



# Net Zero in Design

What it means for the education sector



# An introduction to Net Zero in the education sector

It is well documented that the government have set out on their journey to becoming Net Zero, aiming for the decarbonisation of all sectors in the UK economy by 2050.

So, what are we defining as a Net Zero Carbon building? A Net Zero Carbon building is one where the energy used by the building annually is equal to the amount of renewable energy created on or off-site.

When looking at the United Kingdom as a whole, buildings are responsible for a quarter of emissions, this is second to only surface transport. These emissions mostly come from electricity and heating, and it is here that we are likely to find the most improvements.

While new buildings will benefit greatly from being more energy efficient and play an important role in achieving targets set out by the UK government, retrofitting existing schools, sixth forms, colleges, universities, and other buildings on education estates to make them

Net Zero is a key challenge within the industry. As 80% of buildings which will be occupied in 2050 are already here, trying to tackle problems at the new build stage will not be enough. Decarbonising existing stock will be just as important. But we must act now!

In England, the education sector has been striving to be Net Zero for several years and before the global energy crisis had been slightly ahead of the curve, with new schools and academy builds setting this as their target at the design stage. Existing schools are also adapting as they aim to become Net Zero in their operational energy use. This is being achieved by improving the overall insulation of the setting, using more energy-efficient window types, and installing better heating, ventilation, and HVAC control systems – all of which are helping with carbon mitigation.



# What we are doing at Vertas Group to tackle carbon emissions

Concertus have always taken the approach of Fabric First and always recommends environmentally friendly and sustainable materials to clients. Our teams work with accredited suppliers to ensure a sustainable approach is achieved. We strive to decarbonise our design solutions and are actively working with numerous Local Authorities, Academy Trusts, and Diocese Schools to achieve commitments to becoming Net Zero by 2030.

Following Vertas' Property Management team becoming part of Concertus' service offering to assist with decarbonisation projects, in 2023 the Vertas Group also formed a dedicated Energy and Sustainability team and appointed a Head of Quality and Sustainability. The team is focused on gaining a full understanding of the Group's carbon emissions. Since its formation, we have calculated our baseline scope 1, 2 and 3 emissions for 2021/22. This data has been verified by Planet Mark and the Group has been awarded certification. We have also now submitted our Scope 1, 2, and 3 data for 2022/23, which will see us maintain our certification. Across the Vertas Group, we have saved over 1.4mil pieces of single-use plastic by using wooden cutlery at sites, including schools. We recycle 100% of our cooking oil and we also offer a free tree-planting initiative for schools and academies.



The Vertas Group has published its Carbon Reduction Plan and created a detailed roadmap to Net Zero for Scope 1 and 2 by 2030 with associated costs and actions, as well as a roadmap to Net Zero by 2050 for Scope 3. Our Group has taken responsibility for its Carbon Emissions, and we are working on making changes to how we work with several exciting initiatives ongoing throughout the business. We have also launched a live Carbon Footprint Tracker, whereby the team upload data on the go, which allows us to see at any point in time our live footprint.

Sustainability has been embedded into our culture, our employees care about the impact of our activities and our processes and policies reflect this. We develop policies and procedures which aid our environmental awareness and contribution to reducing our impact on the environment. The Vertas Group have been accredited with ISO 14001 and is working toward ISO 50001 which supports this.



## 10 Steps to *Net Zero*



As of 2022, The Vertas Group are proud to have partnered with Planet Mark. Our team are gaining a better understanding of the impact we have on the planet so we can successfully identify where we can improve. Not only are our outputs being measured, but each colleague that works for us is being challenged to improve behaviours outside of work. Planet Mark is now helping with our sustainability strategy, and we have been provided with toolkits that focus on the most important issues and advised us on how to plan for our long-term ambitions.

### Concertus' Heat Decarbonisation Plans recognised by Salix

Some of Concertus most recent Heat Decarbonisation Plans have been recognised by Salix as 'exemplary' due to their exceptional standard and detail.

The Salix Finance Low Carbon Skills Fund Team selected our diocese of St Edmundsbury and Ipswich and our Heat Decarbonisation Plan for St John's CEVAP School projects because they believe that they would act as a benchmark for clients and consultants to showcase what can be achieved. We look forward to supporting Salix in ensuring their outputs provide the best value for public money.



### Leading feasibility schemes with our clients

Concertus are commissioning many feasibility schemes on behalf of Suffolk County Council to understand the current EPC rating for sites and what works are possible, and feasible, to improve both the EPC rating and the building's operational running costs.

Heating and powering non-domestic buildings in the United Kingdom is responsible for almost 12% of the UK's emissions. As of April 1st, 2023, landlords will no longer be able to continue leasing non-domestic properties if they have an Energy Performance Certificate rating of F or G (the least energy-efficient properties). This follows suit with the education sector, which as of 2018, has needed an EPC of E and before 2030, will need an EPC of B.

# Retrofitting existing schools is part of our service

At Concertus, retrofitting existing buildings is a prominent part of the services which we deliver for our clients. Through years of hands-on experience, we can demonstrate how we optimise the balance of carbon reduction targets against the practical and financial constraints which our clients are faced with.

Typical measures we are currently implementing:

## Thermal upgrades

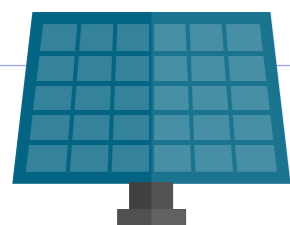
Increase in insulation levels to the external fabric through the installation of cavity wall insulation external wall insulation, internal wall insulation, roof insulation, window/door upgrades, and floor upgrades

## Replacement of fossil fuel heating systems

Installation of ground source heat pumps, and air source heat pumps

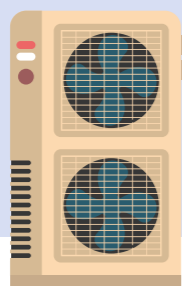
## Improvements to existing lighting

Installation of energy-efficient lighting systems upgrades



Introduction of energy generation  
Installation of solar photovoltaic systems

## Optimisation of existing air handling units

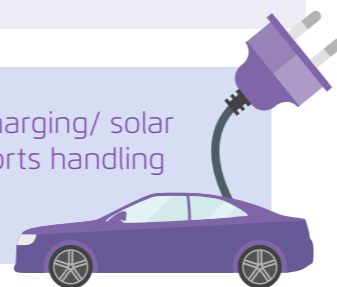


Optimisation of hot water systems



Battery storage systems

## EV charging/ solar carports handling units



# Take a look at just some of our projects that are tackling Net Zero in education settings



## Diocese of St Edmundsbury and Ipswich

In November 2021 the Diocesan Board of Education (DBE) adopted an environmental policy to achieve Net Zero across the school estate by 2030. We were then commissioned by the Diocese of St Edmundsbury and Ipswich to undertake Heat Decarbonisation Plan (HDP) reports across 9 Church of England Voluntary Aided Primary Schools (CEVAP).

We inspected the buildings to understand the current fabric performance, the condition of the heating plant and the efficiency of their current systems, to review the viable methods that could be implemented to improve the thermal performances.

At St John's CEVAP School in Ipswich, to follow the core principles of achieving Net Zero, it was recommended that a fabric first approach be taken. We initially reviewed historic drawings and the existing Display Energy Certificates (DEC) for each respective block to evaluate the school's energy consumption, energy costs and annual CO2 emissions for the site. The current gas fired boiler, hot water storage cylinder, steel heat distribution pipework and the mechanical control panel were reported to be at the end of serviceable life.

Based on the survey, it was recommended in the first instance to fill the existing cavity walls to specifically improve their fabric performance and improve the wall U-value. We then recommended to upgrade to LED lighting with energy efficient controls to provide a means for occupants to be more energy conscious. We then advised the incorporation of low carbon technologies with replacement of the gas fired boiler to Air Source Heat Pumps (ASHP), as part of a carefully phased programme to treat each block separately.

## Buxton Junior School, Derbyshire

We are currently working on a decarbonisation project at Buxton Junior School in High Peak, Derbyshire – the first of its kind in the area.

The work will see a bivalent heating system replacing non-condensing gas boilers, with air source heat pumps that are supplemented with high-efficiency gas boilers. The hybrid system is being utilised to assist with eventually phasing out the gas boilers on the site once the fabric has been upgraded. The system is designed to allow the air source heat pumps to run as long as possible throughout the year, to maximise carbon savings whilst the gas boilers maintain room comfort levels at peak temperatures.

New PV panels have been installed and commissioned and works in the internal plant room have been successful with a new buffer vessel, hot water module, pumps, and associated equipment installed. There have also been external pipe services connected and a new air source heat pump compound and the concrete base has been installed, ready for the new heat pumps in the next phase of the work.

We are delivering this work for Derbyshire County Council with Phoenix Gas Services.





Since 2015 Vertas, Concertus Design and Property Consultants, and Opus People Solutions have worked incredibly closely with one another across the public and private sectors. In that time our Group has become one of the largest integrated facilities management companies, which includes property design and specialist recruitment capabilities, in Great Britain. Our range of award-winning services includes everything from cleaning, grounds maintenance and passenger transport to safeguarding training and full property management.

'People' are our focus and we have worked hard to embed our vision, values, and ethos across our businesses, putting employees and clients at the top of our priorities. We aim to make a difference not only to our customers and partners but to the wider community and planet too. The Vertas Group provide solutions which are sustainable, inspirational, and empower current and future generations, which is why our teams have aligned their services to achieve our commitment to become Net Zero by 2030.

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