

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.

The education sector has been slightly ahead of the curve with all new schools and academy builds across Great Britain striving to be Net Zero for several years. It isn't just the target of new builds, but existing schools are also aiming to be Net Zero in their operational energy use.

So, what do we define as a Net Zero building? A Net Zero building is a setting where the total amount of energy used by the building on an annual basis is equal to the amount of renewable energy created, either on or off-site.

In Great Britain, the operation of buildings accounts for around 30 per cent of our emissions, this is made up mostly of electricity, heating, and cooling use. This is where vast improvements can be made. For new buildings, the construction phase can account for up to 50 per cent of the carbon impacts associated with the lifecycle of a building.



What we are doing at Concertus to tackle carbon emissions

We have always taken the approach of Fabric First across our multi-disciplinary consultancy; recommending environmentally friendly and sustainable materials to clients. Our teams work with accredited suppliers to ensure we specify the most updated and current sustainable products. We continuously strive to decarbonise our design solutions and are actively working with Suffolk County Council (SCC), Central Bedfordshire Council, Essex County Council, Academy Trusts, and Diocese Schools to achieve their commitment to become Net Zero by 2030. We have consulted and assisted SCC in their BREEAM strategy, decarbonisation grant application, and the adoption of Passivhaus. We have implemented Passivhaus design on Suffolk Fire Stations, Care Homes, and Corporate Estate Decarbonisation schemes.

A huge amount of resource has been invested into looking at our baseline carbon emissions data, researching what we can do to reduce our carbon emissions over time, and developing a plan of how much of a reduction each activity will result in to ensure this is brought to carbon Net Zero by 2030.

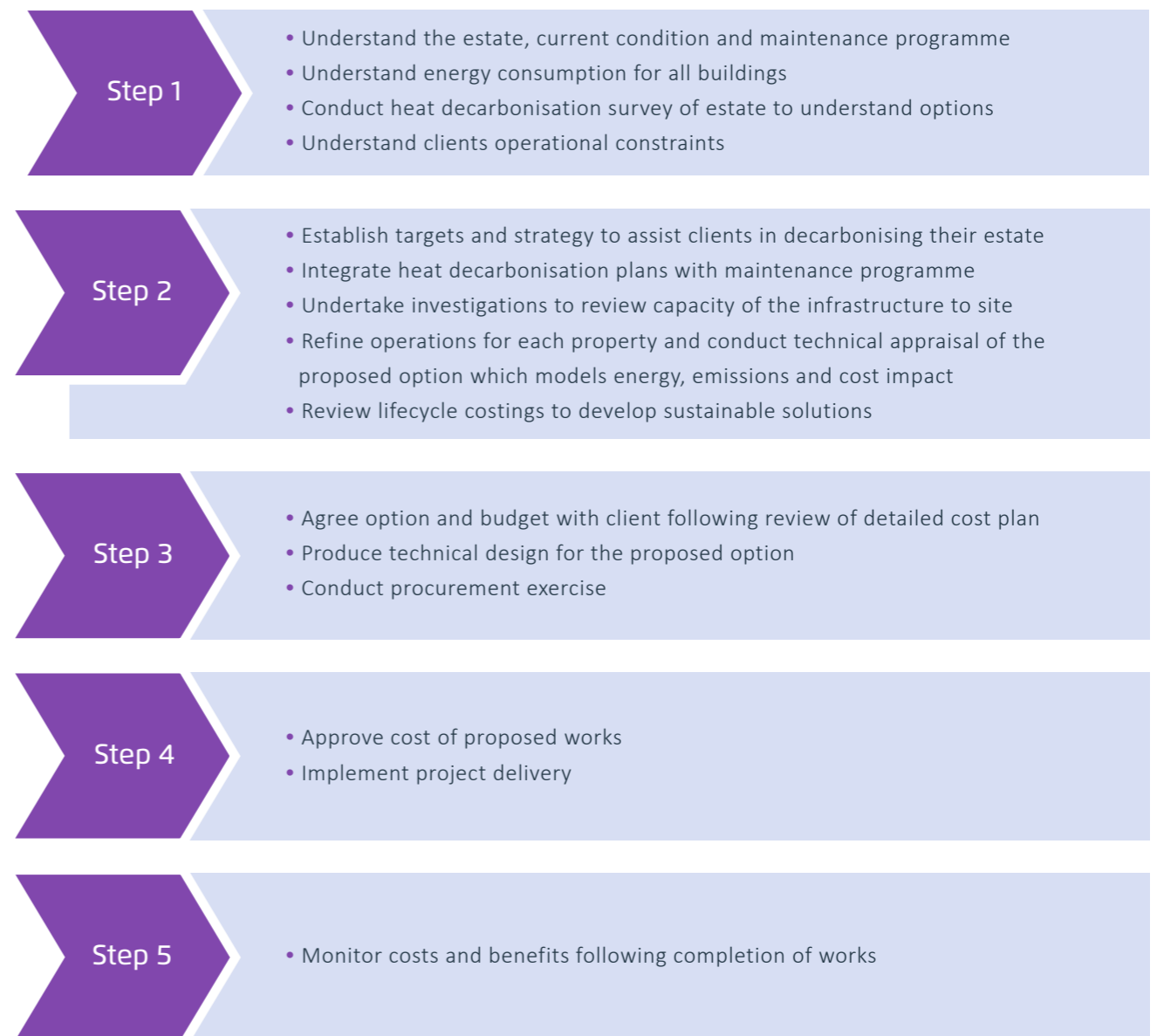
It's not just the work that takes place while on site, we have been accredited with ISO 14001, we develop policies and procedures which aid our environmental awareness and contribution to reducing our impact on the environment. Employees show a passion for reducing our carbon footprint whilst delivering sustainably built environments. They're engaged with our strategy and want to help make a difference within our community and reach our environmental goals. Our offices ensure maximum energy efficiency, and we have a Green Travel Plan. Concertus have also recently been accredited with Carbon Charter Bronze and continuously invest in Net Zero initiatives and employee training surrounding sustainability (including Carbon Literacy courses for our design teams).



How we can help on existing estates

Retrofitting existing schools, sixth forms, colleges, universities, and the other buildings on education estates to make them Net Zero is a key challenge within the industry. As well as undertaking condition surveys of their estate to develop their planned preventative maintenance programme, we have also been undertaking decarbonisation studies to advise our clients on what measures are feasible to implement across their portfolio of properties to aid reducing their energy consumption and carbon reductions. This information feeds into the long-term strategy for the client's estate and helps us to identify areas of efficiency in delivery, where we can address both condition and carbon reduction improvements at the same time.

In summary below are the general steps we are taking in aiding our clients:





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



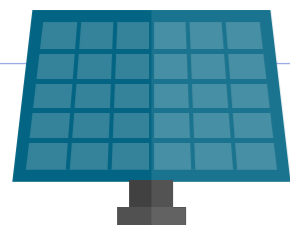
Replacement of fossil fuel heating systems

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



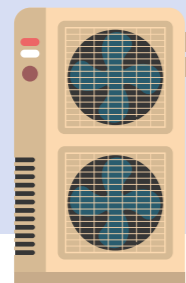
Improvements to existing lighting

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

Waterloo Centre and Leiston Children's Centre, Suffolk

As part of our close working relationship with Suffolk County Council, we were commissioned to work in collaboration with the local authority to develop a comprehensive Energy Management Plan which addressed the authority's entire estate and included their ways of working, aligned with their Net Zero 2030 commitment.

We were appointed to deliver the works and oversee the decarbonisation programme after successfully securing Salix funding for the first round of decarbonisation projects across the County.

We are currently on site at Waterloo Centre and Leiston Children's Centre (former middle school building) with Brooks & Wood Ltd. The installation of a new Ground-Source Heat Pump will replace the existing gas fire boiler plant to each retrospective plant room. The associated plant room adaptations are now underway and fabric upgrades, such as the replacement to the existing single glazed windows and doors to energy efficient double glazing, are due to start in the coming months. Re-roofing works with added thermal insulation are also included for the Waterloo Centre.

The works taking place in this scheme are playing a contributory part in the decarbonisation of Suffolk County Council's Portfolio and helping them to reach their Net Zero targets.



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.




CONTACT US




enquiries@concertus.co.uk



Ipswich Office
2 Friars Bridge Road
Ipswich
Suffolk
IP1 1RR

 01473 316 600

Matlock Office
Chatsworth Hall
Chesterfield Road
Matlock
Derbyshire
DE4 3FW

 01629 818 341



concertus.co.uk

