To LED or not to LED...

The LED debate continues. We hear the views of some key figures in the industry.

Many designers are jumping on the LED bandwagon, and wanting to use them because they think they are the best solution. Sometimes they are, but sometimes they aren't.

Douglas James, director of Mindseye Lighting, hears it everyday: 'The client wants to use LED. OK, so if the client wanted to use gas lamps would we all just get on with it? No. As professionals, we advise the client on the suitability, or otherwise, of their suggestions.

'First and foremost, be sure that you are using them for the right reasons. There are a lot of architects and designers (possibly even some lighting designers) who are using LED where they are really not the best solution.'

On the good side, James says they are great for long life, small in size, and tend not to throw much heat forward onto the subject of the lighting, plus they are energy efficient: 'For somewhere close to the output of a 50W dichroic halogen reflector lamp, one can expect to be using 15W-20W of LED.'

On the bad side James says: 'In most cases at the moment LED is not a realistic substitute for something as efficient, straight forward, and effective as fluorescent for example. Often an analysis will show that the energy savings involved in LED versus say, T5 fluorescent, is not as great as one might think. Trying to match the output is often quite tricky. Getting enough light can require more equipment than you might expect. Heatsinking often isn't as well done as it should be. Also, LEDs are often integrated directly into the body luminaire with no way of replacing them if they fail.'

On the ugly side, James says 'most LED systems have poor colour rendering so spaces can look weird if you are not careful with specification. Always use the best possible quality. Colour consistency across batches of LED is still a huge problem. Be careful using them where they will be lighting something obvious like a flat white wall; you can find pink to green tints even within the same fitting. LEDs are quite directional; you can end up with too much light in one part of a space and an unintentionally high contrast scheme. Also for the same reason you can find very heavy 'scalloping' when what you may have imagined is an even wash of light.

'In short, specify with care. Quality is really worth paying for where LEDs are concerned. Make sure you really need them for the application you have, and try to ensure that there is a way to maintain the fittings once installed. Think about the implications for the owner/occupier of the space.'

Mike Barratt, commercial director UK & Nordic at GE Lighting, believes that LED technology has proven itself as a front runner in the future of energy efficient lighting. However, he is aware that as the technology progresses and LEDs are being utilised across a host of different sectors, the result has been an onslaught

of LED manufacturers entering onto the market, making overstated claims about what their products can achieve in terms of performance.

'Navigating through all the hype and manufacturers' claims can be a difficult and daunting task so lighting designers need to apply caution,' notes Barratt. 'Making an informed decision about an LED system is unlike any other lighting specification. Comparing fluorescent or HID products is easier because there are long established industry standards to turn to but that's not the case with LEDs.'

Barratt says its crucial that lighting designers have full confidence in the products they specify. That's why GE Lighting is working to define a universal set of performance measures designed to put comparison claims on equal footing and allow lighting designers to compare LED products like-for-like. 'Not only are we bringing new robust LED technologies to market but we are actively working alongside independent bodies to develop measurement, efficiency and performance guidelines that add clarity not confusion to the specification process.'

Light+Building saw Philips broaden its portfolio of LED-based lighting solutions, which enhance the lives of people at home and in cities. Items included a 12W LED lamp as a substitute for a 60W lamp, and LivingAmbiance – a revolutionary approach to mood creation, wirelessly integrating multiple luminaires and lamps in one system for the home.

The 12W LED lamp is set to be launched anytime now. The dimmable lamp will deliver 806 lumens of warm white light. For businesses such as hotels, replacing high concentrations of 60W lamps with Philips' LED replacements will potentially help them save up to 80 per cent of the energy used by older technologies.

Andrew Howis, design associate at Speirs and Major Associates, recognises that LEDs have come a long way in the last few years. 'It's less than a decade since the use of LEDs was limited to direct view applications such as marker lighting. The emergence of the power LED as a source has allowed LEDs to enter the lighting mainstream gradually, initially through effects lighting (such as RGB colour change) and small-scale accent lighting.' Howis says the last year or so has seen LEDs begin to make the final big step: into downlighting, wall washing and spotlighting in interiors and into floodlighting and street lighting outdoors, with credible first generation products beginning to appear in the

Part of Light Bureau's scheme for the reception space at 95 Gresham Street includes an LED feature wall.

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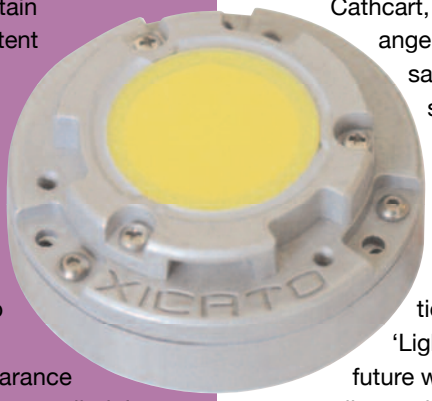
catalogues of the major manufacturers. 'Whether the time is right yet to jump ship from traditional sources depends both on who you speak to and what the application is.'

Speirs and Major's primary concerns relate to white rather than coloured light. 'It is still difficult to obtain white light of a consistent appearance from different fittings. Also, if a fitting is damaged a few years after installation, many manufacturers have no strategy in place to ensure a fitting of matching colour appearance and light output can be supplied. In less sensitive applications, such as street lighting, these issues are less important but in high-end interiors they make it very hard for us as specifiers to recommend LEDs as an appropriate solution yet,' says Howis. He recognises that companies like Xicato and PhotonStar are starting to address these challenges and as others join them, LED lighting will truly be mainstream.

Presently, the Xicato Spot Module is chosen by Flos, Ansorg, Regent Lighting and Troll in Europe and Bruck Lighting, DaSal, Duraguard and Lighting Services Inc, in the US, for their luminaires. Normally the 'against' arguments centre on LED technology theoretically being applicable to general lighting in terms of longevity and energy saving, but having shortcomings in terms of light quality, particularly CRI, colour point stability and homogeneity. With these shortcomings in mind, Xicato developed a unique 'corrected cold phosphor technology' where the total light quality, quantity, efficacy and longevity specifications were all considered and a best combination achieved. Wide uptake has occurred, for example in museums and galleries and other areas where light quality is paramount, which Roger Sexton of Xicato feels is an indicator that LED lighting has come of age. Ian Cathcart, nationsal sales manager - SLL at OSRAM, says we are starting to see the LED market take off as more efficient LED products become available that can be used as real alternatives to traditional light sources. 'Lighting schemes of the future will be primarily judged according to their energy efficiency and oerformance as well as their modern design and ease of installation. LED solutions meet all of these requirements.

OSRAM's LEDVANCE downlights are a prime example of how LED technology has improved. They can be used in place of traditional lamps to reap savings without compromising on style.



Above: Xicato Spot Module. Top right: Philips' new range of LivingColors coloured and white light luminaires, and the MASTER LED lamp that is equivalent to a 60W lamp. Below: GE Lighting's Infusion, and GU10 LED lamp.

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Mindseye specified LED fittings for Pizza Express in Solihull. OSRAM LEDs have been used in the arch above the Durban stadium in South Africa.

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Megaman’s OEM & distribution director, Adrian Kitching, believes that until relatively recently the application of LED light sources has been limited by their inability to match the brightness and colour rendering of other light sources. ‘More recently though, advances in LED technology have led to products entering the market that provide a direct retrofit for any other light sources, including spotlights. So, for example, a 7W LED lamp can now offer the same 600 candela luminous intensity as a 35W halogen lamp.’

Kitching says similarly the colour tolerance of the more advanced lamps has been greatly improved. ‘So, whereas poor quality LEDs may have a colour shift of as much as 400K, the better light sources have a tolerance of just 100K.’

Light Bureau has completed an interesting feature for the reception space at 95 Gresham Street, a new speculative office development by Standard Life and designed by Rolfe Judd Architects. The space includes a feature wall internally illuminated with colour changing LEDs.

Nulty believes that LEDs are very close to becoming a really good, usable replacement for some incandescent sources – particularly MR16. ‘But they do need to make a final leap to combine good colour rendering, colour consistency, longevity and luminous efficacy. There are good products available which tick some but not all of the boxes,’ says Nulty.

‘However, LEDs are not the panacea that many manufacturers would have you believe and I think they are a particularly poor substitute for diffuse sources such as fluorescent modules. I’m yet to see a really convincing product that can be used for cove lighting with as good a quality run-out as cold cathode. Maybe that’s the niche OLEDS will fill but in practical terms that’s some way.

‘So in a nutshell LEDs are good for some applications but not for everything, and of course, the small size of LEDs does allow us to integrate lighting in ways that we couldn’t have dreamed possible 10 years ago so certainly they are allowing a design revolution; let’s just not get too far ahead of ourselves or the technology just yet!’

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