

The innovation that is driving greater efficiencies

Many businesses are aware that installing energy efficient measures can save money, but knowing where to start or how they will work alongside each other can be challenging.

Following an office refurbishment, the npower Business Solutions (nBS) office in Solihull was selected by nBS's Real Estate Team as a test site for new state-of-the-art energy efficiency technologies.

The idea behind this was to see how the technologies could work in practice and to determine the type of efficiencies they could produce. This would then enable nBS to analyse the benefits and decide how best to introduce the different technologies to other buildings in the energy supplier's portfolio.

Clever ways to cut lighting costs

Despite being in a large single-floor office space, nBS's staff can all enjoy plenty of daylight from any desk, thanks to clever roof lighting tubes. These bring natural light in through tubes from holes in the roof, using mirrors to amplify the light and filters to soften it and reduce any glare.

Not only does an innovation like this provide a more comfortable working environment, it also saves on lighting invoices, as with daylight sensing lighting, the electric lights automatically switch off when it is bright. Being LED, they also cost less to run when they are on and last longer too.

These initiatives, combined with passive infra-red lighting sensors – which switch lights on and off according to occupation – have cut lighting costs by a third. Which, when you consider lighting often accounts for around 15% of an office's overall energy invoice, is not an insignificant amount.

Taking the heat out of windows

While a window seat is often coveted, they can also be hot places to work on sunny days. However, nBS's Real Estate Team has solved this by using lightly-tinted window film which reflects heat out of the building, reducing heat gain by up to 95%.

Automatic blinds have been hooked up to the daylight sensors, which also helps to keep glare and heat gain down. This means that in the summer months, while employees are kept cool, nBS can save on the cost of keeping the office comfortable.

As cooling typically accounts for around 25-30% of an office's summer energy invoice – often a larger proportion than heating in the winter – aiming for maximum efficiency makes commercial sense.

Ceiling tiles that regulate temperature

Another initiative is the installation of clever heat absorbing ceiling tiles. These soak up excess heat during the day into a clever gel-like substance within the tiles, then release it back at night when the temperature drops.

This means that the office needs less heating to raise the temperature in the morning during the colder months, and in the summer, the tiles reduce the load on energy-activated cooling throughout the day.



Princes Way Solihull

Case Study

A new form of temperature control

An investment that is really paying off is the installation of the latest Variable Refrigerant Flow (VRF) heating and cooling system, which can be around 60% more efficient than the old system of boilers and chillers.

This combines temperature control into one system made up of numerous small units, which makes it far easier to adapt the range of capacity according to the level of cooling or heating required.

Another helpful initiative is making all these savings visible for staff to see, as employee engagement is a key element of effective energy management. As a result, nBS installed consumption monitors so that staff can see the difference that these energy efficiency measures are making.

Linking meters to minute-by-minute function

This is achieved by sub-dividing the meters recording consumption into specific functions, such as lighting, desk equipment and heating/cooling, and rather than being hidden away in cupboards, these meters are visible, and screens with dashboard-style reports of live energy use are on display for all to see.

This ensures that staff can clearly see the impact of leaving computers running, coffee machines turned on, heating that is too hot and cooling that is too cool for example.

The Real Estate Team has also increased the window of observation, taking Half-Hourly (HH) data and distilling this down to minute-by-minute consumption reads by connecting Automated Meter Reading (AMR) meters to data-reading SIM cards. This enables nBS to compare its consumption data across a much wider range, minute-to-minute compared to yesterday, last week, last month, last year and so on.

Reducing costs by up to 38%

As you would expect, all the energy saving measures that have been introduced are reducing energy costs. Compared to the second floor below, the nBS office uses 22% less energy per square metre, and 38% less than the ground floor.

This office is a great example of innovation at its best - using technology to enhance user experience, increase efficiency and cut running costs. It embodies the same approach that nBS takes when working with customers, albeit with each project delivered as a bespoke initiative to suit the individual circumstances and requirements of that business.

Harnessing the power of the sun

As well as being energy efficient, nBS's Solihull office makes use of solar PV panels to further reduce its carbon footprint. A 50kW system featuring eight roof-mounted panels was installed by its Technical Services Team back in June 2012. The aim was to generate from freely-available daylight and save on grid energy.



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