

# Get a green light

With regulators requiring industry to reduce energy consumption and rein-in on waste, selecting lighting is more than a 'cost versus illumination' equation. Steed Webzell reports

Legislation, such as the Building Regulations Part L, places pressure on engineers to make facilities more energy efficient, and replacing fluorescent lamps is one way to do so. Part L2B of the regulations, which applies to facilities with a floor area of 100sqm undergoing renovation, requires that lighting efficiency be upgraded to less than 40 lamp-lumens/circuit watt – either by fitting a new luminaire or better controls.

Richard Sweet, design manager at PWP Building Services, is convinced that, with some forethought and professional advice, a well-designed lighting system, using automatic controls, can keep energy consumption in check. "As far back as the 1980s, plant engineers started to install automatic lighting controls in an attempt to counter energy price hikes," he says. "Sadly, problems such as faulty motion sensors, which lead to operators waving their hands trying to activate lights, mean that many have been disconnected, overridden or removed."

But despite early false starts, automatic lighting technology has improved and, with hardware prices falling and fuel costs rising, payback periods are now far shorter.

## Up to 80% savings

"Selecting the most suitable lighting system can provide users with savings of 80% of overall site consumption and can provide payback of 12–24 months, compared to a facility with no automatic controls," says Sweet. "Latest generation controls also offer the ability to access the system via a web browser for schedule changes and lighting zone adjustments."

However, for those unable to start with a blank canvas, optimising the electrical load, reorganising the mains distribution and reviewing how the load is split across the three phases are other approaches. "Companies can make big savings simply by making the most of what they already have," he observes.

One retrofit solution attracting attention is Save It Easy, from Energy Conservation Solutions, which allows users of fluorescent lighting to re-equip existing fittings with high-efficiency T5 and T8 triphosphor tubes. The result is energy savings of 34–56%, without replacing existing luminaires. Not only does this offer a significant reduction in the cost of a lighting upgrade, it also means that existing

luminaries can continue to give good service. Moreover, the installation of contemporary tubes, with longer, more efficient lives, has positive implications for tube disposal and re-lamping frequency – no minor consideration given the exacting requirements of WEEE (Waste Electrical and Electronic Equipment) legislation.

Companies House in Cardiff put Save It Easy to the test, with around 600 5ft T8 tubes in its car park. The organisation now reckons energy consumption over the first year will fall 98,954 kWh, accruing savings of more than £6,000.

Innovations offering eye-catching returns and environmental benefits are sure to appeal to all involved, and new ideas are coming to market on a regular basis. Recent noteworthy examples include: the Savergy range of voltage reduction systems, from Block UK, that cut fluorescent lighting energy by up to 30%, with payback between 20 and 30 months; and the T5 Watt-Miser, the T5 LongLast and the T5 CovRguard high-efficiency, high output triphosphor tubes from GE Consumer & Industrial.

Others include: roof-mounted SunPipe tubes, which reflect and intensify sunlight into the space below, using a patented prismatic diffuser; and the Twin-C approach from Waldmann Lighting, which matches intelligent lighting and components.

Another breakthrough is the subject of an entry to the IET 2008 Innovation Awards. A UK-based firm has developed high-definition LED lighting that produces white light with a perfect balance of visible colours. While this makes the solution ideal for surgical use, it also has wider applicability. It produces far better colour rendition than any other technology, uses a third of the energy and is much cheaper. **PE**

## Pointers

- Building Regulations Part L2B are forcing new energy-efficient approaches
- Automatic lighting technology has improved and can deliver 80% savings
- Optimising electrical load, reorganising mains distribution and reviewing the split is a good first step
- Save It Easy results in huge savings using T5 and T8 triphosphor tubes
- Savergy voltage reduction can cut electricity use 30%
- Sun pipes are an excellent alternative, where practicable, on-site

Modern lighting is not only bright and attractive: it also consumes far less electrical power

