illumination. Current energy savings can be increased significantly with the use of motion sensors and could save Bristol Airport an extra 50% on its energy

**Bristol Airport confirmed,**  
*"We are very pleased with the total lighting upgrade Illuminex has achieved. We are already experiencing the lighting energy savings from this recently completed installation. The whole environment and our passengers' experience of the airport has been greatly enhanced through the lighting redesign from Illuminex."*

Energy efficient lighting from Illuminex uses the latest technology making it a cost effective lighting solution with a quick return on investment.

## Illuminex's unique lighting solutions

New technology lighting, installed at Bristol Airport, will typically save up to 70% on LED lighting energy costs and a new technology lighting solution that Illuminex has produced can save up to 90% against old technology lighting and can

even save 50% on HQI (metal halides). Illuminex has also developed and manufactures a unique LED emergency lighting system called Xscape that not only saves 98% in energy consumption, but also this intelligent self-test system



LED

complies with the legal testing requirement of BS5266. 50% energy savings are also possible by upgrading fluorescent lighting with Ecologic.



New technology induction lamp

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## Lighting that pays for itself



Illuminex won the contract at Bristol Airport in March 2010. Initially worth approximately £379,000, it was for a total lighting solution using the latest technology lighting products.

The airport's capital investment is expected to be recovered within three years due to the energy savings that Illuminex's systems provide. The return on investment was conservatively set thereby offering Bristol Airport better savings after the installation.

*"For each area within the airport we wanted a payback of under three years from the energy savings made from using new technology lighting. Illuminex was able to prove they had the solution and we are on track to achieving this."*  
Bristol Airport



An electrodeless lamp is the latest lighting innovation and is exceptionally efficient with a very long life.

## Energy Conservation at Bristol Airport

Bristol Airport is an environmentally aware and efficient business operation, committed to its carbon reduction initiatives. It recognises climate change as a threat to our environment and acknowledges that aviation, alongside other industries, contribute towards this situation. The airport is committed to reducing its impact on the environment and encourages its staff, customers and passengers to take action wherever possible.

Bristol Airport is a signatory to the cross-industry "Sustainable Aviation Strategy" which sets out measures for aviation to minimise its impacts through technology and operational improvements, and meeting the external costs of its remaining emissions. The airport's commitment to this strategy includes the buildings under the airport's control to be designed to a high standard of energy conservation and for using low embedded energy products in construction and consumable materials used by the airport.

## Maintenance reduction

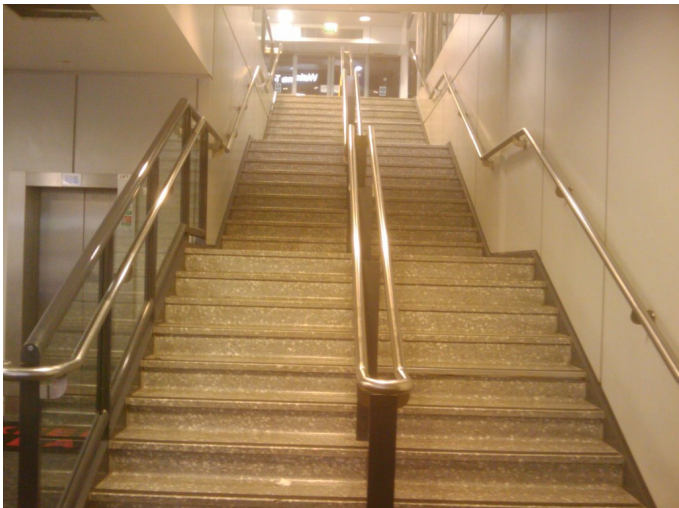


LEDs have a lamp life of 60,000 hours which is up to 20 times longer life compared with old technology. New technology lamps have a longer lifetime than any other fluorescent technology lighting with up to 100,000 hours.

The maintenance of the airport was also an issue that was addressed within the contract and Illuminex was able to show substantial savings to maintenance costs.

The installation had to ensure that it addressed the maintenance issues in addition to maximising business continuity whilst minimising disruption. The maintenance issues within the airport will be considerably reduced through the use of new technology lighting because

it has a substantially longer life than conventional lamps. An old technology lamp may need to be replaced five times over the course of 10 years which is the life of a new technology lamp. In addition to each replacement, the maintenance costs to replace the materials are very high. Specialist access is required to replace high-bays and this means expensive access equipment with the associated health and safety implications and even the need for a licence.



Illuminex was able to improve on the effectiveness of illumination from the existing design at the airport and yet still save energy. The design team produced an architectural pole to fit in with the structure in the terminal and allow the

luminaires to be serviceable in a difficult environment. The quality of the light has been significantly improved for both visitors and staff alike and is the combined result of the way the lights are used and how they have been engineered to best suit

## Enhanced lighting

the environment. The new technology, higher frequency lamps are flicker free light with a constant white light making them more aesthetically pleasing and safe to work in. New technology lamps have a wide colour temperature (2700 to 6500K). 4000K was chosen for this project. The LED light output is equivalent to what was replaced with approximately 100 lumens per Watt (lm/W). LED lamps look good, emit little heat and give off no UV light. LED and new technology lamps do not get too hot and so are safe if touched.

## Light up power down

All areas were upgraded including the main concourse, the new and old terminal and peripheral buildings, the motor transport workshops, all the baggage areas, toilets and corridors. By replacing fluorescents and metal halides with Illuminex's own technology lighting, the **Motor Transport** area has had improved light levels for vehicle inspection to 850 LUX.

This improvement in light levels is more than twice the light output, as previously the light levels were typically 350 LUX and in some areas as low as 70 LUX. At the same time, power consumption has been reduced by two thirds from 36amps to 12amps. All Illuminex's lamps have electro magnetic compliance (EMC) which avoids interference effects of the electrical

equipment and all the lamps are IP65 rated which makes them robust and ideal for inside or outside. New technology lighting is ideal for lighting large areas within the airport such as high-bay and low-bay lighting, and tunnels where running costs can be dramatically reduced.



Motor transport area has improved light levels to 850 LUX from 350 LUX previously. Power consumption has been reduced by two thirds.

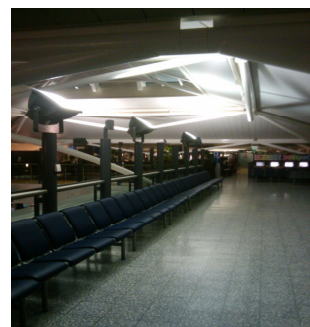
## Motion sensors

19Watt LEDs with sensors have replaced 55Watt PLLs in the **Toilet** areas. Sensors and lamp replacements have reduced energy by an estimated 80%.

The **Main Concourse** had previously a high concentration of lights but

the distribution was very poor. By redesigning and replacing lamps in different areas the light was redistributed. Illuminex was still able to reduce the power used with the replacement of lower wattage lights with very little effect to the amount of light.

The **Corridor** areas were originally lit to 30 LUX value, through redesign by Illuminex these areas have now been relit to 100 LUX. When the area is not used the sensors turn the lights off so that energy is not being wasted.





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*"The quality of the energy saving products and the professionalism of Illuminex helped win the contract. Illuminex offered the total lighting solution which fitted the our requirements. The lighting upgrade was expected to save Bristol Airport over 33% of the energy used to light the airport buildings and reducing carbon emissions from circa 1,350 tonnes to circa 700 tonnes per annum. In practice, the energy saved in some areas in the airport is now exceeding this original expectation."*

### Lighting



Illuminex won the contract with Bristol Airport because it was able to provide Bristol Airport with a state of the art lighting solution whilst maximising energy savings, which it was able to achieve by improving the existing lighting in designated areas throughout the airport. This improvement made use of the existing POD design illumination system Bristol Airport used for its lighting system more effective.

Previously underlit areas have been redesigned to improve their light levels. The areas that were under effective because of lack of light, are now safe and healthy, workable spaces.

The passenger experience is now better because these areas are brighter and more inviting. There is now adequate light to be able to read while waiting where previously this was not always possible.

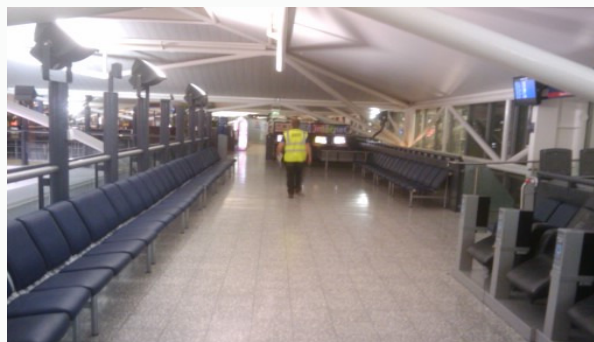
Areas can be bright and inviting when there is a lot of passenger traffic and when there is no activity, energy is not being wasted.

The sensors also monitor traffic and control lighting in the trucking areas.

Another advantage of new technology lighting over SON and metal halides is that 90% of the light is instantaneous, making them ideal for working alongside movement sensors. They have instant start and re-start with no cool down period. With SON and metal halides, once switched off can take up to twenty minutes to cool down before they can be turned back on again.

In some areas Illuminex's new technology lighting uses 80% less energy. This is done by replacing a 500Watt with an 80Watt lamp.

The Illuminex range of new generation Light Emitting Diodes (LEDs) used at the airport tick all the boxes for energy efficiency, cost saving, long life, minimal maintenance, recyclability and pure, saturated colours. They give a shorter payback period with energy savings immediately. LEDs will typically save 70-80% on lighting energy costs compared with halogen down lights or filament lamps replacing a 32KwH with 3.7KwH.



Corridor lighting - movement registered by motion sensors