



**designplan**  
L I G H T I N G

SUSTAINABILITY

# SUSTAINABLE LIGHTING





# CREATING A BRIGHTER FUTURE



WE WILL BE NET-ZERO NO LATER THAN 2045 (SEE PAGES 4 & 5)

Designplan have been manufacturing robust, long lasting luminaires since 1963. We strive to create action for a better environment and a brighter future.

Our Sustainability Promises

1. Make luminaires with 30+ year life.

2. Strive for 100% recyclability.

3. Maximise use of recycled materials.

4. Reduce supply chain's carbon footprint.
5. Minimise our facility's environmental impact.

6. Reduce waste.

7. Make installed lighting more energy efficient.

8. Cradle to cradle approach.

An energy efficient, circular product design is key, in practical terms, to ensuring we achieve our sustainability promises.

In this brochure we focus on the part we play in the circular economy and the ways we are reducing our carbon footprint as we strive to be net-zero by 2045 (pages 4 and 5).



OUR BREEAM EXCELLENT MANUFACTURING FACILITY

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# UN SUSTAINABILITY GOALS & OUR SCIENCE BASED TARGETS



**The United Nations (UN) Sustainable Development Goals (SDGs)** are a set of 17 objectives to ensure a sustainable present and future. As part of the Fagerhult Group, we have assessed all the SDGs to ensure our approach to sustainability is as comprehensive as possible.

**SDG 6:** We are undertaking a range of initiatives to use water sustainably, further to target 6.3: indicator 6.3.1 (pages 26 to 27).

**SDG 11:** We have pioneered LED luminaires, with upgradeable gear trays, which consume less electricity to make where we live more sustainable (pages 6 to 13).

**SDG 12:** Ensuring we produce our luminaires sustainably is a key element of our manufacturing philosophy (pages 14 to 25).

**SDG 13:** We encourage our customers to take direct climate action by adopting connected lighting systems to optimize energy in the usage phase (pages 28 to 33).

## Our Science Based Targets

The Fagerhult Group's net zero targets have been validated and approved by the Science Based Targets initiative (SBTi). Our near and long-term targets are designed to reduce emissions within the Greenhouse Gas Protocol (pages 14 and 15).

**Near term:** To reduce emissions by 70 per cent in Scope 1 and Scope 2, and by 30 per cent in Scope 3 by 2030\*.

**Long term:** To become net-zero by 2045.



# CIRCULAR ECONOMY

## OUR DESIGN PRINCIPLES



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We have all moved away from the traditional “take-make-dispose” linear production cycle. To be sustainable we require products designed to emphasise resource reduction, extended use, reuse and recycling (diagram 1).

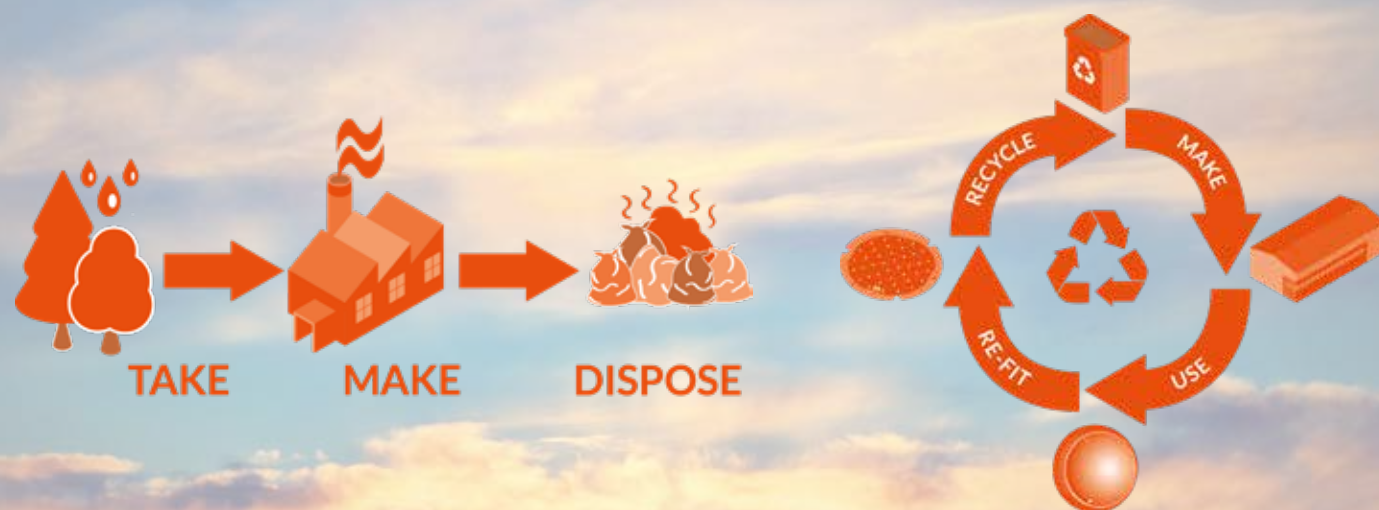
Ensuring various functional requirements are met, such as performance standards and safety, is also vital. According to the EU science hub, 80% of a product’s environmental impact is determined at the design phase.

We have developed a tried and tested approach to product design, since our inception in 1963, to ensure sustainability is “built in” (diagram 2). As part of this process we work within the CIBSE (Chartered Institution of Building Services Engineers) TM66 self assessment framework. We use this methodology to assess our luminaires based on their design, material use, manufacturing methods and environmental impact.

60 years ago we pioneered luminaires which incorporate a removable metal tray containing all the internal lighting componentry. This long-term commitment to circular product design has enabled us to produce long lasting, repairable and upgradable products with 30 year + life spans.

Using as much recycled material in our products as possible is a key part of our eco-friendly manufacturing ethos. Ultimately we are striving for a “cradle to cradle” approach to lighting.

60 YEARS AGO WE PIONEERED THE REMOVABLE GEAR TRAY



1: A CIRCULAR DESIGN IS MORE SUSTAINABLE THAN THE “TAKE-MAKE-DISPOSE” PRODUCTION CYCLE



2: OUR “TRIED AND TESTED” APPROACH TO PRODUCT DESIGN

# CIRCULAR ECONOMY

## A SUSTAINABLE LUMINAIRE



09

**To ensure a 30 year+ design life, a number of factors need to be considered.**

### 1. Robust Body

A body constructed using durable and recyclable materials such as steel and aluminium, protected using proprietary methods, will ensure a high IK rating for impact resistance and a 30 year+ design life.

### 2. Sustainable Technology

Upgradeable components means less waste when replacing whole fittings. Replaceable gear trays reduce on-site work, and associated carbon emissions, as the whole installation does not need to be replaced.

### 3. High Ingress Protection

Dust tight and weather resistant lighting is essential. Long life, quality, precision cut materials and rigorous testing ensure a high ingress protection (IP) rating.

### 4. Recyclable Components & Materials

Where possible we utilise recyclable components in our luminaires. We also use recycled content when manufacturing our lighting, for example 40% of the aluminium used for these luminaire bodies.

### 5. Low Maintenance

Tamper-proof lighting ensures the product's security once installed, reducing on-site maintenance call outs and associated carbon emissions.



TO ENSURE A 30 YEAR+ DESIGN LIFE, A NUMBER OF FACTORS NEED TO BE CONSIDERED



# CIRCULAR ECONOMY

## CASE STUDY



# 11

**Bold Lane, originally constructed in the 1970s, is described as one of the most safe and secure car parks in the world. Operated by Parksafte, it provides 24/7 onsite customer service.**

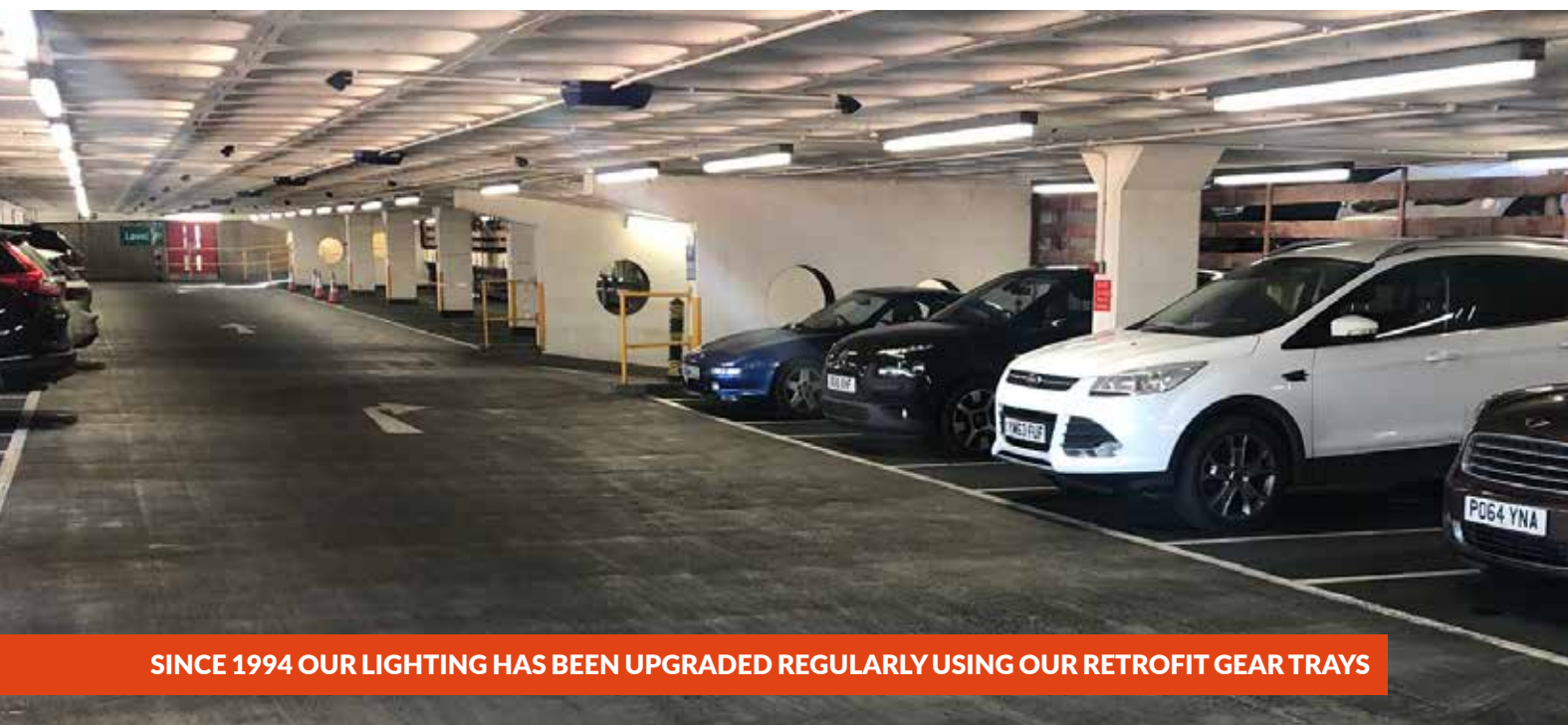
We first installed the current lighting in 1994. Over the past 30 years our Sparta luminaires have transitioned from fluorescent to energy saving LED, using a removable retrofit gear tray.

Each upgrade has ensured the installed lighting uses less energy than its predecessor, without the need for new luminaire bodies and expensive rewiring. The latest LED gear tray upgrade also includes wireless lighting controls to provide additional energy management.

The robust construction of the luminaires, in addition to sustainable retrofit technology upgrades, has helped ensure the longevity of the installation. The Sparta's IK16 vandal resistance rating means these fittings can resist an impact of 150 joules of energy, providing peace of mind to the car park operator and their customers.

Bold Lane offers 24 hour secure parking, with energy efficient LED lighting to provide a safe and welcoming environment. The lighting now uses significantly less energy than the original 1994 installation, and the wireless lighting control system provides additional energy saving by utilising presence detection.

**BOLD LANE CAR PARK IS DESCRIBED AS ONE OF THE SAFEST CAR PARKS IN THE WORLD**



**SINCE 1994 OUR LIGHTING HAS BEEN UPGRADED REGULARLY USING OUR RETROFIT GEAR TRAYS**



**BOLD LANE CAR PARK C 1974**



# CIRCULAR ECONOMY

## REMANUFACTURING & END OF LIFE

### WASTE HIERARCHY

PRODUCT  
(NON-WASTE)

PREVENTION

PREPARING FOR RE-USE

RECYCLING

RECOVERY

WASTE DISPOSAL



KEEPING OUR LUMINAIRES IN USE FOR LONGER HAS SIGNIFICANT WASTE REDUCTION BENEFITS



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Keeping our luminaires and components in use for longer has significant waste reduction benefits. This includes reducing the amount of equipment being sent for recycling or landfill. Also the demand for manufacturing from virgin materials, and the energy needed to manufacture them, is reduced.

Our 30+ year life cycle luminaires are ideal for reuse elsewhere, as they can out live the useful lifespan of a building. Recognising this, we are involved in the development of a new code of practice for lighting manufacturers which is due to be published in late 2024 as part of the BS 8887 series.

Once published, we will adopt the BS 8887-221 - Design for manufacture, assembly, disassembly and end-of-life processing code of practice for the remanufacture of luminaires as part of our best practice manufacturing process.

We are experienced in this type of rigorous compliance process supported by robust technical documentation, testing and compliance assessment. For example, when retrofitting our luminaires with energy saving LED gear trays our in-house laboratory retests and validates the modified luminaire to ensure it complies with all relevant regulations.

When our luminaires do eventually reach their end of life, we dispose of them as sustainably as possible, following the Waste Electrical and Electronic Equipment (WEEE) regulations.

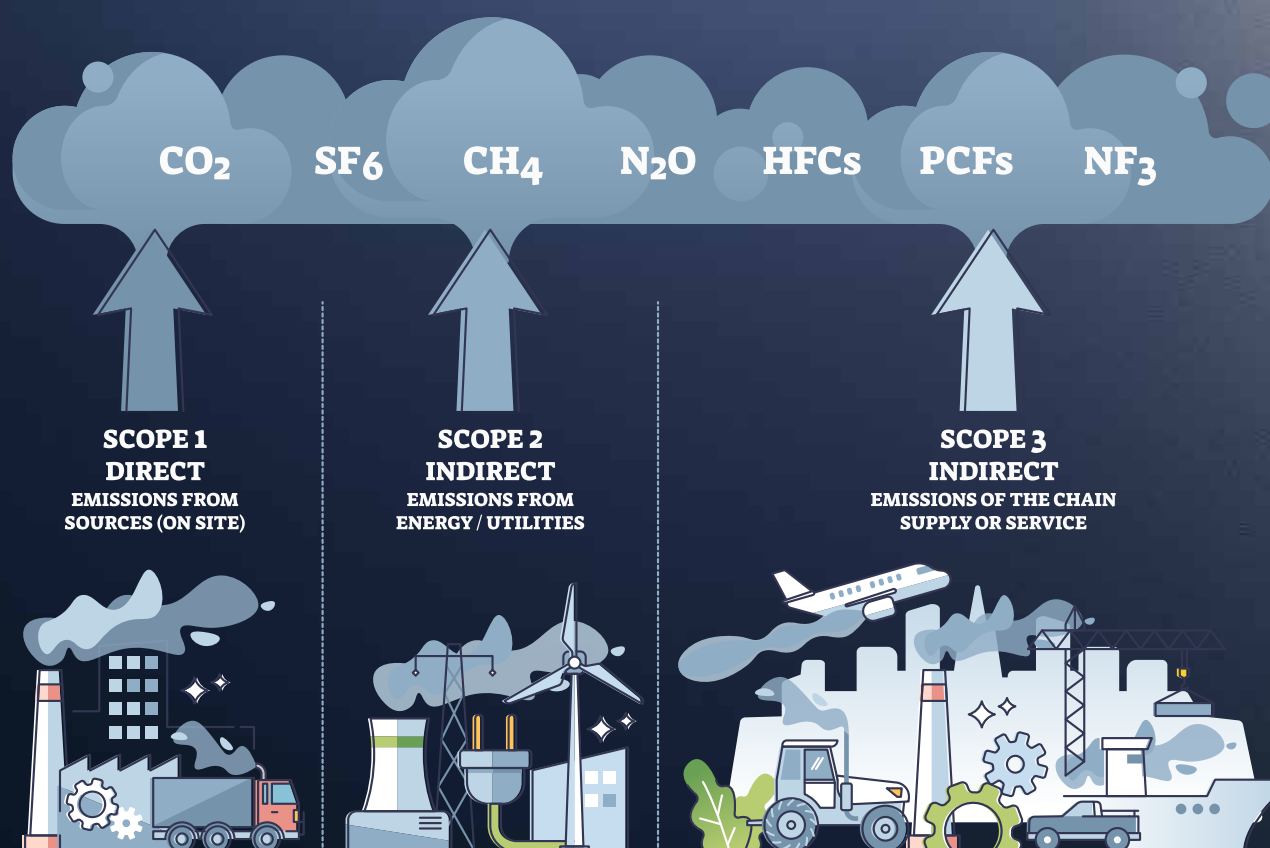


# REDUCING OUR CARBON FOOTPRINT

## OUR SCIENCE BASED TARGETS



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The Fagerhult Group have committed to be net zero no later than 2045. This target has been validated and approved by the Science Based Targets initiative (SBTi).

Our near and long-term targets are designed to reduce emissions within the Greenhouse Gas Protocol (GHG protocol) framework as follows:

**Scope 1** (Direct Emissions From Our Manufacturing Process). By 2030 we will reduce these emissions by 70%\*. We are focusing on the base materials we use, reducing our manufacturing waste, maximising recycling and saving energy in production (pages 16 to 19).

**Scope 2** (Indirect & Direct Emissions From Purchased Energy). By 2030 we will reduce these emissions by 70%\*. We are incorporating renewable energy sources in to our manufacturing operations and all the energy we purchase is from non-fossil fuel-based electricity (pages 20 & 21).

**Scope 3** (Indirect & Direct Emissions From Our Products & Value Chain). By 2030 we will reduce these emissions by 30%\*. We will continue to limit the embodied carbon in our products and use the TM65.2 measurement reporting methodology (pages 22 & 23). We have shortened our supply chain and work within the sustainable procurement practices set out by ISO 20400: 2017 (pages 24 & 25).

**Scope 3** (Reducing Use Phase Emissions). By 2030 we will reduce these emissions by 30%\*. We are focusing on sustainable retrofitting and connected lighting systems (pages 28 to 33).

OUR APPROVED SCIENCE BASED TARGET INITIATIVE (SBTi) IS TO BECOME NET-ZERO BY 2045

\*from the baseline year 2021.



# REDUCING OUR CARBON FOOTPRINT

## SUSTAINABLE MANUFACTURING (SCOPE 1)



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OUR BREEAM EXCELLENT FACILITY FEATURES RAIN WATER HARVESTING & SOLAR PANELS

To help us achieve lower scope 1 emissions we operate from a BREEAM 'Excellent' facility. Sustainability initiatives include rain water harvesting, solar panels and integrated lighting controls throughout the building.

We are accredited to the ISO 9001 Quality Management and ISO 14001 Environmental Management systems. We have short and long term plans, to reduce our direct emissions, managed by a dedicated sustainability team. Areas we focus on include:

### Base Materials

- Increase use of recycled materials.
- Utilise more low carbon materials.
- Design out materials to reduce waste.
- Minimise supply chain and material miles.

### Energy Use In Operations

- Increase energy efficiency in machinery and processes.
- Utilise daylight sensors and factory roof skylights.
- Maximise presence sensors throughout our facility.
- Capture and re-use heat from our paint plant.

### Our Achievements, So Far

- Between 2017 and 2021 we have reduced our usage of plastic packaging by 63%.
- Since 2023, paper tape has reduced the amount of plastic packaging tape by 631 kg.
- Our solar panels and solar wall save 24,380 kg CO<sub>2</sub> annually (see page 21).

*\*based on an annual mileage of 120,000.*



40% OF THE METAL IN OUR ALUMINIUM LUMINAIRE BODIES IS RECYCLED



SWITCHING TO ELECTRIC VEHICLES SAVES 13880 KG CO<sub>2</sub> PER ANNUM\*



# REDUCING OUR CARBON FOOTPRINT

## MANUFACTURING WASTE (SCOPE 1)



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**We have identified several streams to enable us to segregate waste effectively and maximise recycling. “99.8% of our waste is diverted from landfill, after leaving our site, month on month”.**

We involve all members of our team by providing and enforcing clear collection and recycling guidelines for all our identified waste streams. One example is the effective segregation of our waste. Our shared approach has enabled us to convert 24% of our waste to energy.

We have installed an on-site cardboard baling machine. This has reduced the volume of waste material significantly. It has also resulted in less collections to remove our 80% recycled cardboard to recycling.

We make our boxes as we need them, to the exact quantity required. This initiative has reduced the number of incoming cardboard deliveries from 66 to 15 per annum.

### Other examples

- Waste is turned into consumable items. For example the hooks used to hang our luminaires from in our paint plant are made from waste metal.
- We introduced damaged and contaminated waste wooden pallets back into use via a local re-working facility.

99.8% OF OUR WASTE IS DIVERTED FROM LANDFILL, AFTER LEAVING OUR SITE MONTH ON MONTH



OUR BALER HAS REDUCED THE NUMBER OF COLLECTIONS TO RECYCLE WASTE CARDBOARD

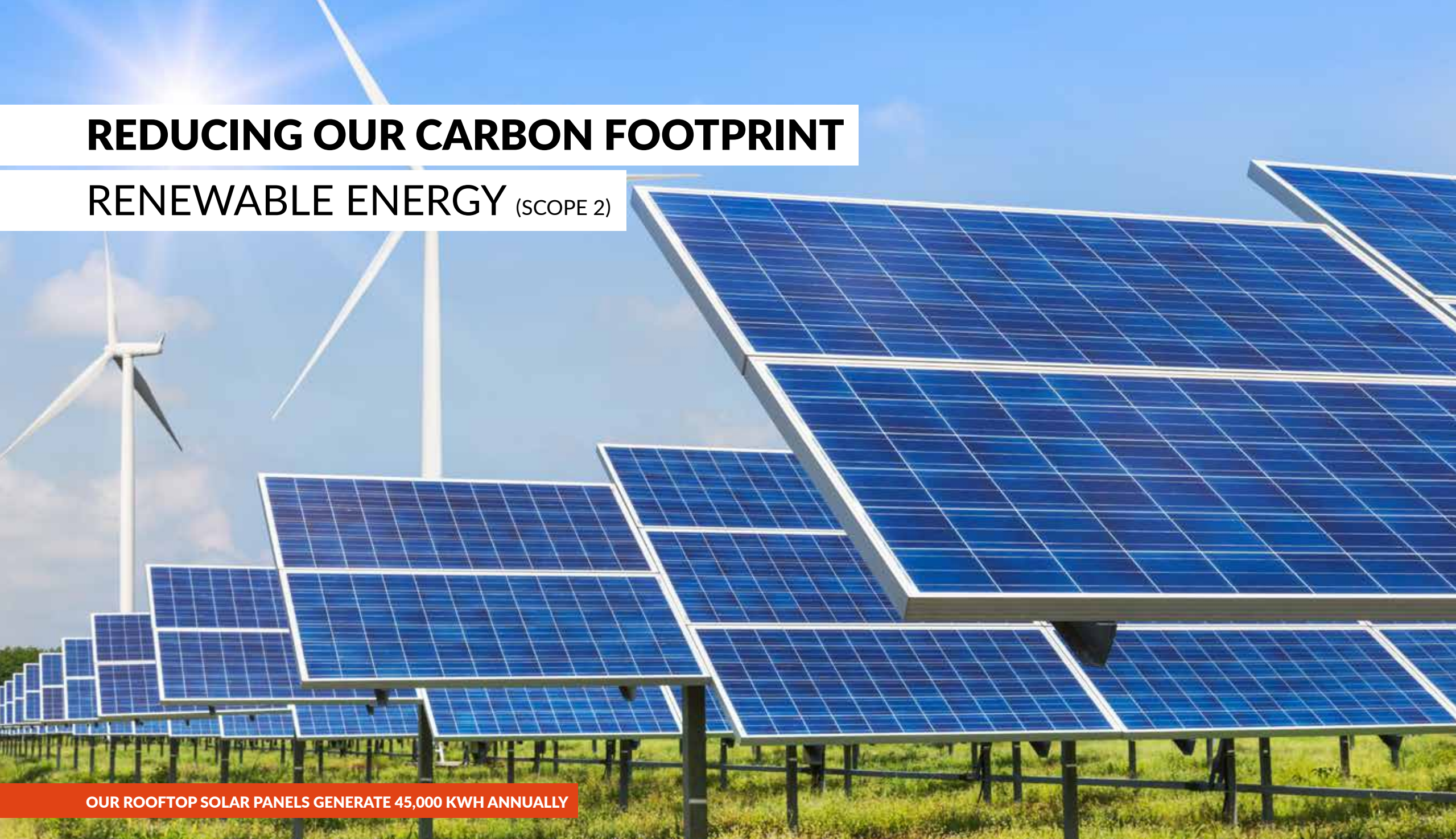


MAKING OUR OWN BOXES HELPS US REDUCE WASTE



# REDUCING OUR CARBON FOOTPRINT

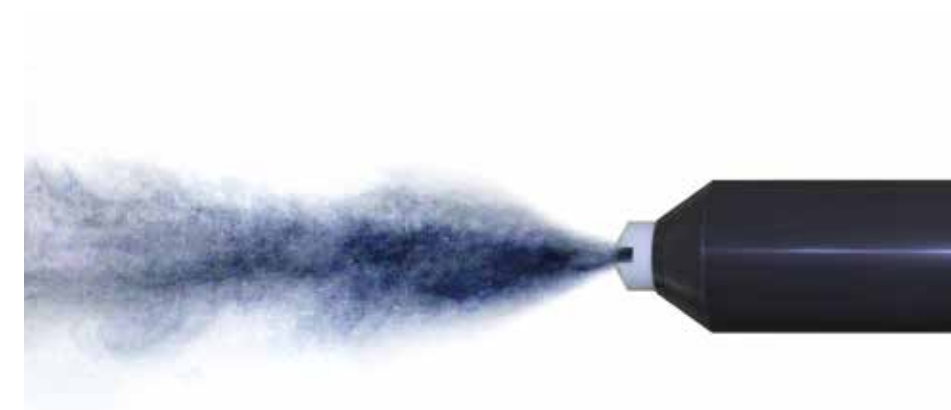
## RENEWABLE ENERGY (SCOPE 2)



OUR ROOFTOP SOLAR PANELS GENERATE 45,000 KWH ANNUALLY



WE WILL HAVE UPGRADED TO HIGH EFFICIENCY & LOW ENERGY MACHINES BY 2025



LOW BAKE PAINT POWDERS ENABLE US TO OPERATE OUR OVENS AT LOWER TEMPERATURES



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**We have transitioned our purchased electricity from fossil fuel-derived. 100% of our purchased energy is generated by renewable sources, such as wind and solar power.**

### On-Site Renewable Energy

We have installed on-site renewable energy systems which include solar panels on our roof and a solar wall on our factory. These initiatives are helping us provide clean energy to power our manufacturing processes.

Our rooftop solar panels generate approximately 45,000 kWh annually, which equates to 10,500kg CO<sub>2</sub> or an estimated 25,021 kettle boils!

Our solar wall, measuring 290m<sup>2</sup>, generates over 44,000 kWh annually, saving 13,880 kg CO<sub>2</sub> annually.

We also recirculate heat from our internal processes. For example heat from our paint plant.

### Reducing Energy In Production

Our programme to upgrade older machinery to state of the art high efficiency, low energy use machines is due to complete in 2025.



# REDUCING OUR CARBON FOOTPRINT

## EMBODIED CARBON (SCOPE 3)



OUR PRODUCT SUSTAINABILITY REPORT PROVIDES CIBSE TM65 & TM66 DATA

Embodied carbon, according to the Chartered Institution of Building Services Engineers (CIBSE), is the “greenhouse gas emissions associated with the manufacture of a product”.

### TM65.2

We believe that measuring embodied carbon in product manufacture is very important to help understand the whole life carbon of a building.

We utilise the CIBSE TM65.2 measurement methodology for embodied carbon which also includes a product's installation, maintenance, repair, replacement and end of life.

### TM66

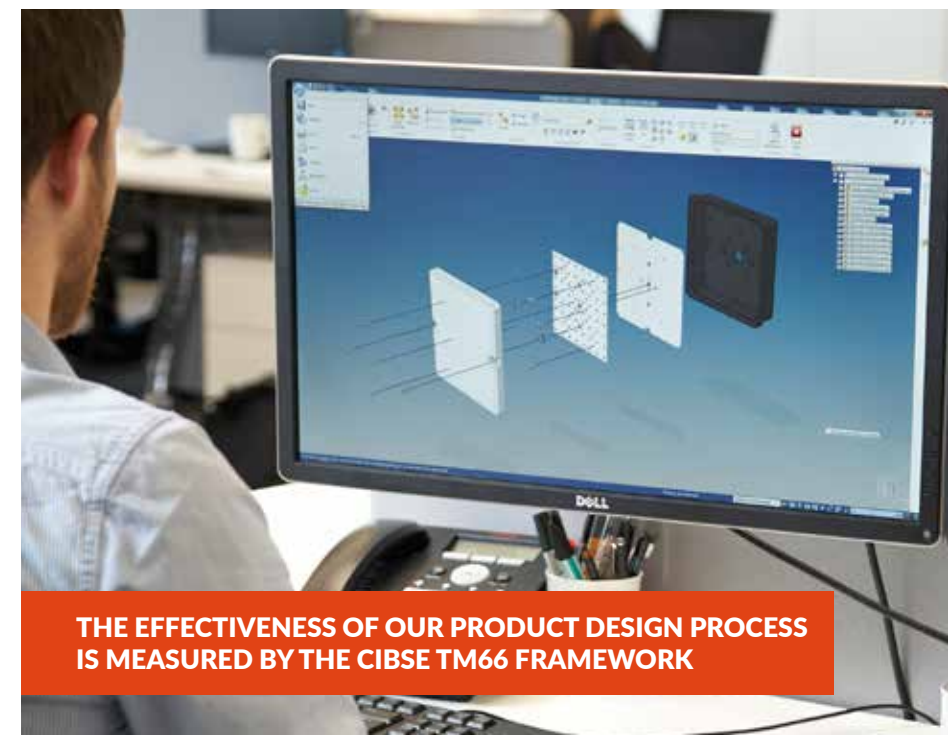
We use the CIBSE TM66 framework to assess our luminaires based on their design, material use, manufacturing methods and environmental impact.

To ensure longevity and future deconstruction our fittings are designed with a removable gear tray.

### The Use Phase

We recognise the need to reduce carbon emissions in the use phase. Our aim is to utilise LED modules with increased energy efficiency.

Where possible we integrate lighting controls and smart connectivity to further reduce operational carbon (pages 32 and 33). Developing lower power fittings is also a priority.



THE EFFECTIVENESS OF OUR PRODUCT DESIGN PROCESS IS MEASURED BY THE CIBSE TM66 FRAMEWORK



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### Our Product Sustainability Report

On request, we will provide you with our Product Sustainability Report for each luminaire variant which will detail:

- The TM65.2 assessment score to show the embodied carbon in kilos of CO<sub>2</sub>e\*.
- The TM66 make assessment score.
- Luminaire efficacy (lm/W).
- Product life span.
- Sustainable manufacturing data (BREEAM).
- Fagerhult Group Net Zero targets.
- Circularity product data.
- Recyclability information.
- Compatible lighting controls.

### Embodied Carbon

To show the embodied carbon in kilos of CO<sub>2</sub>e\* we utilise the CIBSE TM65.2 mid-level calculation method which assesses:

- Material extraction.
- Transport to our factory.
- Manufacturing activity.
- Transport from our factory.
- Maintenance.
- Repair.
- Transport at end of life.
- Waste processing.
- Disposal.



# REDUCING OUR CARBON FOOTPRINT

## ETHICAL PURCHASING (SCOPE 3)



WE FOLLOW THE SUSTAINABLE PROCUREMENT PRACTICES SET OUT BY ISO 20400:2017



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**We, as part of the Fagerhult Group, are committed to ethical purchasing.**

### Code of Conduct / ISO 20400

The Fagerhult Group Code of Conduct lays out our sustainability and environmental values with our business partners. At Designplan, we also work within the sustainable procurement practices set out by ISO 20400: 2017.

### Material Selection

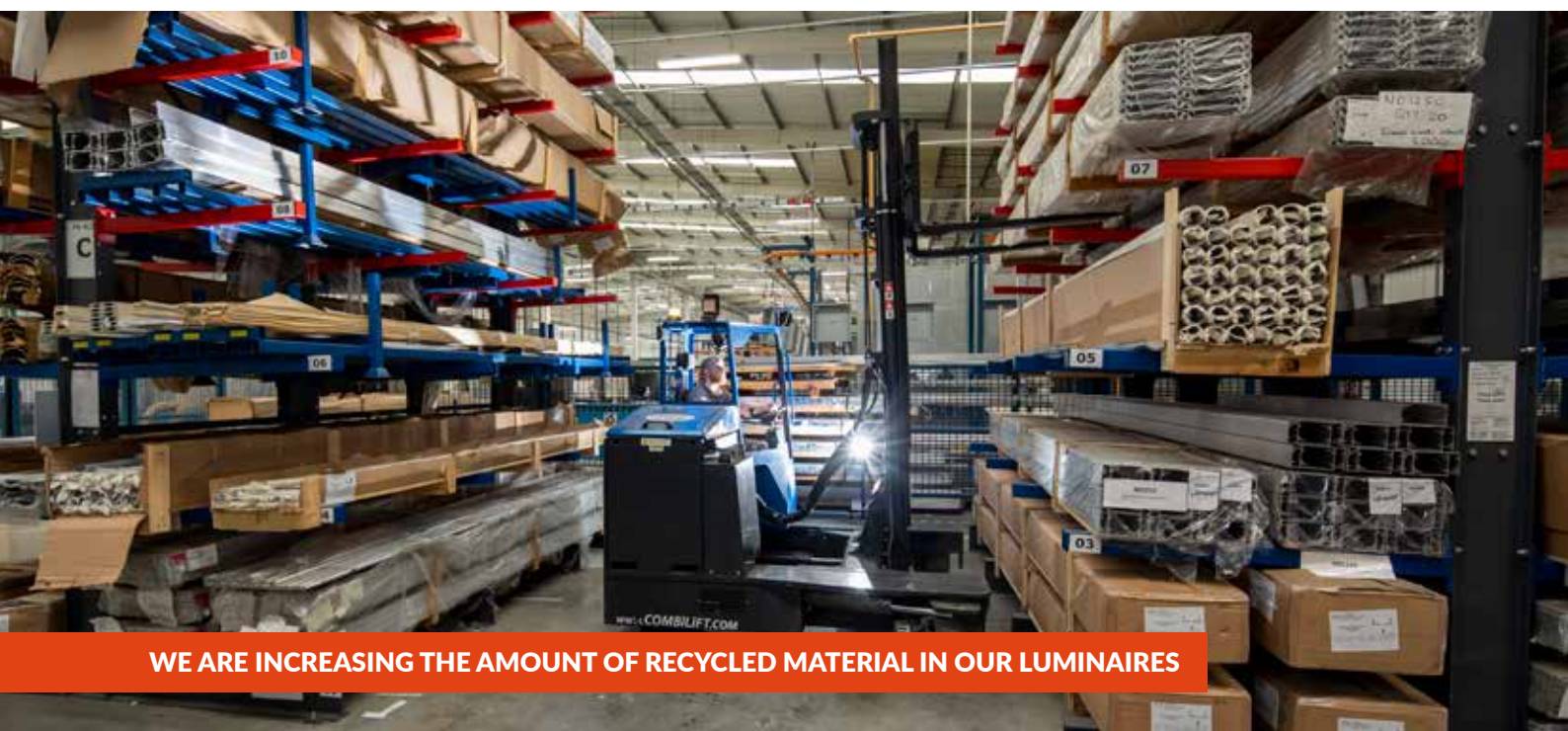
We are working with our suppliers to get more recycled content into the materials we use to make our luminaires. For example 40% of the aluminium in these luminaire bodies is recycled. We are also looking at incorporating more energy efficient components.

### Joint Initiatives

We have worked with our suppliers to reuse as much of our incoming packaging as possible. Together we have eliminated 6,000 plastic bags per annum from our supply chain by introducing returnable cardboard boxes with suppliers. We also return incoming cardboard boxes monthly, so that they can be reused for future deliveries.

### Material Miles & Greener Transport

We are currently looking at ways of minimising material miles. Nearly 70% of our aluminium is now sourced from Europe with an initiative in place to increase this by a further 6% in 2023. We are also working with our suppliers to encourage them to transport materials as energy efficiently as possible utilising electric vehicles.



WE ARE INCREASING THE AMOUNT OF RECYCLED MATERIAL IN OUR LUMINAIRES



WE RETURN PACKAGING TO SUPPLIERS FOR RE-USE



# NATURAL RESOURCE MANAGEMENT

## SAVING WATER



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We are undertaking a range of initiatives in our BREEAM excellent manufacturing facility to use water sustainably, further to SDG target 6.3 (indicator 6.3.1). This includes rainwater harvesting and wastewater treatment in our paint plant to filter and recirculate water.

### Rainwater harvesting

We use our expansive roof to harvest rainwater which we collect into a large tank. This rainwater is then used to flush our toilets, saving approximately 1,500 litres of mains water per day.

### Automation

Our paint plant filters and recirculates water using a sophisticated arrangement of tanks, pumps, valves and filtration equipment. Automated product presence detectors ensure we only use water when needed. We estimate this automated process saves around 63,000 litres of water per week.

### Other examples

- Cistern flush “water savers” in our toilets reduce the amount used per flush by approximately 2.5 litres.
- Zip Water Hydro Taps, installed in our kitchens, use only the amount of water needed to make a drink.
- Automatic sink shut-off taps save approximately 320 litres of water per day.

All of our water saving amounts to 72,100 litres of water a week, that's the equivalent of 1.5 Olympic swimming pools a year.

IN THE UK 3 BILLION LITRES OF WATER IS WASTED PER DAY, EQUAL TO 1,212 OLYMPIC SWIMMING POOLS\*

\*SOURCE: [www.discoverwater.co.uk/leaking-pipes](http://www.discoverwater.co.uk/leaking-pipes)

PRESENCE DETECTORS IN OUR PAINT PLANT SAVE AROUND 63,000 LITRES OF WATER PER WEEK

OUR ROOF HARVESTS RAINWATER TO FLUSH OUR TOILETS



# REDUCING YOUR EMISSIONS

## SUSTAINABLE RETROFITTING (SCOPE 3)



29

**We pioneered luminaires which incorporate a removable metal tray containing all the internal lighting componentry. Incorporating new technology sustainably is vital to a product's circularity.**

All our products incorporate removable gear trays. This integral design feature is helping our customers move from fluorescent to LED sustainably.

### Fluorescent Lighting Ban

Fluorescent lamps use up to 80% more energy, contain toxic mercury and pose environmental risks when broken or disposed of improperly. These factors have resulted in a ban on fluorescent lamps being placed on the market.

In Great Britain the ban began on 1 September 2023 with some T8 lamps, and others will follow on 1 February 2024.

Clearly, converting to LED lighting will have a positive impact on our environment. However, this can only be achieved sustainably if a product has been designed in a circular way.

### Benefits of LED gear trays

- Sustainable way to upgrade.
- Reduces energy consumption.
- Lowers maintenance costs.
- Minimises disruption.
- Improves safety and output.
- Future proofs lighting.

EASILY UPGRADE TO LED WITH A RETROFIT LED GEAR TRAY



IN GREAT BRITAIN THE FLUORESCENT LAMP BAN STARTED IN SEPT 2023 & WILL BE COMPLETED IN FEB 2024

SUSTAINABLE TECHNOLOGY UPGRADES

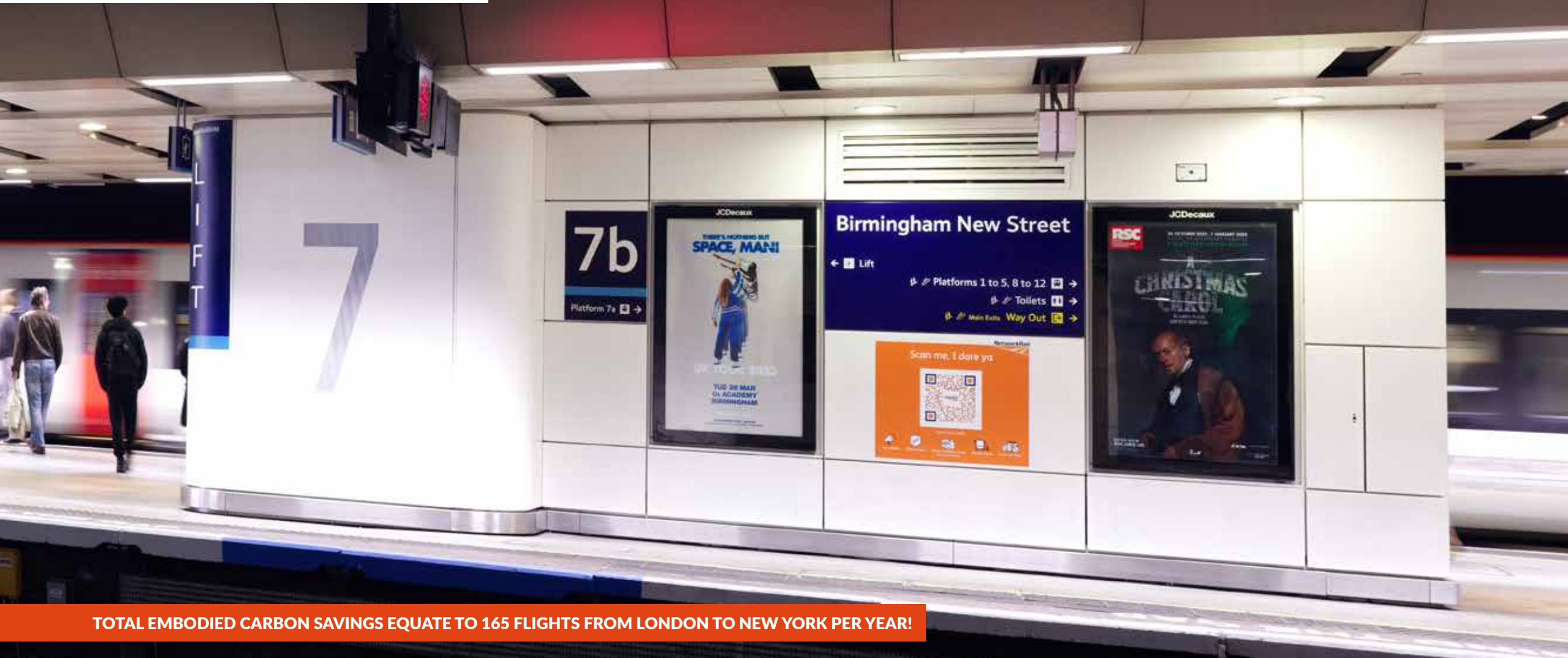


# REDUCING YOUR EMISSIONS

## CASE STUDY (SCOPE 3)



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TOTAL EMBODIED CARBON SAVINGS EQUATE TO 165 FLIGHTS FROM LONDON TO NEW YORK PER YEAR!

**We upgraded the platform lighting at Birmingham New Street station to energy saving LED, utilising our retrofit gear trays.**

Replacing the light engine of the existing luminaire, and not the full body of the fitting, also saved significant time on site.

### Energy savings

The new LED retrofit option has reduced power consumption to 30W, enabling a 40W/57% saving in energy per luminaire.

As the luminaires are operational for 24 hours a day throughout the year, annual operational energy consumption is down from 613 kWh to 264 kWh per luminaire.

### Emissions reduction\*

The carbon emissions for each modified luminaire are 56 kg CO<sub>2</sub>e per annum. In total, the operational carbon emissions for all 891 platform luminaires is now 50 tonnes CO<sub>2</sub>e every year - a significant reduction from the 117 tonnes generated by the old T5 and T8 fluorescent versions.

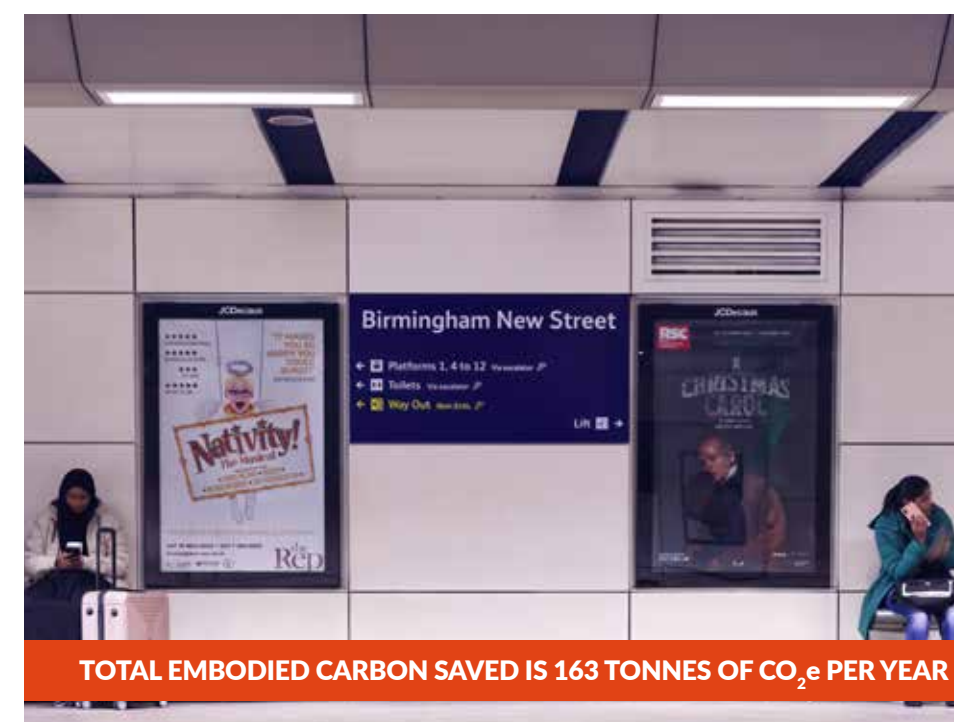
### Embodied carbon savings

The total embodied carbon saved is 163 tonnes of CO<sub>2</sub>e. This carbon saving is the equivalent to 165 flight journeys between London and New York per year!

\*Using the 'Carbon factor for Electricity' in the UK (revised in January 2022).



SHORT LISTED FOR THE 2023 RAIL BUSINESS AWARDS IN THE ENVIRONMENTAL EXCELLENCE CATEGORY



TOTAL EMBODIED CARBON SAVED IS 163 TONNES OF CO<sub>2</sub>e PER YEAR



# REDUCING YOUR EMISSIONS

## CONNECTED LIGHTING (SCOPE 3)



33

**We are encouraging our customers to utilise connected lighting systems to optimize energy usage and reduce their environmental impact.**

Connected lighting systems equipped with sensors and smart controls adjust lighting levels based on occupancy, natural light and time of day. This results in reduced electricity usage by up to 90% by making sure that lighting is only turned on when needed and at the right intensity.

Our lighting control systems offer remote monitoring and management capabilities, allowing energy inefficiency to be identified and rectified promptly. This proactive approach minimizes wasted energy and carbon emissions.

Data analytics from lighting control systems provide insights for continuous improvement. This data-driven approach helps identify further opportunities for energy reduction and emissions mitigation.

Connected lighting not only enhances user comfort and operational efficiency but plays a pivotal role in reducing your scope 3 emissions.

MORE INFORMATION



CONNECTED LIGHTING SYSTEMS OPTIMISE ENERGY USAGE AND REDUCE YOUR ENVIRONMENTAL IMPACT





## SUSTAINABLE LIGHTING

Our retrofit LED gear trays upgrade installed lighting sustainably. They are reliable, simple to install and easy to maintain.

**designplan**  
LIGHTING  
**60** YEARS  
ANNIVERSARY

