Construction Sector Group Publication
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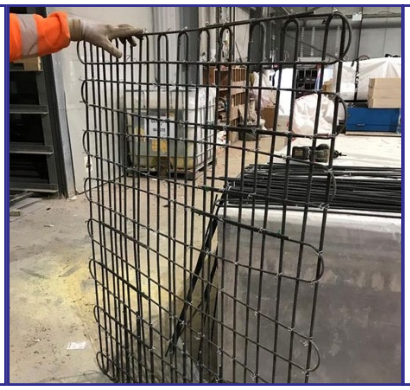
Reduction of Embodied Carbon of Precast Concrete Platform Slabs



Overview	As one of the practical strands of Network Rail's Zero Carbon World initiative this project sought to decarbonise the products on of the standard precast concrete planks used to renew station platforms.
The solution	The new precast units have a minimum thickness varying between 65mm and 100mm. The cement was changed from a CEM 1 to an 80% GGBS and the steel reinforcement replaced with Orlitech mesh with 8mm diameter BFRP sand coated bars allowing the thickness of the units to be reduced. Bond strength to the concrete was an important factor in design and after further research the sand coating, which is applied as a standard to Orlitech bars, was deemed to improve the bond strength by 20%. A combination of measures was used to improve the service life and reduce the embodied carbon of the new units compared with the baseline of the original. These included taking advantage of the high construction tolerances in precasting technology. After a number of iterations the final design reduced the embodied carbon by 68%. Orlimex provided information on embodied carbon with the provision of our 3rd party assessed LCA and EPD (MRPI) which were used in the assessment for carbon reduction in this project.
Client	Network Rail
Precast Concrete	Anderton Concrete
Engineer	Studio One Consulting
Contractor	G-Tech
Innovation Partner	Expedition Engineering
Further details	www.orlitech.co.uk