flexiform

74.36%
REDUCTION IN WATER PER £M/ TURNOVER
2010 - 2022

50.00%
REDUCTION IN ELECTRICITY PER £M MANUFACTURED SALES
2010 - 2022

56.62%
REDUCTION IN NATURAL GAS CO2 TONNAGE PER £M MANUFACTURED SALES 2010 - 2022

Environmental Impact & Company Improvements 2023

IMS208. 08.02.23 R2


Crown
Commercial
Service
Supplier

we care

At Flexiform, we understand our impact upon the environment, and we strive to make our business as environmentally friendly and sustainable as possible. Our products are built to last, which is why we offer a minimum 10 year warranty on all of our manufactured furniture. By minimising wastage, promoting recycling, and donating reusable furniture on to charities and schools, our passion for sustainability goes beyond manufacturing practices – it is ingrained into our way of working throughout the business.

We are committed to reducing the impact of our manufacturing processes on the environment, whilst also ensuring that Flexiform products are as sustainable as possible.

We recognise the importance of, no matter how small, the impact of our activities on the environment and that there is a need to constantly consider ways in which we can conserve energy and minimise waste in all activities that we undertake.

In addition to compliance with all relevant legislation and regulations, we endeavour to take positive action in reducing impact on the environment by a measured programme of focused activities.

OUR ENVIRONMENTAL ACCREDITATIONS
Please see the back of the document for certificates

environmental commitment

Flexiform acknowledges its responsibility to maintain a sound environmental policy and approach which meets the requirements of ISO 14001:2015.

We recognise the importance of, no matter how small, the impact of our activities on the environment that there is a need to constantly consider ways in which we can conserve energy and minimise waste in all activities that we undertake.

In addition to compliance against all relevant legislation, regulations and our Business Policy Statement core value objectives, we endeavour to take positive action in reducing the impact on the environment and have a measurable programme of focused activities. This includes, but is not limited to;

- The use of water, energy and other resources.
- The use of any products related to climate change.
- Waste production, both from our manufacturing and installation processes.
- Transport and travel.
- Re-cycling initiatives from raw material to finish goods or waste.
- Supply chain evaluation of upstream processes (scope 3).
- Sustainable development objectives are set by the Leadership Team and monitored within the monthly

Leadership Team meetings for many areas of the business, including (but not limited to):

- Widening and integrating all aspects of sustainable development initiatives into all our business operations.
- Ensuring that we comply with all relevant current and future legislation.
- Assessing other organisations strategies and learning from them.
- Setting and measuring performance against specific objectives.
- Developing our staff and our suppliers to understand our commitment to environmental issues and to sustainable development.

environmental team

The responsibility for our EMS is shared by all employees and is overseen by our Management Team. We have an Environmental Committee which reviews our Environmental Action Plan (EAP) on a regular basis and reports to our Management Team. The EAP is a 'live' document and is separate to the Policy document. It is updated following Committee review and version controlled by date of release. Each old version is then archived.

Primary responsibility for operating the company's EMS – James Downs
Environmental committee (meets 4 times per annum)

Nick Hewitt
MD

James Downs
Finance Director &
Primary Responsibility for
Environmental Team

Mark Parrish
General Manager

Andy Carter
Bid Manager

Helen Finnigan
Customer Services

Chris Raby
Design & Engineering Manager

Paul Fulton
Health & Safety / Quality Control
Manager

Jade Cartwright
Project Management Manager

Kate Webber
Graphic Designer

Additional members include Tracey Pearce, National Sales, and Adam Bates, Transport.

our core materials

The impact of our raw material is assessed, 80% of raw materials are UK sourced. This reduces transport and helps UK based businesses. We have increased our UK and local sourcing and will continue to do so. All steel, wood and fabric raw material purchases are from UK supply. Finished product supply will be 90% by volume (80% by value) UK sourced. We source no finished goods from Eastern Europe or the Far East. This both reduced the CO2 impact of what we produce and sell, but also improves our client responsiveness and supports the UK economy.

We primarily use FSC® accredited MFC board with sheet steel from 22swg (thinnest) to 10swg (thickest) and 14swg tube. The MFC is manufactured using 80% recycled content (40% recycled wood and 40% by products from the sawmill). Our steel is manufactured in the UK from Welsh mills and has a recycled content of 30%. All paint is powder coated and is reclaimed during the painting process to help reduce waste.

All of this activity, whilst improving our sustainability credentials, also has an impact on the bottom line cost of the company. This both improves our overall business sustainability and enables us to remain competitive in the marketplace. True sustainable development benefits all.

LOWERING OUR ENERGY CONSUMPTION

To lower our energy usage and overall environmental output our main focus has been on our Yorkshire factory. We've been changing the way we work for years including using solvent free paints since 1999, monitoring our energy consumption since 2006 and making major investments in equipment and the facilities, which has reduced the level of process waste by over 5%. In addition we have reduced the noise from the factory significantly to reduce noise polution for our neighbours.

Photo credit: Tim Green

our energy consumption

factory improvements & investments

ROLLER SHUTTER DOORS
Fast action roller shutter doors installed to reduce heating bills

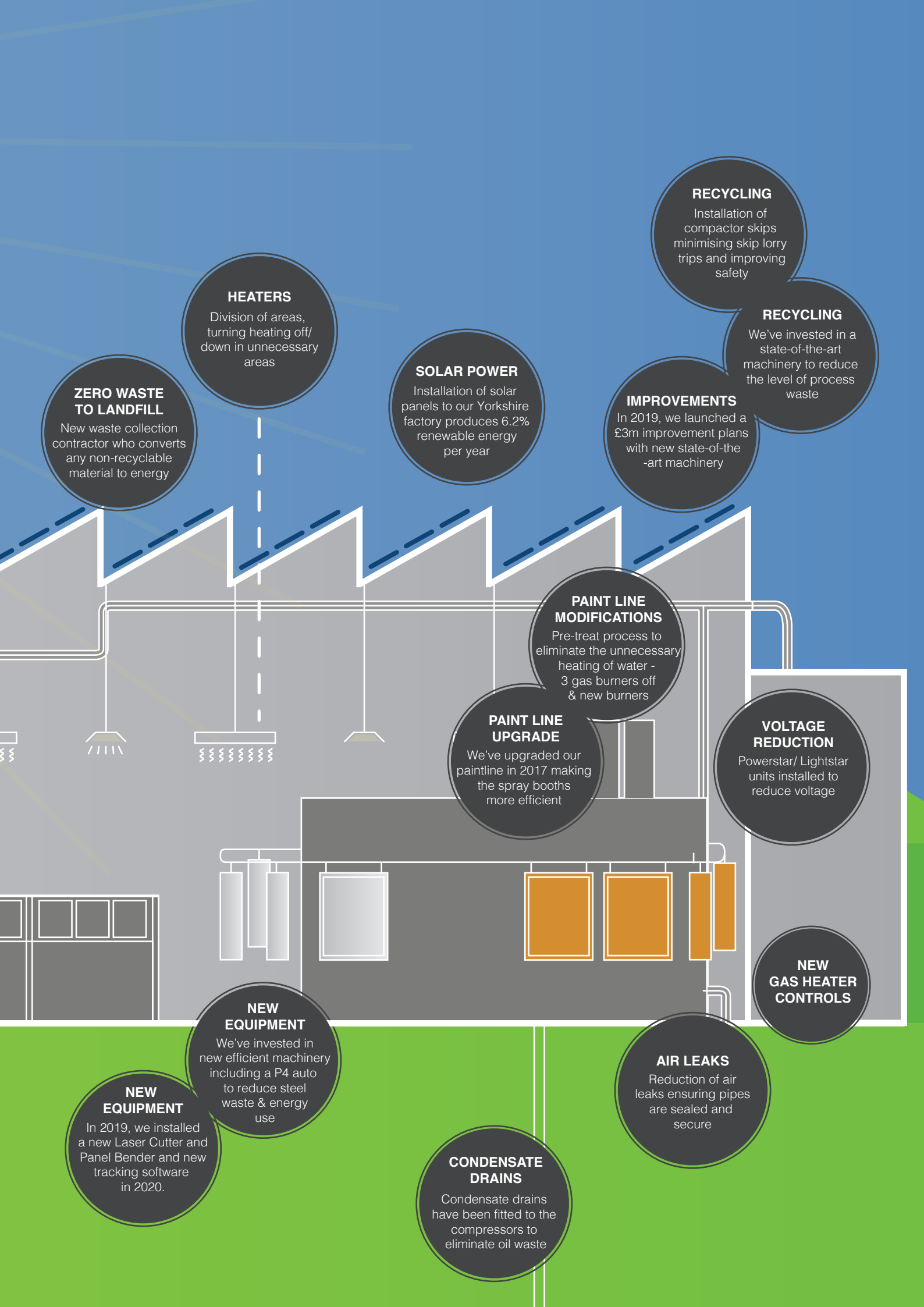
NOISE REDUCTION
We've taken numourous steps to reduce noise pollution for our neighbours

LIGHTING
£16,000 on efficient lighting and further new lighting installed

NEW FLEET OF DELIVERY TRUCKS
Fuel efficient delivery trucks

AIR COMPRESSORS
Smart air system for new, more efficient compressors

SPEED COMPRESSORS
New variable speed compressors


RECYCLING
Installation of compactor skips minimising skip lorry trips and improving safety
RECYCLING
We've invested in a state-of-the-art machinery to reduce the level of process waste
IMPROVEMENTS
In 2019, we launched a £3m improvement plans with new state-of-the -art machinery
HEATERS
Division of areas, turning heating off/ down in unnecessary areas
SOLAR POWER
Installation of solar panels to our Yorkshire factory produces 6.2% renewable energy per year
ZERO WASTE TO LANDFILL
New waste collection contractor who converts any non-recyclable material to energy
PAINT LINE MODIFICATIONS
Pre-treat process to eliminate the unnecessary heating of water - 3 gas burners off & new burners
PAINT LINE UPGRADE
We've upgraded our paintline in 2017 making the spray booths more efficient
VOLTAGE REDUCTION
Powerstar/ Lightstar units installed to reduce voltage
NEW GAS HEATER CONTROLS
NEW EQUIPMENT
We've invested in new efficient machinery including a P4 auto to reduce steel waste & energy use
NEW EQUIPMENT
In 2019, we installed a new Laser Cutter and Panel Bender and new tracking software in 2020.
AIR LEAKS
Reduction of air leaks ensuring pipes are sealed and secure
CONDENSATE DRAINS
Condensate drains have been fitted to the compressors to eliminate oil waste

reducing our energy use

Energy consumption has been significantly reduced over the years as we have continued to grow. Our electricity has been reduced by 50% and natural gas by 56.62% since 2010. We've achieved this by making a large number of investments and changes including new machinery, gas heater controls and compressors in the factory including investing £16,000 on more efficient lighting.

Future Investment and Energy Savings

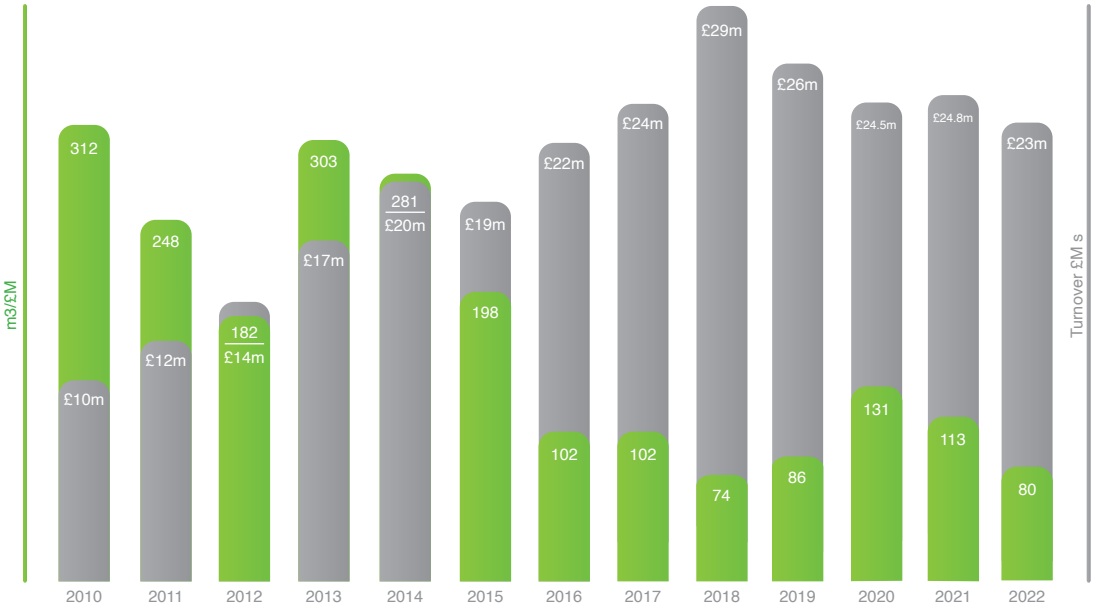
We continue to invest in new machinery with a huge upgrade to our machinery and paint track over the next 5 years which include more efficient paint track stoving ovens and reduction in the paint track length whilst increasing its capacity. We also have planned power factor correction and plastic waste recycling targets which include training courses for our team leaders.

water usage

We have made significant steps over the years to reduce our water consumption with a reduction of 74.36% m3 / per £M turnover from 2010 to 2022. We've made improvements in the factory such as eliminating one paint track pre-treatment tank, to changes in welfare facilities such as more efficient toilet cisterns, urinal sensors to reduce flush frequency and push down taps. We continue to make significant improvements to reduce water usage.

Graph: This graph below illustrates a decrease in our water usage despite the increase in turnover and output.

WATER USAGE - m^3/£M

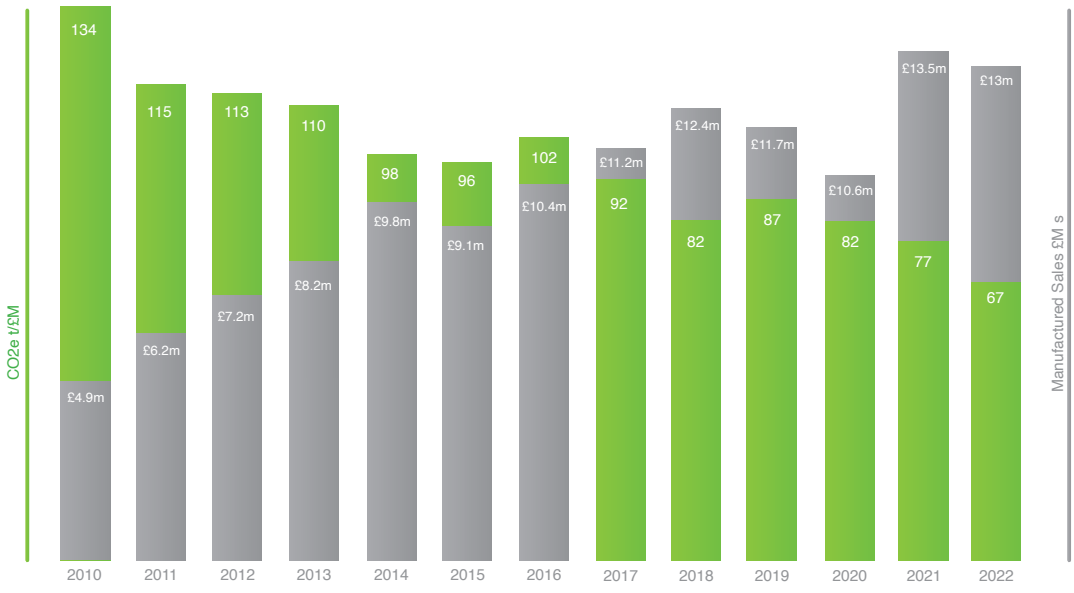


electricity usage

By investing in new machinery and efficient lighting, we've reduced electricity usage in terms of CO_2e per t/£M (carbon tonnes per million pound of manufactured sales) by 50% since 2010. Investments include more efficient air compressors, voltage reduction equipment including Powerstar/ Lightstar units, and efficient lighting. Of our electricity usage, 50% of it is from renewable sources, with our own factory solar panels (installed in 2022) producing 6.2%.

Graph: This graph below illustrates a significant decrease in our electricity usage despite the increase in turnover and output.

ELECTRICITY USAGE - CO_2e t/£M



"2019 analysis showed an increase in energy and gas consumption during the implementation of the new machinery and double shifts on the paint track. Now that those machines are fully implemented and the paint track is operating on a single shift basis, consumption levels have reduced back to lower than 2018 levels."

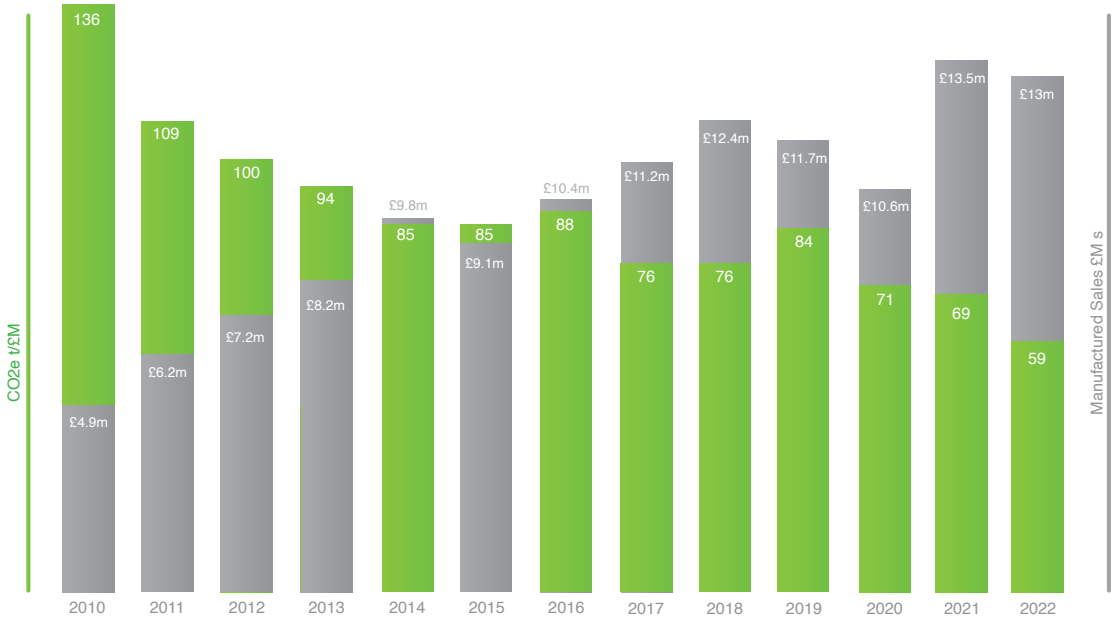
- Flexiform Enviro Team

natural gas usage

We have reduced our use of natural gas by 56.62% CO_2 tonnage per £M of manufactured sales (from 2010 - 2022) by investing in new machinery. We've upgraded our gas heater controls, gas burners and modified the paint track pre-treat process to eliminate the unnecessary heating of water which provided 3 gas burners to be turned off. We continue to make improvements to reduce our use of natural gas usage.

Graph: This graph below illustrates a significant decrease in our gas usage despite the increase in turnover and output.

NATURAL GAS USAGE - CO_2e t/£M



"2019 analysis showed an increase in energy and gas consumption during the implementation of the new machinery and double shifts on the paint track. Now that those machines are fully implemented and the paint track is operating on a single shift basis, consumption levels have reduced back to lower than 2018 levels."

- Flexiform Enviro Team

PACKAGING, UK WIDE DELIVERY & INSTALLATION

Packaging, delivery and installation is a big part of our environmental aims. We have reduced packaging throughout our products to get a balance where the product is fully protected and is delivered to the client in the same high quality it left the factory while no excessive packaging is wasted. Deliveries are scheduled in advance by our own Distribution Manager Ray Parker Jnr. who has 25 years of experience in planning. Ray also organises our installation teams to ensure the right people are on site. Our installation teams are very familiar with our products and our suppliers for a seamless installations saving time and resources.

packaging delivery & installation

product packaging

We have reduced our packaging in the last 2 years by 22%. This has been achieved through more considered use of packaging materials, increased re-use of packaging and the more sophisticated packing of our products on our vehicles. In addition, we have reverted to the old technology of furniture blankets which has reduced our cardboard packaging hugely whilst protecting our products in transit. .

As well as an environmental benefit to us having a plan in place, we can also demonstrate a benefit to our stakeholders and our customers as this reduces our operating costs. This reduction helps us to increase our value for money to our clients and to improve our profitability thus increasing the sustainability of the business in all ways. The packaging materials used are as follows:

Cardboard

All virgin material in our cardboard is FSC® accredited. The cardboard that we use has a recycled content of between 55% and 65%. We do not use 100% recycled cardboard as the packaging is re-used up to 6 times. We found 100% recycled board could not withstand this amount of reuse. Cardboard is always returned to the factory on our vehicles. When it is unsuitable for reuse, it is compacted in our factory and sent for recycling by Biffa our approved waste partner.

Blankets

These are made from a combination of sustainable wool and man-made materials for softness and durability. The blankets can last for many years and are re-used hundreds of times. Eventually they are shredded and sent for recycling, often made in to new blankets.

Plastic packaging

We do not use any hard plastic in our packaging. Soft plastics are a minimum of 40% recycled material and in some cases 100%. All soft plastics are returned to the factory for recycling.

Plastic bags

Primarily used on chair deliveries. As we control the distribution of the furniture, there is no need to box the chairs. Bags are re-used up to 5 times before being recycled. All bags are made from recycled material and 20% are compostable.

Overseas Packaging

Most of the products that are shipped overseas are packaged in a similar way to the UK products as this packaging is more than sufficient. Where larger products are concerned, they are fully boxed and internally protected as opposed to “top and tailing” on UK products. The seating products will similarly be boxed prior to be palletised. Some of the chairs will be shipped in KD form but most will be delivered fully built. All export products that are shipped in more than one carton are clearly marked “1 of 3”, “2 of 3” etc. in order to ensure that it is clear once in the final destination. All overseas products are palletised in order to make trans-shipment easy if required. These pallets are fully treated to enable them to be used in tropical and restricted conditions, all pallets are FSC® accredited.









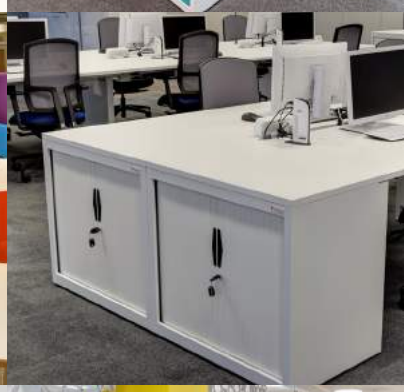












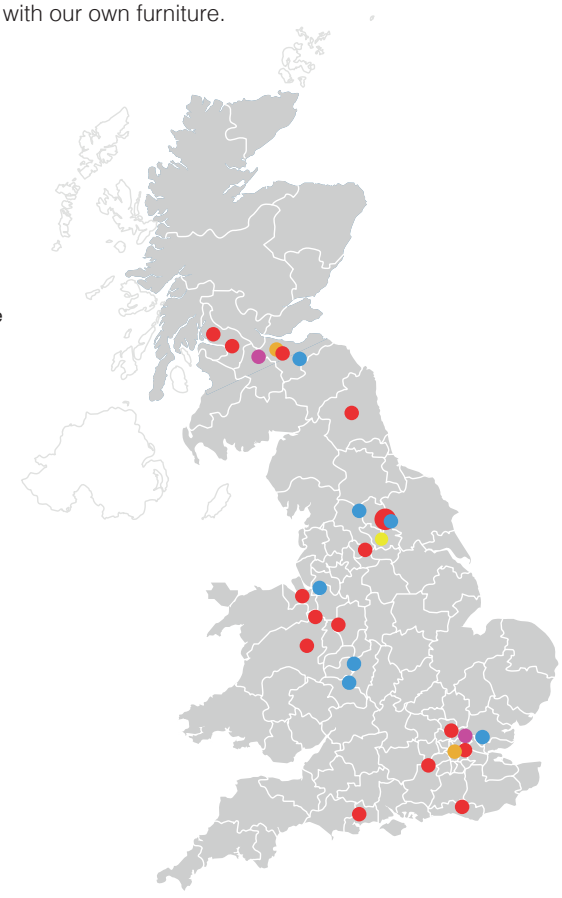
UK delivery & installation

As we manage the distribution of all our products, we ship our products in a format which minimises packaging and maximises vehicle capacity. More than 65% of product by value is flat packed. We have a number of vehicle sizes available to us which allows us to team up the size of the job to the most efficient vehicle. Milk runs are also used to minimise vehicle trips. Our distribution fleet is always kept up to date to ensure they are running efficiently and meet current emission standards.

At Flexiform we have a number of fitting teams across the country who are strategically placed to attend the nearest installation job. This ensures minimal travel time and CO2 input, while keeping key skills and staff available for jobs.

Within our purchasing department we also work with our suppliers to reduce mileage, often on large jobs products are sent directly to the client's site to reduce transport and lead times as well as reducing product miles and emissions. Our own installation teams are trained on our suppliers furniture which reduces the need for two installation teams. On smaller jobs products are delivered via milk runs to our Yorkshire warehouse where they are despatched with our own furniture.

- Warehouse
- Scotland/ London Office
- Yorkshire Factory, Office & Warehouse
- Project Manager/ Sales Representative
- Installation Team Member



hand-picked suppliers

We believe creating a close relationship with our suppliers ensures the best quality, prices and product options for our clients. That's why we hand-pick all the suppliers we work with. Although we can supply furniture outside of the brands listed, we try and shop locally here in the UK. We use the brands below for seating and electrical solutions to create a one-stop-shop for our clients.

All our suppliers offer thorough quality and environmental accreditations in line with our repair services and long warranties (along with their great selection of products!)

Flexiform

01. Orangebox
02. Boss Design
03. Pledge Seating
04. ABL Electrics
05. OCEE Design
06. Naughtone
07. Summit Seating
08. OE Electrics
09. CMD Electrics
10. Connection
11. Sixteen3
12. Nomique
13. Frovi
14. Clarke Rendall
15. Hitchmylius
16. Knightsbridge

our products lifecycles

RECYCLE OR REFURBISH

Our number one aim is to always design and manufacture a product that lasts, all our products are low-to-no maintenance. In a case of a product being damaged we offer an on-site repair service. At Flexiform we always aim to reduce waste to landfill, we refurbish and repair, donate and recycle to get this down the minimum.

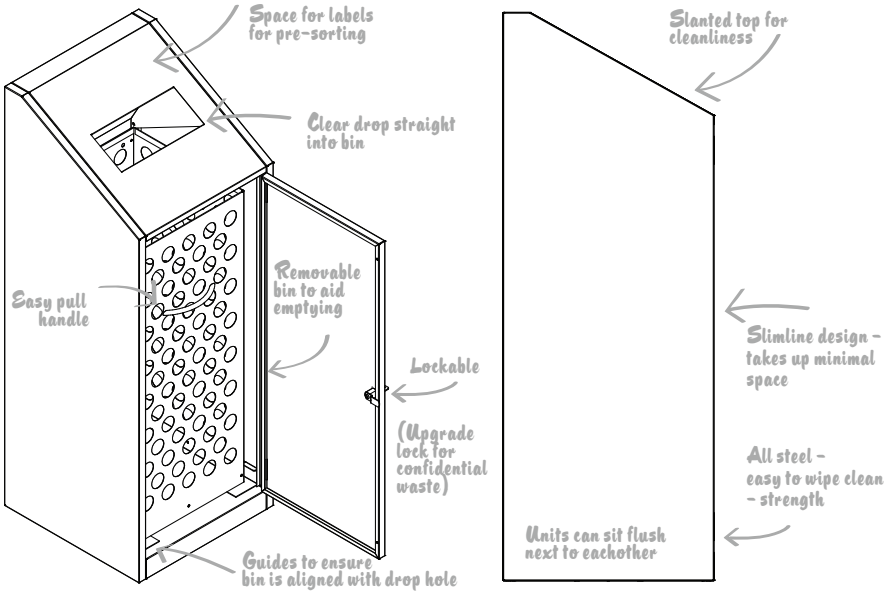
“the quality of the products that Flexiform manufacture I’m sure will last us for many years, with trouble-free service”

HELEN POOL
PROPERTY CHANGE MANAGER
WAKEFIELD MD COUNCIL

designed & manufactured to last

Designed in-house with our experienced design and engineering team, our products are built to last with customer use in mind. All our products are designed with the minimum weight steel which maintains strength and quality while ensuring a minimum carbon footprint. As the units are primarily steel they are are easy to clean, respray and give it a fresh appearance and requires little-to-no maintenance. Our products are also designed with commercial strength components and parts allowing us to provide a minimum warranty of 10 years, we have cabinets in use today that were purchased 35 years ago!

All Flexiform products are component based, designed to be dismantled, re-configured and re-located. This gives the freedom to replace one damaged component without having to dispose of the whole unit or desk. It also creates options for clients to adapt the furniture to their needs over the years. We also believe that its key to design with the users in mind to ensure they unit provides a solution to their needs, ensuring the product doesn't reach an early lifespan due to it not wanted.

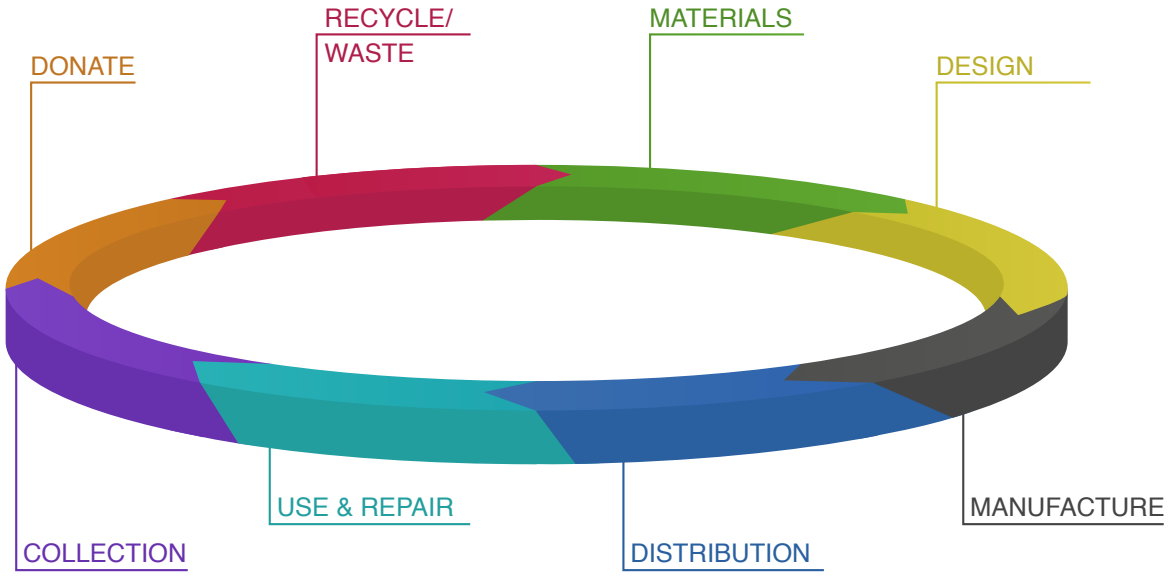


product lifecycle

We've tried to minimise wastage and footprint throughout the whole product lifecycle process from sourcing local materials, designing products efficiently and making most out of sheet metal to manufacturing processes and distributing products. All steel components can be re-painted in our factory and re-used, tops can be replaced, in most cases with no tools. In this way, the life of the product can be extended, theoretically indefinitely. Slides, locks, hinges etc... can all be changed easily.

With technological developments of materials and by working closely with our supply chain we are increasing the amount of recycled and recyclable materials used in the design of our products.
No products that we manufacture or supply have less than a 12% recycled content with the highest level sitting at 93%

Graph: This graph below illustrates our typical product lifecycle



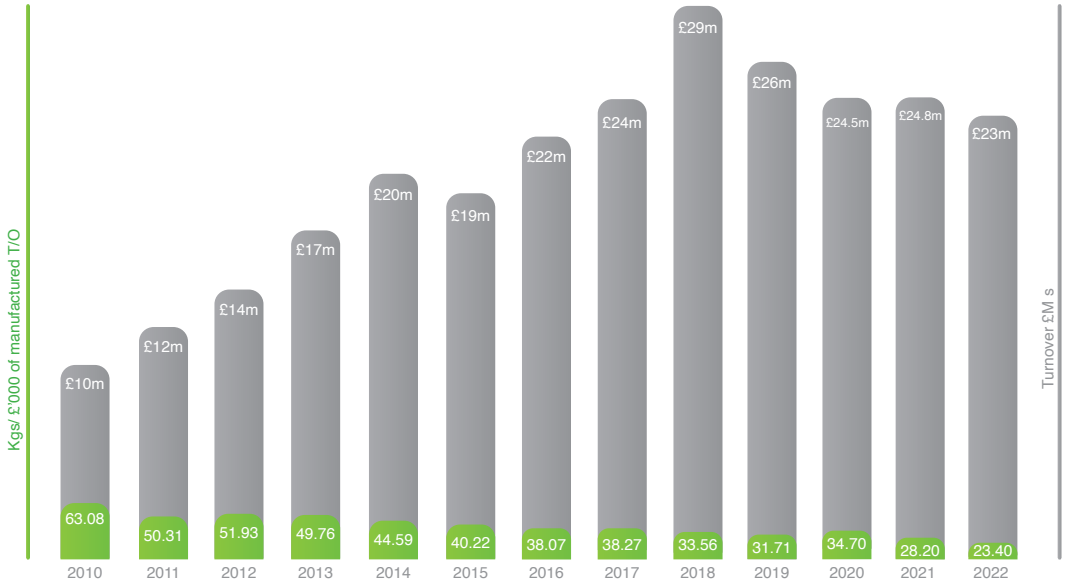
steel recycling

The disposal impact of products is becoming more important and can be the most significant after its manufacture so we assess this area. Our steel is manufactured in the UK from Welsh mills and has a recycled content of 30%. We ensure that the products are easy to break into their component parts for ease of recycling. Many parts can be re-used either by the customer or by a third party. We also offer the client a full sustainable disposal service if required.

For broken and scrapped products, we understand our responsibility to ensure that useful materials do not go to waste, and we make sure any salvageable materials are sent to specialist facilities where they are processed, recycled and reused. Metals are recycled as new raw materials, cardboard packaging is recycled and reprocessed, and electrical items are separated and correctly processed for reuse

Graph: This graph below illustrates a decrease in our steel recycling despite the increase in turnover and output. This reflects huge increase in the efficiency of our steel use, reducing waste and minimising the resources needed to reprocess the steel.

STEEL RECYCLING - Kg/s manufactured /£M

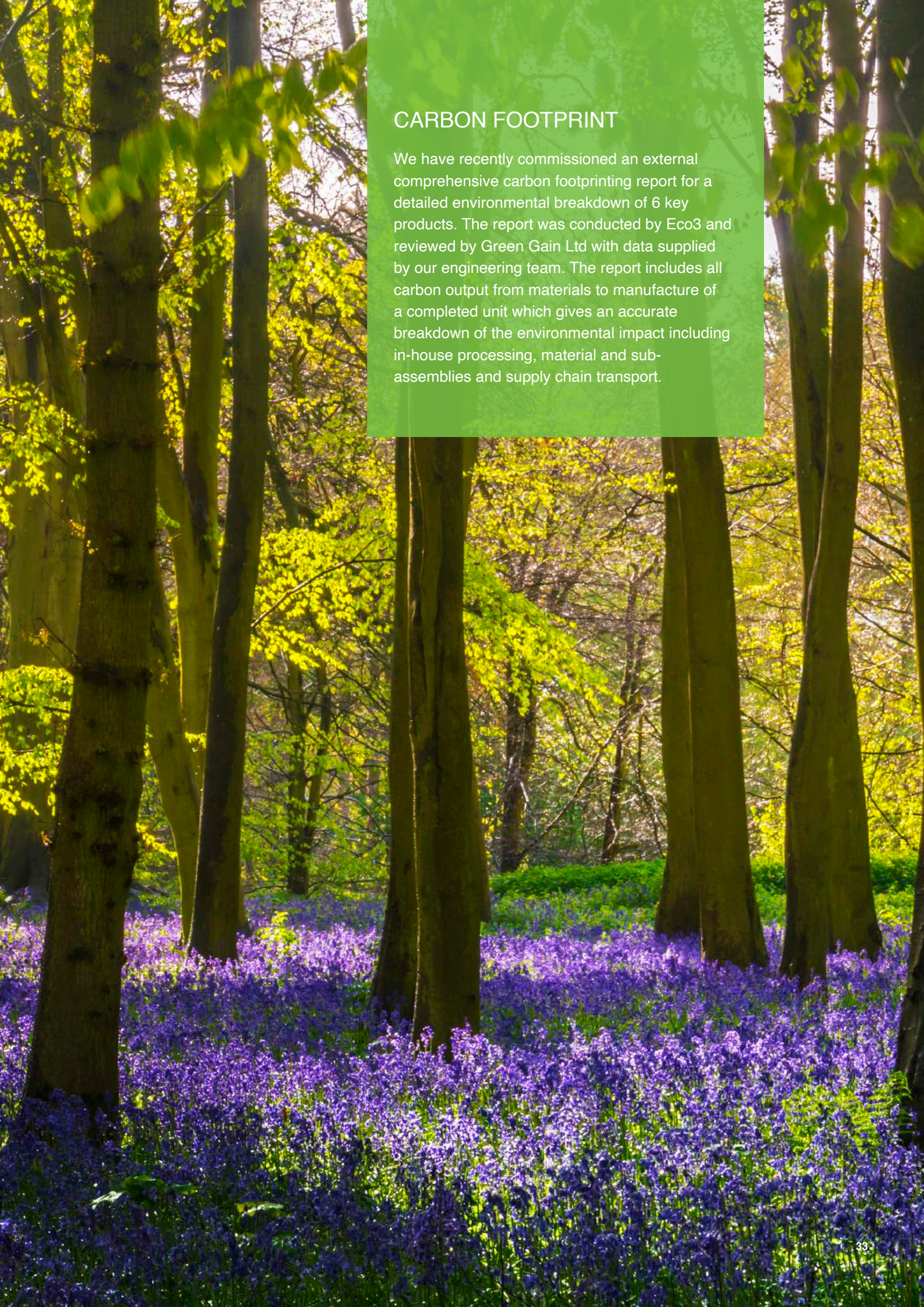



Speaker CUBE
BATTERY

reuse& repurpose

Our old products that are fully functional but suffering from a few bumps and bruises are often re-sprayed and re-sold, as opposed to being scrapped needlessly. We also donate any unwanted but functional furniture and materials to charities and schools including local school Dixons Trinity. We donated old pallets and materials for students to make furniture in their design and technology lessons. Teacher Phil Wickham had set his students the task of making some versatile stools, which can also double up as small tables. Usually when students take on projects like this they have to use whatever wood they can get their hands on whether it is bought in or donated by a local business. This is because the costs can soon build up when you need wood for an entire class. When Flexiform donated the pallets to the school, both teachers and students were pleased to see that the wood was of a much better quality than they were used to.

carbon footprinting our products



CARBON FOOTPRINT

We have recently commissioned an external comprehensive carbon footprinting report for a detailed environmental breakdown of 6 key products. The report was conducted by Eco3 and reviewed by Green Gain Ltd with data supplied by our engineering team. The report includes all carbon output from materials to manufacture of a completed unit which gives an accurate breakdown of the environmental impact including in-house processing, material and sub-assemblies and supply chain transport.

Additions 2 Table (1400mm x 800mm)

PRODUCT NAME: Additions 2 1400mm x 800mm Table
PRODUCT WEIGHT: 37.1 kg
FUNCTIONAL UNIT: A single table, finished and ready to be delivered to a customer.

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 135Kg CO_2e

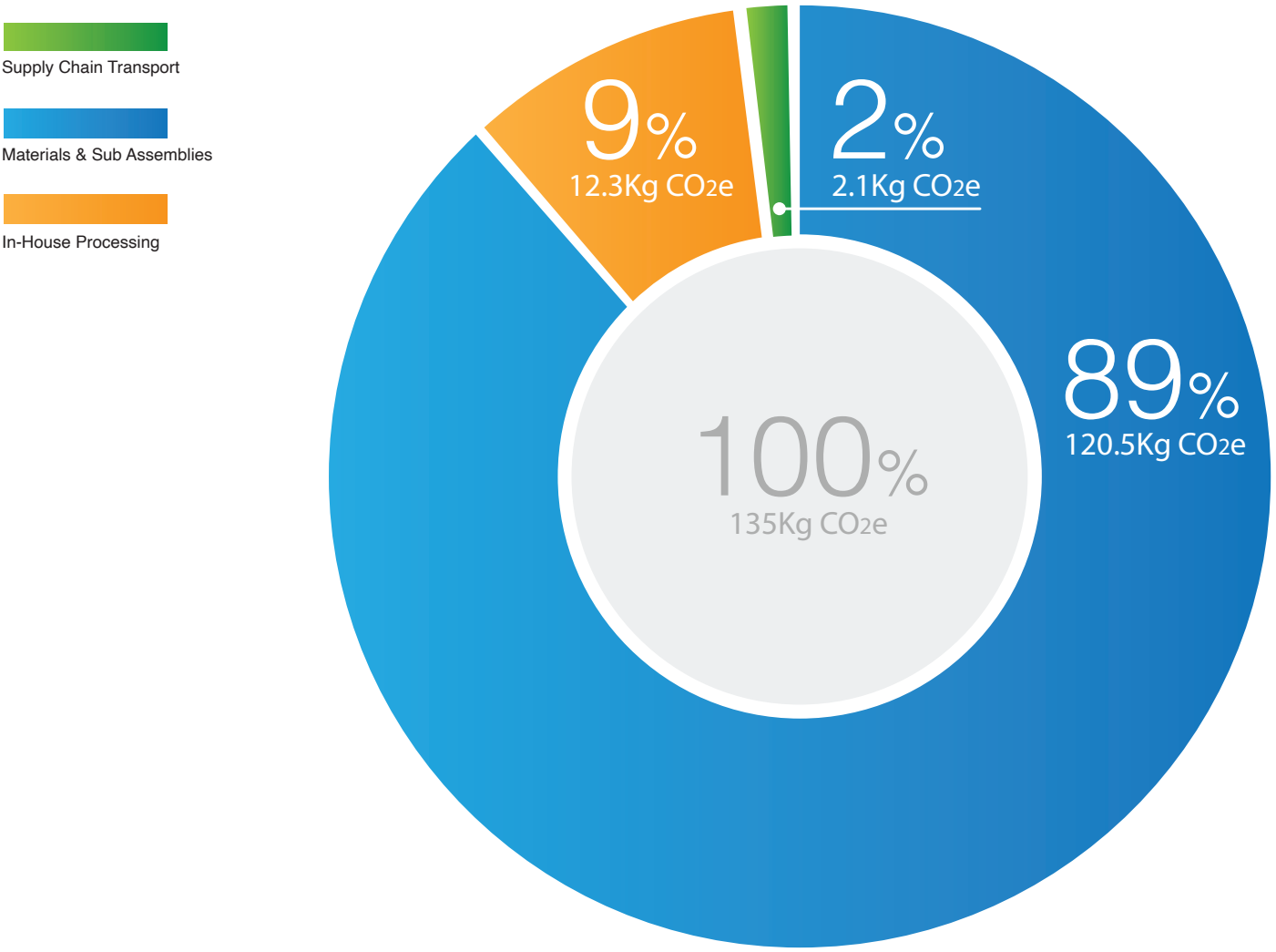
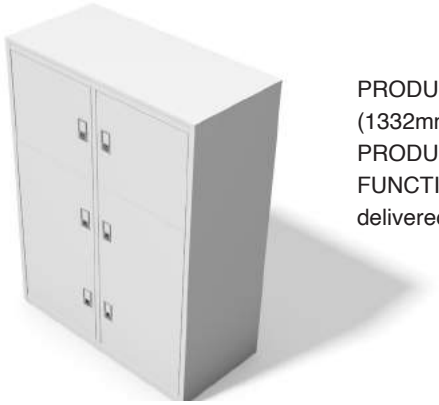


Figure 1 – Results of Carbon Footprint of Additions 2 Table by life cycle stage/ process

ADDITIONS 2 TABLES
A2 CHROME LEGS

Freestor Accent Locker - 6 Compartments



PRODUCT NAME: Freestor Accent Lockers - 6 Compartments (1332mm x 800mm x 475mm)
PRODUCT WEIGHT: 64.9kg
FUNCTIONAL UNIT: A single locker, finished and ready to be delivered to a customer

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 193Kg CO_2e

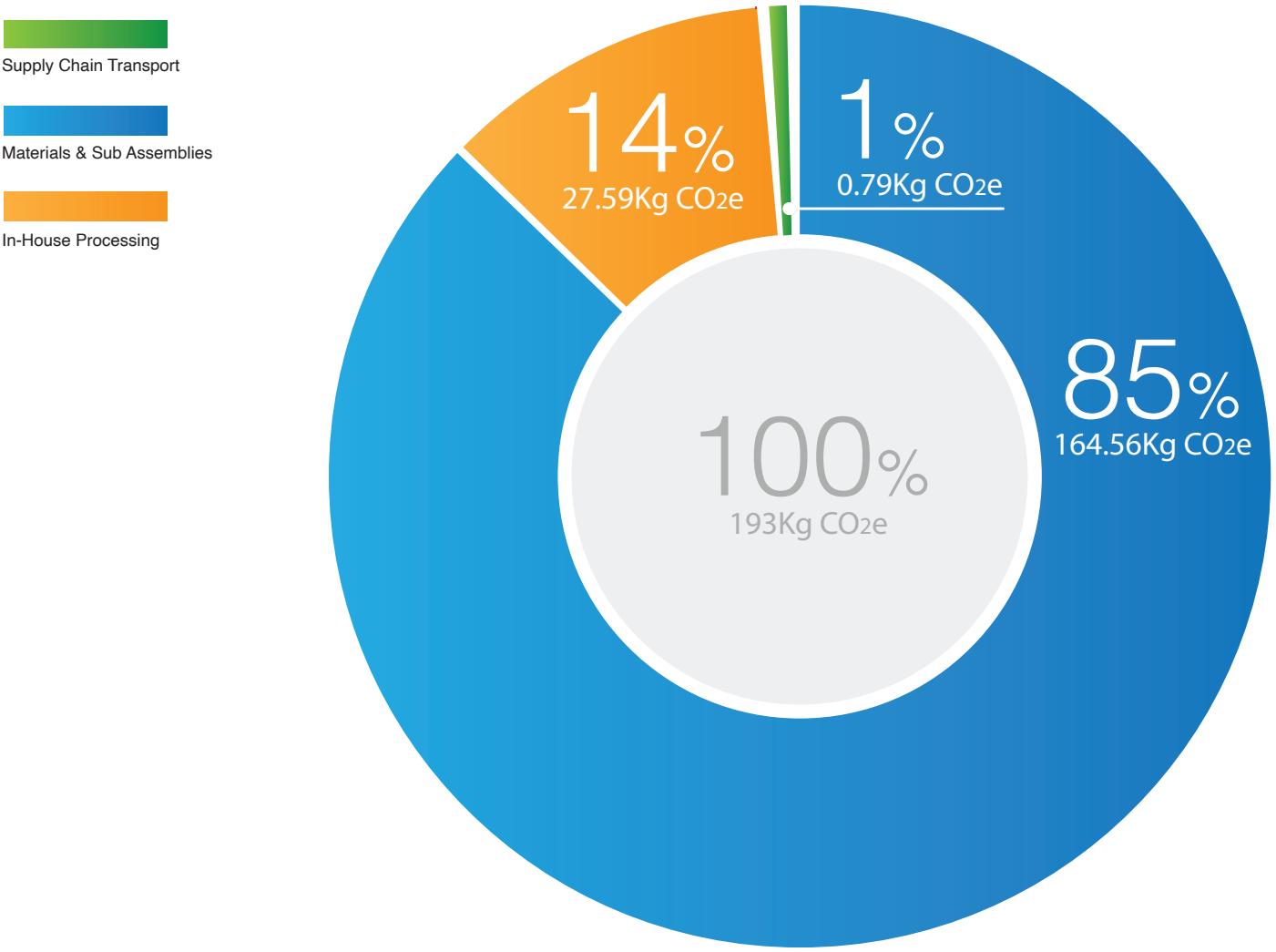


Figure 2 – Results of Carbon Footprint of Freestor Accent Locker by life cycle stage / process

FREESTOR ACCENT LOCKER RANGE
10 DOOR WITH COMBINATION LOCKS

Freestor Lateral Side Filer - 4 Drawers

PRODUCT NAME: Freestor Lateral Side Filer - 4 Drawer
(1322mm x 800mm x 475mm)
PRODUCT WEIGHT: 71kg
FUNCTIONAL UNIT: A single lateral side filer finished and ready to be delivered to a customer

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 201Kg CO_2e

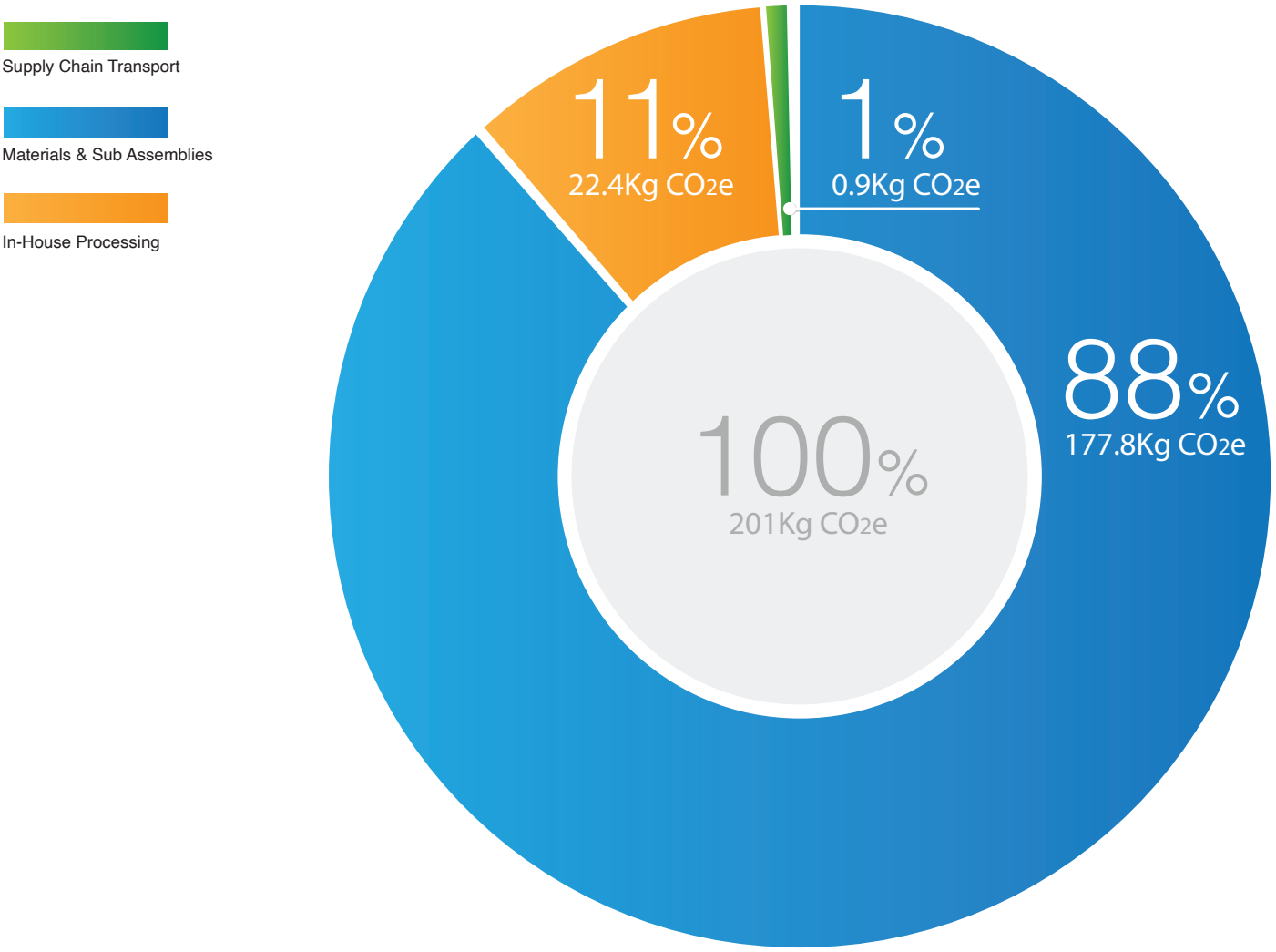


Figure 3 – Results of Carbon Footprint of Freestor Lateral Side Filer by life cycle stage / process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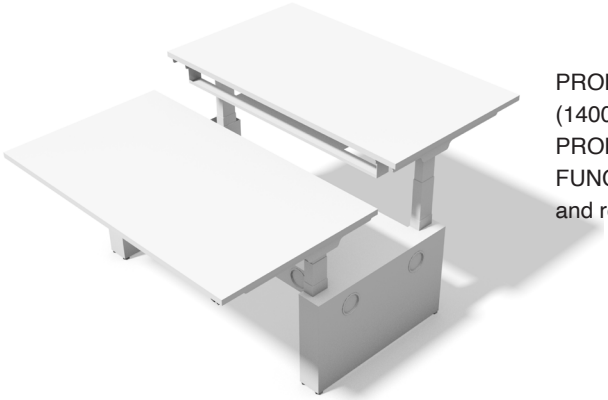
Jot-Up Height Adjustable Desk (1400mm x 1650mm)



PRODUCT NAME: Jot-Up Height Adjustable Desk (1400mm x 1650mm)
PRODUCT WEIGHT: 84.26kg
FUNCTIONAL UNIT: A single Jot-Up desk finished and ready to be delivered to a customer

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 200Kg CO_2e

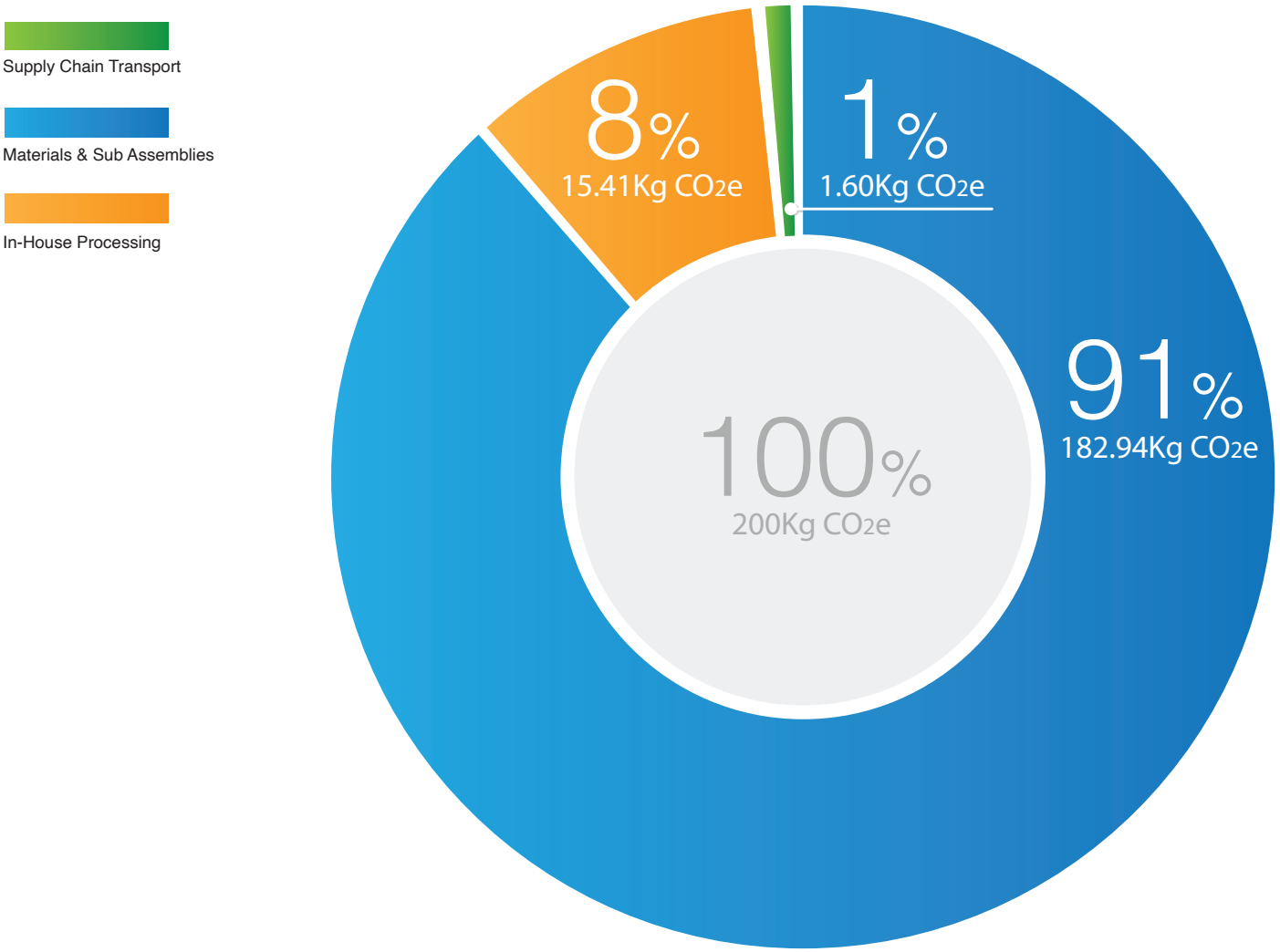


Figure 4 – Results of Carbon Footprint of Jot-Up H/A desk by life cycle stage / process

Pico Single Desk (1400mm x 800mm)

PRODUCT NAME: Pico Single Desk
(1400mm x 800mm)
PRODUCT WEIGHT: 46.8kg
FUNCTIONAL UNIT: A single Pico desk finished and ready to be delivered to a customer

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 80Kg CO_2e

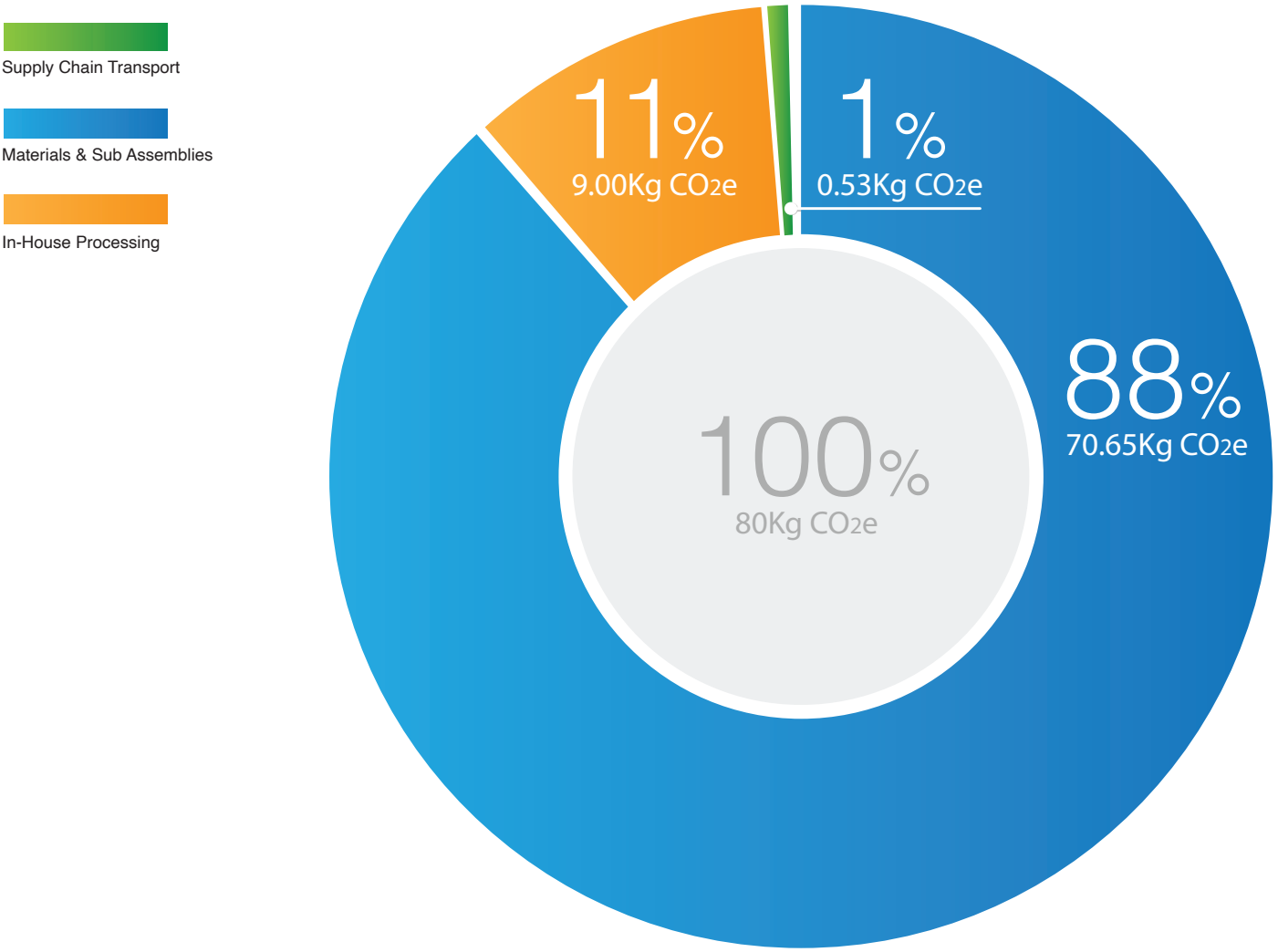


Figure 5 – Results of Carbon Footprint of Pico Single Desk by life cycle stage / process

Solo Single Desk (1400mm x 800mm)

PRODUCT NAME: Solo Single Desk (1400mm x 800mm)
PRODUCT WEIGHT: 34.7kg
FUNCTIONAL UNIT: A single Solo desk finished and ready to be delivered to a customer

PRODUCT CARBON FOOTPRINT

The life cycle stages included in this carbon footprint of this product go from raw materials extraction up to the point where the product is ready to be delivered to a customer. This includes material extraction, processing and manufacture of components and sub-assemblies along with all related distribution and transport activities. It does not include use or end-of-life impacts.

CARBON FOOTPRINT (GWP100): 45Kg CO_2e

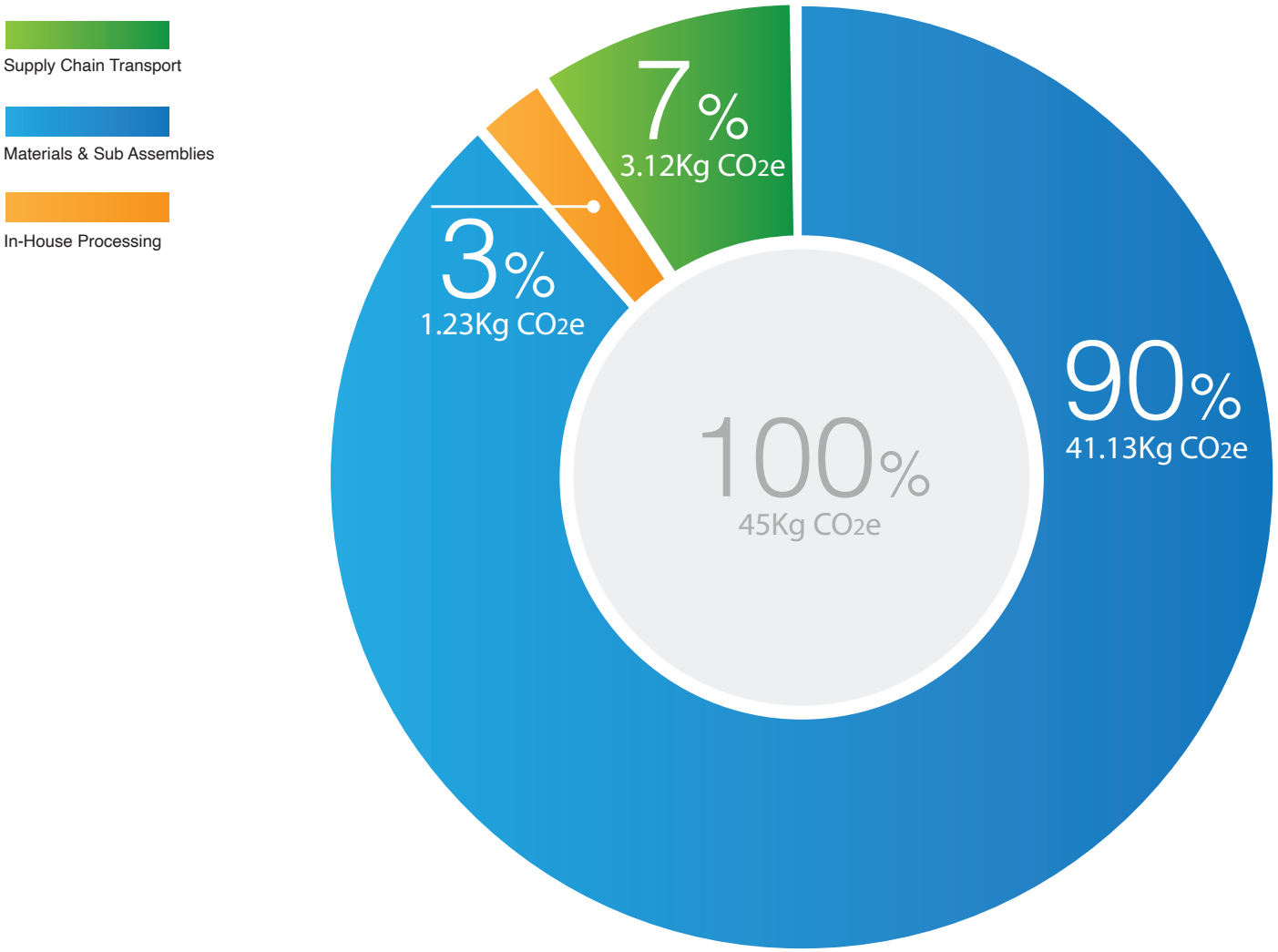


Figure 5 – Results of Carbon Footprint of Solo Single Desk by life cycle stage / process

ASSESSMENT AIMS

Goal of the Study

The aim of this report is to assess the carbon footprint approach of six office furniture products made by Flexiform Ltd. The products are all standard items that can be ordered from Flexiform by any customer. By calculating the carbon footprint of each discrete material and component the overall impact of a product (based on the number of components used) can then be calculated.

Methodology and Tool

Using an open source LCA tool, OpenLCA , Eco3 Deign Ltd has conducted this study on the basis of the Life Cycle Assessment (LCA) Methodology. The headline impacts presented are related to climate change (CO2e GWP 100).

LCA is a method used to quantify the total environmental impacts (sometimes called 'environmental footprint') of providing a product or service through all (or some) of its life cycle stages from extraction of raw materials through to final disposal. The general methodology used to conduct this study is in line with that described in the ISO14040:2006 and ISO14044:2006 standards.

Target Audience

The target audience of this report is both internal to Flexiform and external (potential customers). Therefore the information contained in this report has been summarised for external use. This may be presented to potential clients and it is anticipated that it may be used in their decision-making processes. It may also be used to help customers to understand the extent to which they might wish to remediate environmental impacts through activities such as carbon offsetting etc...

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www.openLCA.org
CO2e is a quantity that describes, for a given mixture and amount of greenhouse gas, the amount of CO2 that would have the same global warming potential (GWP), when measured over a specified timescale (generally, 100 years).

METHODOLOGY

OpenLCA is a free and open software product that allows the modelling of life cycle systems. It has the ability to calculate environmental, social and economic indicators. It has an open architecture which allows the import and export of data. It allows the development of product life cycle models that encompass all life cycle stages. It can be used to assess a type of product or service, presents results in a number of formats and can use a range of datasets and impact assessment methodologies.

The model created for this report follows the principles of ISO14040:2006 and ISO14044:2006 standards. It should be noted that the final requirement of these standards is to subject this study to external review – this has not taken place in this case.An LCA approach consists of considering all the direct and indirect environmental effects that result from the realisation of a defined 'functional unit'. The phases that can be included in a life cycle assessment for a product are:

- Raw material extraction
- Manufacturing and processing
- Distribution
- Use
- Disposal (end-of-life)

Although the term 'life cycle assessment' is used to describe these studies it should be noted that not all life cycle stages have to be included. The ISO standards allow for certain life cycle stages to be omitted as long as the study makes it clear which have and haven't been included. This is set by defining the 'scope' of the study – see Section 5.

When completing an LCA study each life cycle stage is divided into a number of steps based on the different materials and processes utilised in these steps. Once all the steps have been identified they are brought together to form the 'system' which is within the scope of the LCA study.

An environmental balance is calculated by aggregating the flows of the different processes and calculating the overall net inputs and outputs of the system. The overall environmental burdens are calculated by assessing the elementary flows of the different processes within the system and aggregating the emissions values into common units – in this case CO2e for Global Warming Potential.

The impacts can then be presented for the whole life cycle (as defined by the study scope) and also the contribution of each stage to the overall result. In this way areas of larger environmental impact can be identified and measures identified that may reduce this impact. Using a life cycle approach can help to prevent making changes to a product or service system that reduce environmental impacts at one stage at the expense of increasing them in others.

SCOPE OF THE STUDY

Functional Unit and Referance Flow

The functional unit is defined as the function fulfilled by the system or systems being studied. It is mandatory under the ISO LCA standards to define a functional unit as this makes for a fair and relevant study, and will allow fair comparisons between different systems, should this be required.

The functional unit should be defined with precision and be based on the utilisation of the products as well as the overall goal of the study. For the 6 products studied in this report the functional units are shown in Table 1.

PRODUCT	FUNCTIONAL UNIT
Additions 2 Table 1400mm x 800mm	A single complete 1400mm x 800mm Additions Table. Total weight 37.1kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.
Freestor Accent Locker (6 compartment)	A single complete 6 compartment Freestor Accent Locker. Total weight 64.9kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.
Freestor Lateral Side Filer (4 drawer)	A single complete 4 drawer Freestor Lateral Side Filer. Total weight 71 kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.
Jot-up Height Adjustable Desk	A single complete Jot-up Height Adjustable Desk. Total weight 84.26kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.
Pico Single Desk 1400mm x 800mm	A single complete Pico 1400 x 800 Single Desk. Total weight 46.8kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.
Solo Single Desk 1400mm x 800mm	A single complete Solo 1400 x 800 Desk. Total weight 34.7kg. Constructed with a range of raw materials and components supplied by numerous suppliers based in both the UK and abroad. Includes processing activities at Flexiform.

Table 1 - Functional Units of Products Studied

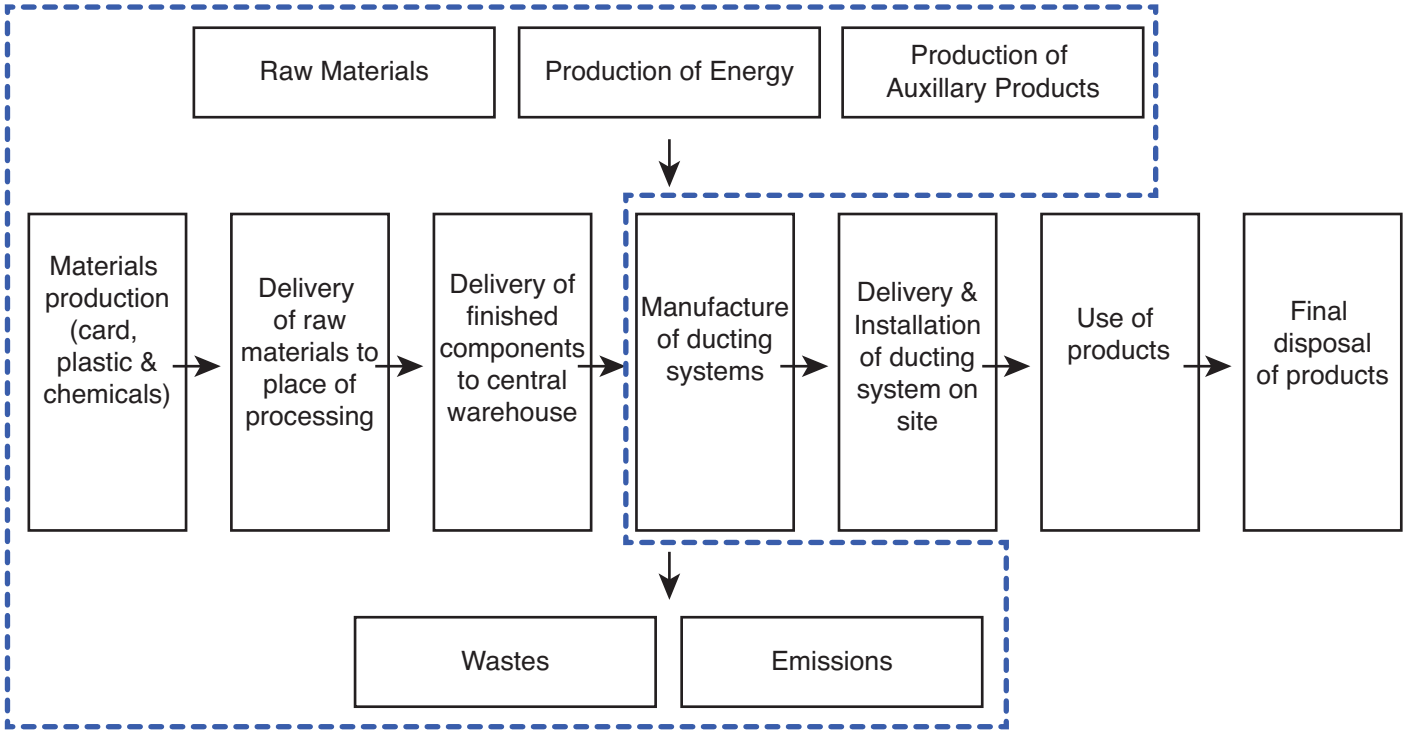
All results calculated in this report are displayed per functional unit.

SCOPE OF THE STUDY

Geographical Scope

The geogrpahical scope of this study is:
MANUFACTURING OF STEEL – considered to be supplied from the 'global' market. Stockholders and suppliers based in the UK.
MANUFACTURE OF PLASTIC MATERIALS – considered to be supplied from a European market. Stockholders and suppliers based in UK and Europe.
MANUFACTURE OF COATING MATERIALS – manufactured in the UK from materials and chemicals from European and Global Markets.
TRANSPORTATION AND DISTRIBUTION – Europe and UK.
ENERGY AND RESOURCES USED IN PROCESSING IN THE UK – standard UK supplied grid electricity, mains gas and mains water.

Flow Diagram & System Boundaries



System Boundary used for this assessment.

Figure 7 – Flow Diagram and System Boundary

Included and Excluded Steps & Assumptions

The product life cycle is divided into elementary stages. Table 2 shows which are included in this study and which are excluded.

STAGES INCLUDED IN THIS STUDY	STAGES EXCLUDED IN THIS STUDY
Raw materials used in manufacture Processes to convert raw materials into useable materials – e.g. oil into polymers Manufacture of finished components from raw materials Distribution of sub-assemblies and materials to Flexiform Manufacturing activities at Flexifom	Distribution of materials to place suppliers[3] Transportation of products to customer's site Installation of products on-site Use of products Removal and disposal of products at end of life

Table 2 – Stages included in the Study

The ISO rules allow for life cycle stages to be excluded if the available data are too confusing, there is a lack of robustness in the datasets, or the particular life cycle stage has a very small effect on the overall life cycle impacts (usually less than 2%).

The use phase of these products will be 'benign' in terms of carbon footprint. Most use no energy at all and the only possible life cycle impact would be occasional cleaning. The Jot-up desk uses energy to adjust it but this is likely to be very low consumption over its entire life. The end of life impact of each product will vary depending on what happens to it when it is removed (and in some cases the location of the installation geographically). For this reason it is justified under the guidelines of the ISO standards for these stages to be excluded.
The results of the study make this clear.

Impact Category

The OpenLCA tool used for this study is a multi-criteria assessment tool covering a single environmental impacts category.

IMPACT CATEGORY	UNIT
Climate change - CWP100	Kg CO2 eq.

Table 3 – Impact Category calculated in this Study

DATA SOURCES

Data Sources

There are 2 types of data sources used in LCA studies: Primary data and secondary data.
- Primary data sources are those provided by producers of goods and operators of processes and services, as well as their associations.
- Secondary data sources either give access to primary data (possibly after re-modelling / changing the data) and to generic data e.g. National databases, consultants and research groups.

In this study the majority of the data used is secondary data. Primary data collection was used to assess the impacts of manufacturing operations at Flexifom.

The OpenLCA tool can utilise a range of databases and data sources. For this study the database of emissions factors used is EcoInvent database V3.3; the database contains over 10,000 Life Cycle Inventory (LCI) datasets in the areas of energy supply, agriculture, transport, biofuels and biomaterials, bulk and specialty chemicals, construction materials, packaging materials, basic and precious metals, metals processing, ICT and electronics, dairy, wood, and waste treatment.

EcoInvent V3.3 provides a comprehensive, transparent, international LCI database of secondary data sources. It is one of the foremost datasets in LCA and is utilised by many of the most widely used and highly regarded LCA tool and systems. Extensive documentation is available online at www.ecoinvent.org.

No other data sources are used in this study.

Assumptions

- All data and information provided by Flexiform is presumed to be correct and has not been independently checked.
- All energy used in processing is from standard mains grid supply (gas, electricity).
- All transportation is undertaken via road in vehicles with Euro6 standard engines.
- All transportation distances were calculated using mapping software and represent routes most likely to be used by transport companies.

LIMITS OF THE STUDY

The impact assessment phase of this limited LCA study is aimed at evaluating the overall global warming potential impacts of 6 products based on a life cycle from extraction of raw materials to finished products being in stock and ready to be delivered to customers. The results of this study are only valid if they are used to represent this situation.

LCAs do not represent a complete picture of the environmental impact of a system as not all key categories of impacts are included. Results need to be considered carefully taking into account this information.

Any judgements that are based on the interpretation of the results of this study or comparing results with other products must bear in mind the limitations of this study as well as the scope and functional units (as defined).

Limitations of OpenLCA Tool – The quantitative reliability analysis is based on a quantitative judgement of the user and LCA practitioners. It is possible that two different users modelling the same 6 products could generate different results.

GLOSSARY

CARBON FOOTPRINT - the total amount of greenhouse gases produced both directly and indirectly as a result of a defined activity, usually expressed in equivalent tons of carbon dioxide (CO2e).

CO2e - an abbreviation of 'carbon dioxide equivalent' and is the internationally recognised measure of greenhouse emissions.
Functional Unit - quantified description of a product system. The functional unit provides the reference to which all other data in the product systems are normalised.

IMPACT CATEGORY - environmental issues of concern. They describe the impacts caused by a product or system being analysed.

LIFE CYCLE - the whole life stages of a product or system. From extraction of raw materials through to the eventual disposal / end-of-life.

LIFE CYCLE ASSESSMENT (LCA) - a technique to assess environmental impacts associated with all the stages of a product's (or system's) life from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling.

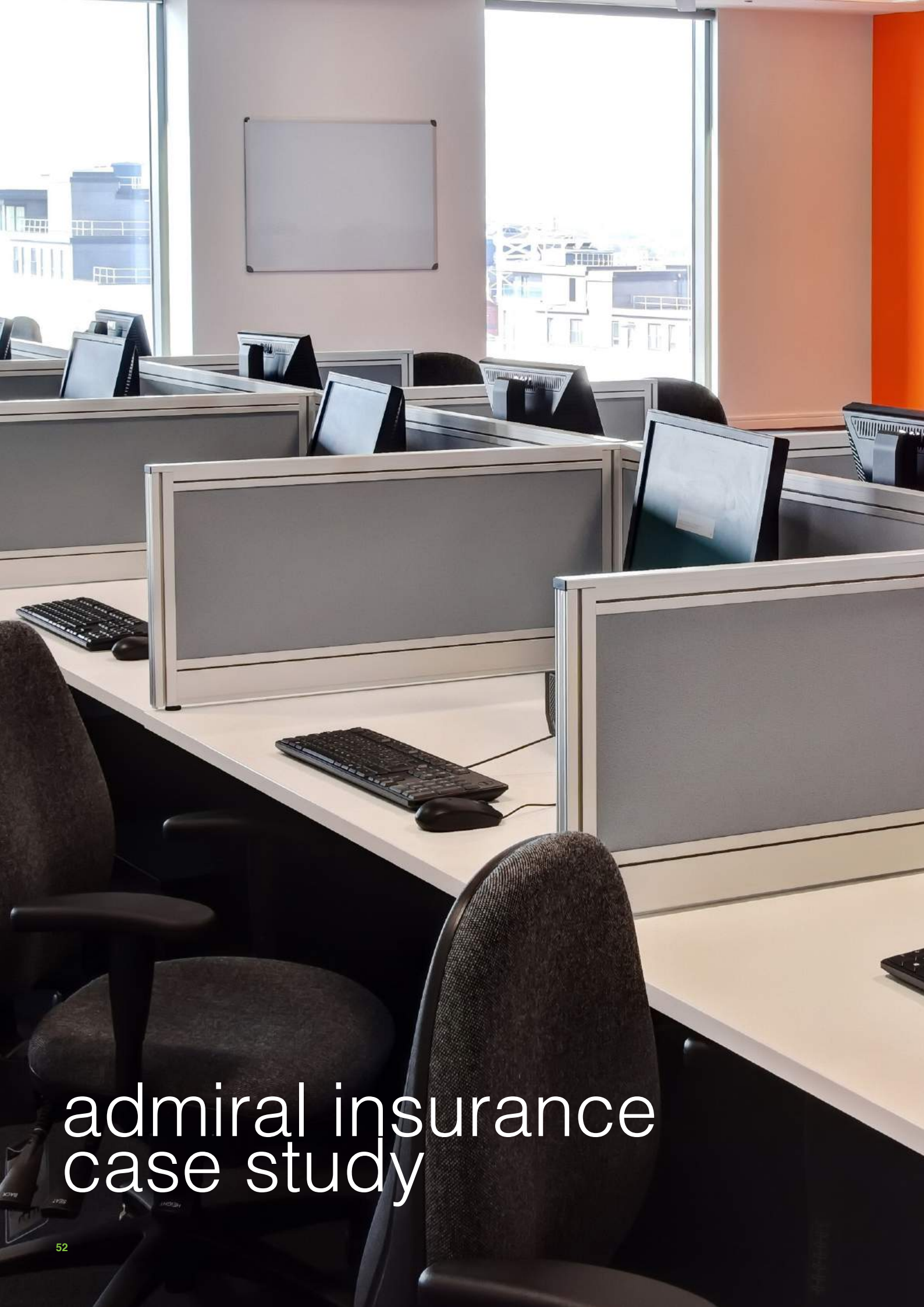
MATERIALS - the raw materials used to make a product or consumed within a system.

PROCESSING / MANUFACTURING - stages through which a material or substance is put to change its physical shape and/or chemical makeup. Processing typically consumes energy and in some cases other resources such as water and other materials.

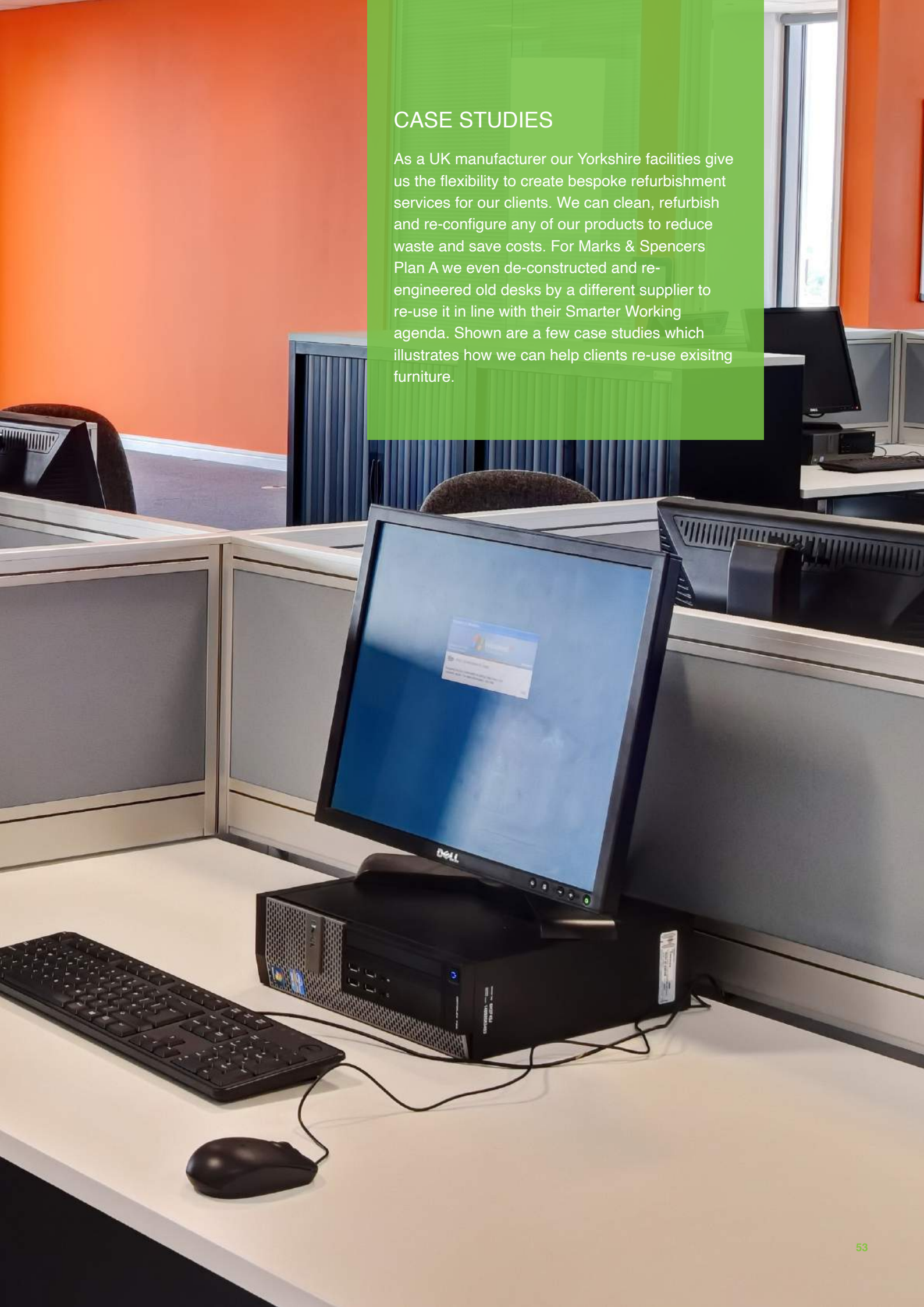
SCOPE - refers to the scope of an LCA. The scope of the study describes the most important methodological choices, and assumptions used to carry out the LCA as well as any omissions and limitations.

SYSTEM BOUNDARY - determines which unit processes to be included in the LCA study. Defining system boundaries is partly based on a subjective choice, made during the scope phase when the boundaries are initially set.

TRANSPORT – stages in a product's life cycle where materials and resources (or the product itself) are moved from one place to another. This can include moving raw materials between processing plants, components between suppliers and finished products to different distribution points or customers and end-users.



admiral insurance case study



CASE STUDIES

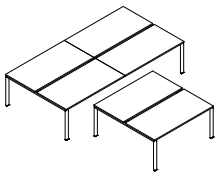
As a UK manufacturer our Yorkshire facilities give us the flexibility to create bespoke refurbishment services for our clients. We can clean, refurbish and re-configure any of our products to reduce waste and save costs. For Marks & Spencers Plan A we even de-constructed and re-engineered old desks by a different supplier to re-use it in line with their Smarter Working agenda. Shown are a few case studies which illustrates how we can help clients re-use exisitng furniture.

admiral insurance

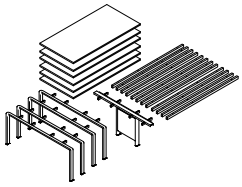
As a long serving supplier of furniture to Admiral Insurance we were able to help save costs and update desks for their new larger premises. Using their old Flexiform Jot desks, we dismantled the existing 300 desks in to components, cleaned and stored them in our factory. Using our internal space planning team we were able to re-configure the desks using minimal extra components which saved resources and reduced waste. Admiral selected new privacy screens to give it a new fresh look as part of their new branding. This saved cost and ensured functional desks we're re-used to their maximum lifespan.

PROCESS

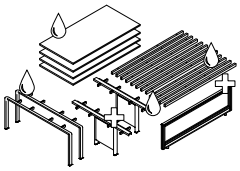
1. EXISTING DESKING



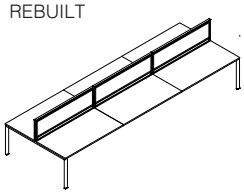
2. DISMANTLED TO COMPONENTS



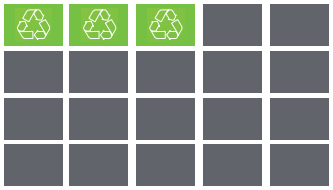
3. CLEANED & NEW PARTS ADDED



4. RECONFIGURED & REBUILT



KEY FACTS

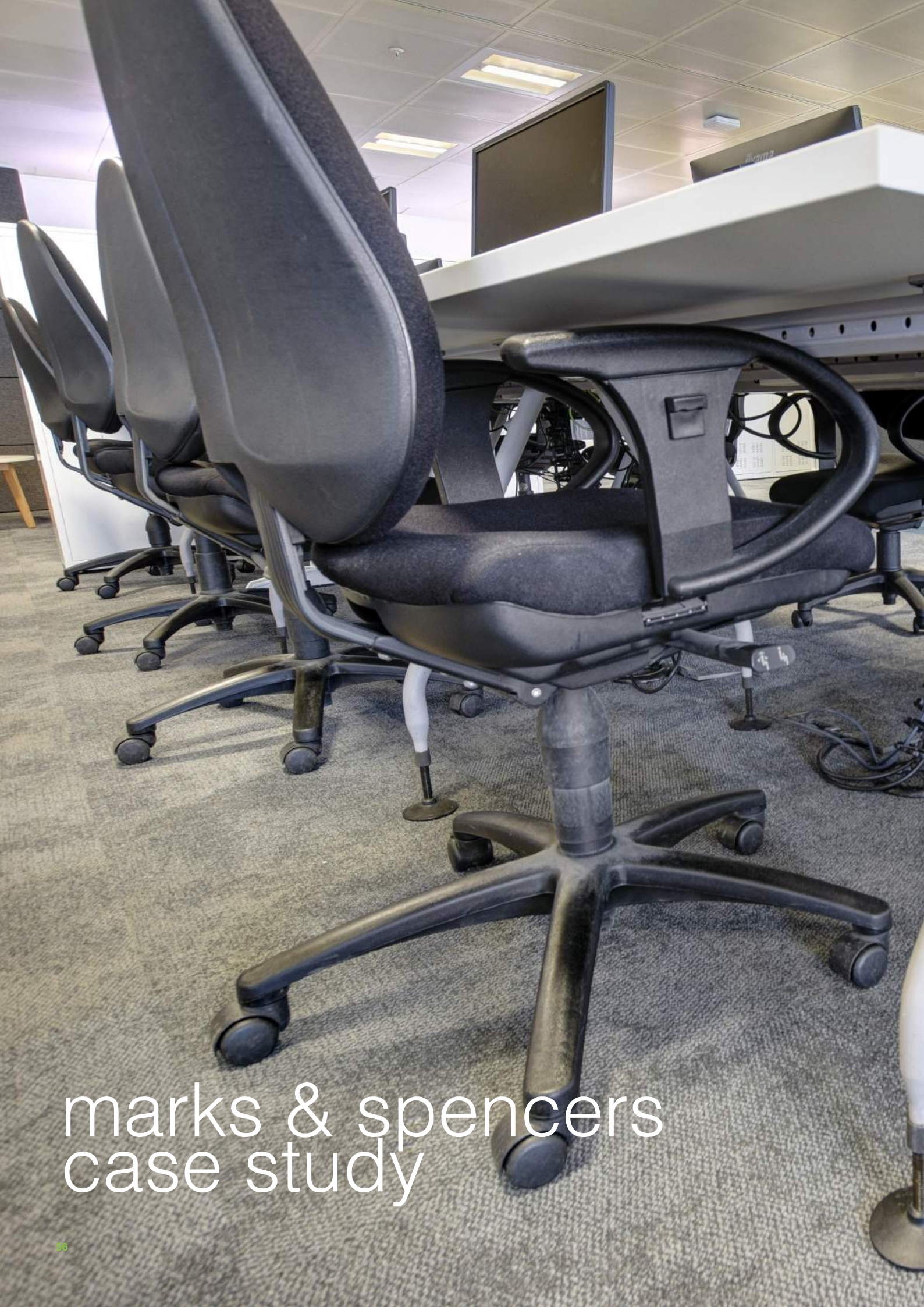


15%

300 relocated & refurbished, 1700 new desks

“Once again, Flexiform have delivered on their promises and proved their worth to Admiral, working to challenging timescales and budgets with absolutely no drop off in quality”

HUW LLEWELLYN
HEAD OF PROPERTY AND FACILITIES MANAGEMENT FOR ADMIRAL



marks & spencers case study

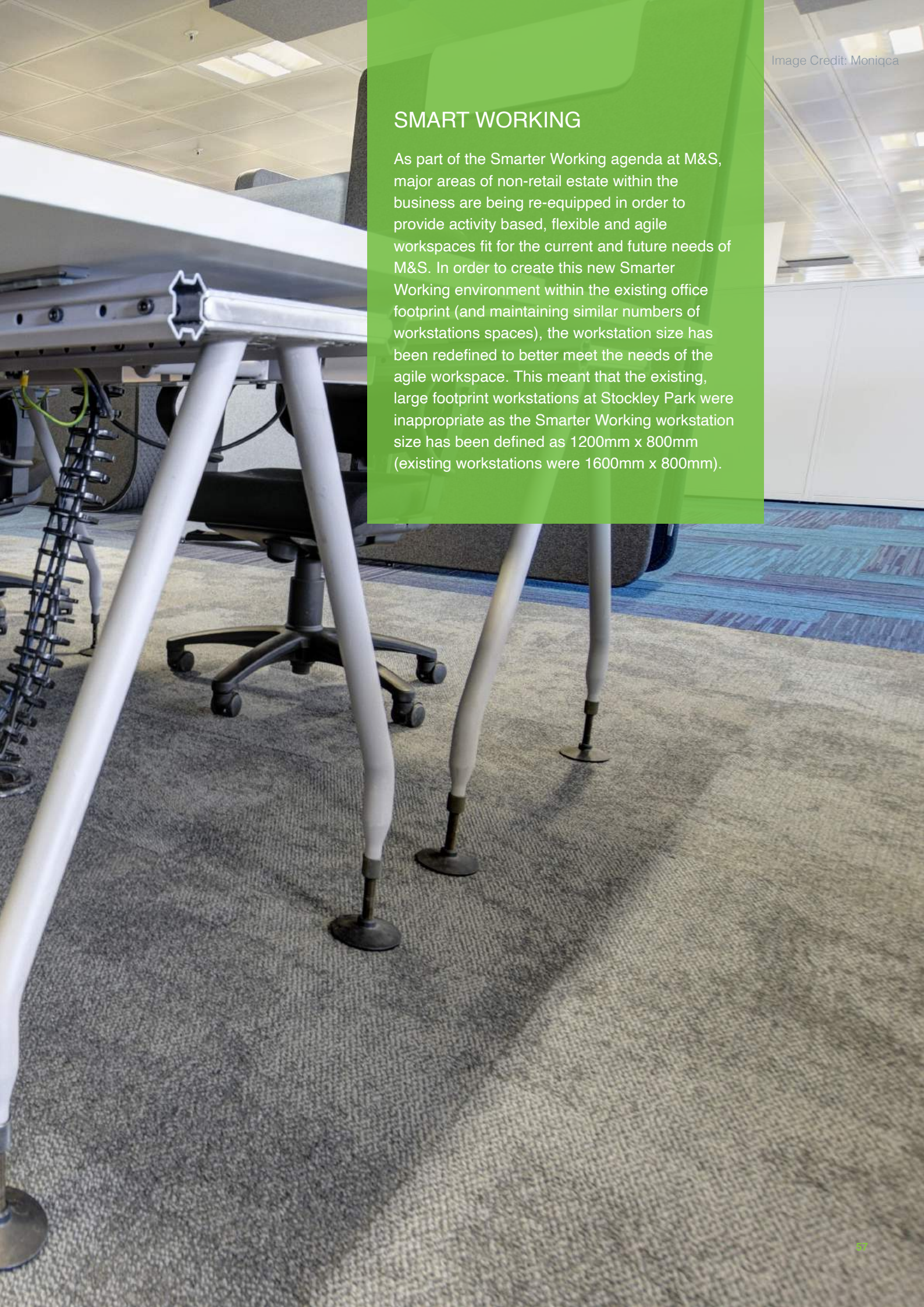


Image Credit: Moniqca

SMART WORKING

As part of the Smarter Working agenda at M&S, major areas of non-retail estate within the business are being re-equipped in order to provide activity based, flexible and agile workspaces fit for the current and future needs of M&S. In order to create this new Smarter Working environment within the existing office footprint (and maintaining similar numbers of workstations spaces), the workstation size has been redefined to better meet the needs of the agile workspace. This meant that the existing, large footprint workstations at Stockley Park were inappropriate as the Smarter Working workstation size has been defined as 1200mm x 800mm (existing workstations were 1600mm x 800mm).


iiyama

marks and spencers

As part of the new Smarter Working agenda there was a risk that over 800 existing workstations would be rendered obsolete as part of this implementation process. The cost of this both financially and in terms of sustainable disposal was considerable and also at odds with the M&S Plan A agenda. Although the existing workstations were purchased over 15 years ago, they were still in good condition and of a very high quality. An alternative solution needed to be found.

The old existing workstations were deemed inappropriate for the following reasons:

- The individual desk footprint was too large (1600mm x 800mm).
- Desk worktops were double width (3200mm x 800mm) therefore inflexible.
- Standard layouts were in banks of 6 and 8 users. Smarter Working requires more options than these to encourage team and private working.
- Above desk shelving and storage encouraged fixed locations rather than agile working.
- Grey worktops were dull and dark in the environment.

Our engineering team studied the Vitra platform at our Bradford factory and developed a strategy that could reconfigure the existing workstations into any configuration that was required in the Smarter Working floorplan. The process included:

- Dismantling and storing all of the existing product locally at Stockley Park to reduce transport cost and emissions.
- Re-manufacturing the desk beam frames into a variety of new sizes to meet the Smarter Working workspace designs.
- Where beams were reduced in size, the off-cuts were used as link pieces to reduce waste.
- Replacing the existing worktops with 1200mm x 800mm white worktops to define workspaces and increase lighten the environment.
- Old worktops were removed and recycled for use in biomass energy

By implementing this strategy over 700 workstations were re-used rather than being disposed of, this prevented tonnes of steel and aluminium being sent for recycling and reduced purchasing costs of new furniture saving 47.6 tonnes of carbon. By converting a valuable M&S asset into a more relevant product it has extended the life of the desks by a minimum of 10 years, the amends we made also make it more easy to reconfigure in the future, saving time, resources and cost over the lifetime of the Stockley Park estate. All of the peripheral elements of the workstations (electrical sockets, cable trays, cable risers etc.) were re-used delivering further savings but also re-using products that would otherwise be expensive to recycle. The refreshed footprint created the space to implement all of the Smarter Working workplaces required to deliver on the strategy now and in the future.

certificates

Image Credit: Moniqca

certifications

Flexiform acknowledges its responsibility to, and the commercial advantages of, maintaining a sound environmental policy and approach which meets the requirements of BS EN ISO 14001:2015. We ensure that raw materials used in the manufacture of our products are sourced from sustainable sources, for example through our accreditation with the Forestry Stewardship Council (FSC®) and our suppliers are accredited with Furniture Industry Sustainability Programme (FISP) and FSC®.

We are members of the Furniture Industry Sustainability Programme (FISP) and are proactive and committed to incorporating recycled and environmentally sensitive materials in our Life Cycle Designs. The Furniture Industry Research Association's (FIRA) intention in the beginning this initiative was to set up a benchmark for the furniture industry in relation to sustainability and collaborated with the main UK manufacturers of furniture to develop this system. We were one of a selected number of organisations approached to provide input into the system (together with Orangebox and Boss Design, two of our supply partners on this project). A set criteria was established and consistent methodology applied which would enable customers to evaluate each product for selection. We use this process in our cradle-to-grave and whole life costing approach.

OUR ENVIRONMENTAL ACCREDITATIONS

FULL MEMBER

fisp
Furniture Industry Sustainability Programme

This is to certify that

Flexiform Business Furniture Ltd

Has achieved **Full Membership** of the

Furniture Industry Sustainability Programme

through an independent audit by
FIRA International Ltd

Signed on behalf of
FIRA International Ltd

www.fispfurniture.com

Certification No:
0016

Registration Date:
April 2007

Issue Date:
October 2021

Expiry Date:
October 2023

Auditor:
Mark Allison

Version:
1.4 Manufacturer

FIRA Furniture Industry Research Association
BFM BRITISH FURNITURE MANUFACTURERS
BCFA
nbf NATIONAL BED FEDERATION Let's make it right
The Furniture Makers incorporating the furnishing industry trust

CERTIFICATE OF REGISTRATION

This is to certify that

Flexiform Business Furniture Limited

1392 Leeds Road
Bradford
West Yorkshire
BD3 7AE

has been audited and found to meet the requirements of standard(s)
FSC-STD-40-004 (Version 2.1) EN and FSC-STD-50-001 (Version 1.2) EN
for **FSC® Chain of Custody Certification**

Scope of certification
The purchase, assembly, sales and distribution of office furniture containing FSC Certified timber components.

Products:
Indoor Furniture

Certificate number: TT-COC-002396

Issue number: 2017-01

Certificate start date: 3 August 2017

Certificate expiry date: 2 August 2022

Date of initial certification: 3 August 2007

Karen Prendergast
Sector Director - Certification
Exova BM TRADA

Multisite clients – The scope of certification shown above includes the participating sites shown in appendix A

British Assessment Bureau

Certification is conditional on maintaining the required performance standards throughout the certified period of registration
The British Assessment Bureau, 30 Tower View, Kings Hill, Kent, ME19 4UY

The management system of Certificate Number **181079**

Flexiform Business Furniture Limited

1392 Leeds Road, Bradford, West Yorkshire, BD3 7AE

has been assessed and certified as meeting the requirements of

ISO 14001:2015

for the following activities

Manufacture and supply of a range of metal and wood furniture inclusive of; Asgard garden storage solutions and office furniture such as desks and filing cabinets to clients in the public and private sectors within the UK.

Further clarifications regarding the scope of this certificate and the applicability of requirements may be obtained by consulting the certifier.

UKAS MANAGEMENT SYSTEMS
8289

IAF MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT

Valid from
Initial Certification: 25 January 2007
Latest Issue: 17 January 2022
Expiry Date: 24 January 2025
subject to annual assessments

Authorised by

Mike Tims
Chief Executive Officer

www.british-assessment.co.uk

Certificate issued by Amtivo Group Limited, trading as British Assessment Bureau

To confirm the 'Live Status' of this certificate please use the 'Certificate Verification' tool located at www.british-assessment.co.uk

CYBER ESSENTIALS

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Company Registration Number: 02542123