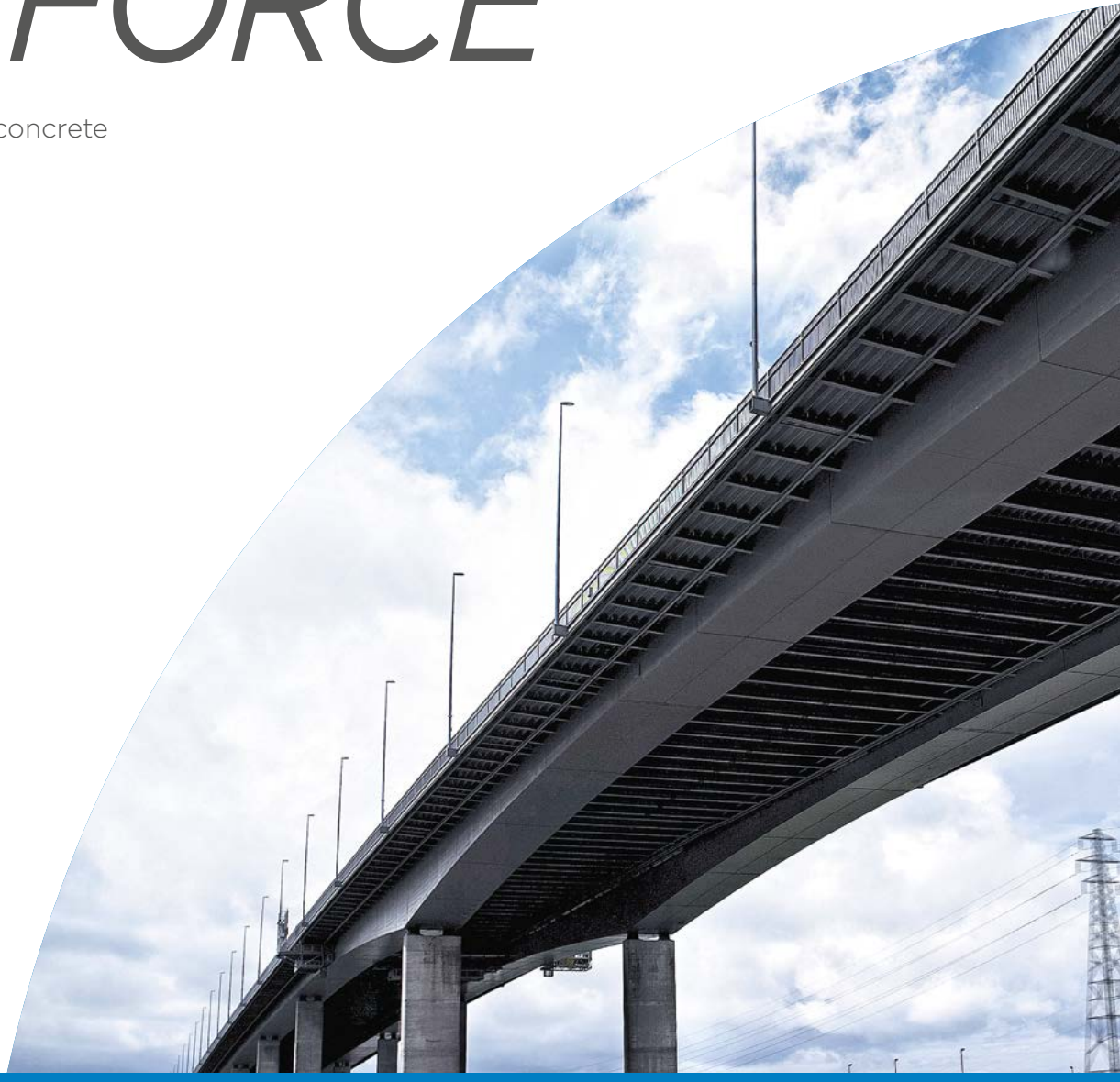
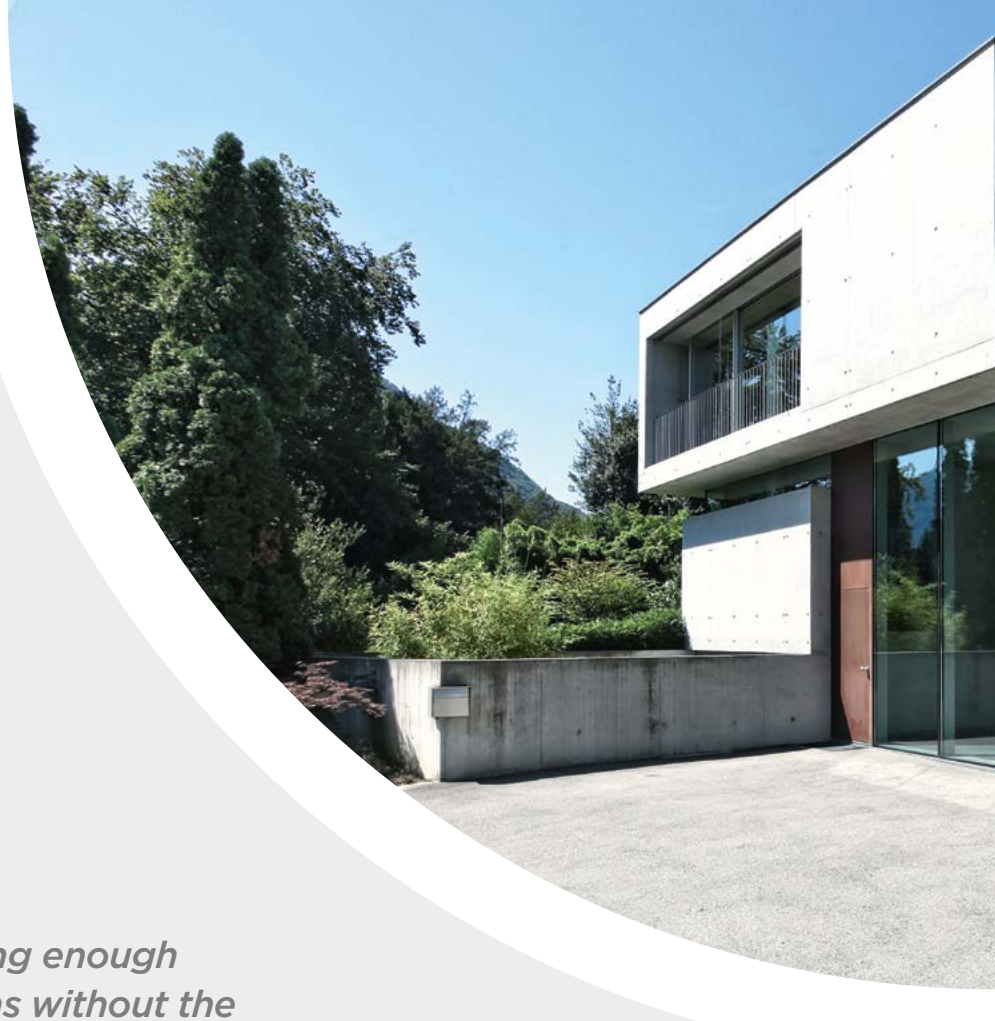
TARMAC
A CRH COMPANY

TOP FORCE

The ideal fibre reinforced concrete





INTRODUCTION

Conventional concrete is not strong enough for many load-bearing applications without the addition of some sort of extra reinforcement.

Traditionally steel has been the material of choice for reinforcing concrete, however the process is time consuming and labour intensive and with metal prices and transportation costs rising it is becoming increasingly expensive.

To meet this challenge Tarmac has created an innovative high performance concrete that eliminates the need for traditional reinforcement.

TOPFORCE is reinforced with either macro synthetic or steel fibres and can be designed to exclude traditional steel reinforcement.

TOPFORCE is not only quicker and easier to place than steel reinforced concrete, it also contributes to the durability and performance of the finished construction.

HOW IT WORKS

TOPFORCE removes the need for crack control fabric reinforcement because it contains specially designed fibres, which are added during the production process using the latest batch control technology.

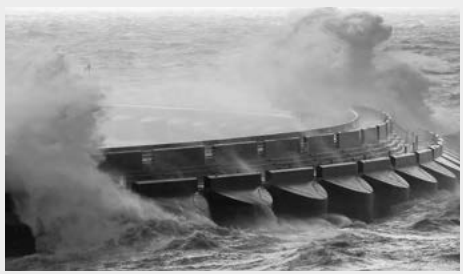
Traditional concrete relies on layers of mesh or bar to provide crack control. To ensure maximum effectiveness this must be placed in exact locations. Even the smallest deviation can result in the concrete being unable to perform to design requirements.

SAVE TIME AND MONEY

TOPFORCE can be designed to replace traditional crack control steel mesh. This results in less labour and heavy machinery on-site and a quicker turnaround.

IMPROVED DURABILITY

TOPFORCE concrete has improved abrasion, impact and corrosion resistance. By including uniformly distributed macro synthetic fibres at the batching stage, TOPFORCE also gives high flexural strength which reduces the risk of drying shrinkage.



Available in two formulations, TOPFORCE can be used for any flooring or hardstanding application that requires the strength and durability of reinforced concrete.

TOPFORCE MF

Reinforced with macro synthetic fibres to deliver reinforcement across a three-dimensional plane to improve:

- Crack control and durability
- Impact and abrasion resistance
- Corrosion resistance

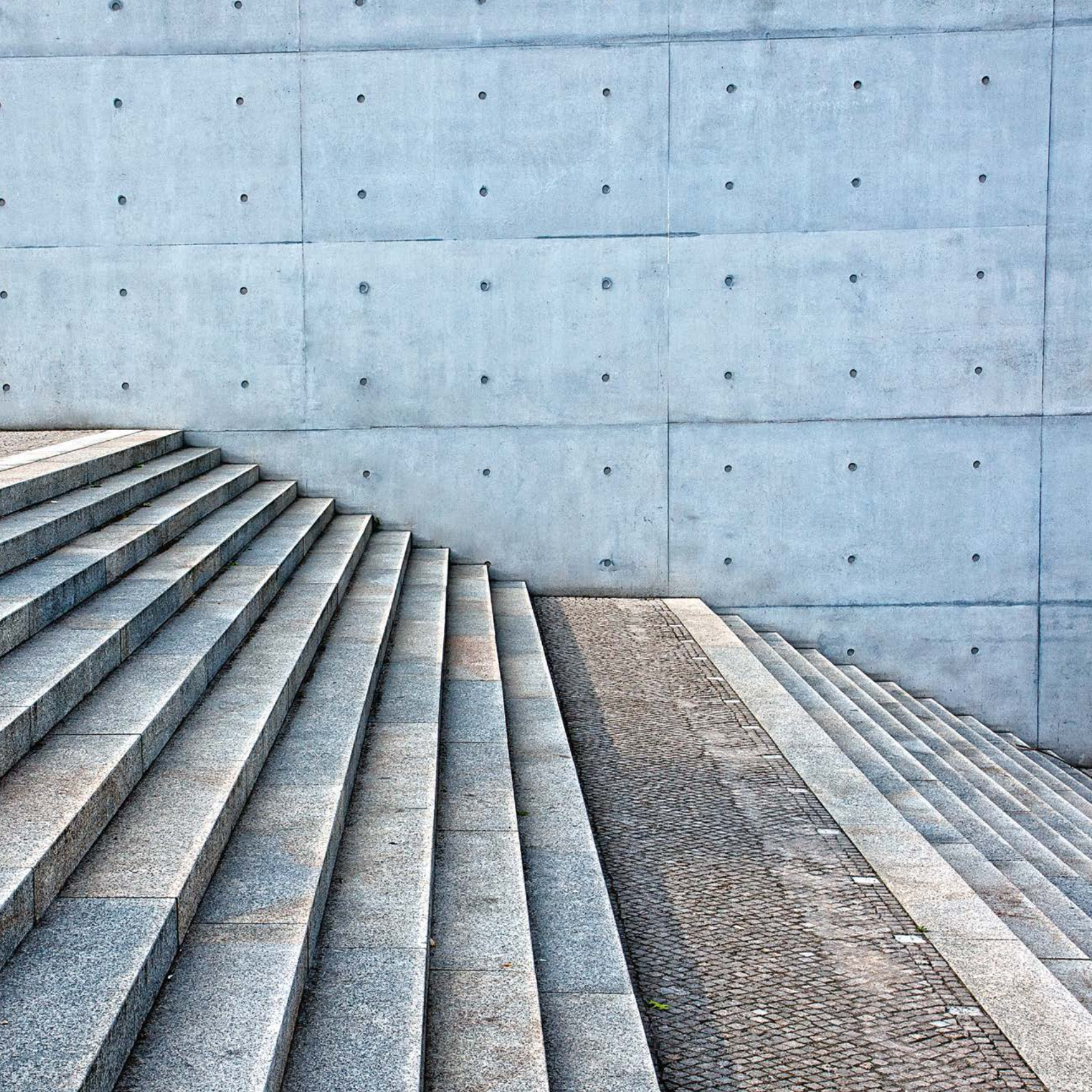
TOPFORCE MF is ideal for all external applications, and can also be designed to include micro polypropylene fibres to further reduce the risk of plastic shrinkage cracking.

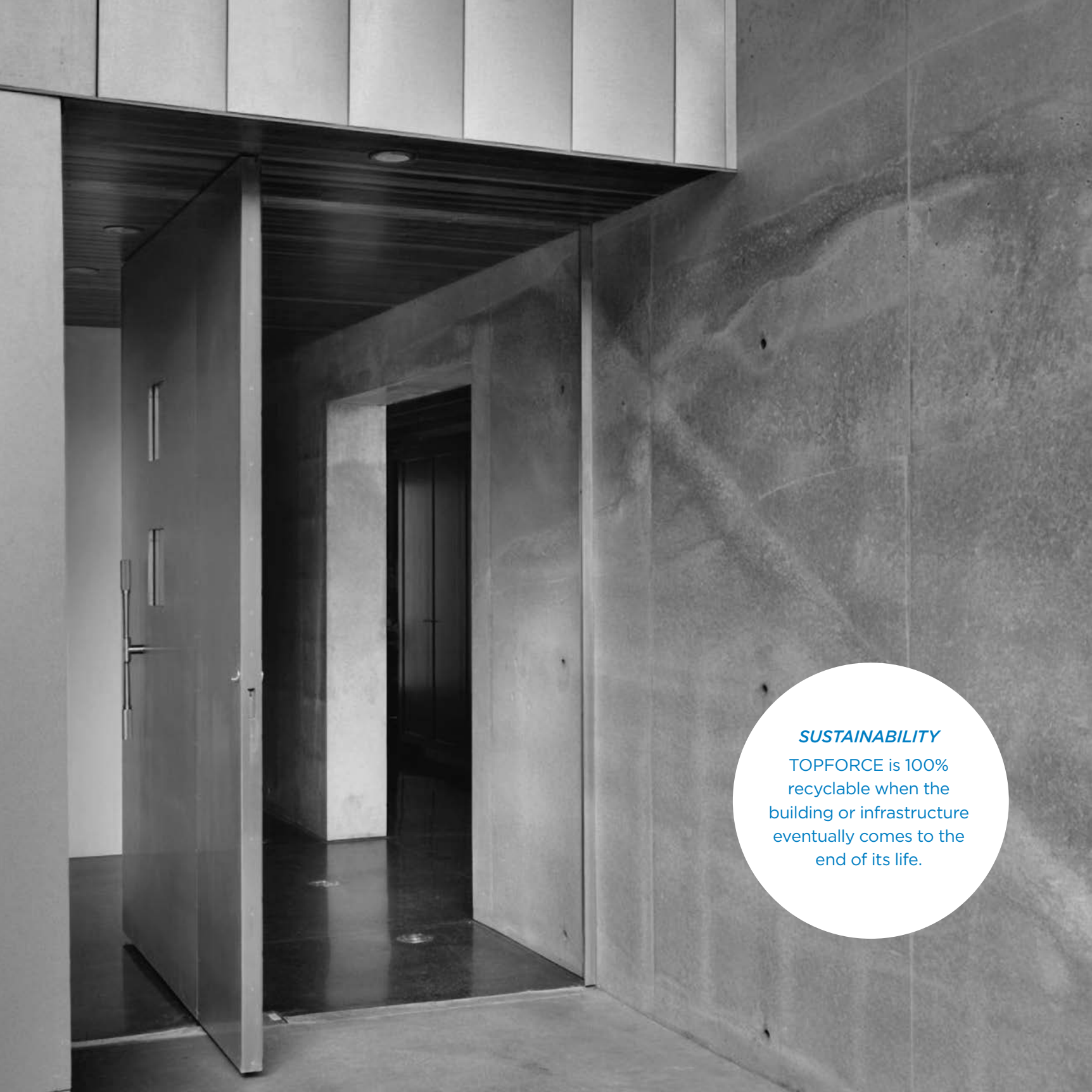
TOPFORCE SF

Reinforced with steel fibres to increase:

- Crack control and durability
- Impact and abrasion resistance
- Optimised joint spacing

TOPFORCE SF is ideal for large area concrete floors, industrial floor slabs or applications expecting high loads. It too can be designed to include micro polypropylene fibres to further reduce the risk of plastic shrinkage cracking.





SUSTAINABILITY

TOPFORCE is 100% recyclable when the building or infrastructure eventually comes to the end of its life.

BENEFITS

When designed, placed, compacted and cured correctly TOPFORCE outperforms conventional concrete on impact resistance, and minimisation of cracking.

FASTER CONSTRUCTION TIME

With a typical saving of one man-day per 100m³, TOPFORCE can reduce construction times significantly. Typically as much as 50 days on a 25,000m² project.

LOWER CONSTRUCTION COSTS

Using TOPFORCE for floor slabs or hardstandings reduces material and labour costs.

LESS DISRUPTION

No steel mesh. No waiting around for deliveries. No need for on-site storage. No need for cranes or heavy lifting gear.

ENHANCED CRACK RESISTANCE

The fibres within TOPFORCE reinforce the full depth of the slab, reducing the risk of drying shrinkage cracking.

REDUCED CARBON EMISSIONS

The carbon footprint of concrete reinforced with macro synthetic fibres is around 60% lower than that of steel reinforced concrete.

IMPROVED SITE SAFETY

Reduces the health and safety hazards associated with placing steel mesh and moving reinforcement bars and fabric around site.

CASE STUDY

ENHANCED ENVIRONMENTAL PERFORMANCE

The carbon footprint of concrete reinforced with macro synthetic fibres is around 60% lower than that of steel reinforced concrete.

Corby Water Treatment Works

Anglian Water

CHALLENGE

Tarmac challenge was to provide a time-effective, cost-effective and sustainable concrete for the Corby water treatment works that would also meet the stringent health and safety targets and carbon saving criteria of the client, Anglian Water.

SOLUTION

After looking in detail at the project's needs, Tarmac recommended the use of TOPFORCE. This avoided the need for steel mesh placement at the site, which would have both slowed down the progress of the project and created more delay due to health and safety issues at the site.

RESULT

Using TOPFORCE at the Corby water treatment plant meant that the project was able to progress smoothly and rapidly to a successful conclusion with minimum disruption, specifically reducing the risk of trips and falls associated with using steel mesh as well as potential injury from off-cuts and sharp edges.

CASE STUDY

SAVINGS

Northumbrian Water saved over £32,000 using TOPFORCE to replace 6,000m² of external paving at its water treatment works.

Water Treatment Plant

Northumbrian Water

CHALLENGE

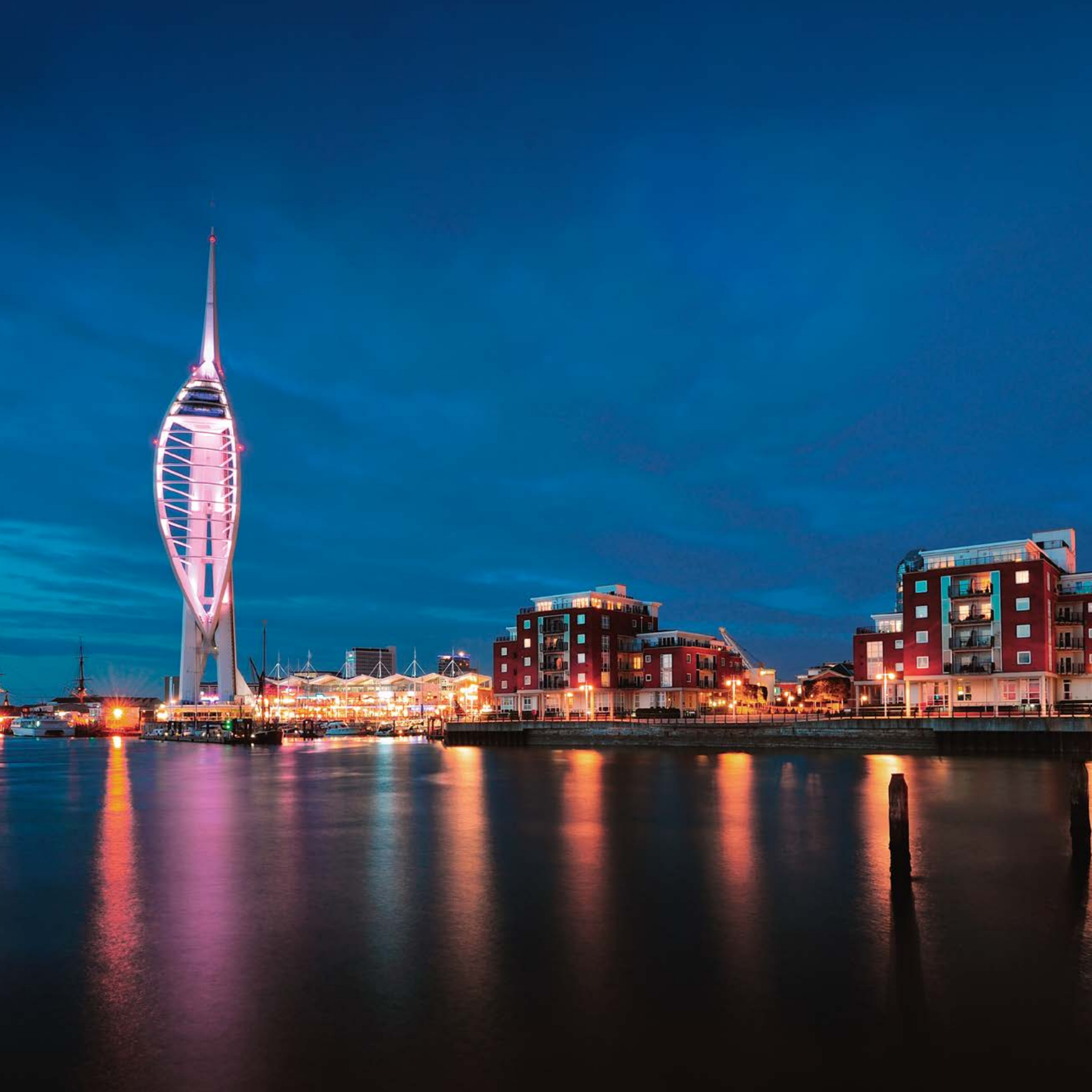
Tarmac was tasked to create a large area of external paving totalling 6,000m² around three water filtration tanks for Northumbria Water. The area was needed to allow the water treatment plant to remain fully operational throughout the project. It was also a heavy use area, meaning a high strength solution was essential.

SOLUTION

Following a thorough assessment of the site, TOPFORCE was chosen. By including uniformly distributed macro polypropylene fibres at the batching stage TOPFORCE gave high levels of flexural strength reducing the risk of drying shrinkage cracks and eliminating the need for manual handling.

RESULT

Utilising TOPFORCE enabled work at the water treatment plant to progress to a successful conclusion with minimum disruption to the plant's operational capability. With no steel fabric 'mesh' reinforcement needed, TOPFORCE helped to minimize the overall labour cost and improve site safety - delivering a more environmentally efficient, tough concrete solution on time and on budget.



FAQs

Why is there no need to use steel fabric reinforcement when you use TOPFORCE?

TOPFORCE is designed with fibres which provide superior performance characteristics to those of steel fabric reinforced concrete. Fibres reduce the risk of drying and plastic shrinkage cracking, and improve both impact and abrasion resistance.

Which applications is TOPFORCE suitable for?

TOPFORCE is suitable for a variety of applications that require reinforcement from industrial floors to sea defence systems, regardless of size.

How much time could I save using TOPFORCE?

TOPFORCE can save a minimum of one man-day per 100m^3, reducing construction time by weeks on larger projects.

What are the potential cost savings?

TOPFORCE reduces material, equipment and labour costs. Typical cost savings on traditional C32/40 projects requiring mesh, crane hire and labour can be £2,000 on 500m^2 or £100,000 on 25,000m^2.

Why is using TOPFORCE better for the environment?

The carbon footprint of concrete reinforced with macro synthetic fibres is around 60% lower than that of steel reinforced concrete.

What is the difference between TOPFORCE MF and TOPFORCE SF?

TOPFORCE MF is reinforced with macro synthetic fibres, TOPFORCE SF is reinforced with steel fibres.

Which TOPFORCE product is best suited to my application?

To specify the correct TOPFORCE product simply contact your local regional office and we will recommend the best solution for your project along with details of how much time, money and carbon you can save.

Can TOPFORCE be specified in small quantities?

Yes. Our national fleet of minimix trucks will deliver small loads direct to site across the UK.

Does TOPFORCE conform with European standards?

TOPFORCE is a high quality fibre reinforced concrete produced in accordance with a quality scheme certified by the British Standards Institution conforming to BS EN ISO 9001. TOPFORCE concretes are produced in conformity to BS EN 206-1/BS 8500-1 through the blending of specially selected materials including:

- Cement/combinations conforming to BS EN 197-1/BS 8500-1
- Aggregate conforming to BS EN 12620 or BS EN 13055-1 as appropriate
- Special high-performance dispersants conforming to BS EN 934-2
- Synthetic or metallic macro fibres conforming to BS EN 14889

MORE ANSWERS

For more information about TOPFORCE contact your local regional office or visit **TARMAC.COM/TOPFORCE**

+44 (0) 800 1 218 218
topforce@tarmac.com

FCC 0383/1215

Portland House Bickenhill Lane
Solihull Birmingham B37 7BQ

0800 1 218 218 **TARMAC.COM**

TARMAC
A CRH COMPANY

MIX
Paper from responsible sources
FSC® C015140
www.fsc.org

10%

WORLD UNREGISTERED TRUST™
www.carbonbalancedpaper.com
CBP0001612003121941