

# MAKING **LIGHT** WORK



It hasn't always enjoyed the best reputation. But has low energy lighting finally come of age? ROGER HUNT reports.

THIS IMAGE Havells Sylvania LED lighting in use



**“Lighting is an area that continues to evolve, meaning it pays to keep up to date with the latest technologies. Modern energy efficient lamps really can live up to expectations”**

**Low energy lighting has not always had good press. Early adopters were quickly disappointed by its quality, cost and efficiency. Housebuilders were frustrated that the Building Regulations demanding its installation were brought in before there were sufficient appropriate products or fittings to do the job. Then there were concerns about disposal due to the mercury content of some lamps and health issues relating to light sensitivity in the case of people suffering rare skin conditions.**

Up to now the compact fluorescent lamp (CFL) has been the mainstay of the low energy lighting market and Mike Barrett, commercial director for UK and Nordic at GE Lighting, notes they are a common option for new properties.

“When compared to an incandescent bulb, CFLs convert up to 25 per cent of electricity into light, are up to 80 per cent more energy efficient and last up to 15 times longer. Available in a variety of forms, including stick, spiral and decorative to fit most bayonet and screw fittings, CFLs are an ideal option for areas such as hallways or common areas in flats and apartments, which remain lit for long periods of time,” explains Barrett.

Now though, things are, quite literally, looking brighter for low energy lighting as a new generation of LED lamps hits the market and looks set to define the way homes are lit in the future. This is not to say low energy lighting has come of age. LEDs are still perceived as something of a novelty, often wheeled out by designers who are keen to look trendy.

Solid state LED lamps use light-emitting diodes as the source of light. Since these have a relatively small output individually, multiple diodes are

usually grouped together within an individual lamp. In the past few years this technology has advanced rapidly but at lighting and electrical manufacturer Havells Sylvania, Nick Farraway, senior vice president Europe, concedes LED lighting has a little further to go before it becomes mainstream.

“In the laboratories we can achieve 160 lumens per watt compared to an incandescent lightbulb where you get ten lumens per watt. The problem with LEDs is that you have to keep the LED source very cool in order to get that efficiency. In the laboratory you have plenty of space and it

performs brilliantly but try and squeeze that into a small lightbulb and the thing starts getting much, much warmer so, in reality, we are getting efficiencies of around 40 to 50 lumens per watt for home appliances.”

This is not to say these lights do not already have an effective role in the home. Michael Linsky, managing director of Sensio Lighting, believes LED technology is now set to overthrow “outdated” low energy solutions once and for all.

“A LED fitting with an output of just 1.65 watts can provide light equivalent to a 40 to 50 watt halogen bulb while using far less energy. LED





## OPPOSITE PAGE

TOP LEFT Sensio Lighting's Quadra under cabinet LED bar light  
TOP RIGHT Putney Wharf  
BOTTOM LEFT VosPad which is claimed to be the first apartment to be entirely lit using LEDs  
BOTTOM RIGHT Low energy CFL lamps

## THIS PAGE

LEFT LED lighting at the VosPad BELOW LED downlight  
BOTTOM Sensio Lighting's LED Click Slideline

promises and delivers intense light output with none of the negatives associated with halogen, including UV rays, flicker and noise."

At Havells Sylvania, Faraway highlights other positive features of LED lamps: a long life of 35,000 hours for the newest, warm white light, dimmable lamps, instant start, suitability for retrofit, high light output, high safety standards and a broad product range. When it comes to recycling, unlike CFLs, there is no mercury to worry about with LEDs, although there is a printed circuit board so lamps should be disposed of as electronic waste.

Faraway sees the "buzz" surrounding LEDs as positive for housebuilders. "The public has really taken to heart the whole LED lighting idea. With the CFL there was this negativity about the lamps, whereas LED has come in and people have gone to it as the technology of the future."

This does not mean that specifiers should rush in and buy the first lamp they see. At GE Lighting, Mike Barrett warns that making an informed decision about a LED system is unlike any other lighting purchase. "It's still a relatively new technology and there are myriad companies offering LED products: all making a variety of performance claims. Anyone selecting LEDs should apply caution and it's advisable to consult with a reputable manufacturer before making a final decision.

"Lighting is an area that continues to evolve, meaning it pays to keep up to date with the latest technologies. Modern energy efficient lamps really can live up to expectations. However, the lamps selected must be fit for purpose in order to deliver energy savings as well as excellent light quality," says Barrett.

Someone who has direct experience of using energy efficient lamps is London-based Dutch designer Marcel Jean Vos, the founder of lighting and interior design consultancy VosLED. He has created the VosPad which, he claims, is the first apartment to be entirely lit using LEDs.

Colour-changing LEDs replace traditional sources of lighting throughout the one-bedroom apartment in Chelsea, London. The white walls are washed with RGB (red/green/blue) LED bar units recessed in the floor and embedded under glass. Micro aluminium wall sconces in the kitchen and living room provide contrast to the wall washers



and reinforce the sensation of spaciousness and enhance the surfaces.

"We need to see significant investment in replacement LED technology, which will contribute to price reductions and economies of scale, making this important low-energy, aesthetically pleasing lighting source more accessible to all. New LED lighting systems allow for more flexibility in relation to product design, so not only are they a more efficient and healthier lighting option, the resulting design versatility will make for far more interesting and commercially viable installations," says Vos.

Nick Faraway concurs. "Ultimately I think LED will take over from CFL when we drive the cost of LED down. In two to three years time, the efficiency will be there, the costs will have come down and we will offer an even wider range of products than we do currently. Then I would say low energy lighting has come of age."

## LOW ENERGY IN PRACTICE

The savings that can be achieved through using low energy lighting were recently revealed at Putney Wharf, beside the River Thames in London. This residential and commercial development was built by St George in 2001 and includes 210 apartments with some 36 social housing units and 17 commercial units.

When Consort Property Management, part of the Peverel Group, was appointed to take over the management of Putney Wharf early in 2008, energy charges were identified as one of the most significant costs in running the development, particularly as many areas needed to be lit 24 hours a day. A sustainability initiative was driven ▶



LEFT Havells Sylvania LED lighting in use BELOW LEFT CFL low energy spiral lamp from GE Lighting BELOW RIGHT LED lighting from Havells Sylvania



by Richard Thomas, the development manager for Consort Property Management, who worked closely with Go Green Plus, a London Development Agency funded group, to carry out a full review of energy consumption at the development.

The two garages at Putney Wharf were lit with 58 watt neon tubes with traditional ballast and starter type fittings. These lights (with the exception of the emergency lights) were replaced with 12 watt LED tubes. Unlike conventional neon tubes the LED tubes operate on DC rather than AC, making ballast and starters redundant. Savings in consumption costs were boosted by reduced maintenance costs and 12 months after installation not one unit has failed. Thomas believes changing the lighting in the garage area, including the introduction of low wattage built in motion sensors, will save £5,000 to £6,000 annually overall. The new lighting will also save 32 tonnes of CO<sub>2</sub>.

Most communal areas at Putney Wharf were built

with lighting on permanently in corridors and lobby areas. The 50 watt halogen spotlights used in the lobby areas have now been replaced by 5 watt LED lights. These units are so efficient that it took less than two months for the initial costs to be recouped. A year after installation not one unit has required replacement, a major maintenance saving in addition to lower energy consumption.

Through his work with Go Green Plus, Thomas has introduced a new cutting edge product for the corridor areas. The product, a 12 watt LED lamp, uses the same standard fitting as the 28 watt lamps currently in use. After minor modification to the fitting, the new LED lamp is simply plugged in, removing the need to replace the light fittings altogether. In addition to the 14 watt reduction in energy consumption, the new product incorporates a built in microwave transmitter which provides every lamp with a motion detector, this ensures that only those lamps required are lit when there is a physical presence of a person. <sup>sh</sup>

## FURTHER INFORMATION

The BRE has published an information paper: **Specifying LED Lighting (IP15/10)** by Paul Littlefair and Hilary Graves. It is available as a download from [www.brebookshop.com](http://www.brebookshop.com).

## CONTACTS

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