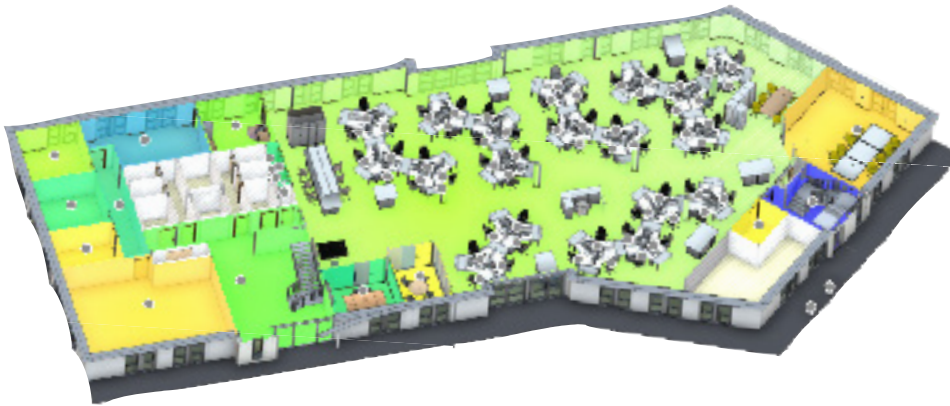




Creative
environments
for Smart Assets



Case Study

Carbon Reduction Through Digital Twin Integration



Constructing Excellence
Midlands

CE WEST MIDLANDS
AWARDS 2024

WINNER
Innovation Award

Certified



Corporation



**UNLOCK
NET ZERO
AWARDS**
FINALIST



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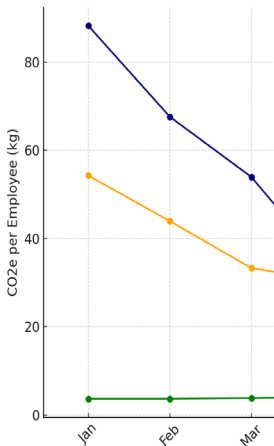
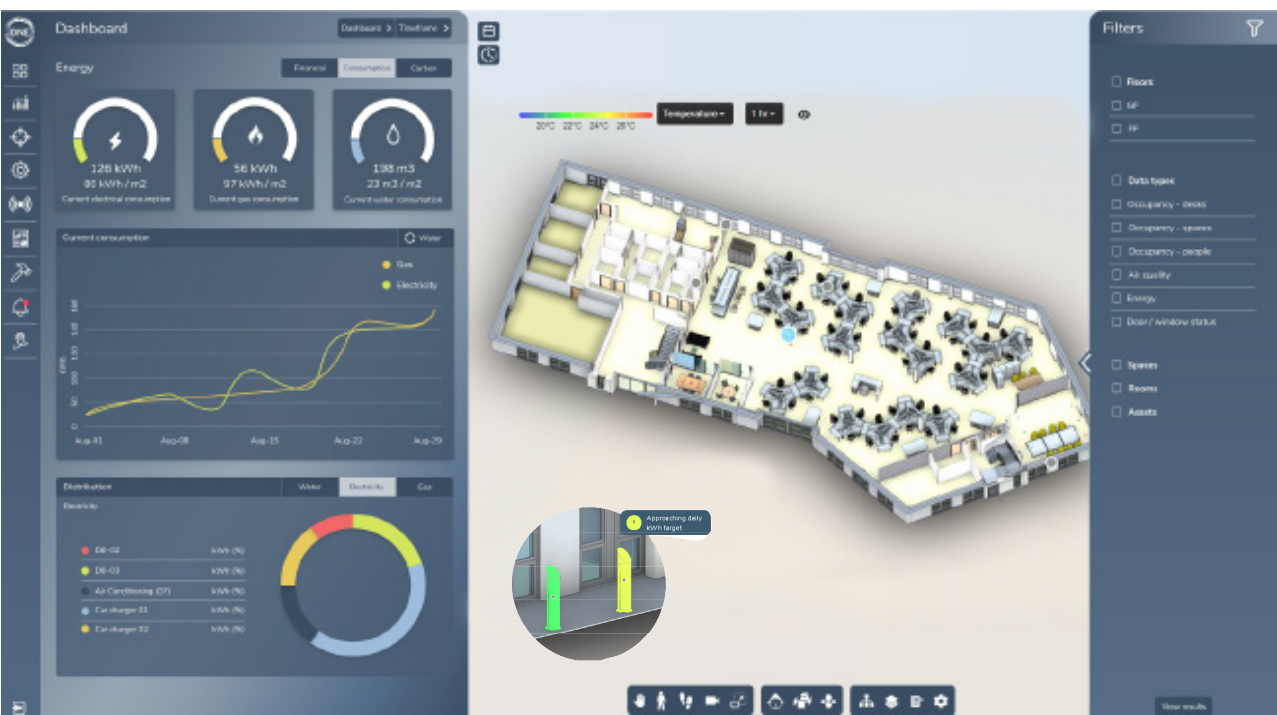
Office Retrofit and Energy Efficiency through Digital Twin Integration

Facing rising energy costs and a £40k annual energy bill, ONE Creative Environments (ONE) identified the need for greater insight into its HQ's energy consumption. In 2023, ONE retrofitted its 2007-built headquarters using a digital twin and IoT-enabled monitoring to pinpoint and replace carbon-intensive systems. The result: significant energy savings, improved carbon performance, and a scalable model for future sustainability. This is how ONE deployed a Digital Twin to deliver insight and unlock energy savings.

Digital Twin and Data-Led Diagnosis

To establish a baseline for improvement, ONE created a digital twin supported by new IoT sensor technology, to obtain granular data. Sensors were installed throughout the office to collect data on energy usage, temperature, air quality, humidity, and desk occupancy. In addition, advanced IoT sub-metering was introduced to monitor individual distribution board circuits and isolate underperforming systems, identifying the specific “offenders” responsible for excess energy consumption and emissions.

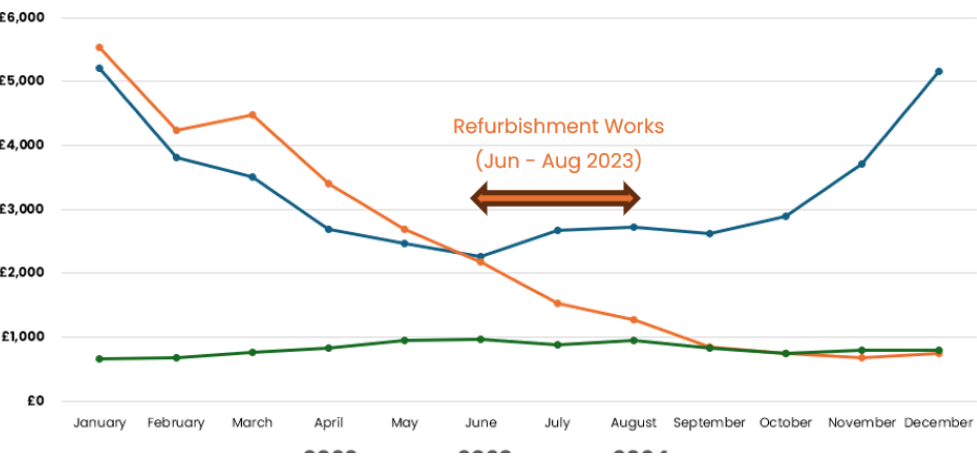
This system-level intelligence empowered the team to specify retrofit actions based on carbon impact, enabling a focused response that would yield the highest sustainability reward, and return on investment.



Targeted Retrofit for Carbon Reduction

Informed by digital twin insights, ONE undertook a strategic three-month retrofit of its HQ in 2023. Key interventions included the installation of intelligent low-energy LED lighting, high-efficiency air source heat pumps for heating and ventilation, and an expanded EV charging infrastructure to support low-carbon commuting. These upgrades directly addressed inefficiencies identified by the monitoring system, aligning with wider sustainability and staff wellbeing objectives.

ONE HQ – Energy Consumption: Monthly Costs

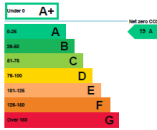


Energy rating and score

This property's energy rating is A.

Properties get a rating from A+ (best) to G (worst) and a score.

The better the rating and score, the lower your property's carbon emissions are likely to be.



How this property compares to others

Properties similar to this one could have ratings:

If newly built



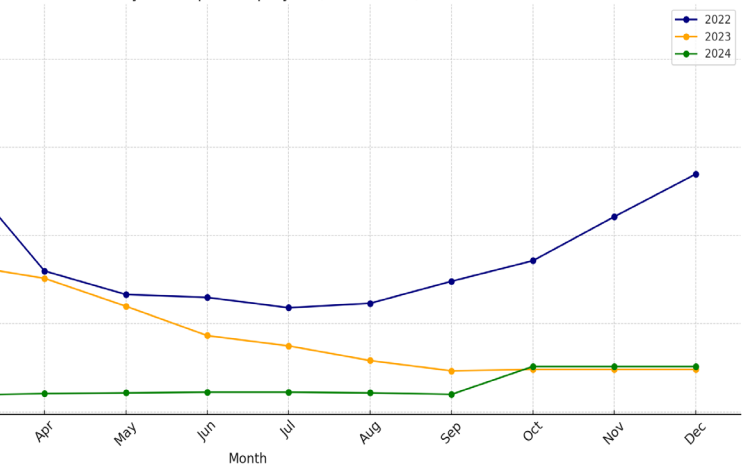
If typical of the existing stock



Breakdown of this property's energy performance

Main heating fuel	Grid Supplied Electricity
Building environment	Air Conditioning
Assessment level	3
Building emission rate (kgCO2m2 per year)	6.27
Primary energy use (kWh/m2 per year)	66

Monthly CO2e per Employee (2022-2024)



Outcomes and Benefits

- Annual energy costs reduced from £40k to under £10k
- EPC rating improved from D to A
- Significant scope 2 and 3 carbon reductions
- Enhanced indoor air quality and thermal comfort
- Improved lighting, reliability, and sensor automation
- Increased employee satisfaction with the working environment EV infrastructure
- Lower carbon footprint per employee despite company growth (2022–2024)
- External verification by Positive Planet

Accreditations

Certified B Corporation™
RIBA Chartered Practice
CIAT Chartered Practice
Landscape Institute Registered Practice
CIBSE Directory of Practices
Association for Consultancy and Engineering
ISO9001:2015 Quality Management System
ISO14001:2015 Environmental Management System
ISO 19650-2 BIM Certification
Constructionline Gold Member
CHAS Accredited
Investors in People
Positive Planet
Passive House Consultants
Low Carbon Consultants

Architecture | Landscape Architecture Engineering | Digital & BIM



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All information correct at time of going to print.