

Refurbishment – have you seen the light?



Refurbishment can mean much more than just a cosmetic facelift, as an increasing number of companies implement sustainability solutions in order to improve the energy efficiency of their buildings, writes Aidan Salter of Energys Ltd

Our perception of the UK's existing stock of older buildings is rapidly changing. As energy prices fluctuate, energy efficiency naturally becomes a priority. As Government targets for reduction of CO2 emissions increase, our awareness also rises about the built environment's carbon impact. Much attention is given to the eco-friendly facets of state-of-the-art, BREEAM-accredited new builds, but for every new build, there exists thousands of energy-inefficient buildings dating back 25, 50, 100 or more years.

While 2050, the Government's emissions target date, may seem far off in human terms, in the lifespan of a building, it's much less so. A majority of existing buildings - stolid, 20th century buildings that leak hot air and waste energy - will still be in operation in 2050. Cutting CO2 emissions by 80% necessitates 'greening' the UK's vast stock of existing buildings.

Refurbishment has already emerged as a solution that's symptomatic of the UK's current climate. As the construction sector stagnates, a majority of new build developments have been put on hold indefinitely. Meanwhile, facilities managers with stretched budgets find themselves unable to sign off on major building works that might have been easily greenlit in previous years. Small-scale refurbishment has instead become the construction industry's life raft, as smaller amounts of money are eked out of budgets in

order to put a better face on the existing built environment.

Implementing low-carbon solutions at the same time as other refurbishment works is also emerging as an important pathway to sustainability. After all, constructing even the most eco-friendly new build means expending a huge amount of energy and raw materials. Yet making an existing building more energy efficient requires much less energy and materials.

Refurbishment with a green tinge has helped companies across a range of sectors to improve their existing buildings while also improving energy efficiency. This means real cash savings can be made when implementing low-carbon solutions that cut energy costs, especially those with short payback periods (such as low-energy lighting). Even technologies with longer payback periods (such as photovoltaic panels) can add value to a property, which means that financial outlay in low-carbon refurbishment is rarely 'wasted'.

LEGISLATIVE PUSH

The recent introduction of Energy Performance Certificates (EPCs) seems likely to herald a new era where energy-inefficiency, even in older buildings, is no longer considered acceptable. Despite a shaky roll-out process last year, EPCs and their public building counterparts, Display Energy Certificates (DECs), are likely to soon become accepted as an important document for ascertaining a building's worth when buying or renting.

On the EPC, the energy

"AFTER ALL, CONSTRUCTING EVEN THE MOST ECO-FRIENDLY NEW BUILD MEANS EXPENDING A HUGE AMOUNT OF ENERGY AND RAW MATERIALS"

performance of the building is shown in two ways: as an Energy Efficiency Rating and as an Environmental Impact Rating (a CO₂-based index). As well as the current energy performance, the document also shows the rating that could be achieved if all the recommendations made by the Energy Assessor on the EPC are followed. Assessed out of 100, the ratings range from A (best) to G (worst).

While EPCs recommend rather than mandate energy efficiency improvements to

continued on page 23



The Royal Surrey Hospital, an organisation which is paving the way in terms of energy efficiency in the public sector

continued from page 21

buildings, these documents are likely to colour future legislation. They also reflect a growing awareness about energy efficiency and buildings' impact on the environment. Indeed, good energy efficiency is rapidly becoming something that can add a premium to a building. Companies must not be blinkered by the current economic downturn and fail to see opportunities to add value to their properties in a way that will prove wise when the

market lifts.

OVERLOOKED SOLUTIONS

The addition of 'green' features to a building has become synonymous with installation of solar photovoltaic panels and wind turbine microgeneration. While these are admirable environmental features, which offer a visible display of commitment to sustainability, there are other low-carbon refurbishment solutions that tend to be hidden. After all, what's the point in generating renewable energy if a

“COMPANIES MUST NOT BE BLINKERED BY THE CURRENT ECONOMIC DOWNTURN AND FAIL TO SEE OPPORTUNITIES TO ADD VALUE TO THEIR PROPERTIES IN A WAY THAT WILL PROVE WISE WHEN THE MARKET LIFTS”

significant proportion of it is lost due to the energy inefficiency of the building?

The last year has brought into sharp focus the instability of energy prices. The fluctuation of gas and oil prices has made clear to us that fuel can no longer be counted upon to stay cheap. It is something that needs to be closely monitored. While most of the UK's building stock was built during a time when cheap energy was something that could be depended upon, that is no longer the case. Therefore, we are left with



Many people remain wary about the viability of new 'green' technologies – whether they'll continue to work in the long-term and provide reasonable payback

millions of inefficient buildings filled with energy-draining culprits that facilities managers may overlook.

Installing comprehensive metering systems can be useful in order to get down to the nitty-gritty of where energy can be saved. Similarly, an air tightness test draws attention to the points of a building where air is leaking. It lacks the stylishness of photovoltaics, but the fact is that insulation is still the most broadly effective method for improving the environmental impact of a building, with the shortest payback period. Rock mineral wool, expanded polystyrene, as well as natural materials like sheep's wool, can provide sizeable insulation against heat loss - and, correspondingly, lower energy costs.

Energy efficiency is not just about implementing solutions that are flashy and high-tech; it's about reassessing energy usage that we may take for granted. For example, lighting is traditionally perceived as a low-energy user in comparison to heating. Nonetheless, it is still a considerable drain on a building's energy resources: lighting accounts for 19% of electricity consumption globally and the biggest consumer is the fluorescent tube. However, new energy-efficient lighting technology can reduce lighting energy consumption by more than 50%.

Installation of low-energy lighting in the past required refurbishment that included high capital expenditure, as well as a degree of waste that almost undercut its validity as an eco-friendly undertaking.

Due to the physical and technical differences between the old, energy-inefficient T8 and T12 lamps and the new, superior T5 Tri phosphor high frequency lamps, installation of energy-efficient lighting meant completely replacing the light fittings. For large commercial or industrial premises, complete lighting overhaul meant huge amounts of plastic and metal sent to landfill. Additionally, greater amounts of energy were also expended in manufacture and transportation of replacement light fittings.

The evolution of the low-carbon refurbishment industry, however, means that a better solution has gained precedence. Now a building's lighting system can be more simply retrofitted, using a technology that renders the existing light fittings useable with the new lamps. The 'Save It Easy' retrofit e-ballast, offered by Energys Ltd. allows conversion of existing light fittings of all sizes, providing lighting energy savings of up to 56%. The public sector is one area where this technology has seen major take-up - in schools, hospitals and police constabularies - due to its simple solution in tackling an energy wastage area found in most of the UK's non domestic buildings.

Technological advances like Save It Easy are particularly important, since the key concerns when it comes to low-carbon refurbishment are capital expenditure and the amount of disruption and lost man-hours that are likely to be incurred during the refurbishment process. Using as much of the existing fittings

“NOW A BUILDING'S LIGHTING SYSTEM CAN BE MORE SIMPLY RETROFITTED, USING A TECHNOLOGY THAT RENDERS THE EXISTING LIGHT FITTINGS USEABLE WITH THE NEW LAMPS”

and facilities as possible while improving energy efficiency reduces both costs and inconvenience.

COMMITMENT TO SUSTAINABILITY

In this age of pervasive greenwash, many people remain wary about the viability of new 'green' technologies – whether they'll continue to work in the long-term and provide reasonable payback. While, for example, microgeneration remains fairly niche, requiring specialist installers, with lengthy payback periods, simple-and-effective green solutions like low-energy lighting and insulation are tried and tested, with a strong supply chain in place.

Crucial to its success is the fact that widespread low-carbon refurbishment has the potential to provide a real boost to the floundering construction sector, even allowing for new jobs as the market for 'green-collar' skills opens up.

Despite the economic downturn, environmentalism remains a powerful force in business. Stakeholders continue to demand commitment to sustainability from companies. Low-carbon refurbishment on a small scale may be a cautious approach to lowering a business's carbon footprint, but 2009 seems set to be a year where caution is prudent. Caution can too often turn to stagnation, however. Simple energy-efficiency solutions like low-energy lighting and increased insulation allow a company's momentum on sustainability to start easily.

For more information, visit: www.saveiteasy.co.uk