BRILLIANT BUILDINGS

COP26 AND THE BUILT ENVIRONMENT

# Mercury rising

How the built environment can respond to COP26 in tackling climate change

NOW OR NEVER

# 1. INTRODUCTION

**Jonathon Porritt**, non-executive director at Willmott Dixon, led a series of discussions with colleagues at local authorities and the private sector on what must happen to achieve a net zero economy.

**The environmental** and social challenges our world faces have never been greater. Conversations have at last turned from whether climate change is 'real' to the rate and extent of the change and the recognition of a narrowing opportunity to slow or halt the process.

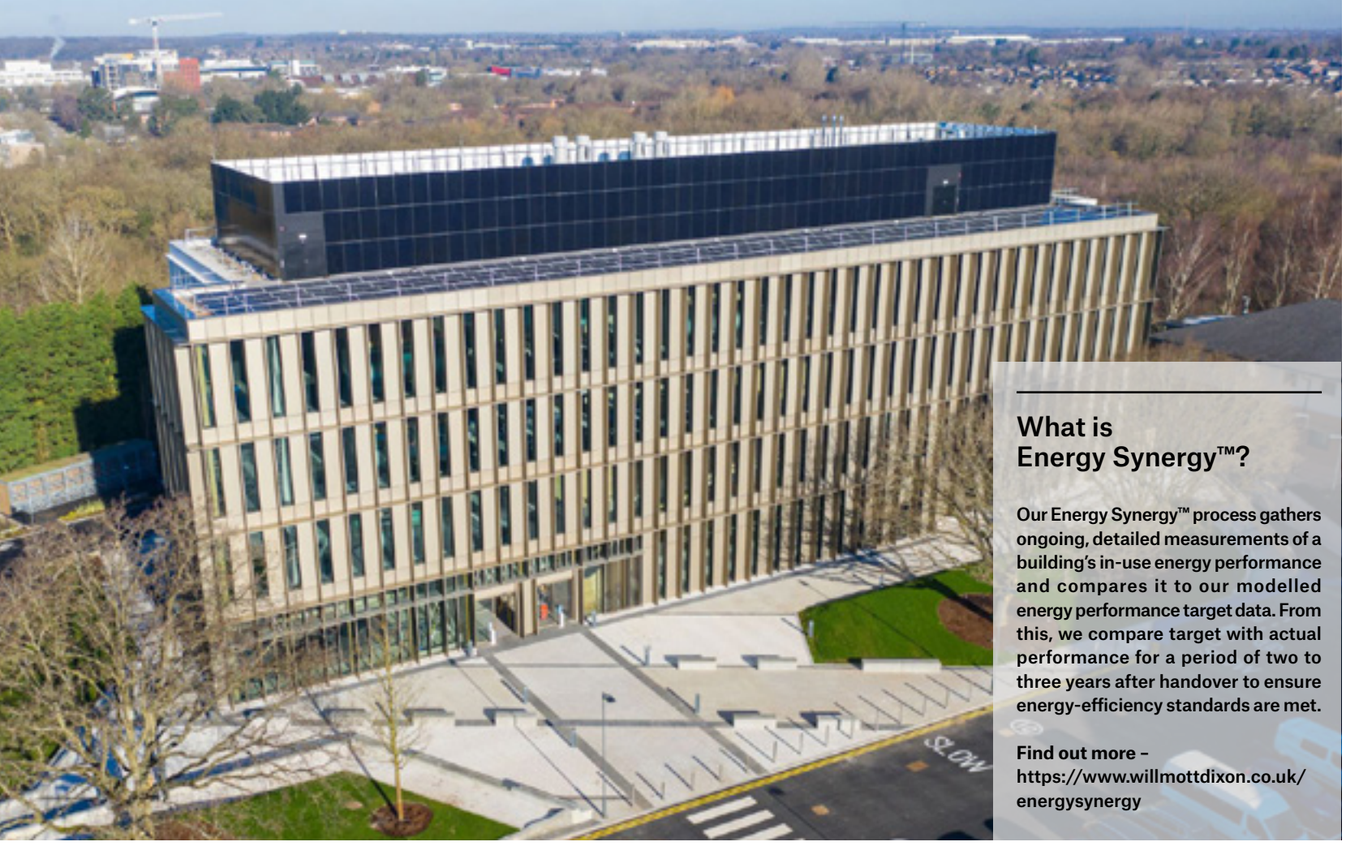
Expectations are high for COP26 in Glasgow, but what will it achieve? And what role should the built environment play in tackling climate change?

These were two of the questions Willmott Dixon sought to address in a series of discussions with local authorities and private sector organisations in the weeks leading up to the summit. The conversations were fascinating and we are very grateful to participants for their time and expertise.

In this short publication, we look at COP26 on an international, national and local level, and explore the key areas identified through our discussions in which the built environment can support the aims of COP26.

I hope you find this useful. Please get in touch using the email address on the back to discuss any issues highlighted here. As we say in Willmott Dixon's *Now or Never. Our decisive decade* zero-carbon strategy, we really must take action now before the damage is irreversible.

**Listen to Jonathon Porritt discuss COP26 in our podcast**



**Below:** The University of Warwick's Interdisciplinary Biomedical Research Building is using Willmott Dixon's Energy Synergy™ process to ensure the building's actual performance meets the level anticipated at the design stage.

## What is Energy Synergy™?

**Our Energy Synergy™ process gathers ongoing, detailed measurements of a building's in-use energy performance and compares it to our modelled energy performance target data. From this, we compare target with actual performance for a period of two to three years after handover to ensure energy-efficiency standards are met.**

**Find out more – https://www.willmottdixon.co.uk/energysynergy**





## Fast Facts

- The built environment sector contributes 39% of $CO_2$ emissions
- Willmott Dixon has reduced its emissions-intensity (tonnes $CO_2$/£m) by 66% since 2010, slashing absolute emissions (tonnes $CO_2$) by 55%
- The UKGBC's net zero roadmap wants embodied carbon to become a policy and regulation priority from 2035, as operational energy will have been dealt with and the grid decarbonised (announced in the Government's recent *Net Zero Strategy*)

**Above:** Using renewable electricity is one way that construction sites can reduce their carbon emissions.

# 2. WHAT IS COP26?

**At what was dubbed** the 'Earth Summit' in Rio de Janeiro in 1992, nations signed up to the UN Framework Convention on Climate Change. COP26 is the 26th meeting of the 'Conference of Parties' who agreed to the framework.

**Why is COP26 so important?**

In August this year, the UN Intergovernmental Panel on Climate Change (IPCC) issued a stark warning to the world's leaders in its report, *Climate Change 2021: The Physical Science Basis.* It warns that we have caused irreversible damage to our climate and that urgent and dramatic action is required if we are to stem the increasing tide of natural disasters. UN Secretary General António Guterres called the report a "code red for humanity".

Global temperatures have risen by an average of 1.1°C since the beginning of the Industrial Revolution. If we continue our current trajectory, this could rise to 2.7°C or 2.8°C by the end of this century. In 2015, the goal was to limit the end-of-century rise to below 1.5°C, but experts do not now believe this is achievable.

The impact of increased temperatures is already in evidence with increasing incidences of natural disasters such as flooding, hurricanes, wildfires and rising sea levels. The IPCC report predicts that under the worst-case scenario, sea levels are likely to rise between 0.6 and 1m by the end of this century. This will create millions of climate change refugees, who are displaced as a result.

This is the backdrop to COP26. The last summit to receive such attention was COP21, held in Paris in 2015. There, governments signed up to the Paris Agreement, a treaty which promised action to limit global warming to well below 2°C compared with pre-industrial levels.

**What can we expect at COP26?**

Though it is unlikely COP26 will be the panacea to climate change that has been speculated, there are likely to be some notable steps forward.

Governments are expected to sign up to the rule book for the Paris Agreement, which will set out exactly how each country will meet the commitments they made six years ago. COP26 should also see the influential nations of Japan and South Korea committing to revised carbon reduction targets.

**IN 2015, THE GOAL WAS TO LIMIT THE END-OF-CENTURY GLOBAL TEMPERATURE RISE TO BELOW 1.5°C, BUT EXPERTS DO NOT NOW BELIEVE THIS IS ACHIEVABLE**

**Read More: COP26: an opportunity for the built environment to lead the net zero transition**

Julia Barrett, chief sustainability officer, Willmott Dixon

# 3. WHAT TYPE OF OVERALL COMMITMENTS ARE REALISTIC FROM COP26?

**Methane**
There will be a focus on reducing methane emissions. Though far less methane than carbon dioxide is produced, methane is 80 times more damaging to the environment and remains in the atmosphere for around 10 years until it converts to carbon dioxide.

**Funding**
We should see developed nations agreeing a funding package for developing nations. The US has already announced that it will donate $11.4bn annually by 2024; the promise had been that rich countries would be paying $100bn annually to poorer ones by 2020.

Poorer nations argue that since rich nations developed their economies on the back of fossil fuel, and in doing so caused most of the climate damage in evidence now, they cannot expect poorer countries to both grow their economies and invest in low-carbon solutions.

**Geopolitics**
Some people question why the UK should be setting targets to reduce emissions to net zero by 2050 when they represent 1% of total emissions and are insignificant compared with those of China and India.

The view of Jonathon Porritt is that developed nations must show leadership if they want others to follow suit. Countries like the UK must pioneer technical, financial and social solutions to have credibility when pushing for a global response to carbon emissions reduction.

Geopolitics remains crucial to the outcome of COP26. Though the Biden administration and US climate change envoy John Kerry remain positive and enthusiastic about enabling change, recent poor relations between the US and China could hamper progress.

Mid-October brought the news that China will not be able to meet its target of reaching a peak of coal use in 2030 due to gas shortages. This also means China could push back its 2060 goal for carbon neutrality.

**What has changed since 2015 and the Paris Agreement?**
The past five years have seen marked shifts in attitudes among government, business and the general public. Campaigners such as Greta Thunberg and Extinction Rebellion have hit the headlines and the impact of climate change is in the public conscience.

The UK parliament declared a climate change emergency in May 2019 and since then more than *300 councils* have done the same.

The narrative of business also reflects the importance of environmental, social and governance (ESG) to future strategies, not least because shareholders are demanding a clear plan towards tackling climate change and mitigating its impacts. Increasingly industry is looking to the government for a policy framework that allows it to plan decarbonisation with certainty.

The past few years have seen construction companies such as Willmott Dixon set ambitious targets. One of Willmott Dixon's core goals, announced in its 2030 sustainability strategy *Now or Never. Our decisive decade* (see box, left), is to be zero-carbon without offsetting by 2030 (it has been net zero with offsetting since 2012). Willmott Dixon has also contributed to the net zero strategies of some 38 organisations, including both customers and supply chain partners, over recent years.

## Now or Never. Our decisive decade

**This is Willmott Dixon's commitment to be a zero-carbon company without any offsetting by 2030. We also pledge that all our new buildings and major refurbishments will achieve net zero operational carbon, and by the end of 2040 all our buildings and major refurbishments will be delivered with net zero embodied carbon. Also, by the end of 2040 our supply chain will achieve net zero operational carbon.**

**Find out more – https://www.willmottdixon.co.uk/now-or-never**

Left: The 2021 Stirling Prize-winning Town House for Kingston University used a specially formulated concrete with lower embodied carbon.





## What is Collida?

**Collida Living is a platform for assembling buildings of varying masses, forms and materials to meet the Passivhaus standard for highly energy-efficient property that is net zero-carbon in operation.**

**Find out more – https://www.collida.com/solutions/collida-living/**

Above: Ashton Rise, a 133-dwelling residential development, delivered in partnership with Bristol City Council, cuts carbon emissions by using communal ground-source heat pumps as a route to fossil fuel-free heating.

**"WE HAVE THE CONSTRUCTION INDUSTRY'S MOST AMBITIOUS SUSTAINABILITY TARGETS TO 2030, BECAUSE NET ZERO IS AT THE HEART OF OUR BUSINESS. WE URGE WORLD ECONOMIES AND LARGE COMPANIES TO JOIN US IN COMMITTING TO NET ZERO"**

RICK WILLMOTT,
GROUP CHIEF EXECUTIVE,
WILLMOTT DIXON

## Read more: One year on from Now or Never: Better Planet

Cathy Myatt,
head of environmental policy
and improvement, Willmott Dixon

## Read more: Do green buildings cost more?

Mike Cross,
head of partnerships and innovation,
Willmott Dixon

# 4. THE BUILT ENVIRONMENT'S IMPACT

**Buildings and infrastructure** are responsible for around 39% of global carbon emissions, so it is not surprising that Roland Hunziker, director at the World Business Council for Sustainable Development, described ***built-environment emissions as "the sleeping giant"*** saying, "nobody really pays a lot of attention to the full impact of emissions from buildings. And that needs to change." COP26 will be the first to have a built environment day, on 11 November 2021.

The tools and technologies needed to create net zero-carbon domestic and non-domestic buildings already exist, although there is frustration that the government's decision to abandon the Code for Sustainable Homes in 2015 was a missed opportunity to ensure new homes built now are zero-carbon.

**Passivhaus could be key**

With a focus on reducing energy demand in property to cut overall emissions, Willmott Dixon is investing in skills and technology through its Collida platform to build property to the Passivhaus standard, which delivers energy-efficient buildings through a fabric-first approach (see box, page 5). Collida aims to show how Passivhaus is viable and replicable at scale by developing its own demonstration home at BRE's Garston, ready for 2022.

Another focus will be to counter what Willmott Dixon's chief sustainability officer Julia Barrett calls "the built environment's VW scandal" – how to close the performance gap between designed and as-built energy consumption.

Planning has its part to play too. The new ***London Plan's 'be seen' energy monitoring guidance*** requires developers and owners to monitor and report on actual energy used for at least five years. Also, Willmott Dixon developed EnergySynergy™ to measure and optimise the in-use performance of property compared with predicted performance (see box, page 2).

**Embodied carbon**

Embodied carbon – the carbon spent in extracting materials, manufacture, transportation and installation – is becoming a bigger piece of the lifetime equation. Recognising this, companies such as Willmott Dixon have committed to measuring and reducing the carbon emissions of their supply chain – rather than only considering their own emissions.

**Retrofit**

Perhaps the biggest challenge is how to retrofit existing building stock so it becomes net zero-carbon in operation. A multi-year programme is vital if we are to build the necessary capacity and competence to tackle the millions of homes that need upgrading. The government's long-awaited ***Heat and Buildings strategy***, published on 19 October 2021, still leaves questions about how this can be delivered.

**Below:** Harris Academy Sutton is the UK's first Passivhaus secondary school, reducing its running costs by 80% compared with a school of a similar size.

## To deliver real change, the built environment community needs to:

1. Consider whole-life value rather than capital cost.
2. Embrace new standards, like Passivhaus, as a mainstream process.
3. Tackle the performance-in-use gap.
4. Focus on embodied carbon: 30-70% of a building's lifetime carbon is already accounted for when in use.
5. Address the skills gap and attract more than 200,000 people in the next 10 years.
6. Operate with policy certainty beyond the life of individual governments. If the Code for Sustainable Homes had remained (first introduced in 2006 and abolished in 2015), all homes built today would be net zero-carbon.
7. Have regulation that levels the playing field for companies being ambitious in delivering a zero-carbon economy.





**LOCAL AUTHORITIES, WITH THEIR PARTNERS, MUST BE ALLOWED TO TAKE THE LEAD IF THE UK IS TO MEET ITS AMBITIOUS CLIMATE CHANGE TARGETS**

The cost of retrofit so a property can be net zero in operation, compared to building to this target in the first place, is ***three to five times higher***, illustrating the challenge ahead for the built environment.

**The influence of local government**

In July 2021, more than ***30 cross-party leaders and local mayors signed a joint letter*** demanding that powers be devolved from Whitehall to allow them to better control local energy markets, decarbonise transport networks and tackle carbon emissions from buildings.

The views of these local government leaders are supported by the National Audit Office (NAO) which in July this year published its report ***Local government and net zero in England***. In the report it said that a lack of clarity in the role of local authorities, combined with piecemeal funding, was hampering councils' efforts to tackle climate change.

The NAO's report was itself triggered by parliament's Environmental Audit Committee (EAC), which is currently ***investigating how to map a path to net zero for local authorities***.

Despite the statutory and funding constraints they face, local authorities are showing clear intent towards net zero. These range from ***Exeter City Council's focus on building Passivhaus and climate-resilient homes***, to ***Essex County Council's independent Climate Action Committee***.

Local authorities, with their partners, must be allowed to take the lead if the UK is to meet its ambitious climate change targets in tandem with the 'levelling up' and 'build back better' agendas. As things stand, they have not been empowered or enabled to do so.

**Cutting carbon together**

Perhaps the most important outcome from COP26 is a heightened awareness of climate change issues with more questions and more conversations among the general public, businesses and governments.

Conversations alone don't cut carbon, but they do allow different organisations and stakeholders to find common ground and innovative solutions.

For businesses such as Willmott Dixon, having an early involvement with like-minded customers amplifies the opportunity to reduce carbon emissions. Through this the company is reducing carbon emissions linked to its projects and the buildings it creates, and it is also demonstrating to the wider industry what can be done.

**Above:** Due for completion in 2022, the Halo office development in Bristol will be BREEAM Outstanding, with features including heating from ground-source heat pumps.

**"NOBODY REALLY PAYS A LOT OF ATTENTION TO THE FULL IMPACT OF EMISSIONS FROM BUILDINGS. AND THAT NEEDS TO CHANGE"**

ROLAND HUNZIKER, DIRECTOR, WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT

**Read more:**
**Brilliant Buildings: meeting our customers' sustainability needs**

Alasdair Donn,
head of building performance,
Willmott Dixon

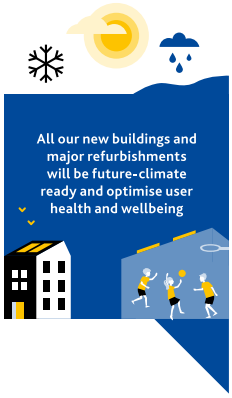
# NOW OR NEVER

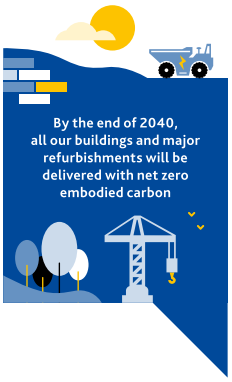
# Our decisive decade

## 2030 Sustainable Development Strategy

### Brilliant Buildings

We will construct and refurbish buildings fit for current and future generations

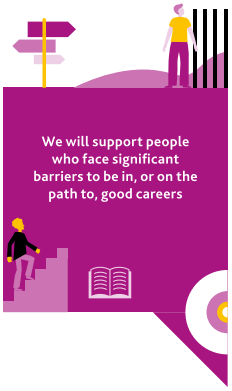





### Building Lives

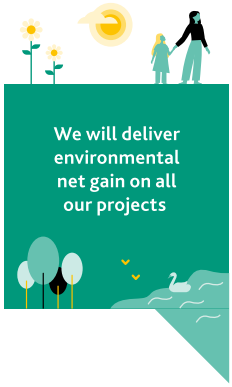
We will support the people and businesses in our communities to thrive

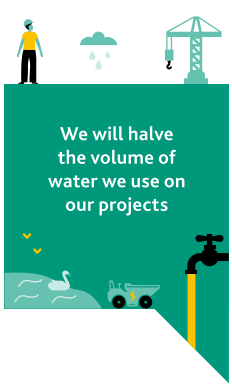


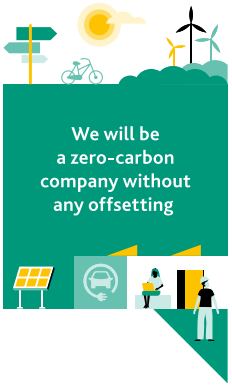



### Better Planet

We will play our part in creating a better planet for future generations by putting the climate, biodiversity and resources crises at the heart of the way we do business





## Our Enablers

**Trusted Partner**

Building trust with our customers is more important than ever.

**One Team**

Collective effort will enable us to succeed together as one team.

**Read more at www.willmottdixon.co.uk/Now-or-Never**

**Change Makers**

We must innovate and adapt quickly.

**The Best We Can Be**

We know that diverse, complementary teams make better decisions.

WILLMOTT DIXON
SINCE 1852

**We'd love to hear about your net zero plans and how we can help. To get in touch, drop us a line at: Now-or-Never@willmottdixon.co.uk**

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