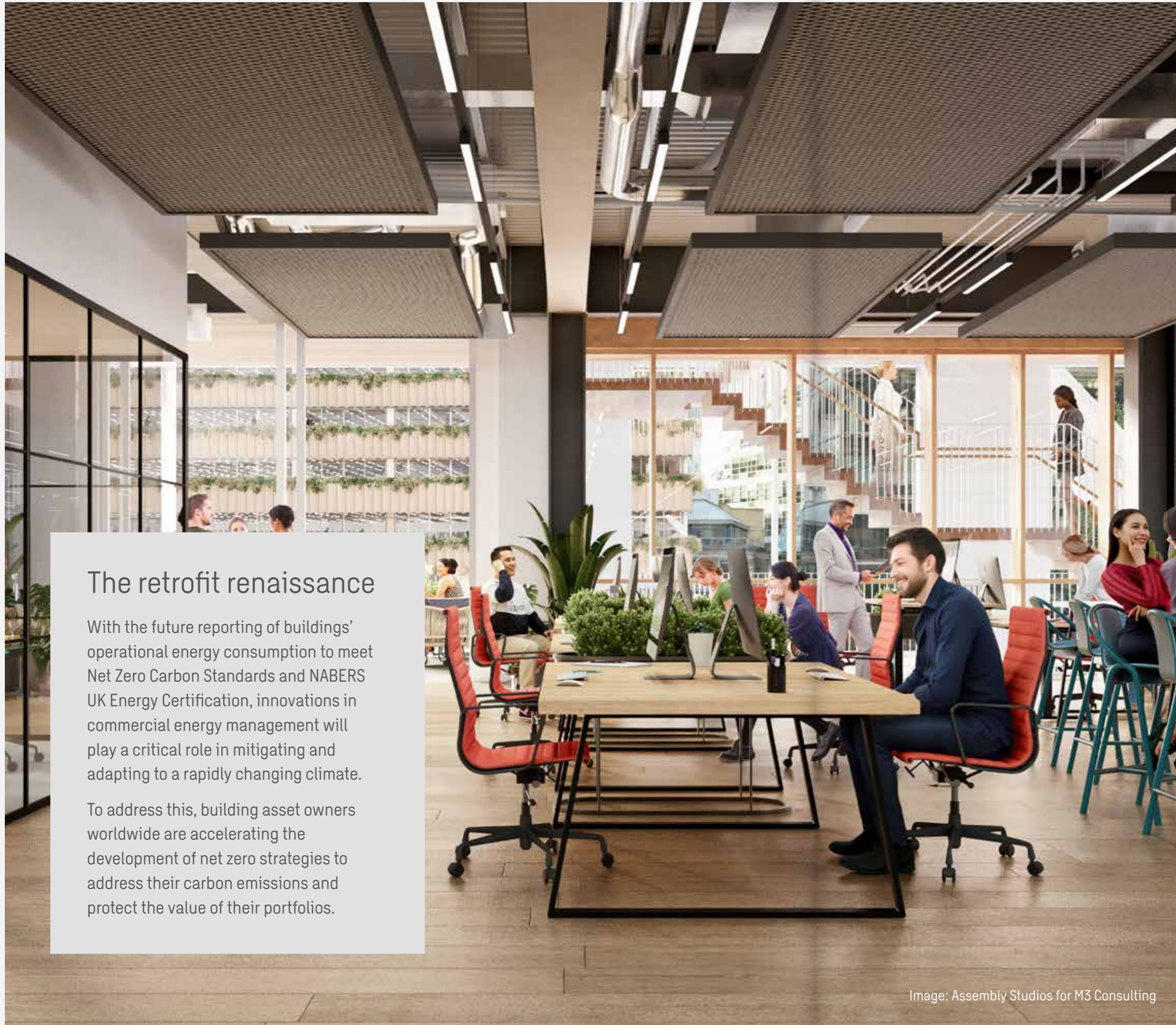




→ Decarbonising
buildings



The retrofit renaissance

With the future reporting of buildings' operational energy consumption to meet Net Zero Carbon Standards and NABERS UK Energy Certification, innovations in commercial energy management will play a critical role in mitigating and adapting to a rapidly changing climate.

To address this, building asset owners worldwide are accelerating the development of net zero strategies to address their carbon emissions and protect the value of their portfolios.

We are buildings innovators.
We are net zero chasers.
We are difference makers.

Our green buildings consultancy team consists of chartered engineers, façade specialists, Passivhaus designers and award-winning embodied carbon experts who draw on Sweco's Scandinavian heritage and international expertise to shape our truly holistic approach to sustainable building solutions – from design, engineering, commercial EPC assessment and performance evaluation to analysis, ESG support and certification advisory.

“

Low-carbon refurbishment is essential in reducing building-related emissions. Sweco's ongoing energy optimisation and retrofit projects highlight how it can be done effectively.

Kartik Amrania
Head of Building Sustainability at Sweco

→ The challenges and opportunities of decarbonisation

Unlocking the potential of performance-based design

- Currently, global temperature increases are set to go beyond a 1.5° C limit in the next 4-5 years, significantly quicker than anticipated scenarios.
- The UK government has confirmed that the future trajectory for a non-domestic minimum energy efficiency standard of Energy Performance Certificate (EPC) will be 'B' rating by 2030.
- The UK government has consulted (2021) on future energy performance measurements via actual energy matrix which will provide performance rating using actual metered consumption.
- Energy costs associated with both gas and electricity will continue to rise in response to inflation and market conditions.
- The government is aiming to phase out new gas boilers by 2035.
- The building assets with natural gas as the primary source of energy are likely to be classed as stranded assets via Carbon Risk Real Estate Monitor (CRREM) analysis.

1.5° C

Global temperatures have been forecast to go beyond a 1.5° C limit in the next 4-5 years.

68%

National Emission reduction target by 2030.

19%

Proportion of the UK's carbon footprint is from operational emissions. (Source: UKGBC)

Our urban consultancy is built on trust

At Sweco, we push for positive and transformative carbon strategies drawing on multi-disciplinary, global buildings expertise.

- ✓ We know that the whole life carbon impact must be taken into account when assessing decarbonisation schemes.
- ✓ We never shy away from highlighting and addressing the negatives of the energy transition.
- ✓ We work together with our Scandinavian and Central European colleagues who have been working with heat pump technology and ambient loops for decades.
- ✓ Our multi-disciplinary expertise spans all sectors, enabling us to draw upon diverse experience to design transformational net zero solutions - combining global skill sets with local insights.

→ Our net zero focus areas

Our solutions fall into two distinct, yet interlinked pillars.

Net zero & retrofit design:

01. Decarbonisation feasibility

- Analyse existing building information, including system drawings and heating, cooling, gas and electrical loads.
- Assess decarbonisation pathway to EPC B, NABERS & net zero strategy.
- Advise on whole life carbon impact.
- Provide sketches & markups to assess viability.

02. Building services

- Full building services design from Stages 2-6, including full design for sustainable implementation measures and any additional refurbishment.
- End-to-end support across:
 - Building Sustainability
 - Whole Life Carbon Advisory
 - NABERS / Passivhaus / CRREM
 - BREEAM / Wired / WELL Score
 - Building Management Systems
 - Lifts / Façades / Acoustics

In-use energy optimisation:

01. Building energy optimisation

- Net Zero Pathway.
- Energy Consumption Analysis.
- Draft NABERS certification & predicted rating.
- Energy reduction analysis including detailed survey of building hydronics.
- Green Tenant fit-out & Operation guide.

02. Performance monitoring gap analysis

- Desktop metering gap analysis.
- Review building systems and existing metering provision.
- Advise on additional metering required for NABERS energy split.
- BMS Energy Dashboard for performance monitoring.
- BMS System surveys.

“

At Sweco we never settle for minimum standards when advising on and implementing building performance optimisation. We aim to raise the bar for green building design and use, incorporating advice from different sustainability bodies and innovative digital tools in our thinking alongside global insights from across our built environment and specialist carbon teams.

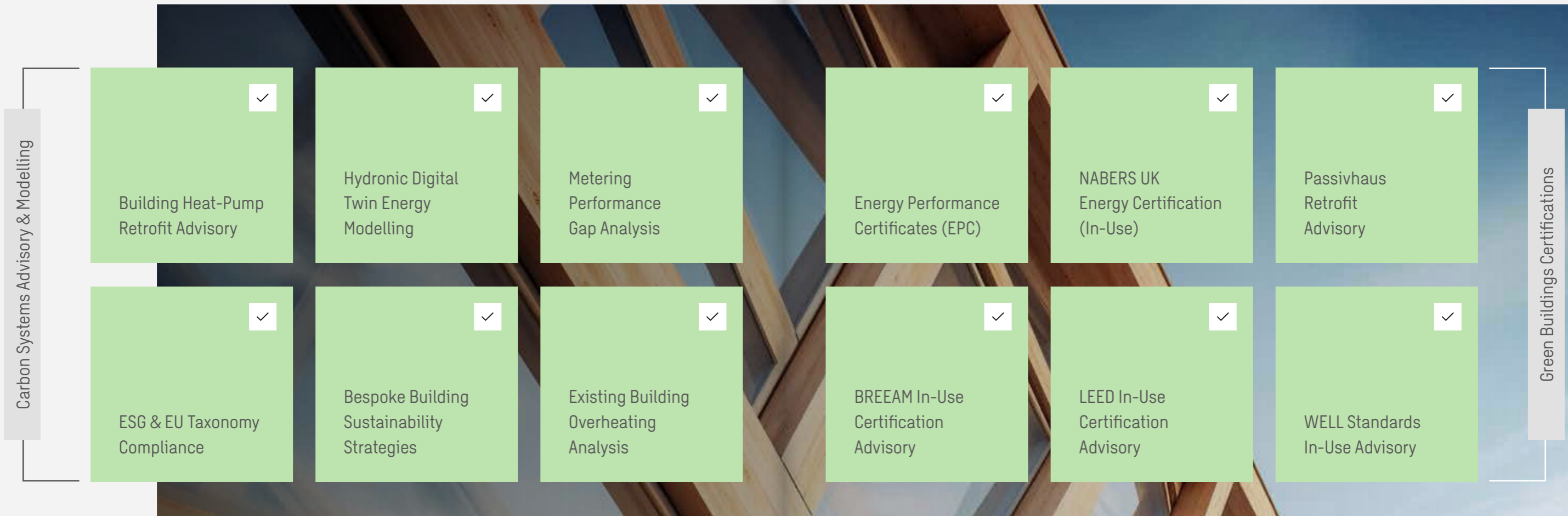
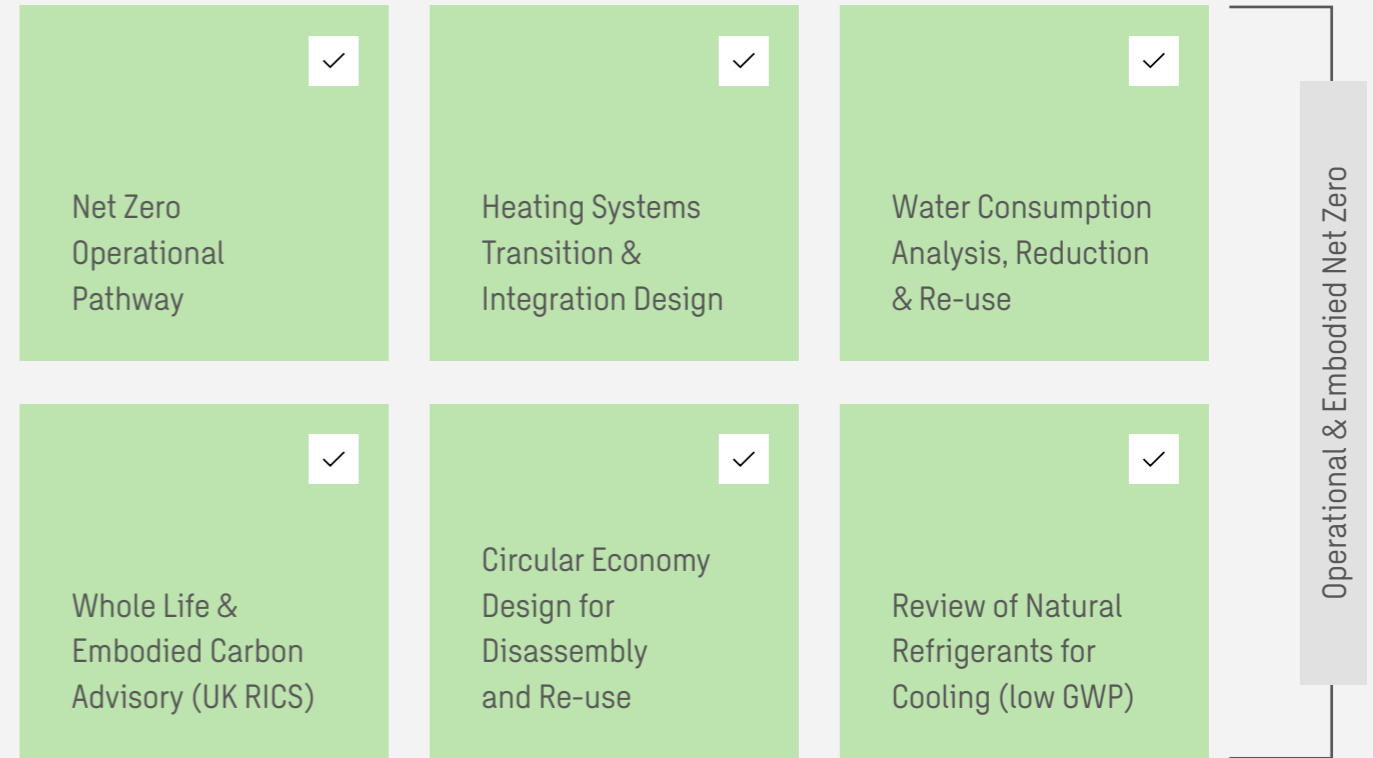
Peter Hale
Sweco Building Services Division Manager

Our 2 Aldermanbury Square Design for Performance pilot project – incorporating innovative digital twinning tools – has successfully achieved NABERS UK 5 Stars Design Reviewed status, following completion of the NABERS IDR process.

→ Our sustainable buildings solutions

We're changing the world, one project at a time.

With sustainability-first thinking underpinned by technical excellence, our global team of engineers, designers, planners and architects are *transforming society together*.



→ Project highlights

Integrated building performance evaluation, leading to accurate data-led analysis and clear reporting, is critical to meeting the increasing demands for comprehensive sustainable development disclosure. At Sweco, our experts can provide guidance and class-leading solutions to help you 'assess and address' across your portfolio.

21 Bloomsbury

The refurbishment of this multi-tenanted commercial office building in London will extend its area from 6,900m² to 7,500m², enhancing central London office space while minimising impact on key views and heritage assets. The design retains much of the existing structure, reducing embodied carbon, and includes an upgraded façade for improved energy efficiency and a 5-star DfP NABERS rating. Benefits include a high-efficiency Hybrid VRF system, advanced air handling units, and SMART building features.

ITN Headquarters, Live Building Retrofit

Sweco carried out a deep retrofit of an existing and live 10-storey 300,000 sqft building with operational TV Studios, designing the building electrification and services systems transition for implementation within the occupied building.

201 Bishopsgate, Decarbonisation Feasibility

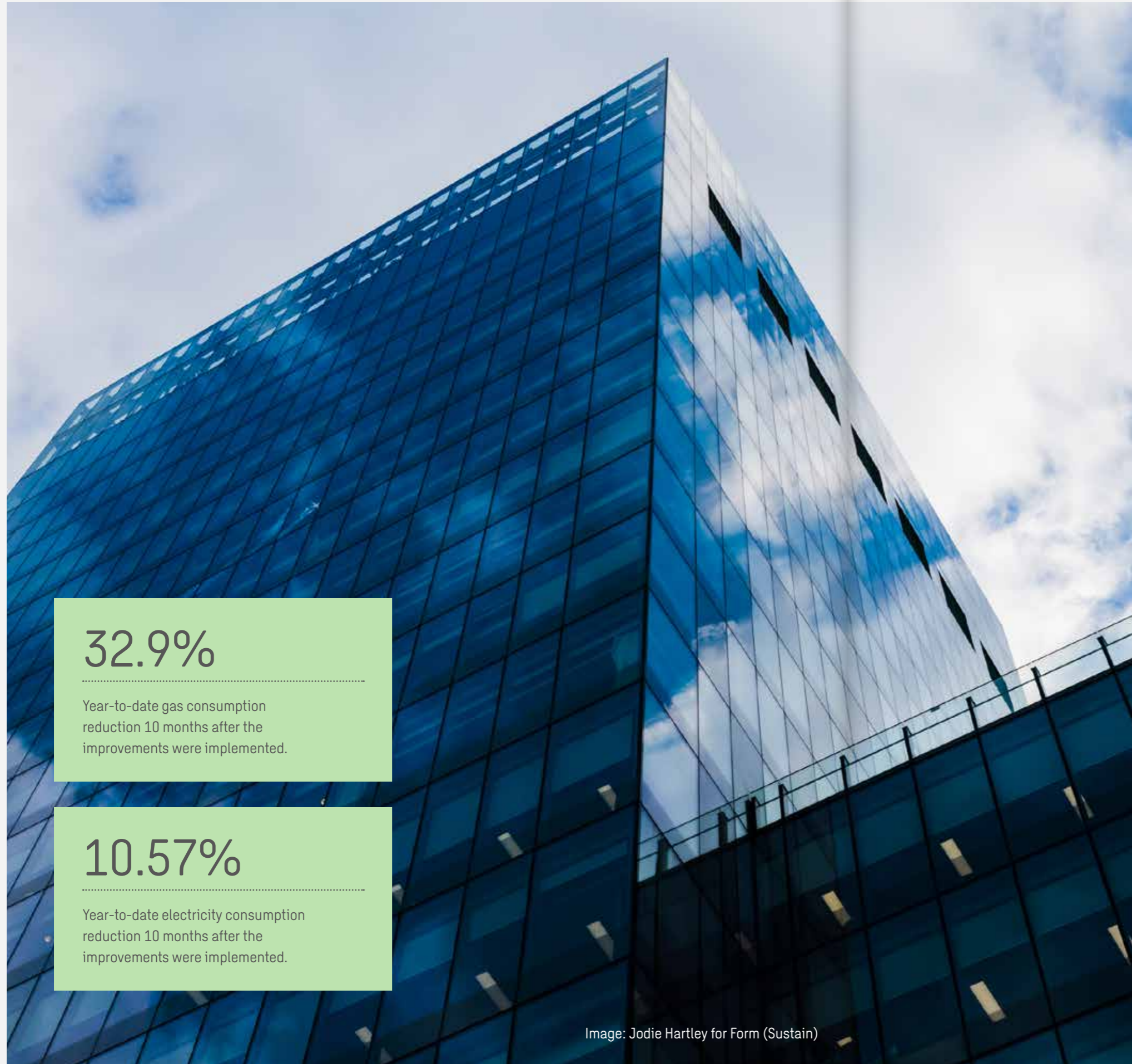
Sweco completed feasibility assessments for the physical implementation of commercial building's Net Zero Pathway, including energy modelling and implementation phasing in an occupied building.

Sudcal, District Heating Network (Hydronic Digital Twin)

Sweco is advising on the optimisation of the Sudcal Luxembourg district heating network.

As part of the works Sweco undertook the digital twin modelling and advisory of the district heating network. Sweco also optimised the district heating network to achieve a reduction of the flow temperature from 105°C down to 85°C flow.





32.9%

Year-to-date gas consumption reduction 10 months after the improvements were implemented.

10.57%

Year-to-date electricity consumption reduction 10 months after the improvements were implemented.

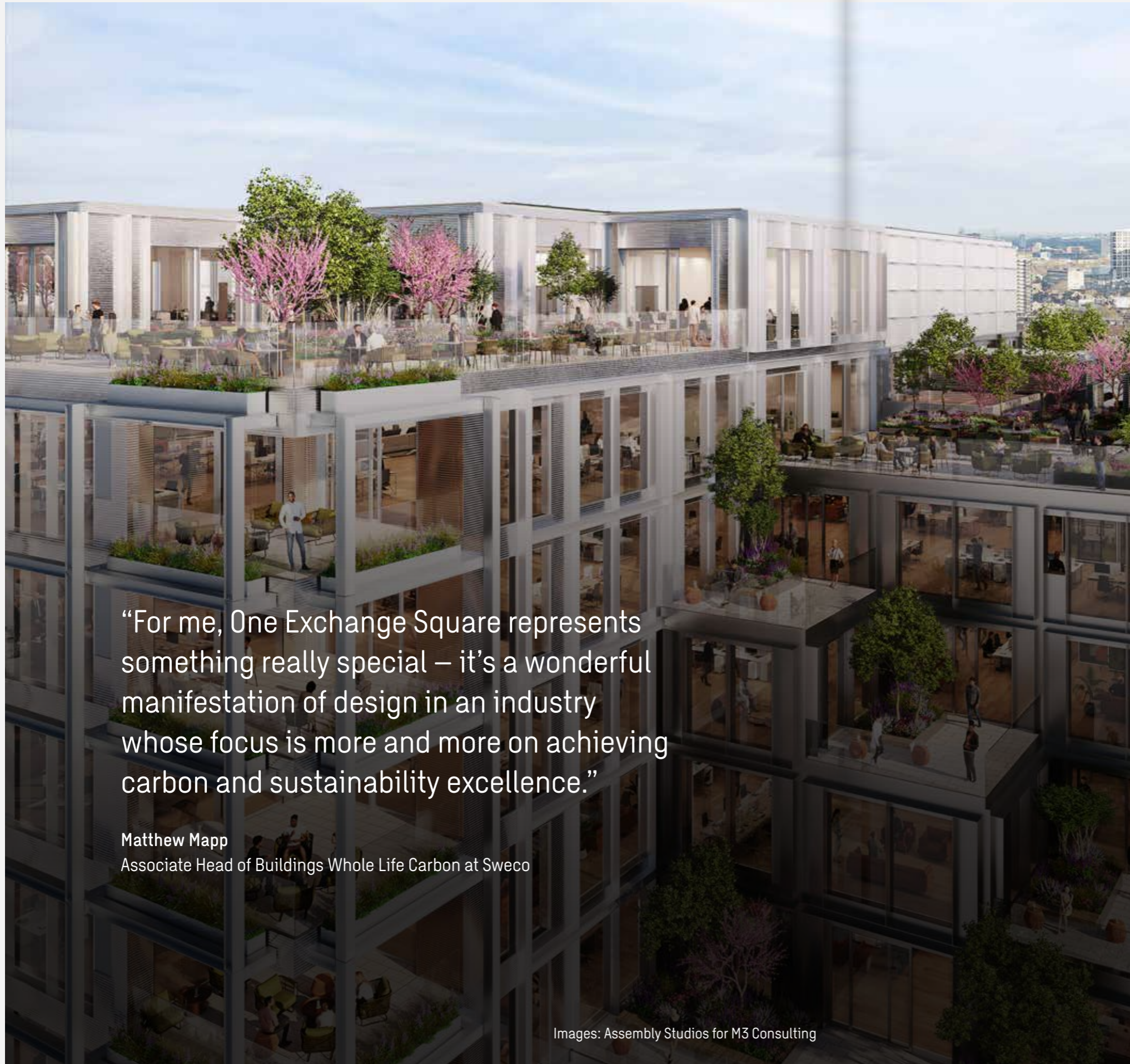
Image: Jodie Hartley for Form (Sustain)

No.1 Spinningfields, In-Use Energy Optimisation

No.1 Spinningfields is a Grade A, 19-storey office building situated in the heart of Spinningfields, Manchester. Completed in 2017, it offers premium office space with the highest rent per sq ft in the city. The building features a modern design with an insulated envelope and optimised glazing to reduce solar gains. Currently, it is 100% occupied by reputable corporate tenants, including PwC, Moneysupermarket, WeWork, and the rooftop restaurant, 20 Stories.

The No.1 Spinningfields Unit Trust appointed Sweco to assess the building's current performance and establish a likely NABERS UK rating. Sweco aimed to optimise existing building services to improve this rating and outline requirements for future NABERS UK Certification. Their recommendation was to focus on operational performance and energy reduction rather than any immediate replacements.

After receiving Sweco's comprehensive Building Operation, Performance Review & NABERS UK Certification overview in September 2023, the Sustain facility management team began implementing key measures outlined in the report. Thanks to Sweco's guidance, the majority of initiatives were executed internally. Remarkably, within approximately 10 months, the building achieved significant energy savings, with gas consumption reduced by 32.9% and electricity by 10.57% year-to-date.



“For me, One Exchange Square represents something really special – it’s a wonderful manifestation of design in an industry whose focus is more and more on achieving carbon and sustainability excellence.”

Matthew Mapp
Associate Head of Buildings Whole Life Carbon at Sweco

Images: Assembly Studios for M3 Consulting

One Exchange Square

One Exchange Square aims to transform a post-modern office building into a sustainable workspace in London, focusing on high performance and circular economy innovation. With Sweco’s sustainability and technology experts playing a key role in design and operational planning, it seeks to establish new benchmarks for future developments.

As one of London’s first retrofits targeting net zero carbon, One Exchange Square aligns with the UK government’s 2050 carbon emission goals. The design optimises energy efficiency, incorporates green terraces and enhances local biodiversity, creating a vibrant urban ecosystem. Creative placemaking and biophilic elements promote occupant wellbeing, while significant upgrades ensure operational efficiency.

Overall, the project emphasises the importance of sustainability in urban development as part of the green transition, setting a precedent for future initiatives in the built environment. So much so that the UK Green Building Council has recognised One Exchange Square as exemplary for sustainable refurbishment.

Sweco Regional Headquarters, Bergen (Norway)

One of the best energy-performing and climate-friendly buildings in Norway, this building has been designed by Sweco in Bergen as our Regional Headquarters. Completed in late 2016, the Sweco Building in Bergen is referred to as one of the most energy-efficient buildings in Norway by ENOVA (a Norwegian government body investing in low energy developments) and is achieving the Paris Proof Target.

Ultra low energy consumption

- Use of a centralised high-efficiency ground source heat pump connected to boreholes for heating and cooling.
- Utilising waste heat from the ground floor retail units heat-rejection plant.
- On-site energy generation by use of photovoltaic (PV) panels on the roof and additional PV integrated into the façade to maximise the generation of green energy.

Performance drivers

- Passive Design to reduce heating and cooling consumption.
- External automated shading to mitigate peak solar gains.
- High performance LED Lighting and low-energy consuming equipment.
- Ground source heat-pump to serve all the heating and cooling demand.
- Energy Performance Metering for continuous monitoring.



9,700m²

Gross Internal Area (GIA)

48kWh/m²/year

Total building energy consumption.
(Combined: Tenant + Landlord)

Find out more at:

sweco.co.uk/blog/bergen-hq



→ Let's transform society together

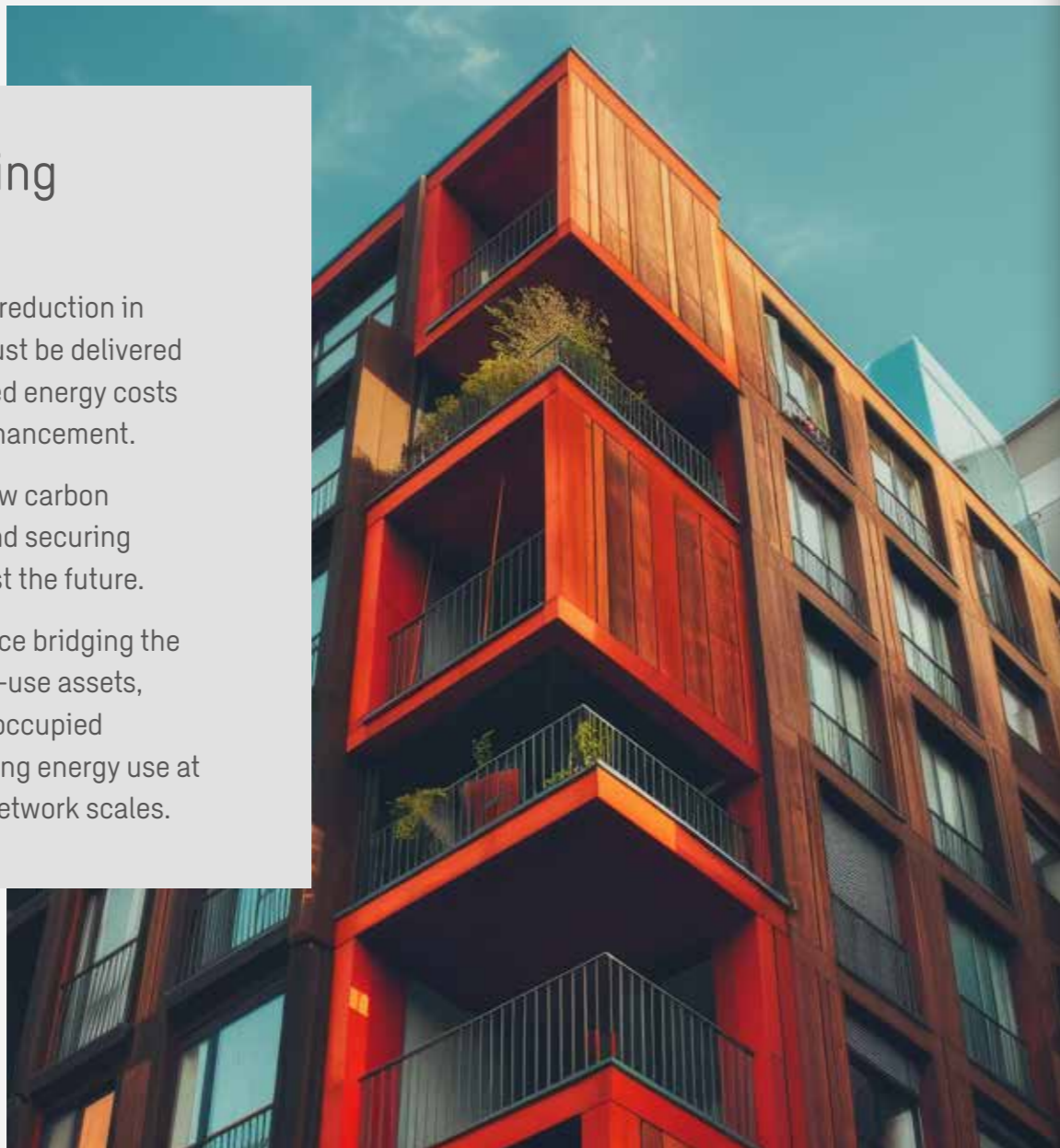
As we adapt existing buildings, we must seek to make the most practical and value driven design decisions that will also reduce carbon emissions through design and collaboration. By leveraging our global expertise, we can work with you to renovate building systems and reduce emissions and operating costs across energy, carbon and water.

Future-proofing performance

We understand that a reduction in operational carbon must be delivered in tandem with reduced energy costs and building asset enhancement.

It's about delivering low carbon energy affordability and securing building assets against the future.

We have real experience bridging the performance gap of in-use assets, delivering projects in occupied buildings and optimising energy use at building and district network scales.



Re-imagining your asset



“

The service we have received from Sweco has been extremely proactive and helpful throughout their involvement in our scheme at 8 Eaton Lane in London. They continue to show attention to detail and maintain a strong presence throughout, continually challenging the design and pushing for betterment.

James Andrews
Associate Director (CIT Group)



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Find out more at

sweco.co.uk/green-buildings



We're here to guide you through the green transition

The green transition is a global shift towards sustainable practices and technologies aimed at reducing environmental impact, combating climate change, and promoting circular economy methodology.

For Sweco, looking at projects through the green transition lens is key to our *Transforming society together* mission, allowing us to act as true #DifferenceMakers as we change the world around us one project at a time across buildings, critical infrastructure and mobility.

By drawing on our 200+ disciplines – both individually and by working together under a collaborative service-wrap – we aim to be a role model in the green transition, and be a key part of the answer to society's sustainability and carbon reduction challenges.

Transforming
society
together

Our commitment?

To challenge our clients – and ourselves – to deliver innovative energy, transport, urban, water and industry solutions through approachable consultancy, high-quality design and technical excellence across our service portfolio. All under one roof as your trusted, go-to consultancy.