

Free Guide: Office LED Lighting Refit

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Office Lighting LED Retrofit

This guide provides a professional overview of the electrical and lighting installation process for an Office Retrofit. It's designed to help you understand the key stages and considerations involved. This is for informational purposes and should not replace consultation with qualified lighting engineers and contractors.

Pictures show the before (top) and after at PIB Q Underwriting, Cardiff



Before



After

Office lighting, like most commercial and industrial lighting, frequently constitutes a significant portion of overall energy consumption – often as high as 70%, particularly in buildings with extended operational hours.

This is primarily due to the continuous nature of lighting use during business or operational periods. To mitigate this, several strategies can be employed.



Why is it important to reduce the number of fittings?

It's common when replacing fluorescent lighting to reduce the number of panels. Why is this important? Reduction is often between 30–50%, depending on the type of fitting and the light spread.

This is important as over-lighting causes an issue similar to snow blindness, because the reflected light off white paper is simply too bright. This is a frequent cause of migraines and headaches.

We regularly receive calls from concerned managers and staff with complaints from staff of headaches, migraines, and eye fatigue.

That's why the office lighting needs to be re-planned based on LUX, not on a one-for-one replacement, which most maintenance companies do.

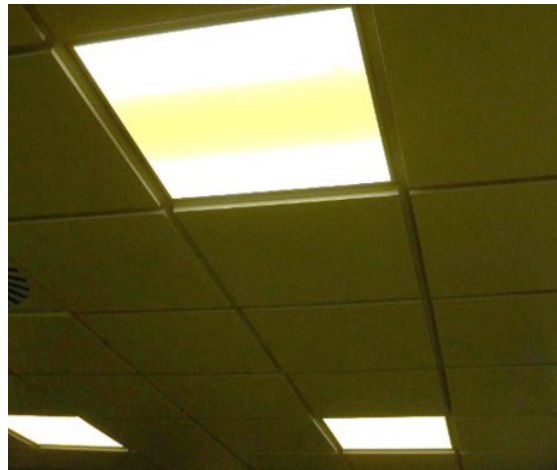
LED panels and batten fittings have a better spread of light than the previous fluorescent units, so the old idea of a light over each workplace is unnecessary.

If you previously had T8 fluorescent lighting, the overall LUX levels (brightness) are fairly low – especially if they are 15–20 years old. While the tubes might be changed as they fail, which will be brighter for a few months, because of the heat generated by the fluorescent tubes, they deplete by 30% within the first 3 months!

Why do customers buy lighting based on price?

Let's take, for example, a haulier buying a new truck or van. Would they look at the price first and buy the cheapest? No – they would look at the load-carrying capacity and economics before considering price.

Photo (right) is an example of an LED panel that is failing after less than 3 years!



Are Your Office Lights Eye-Friendly?

Why is this important? As LED lighting engineers, we are well aware of how staff can be affected by poor-quality LED lighting.

For example, where lights are often on 24/7 – such as in a hospital or a call centre – we've seen panel LED lights failing after a year! These lights also displayed issues with light quality, commonly flickering and glare.

What is Flicker?

This is especially an issue with poor-quality LED drivers (that's the bit that converts the electrical power from AC to DC). LEDs work on DC current – similar to most electronics, like a laptop or tablet. Flicker is where the AC mains frequency is bleeding through into the DC circuit, causing a strobing effect.

The strobing is not normally visible to the naked eye, but you'll see it if you view through a mobile camera in movie mode. It looks like ripples running down the screen.

This is disturbing to the eyes and, over several hours, causes eye fatigue, which can lead to headaches and migraines. In some people who suffer from certain medical conditions – such as epilepsy or autism – it can induce fits.

Glare, on the other hand, is due to the quality of the lens on the panel or battens, as this should filter out the intensity of the light, making the reflected light fairly flat. This is very important in offices where there are screens, as glare will result in reflection and again cause eye fatigue.

Why is colour temperature of the lights also important?

LEDs produce electronic light. For those of you who remember record players and vinyl records, these were raw sound recorded onto a disc. There has been a revival of vinyl because it produces more “feel” than CDs, which are digitised, electronically assimilated sound. What’s missing in electronic sound is the sound we can’t hear – but we can feel.

With LEDs, this is electronic, digitised light. It doesn’t have the sidebands we can’t see: infrared and ultraviolet. Both of these elements are produced in natural sunlight – it gives you a tan and helps plants grow.

However, LEDs come in several colours across the lighting spectrum. These are measured in Kelvins.

Natural LEDs come in Cool White 6000–6500K. This is fine for open spaces or warehouses, but not good in office or educational environments.

In an office or educational environment, 3,000–4,000 Kelvin is a more restful, softer light, which is closer to the yellowy fluorescent lights we have become accustomed to.

Why is the LUX level important?

Bright sunlight can easily be 2,000 LUX – that’s why we wear sunglasses. So for an office or educational environment, 200–300 LUX is the average for a comfortable light without causing “eye fatigue”.

Picture shows a LUX meter measuring available light on a desk.



Microwave Sensors

For corridors, staircases and community areas, microwave sensors provide a very effective way to minimise energy use.

Because LED lights turn on instantly, individual microwave sensors make perfect sense.

Replacing your current lighting fixtures with energy-efficient LED lights incorporating microwave occupancy sensors is the recommended solution.



Energy Savings

LEDs consume significantly less energy than traditional lighting options, reducing your electricity bill considerably. The microwave sensors ensure lights only operate when needed, further minimising energy waste.

Recent advancements in LED technology have significantly improved lighting efficiency and design. Newer LEDs boast substantially higher lumens per watt, resulting in a wider, more effective light spread. This allows for lighting redesigns using fewer fixtures while achieving superior illumination.

Self-Test Emergency Lighting

Self-test emergency lighting saves valuable staff time on regular monthly testing, as this innovative technology ensures that all emergency lights will carry out a 3-hour test every month.

Saving you valuable staff time and ensuring your company meets compliant safety standards.



Pricing & Lighting Report

It couldn't be simpler. With over a decade of experience, a commercial lighting refit requires an on-site survey to consider existing connections and layout improvements.

Often, a redesign can reduce the number of fittings – and ultimately overall project costs.

We can provide a full specification, plus energy savings and payback rates to demonstrate the business case for the refit.

Finance is also available for the whole deal, so you can ease your initial finances for up to 5 years or more.

For a quick online price, send us your building location, number of lights for replacement, with photos and racking plan to: **sales@ledlights4you.co.uk** or **call now on 0333 344 6084**



Installation

A phased approach to minimise disruption to staff is important and part of the pre-install planning before final installation.

The process includes a detailed assessment of your existing system, procurement of suitable LED fixtures with microwave sensors, and professional installation.

Our expert team of qualified electricians and installers are well versed with this type of operation, working to safety standards such as CHAS, NICEIC and IPAF.

Remember, proper electrical installation is crucial for safety and operational efficiency. Consulting with experienced professionals is highly recommended throughout the entire process.

“ *With our expertise, we strive to provide excellent value for money.* ” ”



Essential Documentation

Health and Safety documents are essential before and after installation. Detailed records of all installations include:

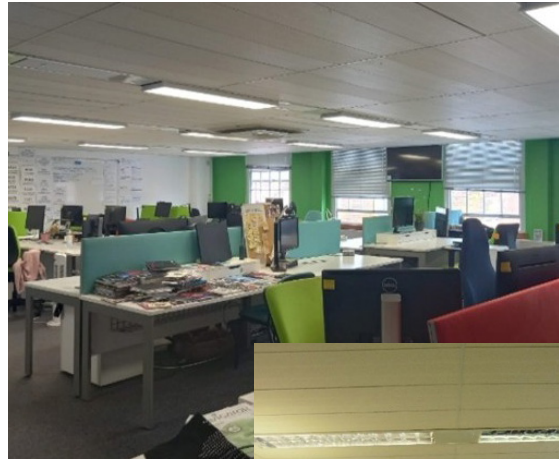
- Energy Saving Forecast
- Specification and Costs
- Risk Assessment & Method Statement
- Works Schedule
- DiaLUX Plans
- Schematics
- Electrical Testing Results
- Inspection Reports



Case Studies

BIMM Music Institute – Brighton

Project Cost:	£16,725.00
Payback:	16.2 months
Energy Saving:	78.9%
5-Year Saving:	£52,535
Carbon Saving:	79 tons



Existing Technology

Main offices and study areas used T5 fluorescent 5ft twin light integral units built into the architectural suspended ceiling system. The ceiling system was no longer manufactured. While it was perfectly sound, the existing lighting was built into the ceiling system.

Issues

Maintenance had become an issue, with many of the lighting units having failed, including internal emergency lighting – creating very poor lighting.

Alternative LED fittings would not have worked due to the size restrictions of the integral construction. Replacement of the entire ceiling and integral lighting for a modern suspended ceiling with LED panels would have added £10,000 to the project.

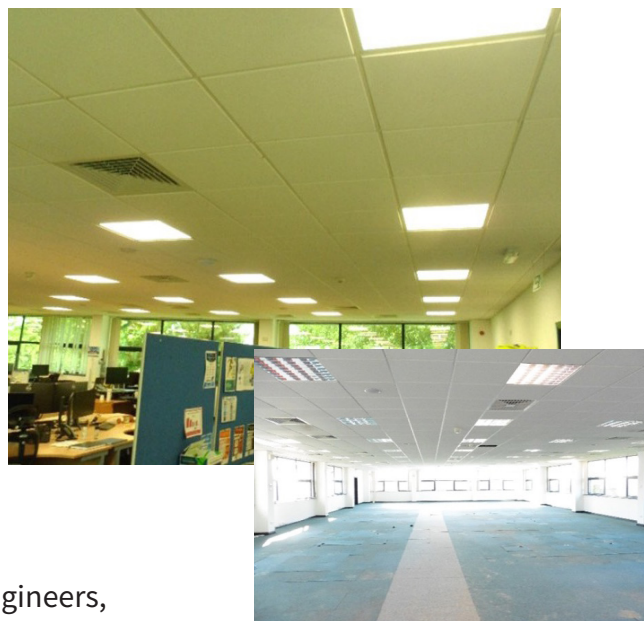
Solution

LEDlights4you saved BIMM over £10,000 by utilising the existing suspended ceiling.

LEDlights4you engineers were able to design a modern LED panel to fit the existing lighting system, adopting a slim surface fitting while adapting tiles to create a flush, professional appearance – without the additional cost burden of replacing the entire suspended ceiling system and associated wiring.

Insite Technical Ltd

Project Cost: £22,572
Energy Saving: 76%
5-Year Saving: £39,368
Payback: 30 months
Carbon Saving: 20.1 tCO₂e



Existing Technology

Insite Technical Ltd are international oil & gas engineers, employing 85 staff. Due to their growth, their present offices were too small and rather expensive.

The ex-call centre nearby offered 20,000 sq ft over two floors of modern commercial office space, and buying the freehold was similar in cost to their current rental.

Issues

Many of the T8 quad fluorescent units were failing and very yellow. It's often said that strobing lights can cause headaches.

LUX levels were below standard for office lighting – around just 100 LUX. Emergency lights were also showing faults, which worried management as the building would fail fire safety standards.

Upgrades with additions were needed to comply with BS 5266.

Solution

LEDlights4you installed 600x600mm 25W Flicker-Free LED panels in 4000 Kelvin colour. This transformed the office into a fresh, clean, daylight-bright environment. LUX increased to around 260–320.

In addition, small offices, corridors and toilets were fitted with microwave occupancy sensors so that lights switched off automatically when unoccupied.

Insite Technical Ltd also took advantage of a Green Business Grant (£3,385) and an interest-free loan of £12,000.