CASE STUDY

GROUNDBREAKING R&D TO CUT CARBON IN CONCRETE

PROJECT OVERVIEW

Precast is one of the most widely adopted Modern Methods of Construction (MMC), however as a cement-based product, concrete manufacture is a fuel and electro-intensive process, said to be responsible for 4-8% of the world's CO_2 emissions.

Supported by Innovate UK funding, this R&D project built on existing research to find ways to reduce the embodied carbon of precast concrete, crucially applied against a real-world project for the Ministry of Justice.

The team challenged every decision made within design, manufacture and construction, through the lens of carbon, resulting in significant carbon savings. We ensured the solution was also commercially viable and technically ready for adoption by companies across the sector, in the immediate.

Download the full report

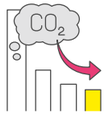
Watch the video

WHAT WE DID

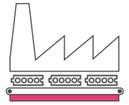
Akerlof led the Innovate UK bid, assembled the partners and managed the project as PMO, working with all external stakeholders, including Innovate UK and the Ministry of Justice.

We established an integrated team from across the value chain, consciously creating an environment for collaboration to ensure that the development of solutions reached beyond respective organisational boundaries, such that all partners were co-responsible for sustainable outcomes.

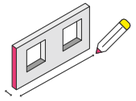
THE IMPACT



Our precast solution achieved a 40% reduction in embodied carbon against industry baselines (ICE database), specifically, saving an estimated 21.8 million $kgC0_2e$ in the construction of 4 new prisons for the Ministry of Justice



Compliance with codes and regulation, having testing within a laboratory and at scale in the manufacturing environment



Optimised solution that eradicated carbon by challenging the Employer's Requirements and balancing reinforcement and concrete strength

Commercially viable option for the market in terms of price, risk and production; technically ready for adoption across multiple sectors

DON'T JUST TAKE OUR WORD FOR IT...

"This study demonstrates how collaboration through the supply chain can bring subject matter experts together to develop innovative solutions for decarbonising. We look forward to embedding such solutions in the MoJ's New Prison Programme."

Gareth Jones, Head of MMC & Technical Services, Ministry of Justice

Property Week interviewed our Partner, John Handscomb on the impact of COVID-19 on the climate emergency and how businesses can prioritise net zero
Read their 'Net Zero needs Concrete Thinking' article

On publishing our report the project was picked up by media around the globe including Sky News
Watch a video of the broadcast

New Civil Engineer covered our achievements in 'UK research team reduces embodied carbon in concrete'
Read the story

GET IN TOUCH

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