



Proven Performance

FIBRE REINFORCED CONCRETE FOR LEEDS FREIGHTLINER TRANSPORT HUB

The challenge

The busy Leeds Freightliner container terminal located in the South East of Leeds, is a key part of the regions haulage transport network, with a rail link connecting to the port of Grimsby and links to the motorway network on the nearby M1 and M62. The external concrete pavements on this site are subject to constant traffic and extreme loading, with loading vehicles weighting up to 100 tonnes when carrying a container and daily use by HGV's. A number of sections of the external paving had deteriorated and needed to be replaced. The appointed contractor, Adamco, needed a material and pavement design that would deliver long lasting durability for their client, despite these extreme forces.

Our solution

After discussions with the contractor, the solution proposed was Tarmac's TOPFORCE fibre reinforced concrete with a combination of synthetic macro and micro fibres. Although TOPFORCE concretes can be used instead of conventional steel reinforcement in some applications, in this case it would be used for added durability and crack resistance in a pavement design containing two layers of steel reinforcement mesh within a 300mm slab. The fibres within TOPFORCE provide three-dimensional reinforcement throughout the full depth of the pavement. This delivers improved abrasion, impact and crack resistance and enhanced flexural strength.

Results and benefits

TOPFORCE fibre reinforced concrete was supplied to the site as required to complete a series of pours. By working in stages, the contractor was able to minimise operational disruption for their client. TOPFORCE displays many of the characteristics of a self-compacting concrete, with the free-flowing consistency that allows it to be pumped into place. In this case it allowed the concrete to be placed rapidly, while fully encapsulating the steel reinforcement mesh, eliminate air voids and potential weak points in the pavement. The contractor was able to replace each section of the slab quickly and efficiently in a single day. They were delighted with the outcome and planned to use this on other sites in the future.