

5 Uncomfortable Truths About Sustainable Lighting

Why lighting designers are moving
beyond 'replacement' mentality and
towards UK remanufacturing

INTRODUCTION

For years, sustainable lighting has focused heavily on operational efficiency through LED upgrades, controls and reduced energy consumption.

But the conversation is changing.

As embodied carbon, retrofit, and circularity become increasingly important across the built environment, the lighting industry is beginning to ask more difficult questions about replacement, waste and long-term value.

This guide explores five of the biggest shifts shaping the future of sustainable lighting design.



01 Energy Efficiency is No Longer Enough



Buildings account for 37% of global CO₂ emissions

For nearly two decades, sustainable lighting has largely focused on reducing operational energy use.

While LED technology and intelligent controls have dramatically improved efficiency, the industry is now facing a broader challenge. As electricity grids become cleaner, embodied carbon and replacement culture are becoming harder to ignore.

Sustainability is no longer only about how efficiently a luminaire operates. It is increasingly about how it is manufactured, maintained and upgraded over time.

02 Most Buildings Already Exist



85–95% of today's buildings will still exist in 2050

The future of sustainable lighting will not be shaped by new buildings alone.

Across the UK and Europe, most buildings that will exist in 2050 have already been built. That means retrofit, adaptation and reuse are becoming increasingly important to achieving net zero targets.

Yet many lighting schemes are still designed around full replacement rather than long term adaptability.



DRK Case Study:

BP Sunbury

DRK remanufactured more than 8,500 luminaires at BP Sunbury, helping deliver over £1.5m in annual energy savings and reducing carbon emissions by more than 1,000 tonnes per year.

The project demonstrates how remanufacture and intelligent controls can support sustainability goals at large commercial scale without full luminaire replacement.



8,500+

Luminaires
remanufactured



£1.5M+

Annual energy
savings

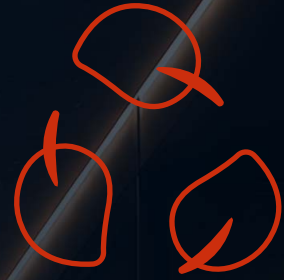


1,000+

Tonnes of CO₂
saved per year

03

The Greenest Luminaire May Already Exist



Remanufacture can reduce product stage carbon emissions by up to 85%

Replacing a luminaire often destroys its most carbon-intensive component: the housing itself.

By retaining the luminaire body and upgrading key components such as the LED engine, driver and controls, remanufacture challenges the assumption that new automatically means more sustainable.

As embodied carbon frameworks such as TM65 become more widely adopted, the environmental logic behind reuse is becoming increasingly difficult to ignore.

DRK Case Study:

Timber Square

Timber Square aims to be a net-zero-carbon building in both operation and construction, which is where we come in with our remanufacturing. This mixed-use, 370,000 sq ft redevelopment has retained and refurbished a 1950s printworks, keeping around 80% of the existing building. Hoare Lea were the designers on this project, and in keeping with the low-carbon ethos, they wanted to incorporate as much of the preserved lighting as possible.

We completed the remanufacturing of two types of light fittings: pendants and high-bay-style downlights. We have calculated that the total savings of these remanufactures were 1663kg of CO₂ and 2 tonnes of greenhouse gas emissions.



370,00sq ft

redevelopment



1,663kg

CO₂ saved



2 tonnes

of greenhouse
gas emissions

04

Daylight is Still Underused



Daylight responsive controls can reduce lighting energy use by up to 60%

Despite advances in lighting technology, many schemes are still designed as though daylight does not exist.

Natural light remains one of the most effective and underused tools available to lighting designers. Combined with intelligent controls and occupancy-responsive systems, it can significantly reduce unnecessary energy consumption.

The next stage of sustainable lighting may depend less on producing more light and more on using existing light more intelligently.



05 Circularity is Becoming Commercial Reality

Embodied carbon can account for over 50% of a building's lifecycle emissions

Circularity is no longer a niche sustainability conversation.

Frameworks such as BREEAM, WELL and TM65 are pushing embodied carbon and lifecycle thinking further into mainstream specification, while clients are increasingly focused on long-term value, ESG targets and material reuse.

There is a growing UK industry dissatisfaction with carbon counting as it simply records the destruction rather than taking measures to stop it. Ragz Padayachi, Regional Director of NDY, puts the point over well when he says **“If we know something is harmful, why keep doing it? Real change comes from changing behaviour, not just counting the damage. People need to stop throwing things away. I’m here for re-manufacturing!”**.

Conscientious consultants are now questioning whether it is best practice to carbon-count or simply to renew existing fittings. Campaigner Lady Lucy French believes **“Remanufacturing, using a UK labour force, is a win-win for the local economy and the wider issues of our planet’s well-being”**.

So, what is stopping consultants from choosing renewal over replacement? - Is it just that they feel it stunts the creative process and spoils the aesthetics? Is it a matter of it just being easier and leaning into the fact that humans are creatures of habit?

Nikki Dibley of Helical Development says, **“It can be all of the above, but also client preference, but the main factor is industry standards hadn’t applied to renewals and retrofitting until recently - getting a decent warranty on remanufactured products was nigh on impossible, but that has changed now, and the landscape is now more open to new methods and new outcomes”**.

The result is a gradual shift away from replacement-led thinking and toward more adaptable, upgradeable lighting systems.

Closing Thoughts

The future of sustainable lighting is not simply about creating better new products.

It is about making better use of what already exists.

For lighting designers, specifiers and building owners, circular thinking is rapidly moving from an alternative approach to an industry direction.



The Conversation Continues

Many of the ideas explored in this guide will be discussed in more detail in DRK's upcoming additional September edition of arc - Lighting in Architecture magazine.



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