

How Co2nstruct Zero business champion Tilbury Douglas are delivering low carbon schools and achieving against Co2nstruct Zero's programme priorities.

St Mary's Catholic Voluntary Academy in Derby has been designed and built by Tilbury Douglas as the **UK's most environmentally friendly school**. As a DfE pilot for the country's **first purpose-built biophilic primary school**, the 5-building design focuses on a strong connection of the internal environment with nature, promoting physical and mental health as well as increasing biodiversity through plants and wildlife.

Low carbon heating (Co2nstruct Zero Priority 5)

- ✓ No fossil fuel, all electric design.
- ✓ Air Source Heat Pumps serve radiators, underfloor heating, fan convectors and domestic hot water.

Minimised energy demand (Co2nstructZero Priority 6)

- ✓ Fabric First design, considering orientation and shading with wall U-value 0.15W/m²K and low air permeability.
- ✓ Full height, timber framed, triple glazing to maximise the benefits of natural daylight.
- ✓ Intelligent automated natural cross ventilation technology, with mechanical ventilation and heat recovery.
- ✓ Energy efficient design achieving a predicted energy in use figure of 49 kWh/m²/yr compared with the DfE target of 52 kWh/m²/yr.

Net Zero Carbon in Operation (Co2nstruct Zero Priority 8)

- ✓ 180 kWp solar panel array on roof tops generating sufficient electricity to meet school demand over the course of the year – achieving net zero operational carbon emissions.
- ✓ Enhanced metering enabling detailed Post Occupancy Building Performance Evaluation to optimise operating performance and inform future standards.



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Low embodied carbon (Co2nstruct Zero Priority 9)

- ✓ Modern Methods of Construction exemplar embracing a full digital strategy, enabling hand over to a fast-track programme of just 10 months.
- ✓ Low carbon timber an interlocking load bearing wall and ceiling system comprising Structural Insulated Panels. The panels are manufactured off site, guaranteeing performance in terms of thermal insulation, fire safety and acoustics achieving whole life embodied carbon (A-C) of 390kgCO₂/m² (LETI A Rating).
- ✓ Minimal suspended ceilings or cavity MEP, reducing in-use embodied carbon associated with maintenance.