

What is it?

Fortitex™ is a uni-directional, Carbon fibre re-inforcement fabric that offers increased strength of axially loaded concrete structures such as beams, chimneys, bridge piers etc. Fortitex™ has been independently tested in accordance with BS 12390-5:2000 and proven to offer improvements to the flexural strength of concrete elements by 4-5 times the flexural properties of un-reinforced concrete.

Where is it used?

Example applications include, but are by no means limited to:

1. Seismic protection of existing none re-inforced beams and columns.
2. Repairs to structures damaged by impact or fire.
3. Improvements in load bearing capacity of structural members.
4. Restoring the structural integrity of buildings.

Why use it?

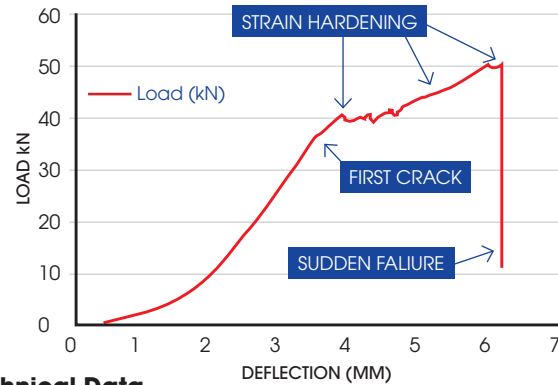
- Fortitex™ is independently proven to offer 4-5 times the flexural strength of concrete beams and load bearing members, this means you are not basing calculations on guess work (See Fig. 1).
- It is very easy to apply and all work can be undertaken on site, without any major disruption to the rest of the building. It is a flexible fabric, so will accommodate natural lumps and bumps.
- Bond strength is critical. We use specially coated Carbon fibre that ensures the bond integrity with the recommended Epoxy based resin system is the best achievable.
- The Carbon fibre is partially spread to ensure uniform performance across the width of the fabric (see Fig. 2)
- It comes in easy to use 300mm wide rolls, meaning it is very easy to handle.

What about the science?

Fortitex™ material was tested independently by Northumbria University, Newcastle-upon-Tyne in the UK. Six concrete beams were cast and after curing, the Fortitex™ was applied and the beams tested in accordance with British Standards Institute, (2000), BS 12390-5:2000, Testing Hardened Concrete - Part 5- Flexural Strength of Test Specimens.

The mean load deflection curve can be seen in Fig. 1 below. Given that typical un-reinforced concrete would typically fail at 10-12kN in the same test, the performance enhancements that can be obtained using Fortitex™ are substantial, especially when considering the strain hardening characteristics exhibited.

Fig.1 Fortitex™ Load Deflection



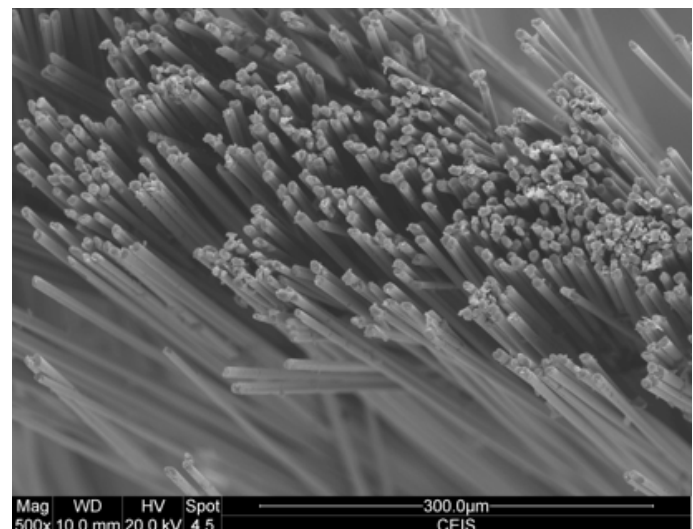
Technical Data

Fortitex™ fabric dry weight	215, 300 or 600g/sqm
Tensile Modulus	240GPa
Elongation	1.6%-1.8%
Fabric width	300mm
Approximate Fabric thickness	1.7mm

N.B.: Adhesive - is needed to bond the carbon fibre to the concrete beam and facilitate the transfer of stress from the concrete component to the external reinforcement. We selected and recommend the use of Sikadur® 30 as a suitable adhesive. It is impermeable to liquid and water vapour and the hardening of it is not affected by high levels of ambient heat and/or humidity, meaning it can be used globally. The Carbon fibre is sized (coated) with a material that improves the bond between the epoxy and the Carbon fibre.

* Sikadur® is a registered trademark of Sika Schweiz AG.

Fig.2 Cross section of the fabric showing uni-directional fibre orientation.



For FREE SAMPLES or to discuss how we can help you or if you have any questions please contact:

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